

VaughnCollege

of aeronautics and technology



Undergraduate Catalog 2022-2024

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Vaughn College
of Aeronautics and Technology

Undergraduate Catalog 2022–2024

The catalog of Vaughn College of Aeronautics and Technology is prepared by the office of marketing and communications in consultation with other departments.

While every effort is made to provide accurate and current information, the College, at its sole discretion, reserves the right to change without notice, statements concerning policies, rules, requirements, procedures, courses, curricula, schedules, activities, tuition, fees and calendars of the College that are set forth in this catalog. Such changes can be of any nature, including, but not limited to, the modification, cancellation or elimination of programs, classes or activities.

Payment of tuition, registration or attendance at any class shall constitute a student's acceptance of the College's rights as set forth above. If you have questions or would like current information, please contact the office of admissions at 718.429.6600, ext. 118.

Vaughn College is committed to a policy of equal treatment and opportunity in every aspect of its relations with its students, faculty, staff, applicants and members of the larger community, including consideration for admission to the College and access to the College's programs, privileges, activities and services without regard to age, citizenship status, disability, marital status, national origin, race, religion, creed, veteran status, gender or sexual orientation.

Inquiries regarding the application of the equal opportunity and nondiscrimination policies and procedures at Vaughn College can be referred to the office of student affairs.

For information on Vaughn's master's degree programs in airport management and aviation management, see the graduate catalog on Vaughn's website.

As with all annual publications, information is subject to change.

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INTRODUCTION TO VAUGHN COLLEGE OF AERONAUTICS AND TECHNOLOGY

BRIEF HISTORY

In 1932, Charles S. “Casey” Jones, a pioneer aviator and aviation company executive, foresaw the need for highly trained technicians to design, build and service aircraft and engines. George A. Vaughn Jr., a World War I flying ace, and Lee D. Warrender, an engineer, joined with Jones in establishing the Casey Jones School of Aeronautics, the predecessor of the Academy of Aeronautics, and in September 1986, the College of Aeronautics.

From 1932 through 1947, the school offered design and maintenance programs, graduating well trained technicians, many of whom went on to secure leadership positions in the aviation and aerospace industries.

From 1941 to 1945, the Casey Jones School of Aeronautics devoted its resources to the nation’s war effort. During World War II, more than 20,000 technicians were trained for the armed forces.

In fall 1964, the Academy of Aeronautics conferred associate in applied science degrees for the first time, and, in 1969, the Academy was accredited by the Middle States Association of Colleges and Schools.

In 1996, the College completely revised its curricula, resulting in nine new academic programs, including for the first time the bachelor of science and an associate degree in flight.

On May 5, 1998, a state-of-the-art, 35,000- square-foot-addition to the building complex was completed. It includes a 65-foot observation tower, providing a spectacular view of the runways at LaGuardia Airport.

In fall 2001, the College created the Aviation Training Institute, from which the aviation maintenance certificate program is offered. It enables students to earn their airframe and powerplant (A&P) certificate in as few as 16 months. Details about the program, along with its major benefits, appear on page 144.

Effective September 1, 2004, the Board of Regents of the state of New York approved the institution changing its name from the College of Aeronautics to Vaughn College of Aeronautics and Technology. Vaughn is a four-year, private institution with bachelor and associate degrees in engineering and technology, aviation and management.

In fall 2007, Vaughn opened its first residence hall with 200 beds. New improvement plans include a new cafeteria, additional degree programs and certificates, and other improvements and additions to the main campus and ATI building. This vision calls for us to provide students with an enriching experience both inside and outside the classroom.

In spring 2008, Vaughn offered its first master of science in airport management—another step forward in implementing Vaughn’s strategic agenda.

What separates Vaughn College from other institutions is our uniquely committed faculty who come to the classroom with extensive experience in such fields as engineering, manufacturing, aviation, management and communications. Working closely with the industries we serve, Vaughn has developed rigorous curricula that incorporate the latest technology as well as the knowledge you need to succeed in your chosen profession.

We provide traditional degrees as well as professional, technical and certification programs that prepare our graduates for successful careers. Most importantly, a degree from Vaughn College provides the critical, analytical and communication skills that form the foundation for a lifetime of success. Our graduates have gone on to become leaders in many major industries. More than 92 percent of our graduates are employed or continue their education, 76 percent in their field of study, within one year of graduation.

VISION AND MISSION

VISION STATEMENT

To change the world one student at a time with a transformational education that creates a lifetime of opportunity.

MISSION STATEMENT

Vaughn College of Aeronautics and Technology is dedicated to providing a dynamic learning environment built on our aeronautical heritage that inspires a diverse and committed community of students to achieve success as leaders in the industries we serve.

CORE VALUES

1. **Demonstrate Integrity:** We pursue our mission following the highest standards of excellence, ethics and mutual trust, and expect everyone to be accountable for their decisions and actions.
2. **Embrace Diversity:** By respecting diversity in all its dimensions, we foster a community that invites and is inclusive of everyone.
3. **Practice Collaboration:** Our culture is driven by a commitment to shared governance, teamwork, communication and collaboration within the institution and in partnership with outside entities.
4. **Achieve Impact:** We are dedicated to providing students an educational experience that will transform their lives and to creating a learning environment for trustees, faculty and staff that nurtures a passion for student success.
5. **Choose Courage:** Leveraging our pioneering aeronautical heritage, we choose to be bold in our decision-making, challenge the status quo, and generate opportunity for future generations.

EDUCATIONAL FACILITIES

CAMPUS LOCATION

Vaughn College of Aeronautics and Technology is located at 86-01 23rd Avenue, Flushing, NY 11369, and the Aviation Training Institute building is located at 43-05 20th Avenue, Astoria, NY 11105. Located in the New York City borough of Queens, the College offers many opportunities to network with an array of technology and aviation companies.

Vaughn College has a six-acre campus and is convenient to major transportation routes. As part of the institution's strategic plan, a 200-bed residential hall has been built, enabling students to live and pursue their chosen field of study on campus.

DISTANCE LEARNING

Vaughn College offers several of its academic and technical courses through distance learning. Vaughn uses cutting-edge technologies to bring the college classroom directly to you. To find out more about distance learning, email admitme@vaughn.edu or call 1.866.6VAUGHN, ext. 118

A Blended Learning Experience

Vaughn maintains partnerships with companies that provide educational benefits to their employees. Students participate in a blended format that combines live video and web conferencing, and the online classroom.

Online Courses for On-Campus Students

Many students want the experience of taking some of their courses online to complement their work schedules. On-campus students at Vaughn can participate in online classes to complete requirements for their degree programs. Virtually all management and aviation courses are available online; several arts and sciences and other elective courses are also available. Students enrolled in an on-campus degree program may not take more than 50 percent of their curriculum in an online/distance-learning class format.

Online/Distance Learning Credit Policy

Students enrolled exclusively in a registered online program can pursue their prescribed program either online, via video and web conferencing, or on campus, with no minimum or maximum number of credits in any one category (while following the degree requirements).

Guidelines for Identity Verification in Distance Learning

Ensuring Student Identity Verification Vaughn College students who register for online classes have a secure ID and password assigned to them by the College that is in compliance with FERPA guidelines. Access to online classes is controlled by the use of the secure ID and password combination. Students present at the College may change their password by logging in to the Vaughn domain with a campus computer; remote students must contact our system administrator to do so.

All credit bearing courses and programs offered through distance learning modalities at Vaughn College verify that a student who registers for a distance learning course or program is the same student who participates in and completes the course or program and receives academic credit through the use of secure login and password.

Students are responsible for providing complete and accurate information in our identity verification process in accordance with the Student Standard of Conduct as outlined in the student handbook administered by the office of student affairs.

Protection of Privacy

The methods and procedures for ensuring student identity in distance learning courses and programs also protect the privacy of personal student information.

The privacy of students who enroll in online courses at Vaughn College is protected under the College's policies regarding student privacy, confidentiality and FERPA rules. These policies are published in the student handbook and on the College's website: <http://bit.ly/VCFERPA2020>

All users of the College's online learning management system are responsible for maintaining the security of user names and passwords. Access credentials may not be shared for any reason or given to anyone other than the user to whom they were assigned. Users are responsible for all uses of their online account. Users are held responsible for knowledge of the information contained within the most recent student handbook, including the statement on proper use and handling of the College's technology. Failure to read the guidelines, requirements and regulations does not exempt the user from responsibility.

Fees Associated with Student Identity Verification

There are currently no fees for maintaining the student identity verification process at Vaughn College. Should such fees be applied, students will be notified of the additional fees prior to and during the registration process.

Any such fees will also be posted in the College catalog and college website.

Unit Responsible for Verification

The office of academic affairs is responsible for the oversight of the student verification process and procedures. College wide compliance is expected within the provision of this practice and department chairs are informed of any and all changes as they are implemented.

Academic chairs are expected to ensure that faculty in their department are aware of the policies and that they remain in compliance. Online course instructors are also responsible to ensure their individual courses comply. The vice president of academic affairs may address noncompliance through performance reviews and other measures as appropriate.

Related College Policies

Proper Use and Handling of the College's Technology
Standards of Student Conduct – Student Handbook

FLIGHT SIMULATOR CENTER

Vaughn's \$1 million flight simulator center includes a Frasca 241, three Redbirds and one CRJ-700 Canadair regional jet trainer. The Redbird FMX is a high-quality, state-of-the-art advanced air training device with an FMX motion platform that manipulates your sense of balance by also simulating 40-degree roll, 50-degree pitch and 60-degree yaw motions. Redbirds have six monitors dedicated to external views for practicing maneuvers. These simulators can be reconfigured to represent most of the airplanes in a training fleet. The advanced software allows the instructor to monitor and control weather conditions and equipment failures. The Redbird has a vast terrain and airport database as well as a unique pilot key system. In addition to the interior controls, adjustable pilot and co-pilot seats and instrument panel lighting, the Redbird's capabilities can be further expanded with additional instrument controls, autopilot buttons, aircraft check lists, and indicators for air speed and altitude monitoring. Currently, Vaughn College's Redbirds can be used in the following training configurations: Cessna 172, traditional and glass cockpit, Piper Seneca and Beechcraft Baron. An additional simulator, a Frasca 241, envelops students in 220 degrees of Tru-Vision Global™ flight. This flight-training device is configured to represent a single-engine Cessna 172 with the Garmin 1000 advanced avionics. These new simulators allow students to practice takeoffs, landings and other flight maneuvers. All four simulators will increase the amount of training each flight student will receive. The Paradigm Regional Jet Trainer offers a precise replica of a CRJ-700 cockpit. A fully enclosed flight deck and 220-degree wraparound visuals immerse a pilot in the training environment.

HANGAR COMPLEX

The hangar complex provides a realistic aviation setting for students to perform hands-on maintenance on a variety of aircraft. The present fleet comprises twin-engine business jets and several twin- and single-engine general aviation aircraft. Turbojet and turboprop aircraft engine theory of operation is further enhanced by the inclusion of three jet engine test cells. The hangar facility is also equipped with paint booth laboratories that are specifically designed to offer hands-on courses in aircraft structures.

INFORMATION TECHNOLOGY SERVICES

Vaughn College has invested significant resources in its computing infrastructure. Network access to computing labs, classrooms, faculty offices and student housing is provided via a high-speed, fiber-optic network backbone, with secure wireless access available in many academic and all residential locations.

All campus computing labs are used for teaching and learning during the day and are available for general student use during non-class hours. All labs are also equipped with high-speed laser printers.

In addition to providing well-connected academic and residential facilities, Vaughn College has also invested heavily in modern instructional technology. Twenty-two classrooms have been equipped with large-screen computer and video projection equipment. While this audiovisual equipment is used to present course content in a digital format in the classroom, the College also provides digital access to course content outside of the classroom using an online learning management system. All of these technologies serve to augment the traditional classroom-based learning approach.

Registered students also have access to student information through the Vaughn Portal at www.vaughn.edu. The portal provides customizable information, a daily campus calendar, as well as news and information.

THE FEDERAL AVIATION ADMINISTRATION (FAA)- AUTHORIZED COMPUTER TEST CENTER

The FAA-Authorized Computer Test Center at Vaughn provides all written examinations offered by the FAA. The Center has eight computer stations available and is capable of handling either same-day registration or testing by appointment. In addition, the written Federal Communications Commission (FCC) commercial license examination, as well as many computer company certification tests can be taken at the center. Test Center Hours: Monday, Wednesday and Friday 9 a.m. to 5 p.m. Test Center times may vary during summer months, please contact Test Center directly for summer hours.

LIBRARY

The Vaughn College Library offers extensive general, technical, resource and periodical material. Physical and virtual resources include books, DVD/Blu-rays, journals, magazines, newspapers, research databases, and streaming media. The available research databases contain full-text magazines, peer-reviewed journals and newspapers. In addition, The Vaughn College Library has an extensive collection of over 200,000 full-text eBooks. All faculty, staff and students can access these databases and eBooks online by using a Vaughn email login and password. Vaughn email accounts are assigned by the IT department. Personal computers, a photocopier, and scanners are available for student use in the library area. There are also virtual flight simulator stations available for student use. For additional information, check out the Vaughn College Library website at <https://www.vaughn.edu/library/>.

FALL AND SPRING LIBRARY HOURS:

Monday and Tuesday

7:30 a.m. to 11 p.m.

Wednesday and Thursday

7:30 a.m. to 9 p.m.

Friday

7:30 a.m. to 6 p.m.

Saturday

8 a.m. to 5 p.m.

Sunday

12 p.m. to 5 p.m.

Summer Library Hours

Monday through Thursday

7:30 a.m. to 7 p.m.

Fridays

7:30 a.m. to 4 p.m.

Saturday and Sunday

10 a.m. to 2 p.m.

ACADEMIC SUCCESS CENTER

The Academic Success Center (ASC) offers a variety of programs that complement the education received within the classroom including the math and writing center, peer tutoring, supplemental instruction, workshops, advisement and testing. It also provides a collaborative area to study. The ASC has operations on the first and second floors of the Library.

Students who are not making satisfactory academic progress are required to use the services of the ASC to incorporate additional academic support into their course schedule as part of a study plan.

For detailed information on these programs and other resources, see page 47.

ENROLLMENT SERVICES

ADMISSIONS

Vaughn College of Aeronautics and Technology offers an equal educational opportunity to all students without regard to age, citizenship status, color, disability, marital status, national origin, race, religion, creed, veteran status, gender or sexual orientation.

Applications for fall freshman admission to all Bachelor of Science programs are due no later than March 1. Applications received after March 1 will be reviewed on a space-available basis. Transfer student applications, as well as all applications for associate degrees, and all applications for January and May admissions are considered on a rolling basis. Applicants for admission must provide:

- Vaughn College admissions application
- An official copy of their high school transcript
- Official college transcript(s), if applicable
- High school diploma or GED with scores

Success in Vaughn's programs depends to a large extent upon the student's commitment and eagerness to learn. The admissions and class placement procedures are designed to assist each student in choosing the course that suits his or her abilities and level of preparedness.

The admissions counseling staff is available to advise applicants and their parents, and to provide up-to-date advisement material to high school guidance offices. Each applicant is evaluated individually and is kept informed about his or her status by admission status notices, which are issued as changes occur. For more information, contact the office of admissions at: 1.866.6VAUGHN (1.866.682.8446), ext. 118.

ADMISSIONS PROCEDURES

APPLICATION STATUS

You may apply for admission with one of the following application statuses and choose to enroll as a full- or part-time student, attending classes during the day, evening, weekends or online.

Please note: Not all degree programs can be completed by attending only during evenings, weekends or online.

ENTRANCE REQUIREMENTS

Minimum requirements include: a high school diploma, General Equivalency Diploma (GED) or equivalent, and proficiency in English as determined by high school transcripts, Scholastic Aptitude Test (SAT), American College Test (ACT) or an English Language Proficiency Exam.

Prospective students who completed secondary education outside of the US may present national school leaving certificates (including: CXC, GCE, “O” and “A” levels, Bagrut, Abitur, IB, Attestat, French Baccalaureate, etc.) for consideration. An evaluation by a NACES-approved agency may be required to determine a foreign credential’s authenticity and equivalency in the US.

Academic and technical aptitudes are required in varying degrees for different programs. In general, Bachelor of Science (BS) and associate in applied science (AAS) courses depend upon academic abilities, and the associate in occupational studies (AOS) focuses more on technical aptitude. All BS applicants who have completed fewer than 24 post-secondary college or university credits must submit results of the SAT or ACT exam. These results must be less than five years old.

Vaughn requires that all applicants take the next-generation ACCUPLACER Assessment Test, which is administered at the College, to determine course placement. (Students who received a score above 500 on the math and/or critical reading section of the SAT reasoning exam, or equivalent score on the ACT exam, are not required to sit for the placement test.) Transfer students with applicable college credit are also exempt from the Accuplacer, as are students in the Aviation Training Institute.

The next-generation ACCUPLACER Assessment Test is an approved Ability to Benefit (ATB) exam and is required for students who do not have a high school diploma or its equivalent from a United States high school and who are seeking financial aid awards under New York State’s Tuition Assistance Program (TAP). Students subject to the ATB exam requirement will be notified by their admissions counselor and referred to the Student Success Center for administration.

Freshman Applicants

Students who have completed or expect to complete a high school diploma, GED or the equivalent of a US high school diploma may apply as freshmen for either the fall, spring or summer semester.

Transfer Applicants

Students, domestic or international, who have completed postsecondary coursework at an accredited college or university, within or outside the US, can apply for either the fall, spring or summer semester, upon completion of secondary school.

Applicants for Readmission

Vaughn College students who have not been in attendance for one semester or more are required to apply for readmission if they have not been maintaining matriculation. Students applying for readmission are expected to state their reasons for leaving the College and why they wish to return. Official transcripts of college-level courses taken during this period of absence from Vaughn must be submitted with the application for readmission. The application for readmission is available in the office of the registrar and must be filed with the office of the registrar. Students can apply for the fall, spring or summer semester.

Non-Matriculated (non-degree) Applicants

Students who may or may not be enrolled at other institutions, but wish to take courses at the College, are welcome to enroll in the spring, summer or fall semester. Such students must meet the minimum requirements for admission.

Applicants to the Bachelor of Science Degree in Aircraft Operations

All students enrolled in Vaughn College's Bachelor of Science program in aircraft operations must complete flight training as part of their degree requirement. Training must be completed with Vaughn's selected partner flight-training provider. The following are required before the first day of the semester:

- 1: Proof of US citizenship in the form of an unexpired US Passport, US Naturalization Certificate, or an ORIGINAL US or Territory Birth Certificate with raised seal. Non-US citizens are required to fill out an application with the Transportation Security Administration (TSA) and receive authorization prior to the first day of class. Students will not be allowed enter the program until clearance is provided. IT MAY TAKE UP TO SIX WEEKS FOR CLEARANCE. Information can be found at www.fts.tsa.dhs.gov. Resident Aliens and students enrolled in the flight program under an F visa should contact our partner flight school for additional information on requirements.
- 2: All students are required to provide an FAA First Class medical.
- 3: All students need to be financially cleared by the Financial Aid Office for FLIGHT TRAINING prior to the start of classes.

Applicants to Academic Certificate Programs

Students who hold at least a high school diploma, GED or equivalent may apply for admission beginning in the spring, summer or fall semester.

Applicants to the ATI Certificate Program

Students who do not hold a high school diploma, GED or equivalent can apply to this program. Students can apply beginning in the spring, summer or fall semester.

APPLICATION PROCESS

Vaughn requires that each applicant submit the appropriate documents listed below. It is your responsibility to ensure that the documents needed to complete your application are submitted in a timely fashion.

Application Fee

A \$40 nonrefundable fee, payable to Vaughn College, in the form of a personal bank check, money order, cash or credit card, is required of each applicant. This fee may be waived with an official fee waiver from your school's college or transfer adviser. Cash, check or credit card payments may be made in person. Credit card payments may also be made via telephone or online at www.vaughn.edu.

TRANSCRIPTS**High School Transcripts**

A record of all work completed at the time of application is required. For students with international credentials, this report should include National Association of Credential Evaluation Services (NACES) evaluated certified records of any national examinations required for completion of secondary education (e.g., CXC, GCE "O" and "A" level, IB, French Baccalaureate, Maturita, Bagrut, Abitur, etc.) outside the US.

Mid-Year Grades

First-semester senior-year grades can be important to the admissions or scholarship decision.

Please ask your guidance office to submit them once they are available.

Final Transcripts

All offers of admission made by Vaughn are contingent upon receipt and review of final high school transcripts, including evidence that you completed your secondary education and graduated, as well as appropriate immunizations as required by New York state.

College Transcripts

College transcripts are required of all applicants who are seeking transfer credit for work completed at another regionally accredited college or university. Official transcripts noting any coursework from each institution you attended must be filed with the office of admissions. Transfer students who have completed their education in the US and have earned in excess of 24 semester hours of credit following completion of the high school diploma are not required to submit high school transcripts, but must submit proof of high school graduation (in the form of a final high school transcript, diploma or GED certificate).

International students, or students who attended college outside the US must submit their transcripts for evaluation to any National Association of Credential Evaluation Services (NACES) approved organization. The evaluations must then be forwarded to the office of admissions. Only NACES approved organization evaluations of college-level credit will be accepted when considering college transfer credit. The evaluation agency must indicate that the institution has accreditation equivalent to that of institutions recognized as accredited by the United States Department of Education. English-language translations are not sufficient.

Advanced Standing

Vaughn also accepts Advanced Placement (AP) and Credit by Examination, such as the College Level Examination Program (CLEP). College credit can be granted for AP scores of three or higher. College credit is granted for satisfactory CLEP scores for courses offered at the College. Granting of college credit for satisfactory AP and CLEP scores is subject to review from the appropriate academic departments. Students seeking advanced standing credit based on these exams must submit official score reports to the office of admissions. The CLEP credits may only be used for advanced standing at the time of admission to Vaughn College.

Letters of Recommendation

Though not required, letters of recommendation can add to the strength of any application, especially in the scholarship review process.

Standardized Tests

Official results of the SAT or the ACT are required for students applying to all bachelor's degree programs. Students who have completed 24 or more post-secondary credits are not required to submit standardized exam results.

You must arrange to have the College Entrance Examination Board (CEEB) or the ACT program send a copy of all test scores to the office of admissions at the College. Vaughn College's CEEB code is 2001; the ACT code is 2699.

Interviews

Both an admissions and a financial aid interview are strongly recommended for all applicants to the aircraft operations (flight) degree program. While personal interviews are not required for admission to other degree programs, they are also recommended.

Application Deadlines

Applications for fall freshman admission to all bachelor of science programs are due no later than March

1. Applications received after March 1 will be reviewed on a space-available basis. Transfer student applications, as well as all applications for associate degrees, and all applications for January and May admissions are considered on a rolling basis.

All applicants are encouraged to file by March 1 for fall and November 15 for spring to take advantage of scholarship opportunities.

Additional Information - Test Optional Guidance

Vaughn typically requires that all applicants for a bachelor of science degree must submit SAT or ACT test scores. In lieu of those scores, applicants will take a Vaughn-administered assessment test to determine their program acceptance and course placement for 2021-2022 academic year.

HIGH SCHOOL EQUIVALENCY CERTIFICATE

Admission to Vaughn College is open to high school graduates, holders of a New York State General Equivalency Diploma (GED) and, in some cases, those who qualify for the Equivalency Diploma upon completion of 24 collegiate credits. Applicants to all bachelor of science (BS) programs holding a GED must score 700 or higher to be eligible for admission. Those applicants who do not score 700 or higher will be referred to the College's associate in applied science (AAS) programs and may be eligible to transfer to the BS programs after a full year of study.

In order to receive a high school equivalency diploma through New York State's Ability to Benefit program, candidates must provide satisfactory evidence that they have successfully completed 24 credits (semester hours) or the equivalent as a recognized candidate for a college-level degree or certificate at an approved institution.

Effective September 1, 2000, the 24 credits shall be distributed as follows: six credits in English language arts, including writing, speaking and reading (literature); six credits in mathematics; three credits in natural science; three credits in social science; three credits in humanities; and three credits in career and technical education and/or foreign languages. Prospective students without a high school diploma or GED may work toward their GED at Vaughn College by completing the above-mentioned 24 credits. However, those students must first pass the College's Ability to Benefit exam. Students interested in this option should contact the office of admissions.

INTERNATIONAL STUDENT APPLICANTS

International applicants should visit the international student section of Vaughn's website, www.vaughn.edu, to read and download the latest information and forms. The International Application Supplement and Instructions should be the first document you review. Applicants who have completed their secondary education in other countries are required to submit NACES evaluated copies of their records, in English. A fluent use of English, both written and spoken, is required and must be substantiated in one of the following ways:

1. An English Proficiency Certificate from an acceptable agency (e.g., the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS)).
2. The completion of the equivalent of four American secondary school units in formal English instruction.

3. Students transferring from other American institutions must submit credentials that describe the admissions action and their academic progress at that institution.

Vaughn College reserves the right to require a student educated in another country to complete additional instruction in English if his/her performance so indicates. Citizens of other countries who plan to study under F-1 visa regulations may be accepted only for full-time study, must have sufficient financial resources to fund their education without working in the US and must comply with F-1 visa requirements. The American Consulate in the prospective student's home country should be contacted regarding financial assistance programs available through governmental agencies.

The application for admission (with the required \$40 US fee), as well as the international application supplement, is to be filed at least 90 days before the start of the academic semester for which you are enrolling. The office of admissions will not review any international application submitted without the appropriate application fee.

ENGLISH LANGUAGE PROFICIENCY EXAMS

Official results of the Test of English as a Foreign Language (TOEFL) must be submitted by all applicants from countries where English is not the official language of instruction. A minimum score of 77 on the internet-based format is required for admission. We also accept the English Language Testing System (IELTS) overall band score 6. Students who fall below this range will be required to complete an intensive English language program.

Information about any of the tests listed can be obtained through your secondary school or by visiting:

For TOEFL: www.ets.org
Educational Testing Service

For IELTS: www.ielts.org

The director of admissions may allow international applicants to substitute results from generally accepted tests of English aptitude other than the TOEFL and IELTS exams.

All Bachelor of Science Aircraft Operations Pilot License students are required by the FAA to be proficient in English for their flight training.

International Applicants' Affidavit of Support

In order to receive an I-20 form issued by the College, international students must provide a duly signed and notarized Affidavit of Support that shows there is adequate financial support to finance your education at Vaughn. This affidavit of support is part of the international application supplement. Students who will receive an offer of free room and board must follow the instructions listed in the College's international application supplement. For up-to-date, detailed information regarding acceptable proof of a student's or sponsor's ability to contribute financial support, consult Vaughn College's international application supplement available on our institution's international admissions website.

All credentials must be in English. All translations must be certified and accompanied by notarized copies of the original document(s). Mail application, supporting documents, fees and scores to:

Vaughn College of Aeronautics and Technology
Office of International Admissions
86-01 23rd Avenue
Flushing, NY 11369

FINANCES FOR INTERNATIONAL STUDENTS

All financial arrangements must be completed before departing for the US. Students who transfer to Vaughn from other institutions must file evidence of financial support directly with the admissions office.

An international student accepted for admission is required to submit a nonrefundable tuition deposit of \$600 US to reserve a place among the entering class. Once the affidavit of support and other proof of financial ability have been received, the College will issue a completed certificate of eligibility (Form I-20) to the student. This certificate must be presented to an American Consulate in order to obtain the student classification F visa.

First-year international students must pay tuition and fees in full by the first day of the semester. In subsequent years, they are permitted to participate in the College's deferred payment plan. Students who fail to regularly meet their financial commitment after joining a payment plan will be immediately removed from the program.

Students with F visas who transfer from other American institutions should notify Vaughn's admissions office of this change upon applying. The College then will assist these students in processing the required government notification.

VETERAN APPLICANTS

Vaughn may grant college credits for technical training obtained in the military. The applicant must request proper documentation from his or her branch of the service, including Form DD214.

A visit to the local Federal Aviation Administration's (FAA) Flight Standards District Office (FSDO) may provide certification to take FAA examinations.

All courses at the College are approved for educational benefits to eligible veterans. The financial aid office will assist veterans in preparing the documents required to obtain financial assistance to eligible children of deceased or disabled veterans and to survivors of veterans.

STUDENTS WITH DISABILITIES

While Vaughn does not make any preadmission inquiries about disabilities, applicants who require accommodations due to a disability are encouraged to confer with the admissions office after they receive notification of acceptance.

Students may also self-identify through the disability's coordinator at a later date. The Title 504 and Americans with Disabilities Act compliance officer at the College is Executive Director of the Academic Success Center Mr. Frank Wang, can be reached at frank.wang@vaughn.edu or the Vaughn Zoom Front Desk: 989-7485-1705. Federal Aviation Administration (FAA) testing is not controlled by Vaughn College. Applicants with disabilities should be aware that accommodation requests for FAA examinations may not be permitted.

FINANCIAL AID INFORMATION

Vaughn College provides financial aid packages, which may include scholarships, grants, loans and work study, to students with strong academic records and/or demonstrated need. Counseling and assistance is available at the financial aid office. Financial information is kept confidential to the extent possible.

Applicants for financial aid must complete the Free Application for Federal Student Aid (FAFSA) and a New York State Tuition Assistance Program (TAP) application, if appropriate.

Need-based financial aid is determined by a variety of factors such as income, assets, family size and other family information. Every applicant has unique circumstances, and the financial aid office is committed to helping students and their parents through the process. It is strongly recommended that students file for financial assistance as early in the year prior to enrollment as possible. Merit-based financial aid is based solely on each students' previous academic success and standardized test scores.

Financial aid eligibility requires that the student maintain satisfactory academic progress and program pursuit after enrolling.

FINANCIAL AID PROCESS

The first step in the financial aid process, after applying for admission, is filing the Free Application for Federal Student Aid (FAFSA) and the New York State Tuition Assistance Program (TAP) application, if you are a state resident. Applications should be filed as soon as possible because processing can take up to eight weeks.

School Federal Code: 002665

School NYS TAP code: 002235

Financial aid advisers are available to assist you in making the process as simple as possible. You may visit the financial aid office for help with completing forms or to develop a plan to help you pay for college.

For more information on financial aid, call 1.866.6VAUGHN, ext. 100 or join the Zoom Room at 678 686 441.

All Bachelor of Science – Aircraft Operations – Pilot License students are required to have their financial aid for flight which is separate from the academic program approved and in place by the first day of class.

CONSOLIDATION LOANS

Consolidation loans combine several student or parent loans into one bigger loan from a single servicer, which is then used to pay off the balances on the other loans. It is very similar to refinancing a mortgage. Consolidation loans are available for most federal loans, including Federal Direct loans, Health Professional Student Loans, NSL, HEAL, Guaranteed Student Loans and direct loans. Some lenders offer consolidation for private education loans as well.

Students can consolidate their loans with the US Department of Education's Federal Direct Loan Consolidation program at www.studentaid.gov

ELIGIBILITY FOR NEED-BASED FEDERAL AID

In order to qualify for federal financial aid, you must meet the following requirements:

- Be a US citizen or eligible noncitizen
- Be formally accepted by Vaughn College as a degree candidate
- Maintain satisfactory academic progress
- Owe no refund on any Title IV funds or be in default on a student loan
- Have a high school diploma or GED certificate

GOVERNMENT GRANTS AND LOANS

FEDERAL PELL GRANT

This is a grant provided by the federal government to matriculated students who meet the financial need requirements, are in good academic standing and are making satisfactory academic progress.

Award range depending on enrollment status and federal funding for the program.

Note: Students pursuing a second bachelor's degree are not eligible to receive a Pell Grant award.

FEDERAL SUPPLEMENTAL EDUCATIONAL OPPORTUNITY GRANT (SEOG)

This grant is awarded to students with **high exceptional** financial need as determined by the financial aid office. To receive an SEOG grant, students must be Pell recipients. Priority is given to students with the lowest eligibility index. A student must be enrolled full time in order to receive SEOG.

Award range: \$400 to \$4,000

FEDERAL WORK STUDY (FWS)

Federal Work Study (FWS) provides part-time jobs to undergraduate and graduate students with financial need, allowing them to earn money to help pay for education expenses. The program encourages community service work and work related to the recipient's course of study.

Undergraduate students are paid by the hour. No FWS student can be paid by commission or fee. The College must pay students directly (unless directed otherwise) and at least on a monthly basis. Wages for the program must at least equal the current federal minimum wage but might be higher, depending on the type of work the student performs and the skills required. The amount earned cannot exceed the total FWS award. When assigning work hours, the employer and financial aid counselor will consider the student's award amount, his/her class schedule and the student's academic progress. Students must maintain a cumulative grade point average of at least 2.3.

FEDERAL DIRECT LOAN PROGRAMS

DIRECT SUBSIDIZED LOANS

Direct subsidized loans are for students who have demonstrated financial need. Applicants must be in attendance at least part time (six credits); be in good academic standing and maintain satisfactory progress toward their degree.

The federal government subsidizes these loans, so the loans do not accumulate any interest until the students begin repayment. Subsidized student loans are basically interest-free loans that are backed by the federal government, which means no interest accumulates until repayment begins.

An origination fee is deducted from the loan by the government. A loan cannot exceed the cost of education minus the expected family contribution (EFC) and other financial aid. For first-time borrowers, the loan proceeds cannot be disbursed until 30 days after the first day of class.

The interest rate is adjusted each year on July 1. Students will be notified of interest rate changes throughout the life of their loans. Loan repayment begins six months after the student is no longer in attendance, or if the student falls below six credits per semester or the student graduates. Borrowers can take up to 10 years to repay the loan.

DIRECT UNSUBSIDIZED LOANS

Financial need does not have to be demonstrated for this loan. Interest accrues from disbursement of funds until the loan is paid in full. A borrower can choose either to pay the interest or allow it to accumulate until repayment begins. The government guarantees the loan, but does not subsidize the interest, which means the government does not pay the interest while the student is in school.

Applicants must be in attendance at least part-time (six credits), be in good academic standing and maintain satisfactory progress toward their degree. An origination fee is deducted from the loan by the government. A loan cannot exceed the cost of education minus other financial aid. For first-time borrowers, the loan proceeds cannot be disbursed until 30 days after the first day of class.

DIRECT PARENT PLUS LOANS

The Direct Parent PLUS loan is available to help parents meet the cost of their child's college education expenses not covered by grants or loans directly to students at Vaughn. The most common use of a Parent Plus Loan is to cover the cost of on-campus housing, and flying lessons for aircraft operations majors. Parents can apply for a Direct Parent PLUS loan up to the cost of attendance, including flying lessons, less all other aid. The Parent PLUS is a government-backed, no-collateral-required loan available to parents of dependent undergraduate students. The Parent PLUS loan is not need-based but requires credit approval. Repayment of the Parent PLUS loan begins 60 days after the second disbursement has been sent to the College or if the parent chooses, it can be deferred until student graduates or drops

below 6 credits. Parents interested in applying for a PLUS loan may do so by logging in with their parent FSA ID on www.studentaid.gov. Borrowers whose Direct PLUS loan credit checks are processed on or after March 29, 2015 and who are denied based on adverse credit history can secure an approved endorser. The endorser is subject to, and must pass, the same credit check as the applicant and the borrower can successfully appeal on extenuating circumstances. In both cases, the applicant will be required to complete PLUS counseling. PLUS counseling must be completed before disbursement of the Direct PLUS loan funds. A completed PLUS counseling session remains valid for the duration of the associated credit check. Parent borrowers and endorsers can complete the Direct PLUS loan application and counseling session by logging on to www.studentaid.gov. If a student's parent is denied a PLUS loan and cannot obtain an endorser, the student is eligible to receive additional unsubsidized loan amount up to \$5000 per year.

The interest rates on existing variable rate Direct and PLUS loans will continue to change annually on July 1, based on the last 91-day T-bill auction in May. Borrowers can lock in the current rate on their variable rate loans by consolidating them. Borrowers can compare the current and new rates between the end of May and the end of June to decide whether it is worthwhile to consolidate before or after the rate change.

Interest Rates for Direct Loans First Disbursed on or After July 1, 2022, and Before July 1, 2023

Loan Type	Borrower Type	Fixed Interest Rate
Direct Subsidized Loans and Direct Unsubsidized Loans	Undergraduate	4.99%
Direct Unsubsidized Loans	Graduate or Professional	6.54%
Direct PLUS Loans	Parents and Graduate or Professional Students	7.54%

All interest rates shown in the chart above are fixed rates. A fixed rate will not change for the life of the loan.

	Dependent Undergraduate Student	Dependent Undergraduate Student with a Parent PLUS loan denial*	Independent Undergraduate Student
First Year (0-29 Credits)	\$5,500 A maximum of \$3,500 may be subsidized	\$9,500 A maximum of \$3,500 may be subsidized	\$9,500 A maximum of \$3,500 may be subsidized
Second Year (30-59 Credits)	\$6,500 A maximum of \$4,500 may be subsidized	\$10,500 A maximum of \$4,500 may be subsidized	\$10,500 A maximum of \$4,500 may be subsidized
Third, Fourth, and Fifth Year (59 + Credits) (Bachelor's Degree Only)	\$7,500 A maximum of \$5,500 may be subsidized	\$12,500 A maximum of \$5,500 may be subsidized	\$12,500 A maximum of \$5,500 may be subsidized
Career Maximum Loan Amounts	\$31,000 A maximum of \$23,000 can be subsidized	\$57,500 A maximum of \$23,000 can be subsidized	\$57,500 A maximum of \$23,000 can be subsidized

The chart below shows the loan fees for Direct Subsidized Loans, Direct Unsubsidized Loans, and Direct PLUS Loans first disbursed on or after Oct. 1, 2019.

Loan Fees for Direct Subsidized Loans and Direct Unsubsidized Loans

Loan Fees for Direct Subsidized Loans and Direct Unsubsidized Loans

First Disbursement Date	Loan Fee
On or after 10/1/20 and before 10/1/23	1.057%
On or after 10/1/19 and before 10/1/20	1.059%

Loan Fees for Direct PLUS Loans

First Disbursement Date	Loan Fee
On or after 10/1/20 and before 10/1/23	4.228%
On or after 10/1/19 and before 10/1/20	4.236%

More information about direct loans can be found at www.studentaid.gov or visit the Vaughn College Financial Aid Office.

Dependent Students	Combined Base Limit for Subsidized and Unsubsidized Loans	Additional Limit for Unsubsidized Loans	Total Limit for Unsubsidized Loans (minus subsidized amounts)
First-Year Undergraduate (Freshman)	\$3,500	\$2,000	\$5,500
Second-Year Undergraduate (Sophomore)	\$4,500	\$2,000	\$6,500
Third-Year and Beyond Undergraduate (Junior, Senior)	\$5,500	\$2,000	\$7,500

SATISFACTORY PROGRESS STANDARD FOR TITLE IV FEDERAL STUDENT ASSISTANCE

Satisfactory Academic Progress (SAP) is defined as the successful completion of coursework toward an eligible certificate or degree. Federal regulations require the office of student financial aid to monitor the academic progress of students receiving financial aid.

SAP STANDARDS

- Apply to undergraduate and graduate students who wish to establish or maintain financial aid eligibility,
- Apply to a student's entire academic record, whether or not financial aid was received for prior terms of enrollment,
- Include a minimum grade point average, minimum pace requirement, and total number of semester hours earned and/or semesters enrolled, and
- Do not apply to students enrolled in the College's eligible certificate programs whose academic progress is monitored by the programs.

SAP ELIGIBILITY REVIEW

Students' academic records are reviewed at the end of the spring semester to determine compliance with the SAP standards. SAP review includes all terms of the student's attendance, including summer terms. Students who lose financial aid eligibility due to not meeting SAP requirements may:

- Earn the necessary GPA or semester hours to meet the minimum requirements while not receiving federal financial aid
- Submit a SAP Appeal Form
- A full-time student (enrolled in 12 or more credits) must pass at least six credits.
- A Three-Quarter-Time student (enrolled in 7 to 11 credits) must pass at least four credits.

ANY TERM FOR WHICH A STUDENT RECEIVES ZERO ACADEMIC CREDITS (TOTAL WITHDRAWAL, TOTAL FAILURE OR A COMBINATION OF BOTH) WILL RESULT IN THE STUDENT IMMEDIATELY BEING PLACED IN SAP WARNING FOR THE FOLLOWING SEMESTER.

Federal regulations require the College to establish and apply reasonable standards of Satisfactory Academic Progress for the purpose of the receipt of financial assistance under the programs authorized by Title IV of the Higher Education Act. The programs subject to this rule include but are not limited to: Federal Pell Grant, Federal Supplemental Educational Opportunity Grant, Federal Work-Study and Federal Direct Loans (Subsidized and Unsubsidized), and Federal PLUS (Parent) loans, and some state and institutional aid.

Failure to meet the requirements listed below will result in the suspension of financial aid eligibility.

Financial Aid Satisfactory Academic Progress is reviewed at least annually and at the end of the spring term for programs of study longer than one year. Students admitted to a program of study that is less than one year in length will be evaluated at the end of every term. All periods of the student's enrollment are counted, including periods in which the student did not receive federal financial aid. Transfer credit hours will also be counted for determining the number of credits the College accepts toward the student's degree or eligible certificate program.

The Satisfactory Academic Progress policy includes two components:

QUALITATIVE (GPA) – The qualitative standards consist of the grade point average necessary to meet academic progress towards program completion. The chart below shows the required minimum GPA based on the total annual credits attempted (follows the College grading policy for courses taken/retaken within the SAP calculation threshold at the end of the spring term).

Minimum GPA – To be in good academic standing you must earn a minimum GPA based on attempted credits, at the end of the academic award year, as follows:

<u>Credit Hours Attempted</u>	<u>Required Cumulative GPA</u>
1-14.9	0.75 or greater
15-29.9	1.5 or greater
30-44.9	1.8 or greater
45 or more	2.0 or greater

QUANTITATIVE STANDARDS (Completion Rate and Maximum Time Frame) – The quantitative standards measure the completion rate as well as the total courses attempted overall. You must complete a percentage of all courses attempted and your financial aid eligibility is limited to 150% of the credits required to complete a degree.

Credit Hour Completion Rate (67% Rule) - You must successfully complete a percentage of all attempted credits each academic year. The chart below shows how the credit hours attempted are measured to determine Completion Rate (attempted credits X 67% = required credits) and the required completion rate at the end of each academic year:

Credit Hour Completion Rate Example:

	Fall Semester		Spring Semester		Total
Credits Completed	6	+	10	=	16
Credits Attempted	12	+	12	=	24

$$16 / 24 = .67 (67\%)$$

Required Completion Rate at the end of each Academic Year:

<u>Attempted</u> Credits	Pace
1-14.9	23%
15-29.9	37%
30-44.9	53%
45 or more	67%

*Programs 2 years or less must meet the minimal PACE requirements of 67% at the end of the first year.

Maximum Time Frame - The maximum time frame for students to complete their academic program may not exceed 150% of the published length of the program, measured in academic years. For example, if the length of an AS degree program is 65 credit hours, the maximum period to receive Financial Aid may not exceed 97 ($65 \times 1.5 = 97$) attempted credit hours. The chart below shows the maximum number of credit hours allowed for completion of a program of study. Students who have reached the maximum time frame will become ineligible for financial aid.

Sample Calculations for the 150% rule:

<u>Classification:</u>	<u>Time Frame Allowed:</u>
AAS = 65 Credits	97 Credits (including transferred credits)
AOS = 79 Credits	118 credits (including transferred Credits)
BS = 125 Credits	187 credits (including transferred AAS and AOS)

Financial Aid Repeating Courses Policy

The regulatory definition for full-time enrollment status (for undergraduates) has been revised to allow a student to retake, one time only, per previously passed course. For this purpose, passed means any grade higher than an “F,” regardless of the College’s program policy, which require a higher qualitative grade or measure, which is considered to have passed the course. This retaken class may be counted towards a student’s full-time or part-time enrollment status, and the student may be awarded federal aid for the enrollment status based on inclusion of the class. A student may be repeatedly paid for repeatedly failing the same course (normal SAP policy still applies to such cases), and if a student withdraws, from the class he or she is retaking, then the class is not counted as his or her one allowed retake for that course. However, if a student passed a class, received federal aid and retakes the class and then fails the second time, that failure counts as their paid retake, and the student may not be paid for retaking the class a third time.

If a student withdraws from all federally eligible courses in the semester and continues to attend only the course(s) that will not be credited towards the student’s degree, the student is a withdrawal for federal aid purposes. This is because a student is considered to be attending a federally eligible program only if he or she is attending one or more courses in that program for which the student is receiving federal funds.

A recalculation of the student’s federal aid is completed to exclude any credits, for repeated courses, that will not be counted toward the student’s degree. All repeated courses affect the financial aid Satisfactory Academic Progress calculations. A repeated course, along with the original attempt course, will be counted as attempted credit hours.

Explanation of Attempted Hours for Pace Calculation

In compliance with federal regulations, financial aid developed procedures for evaluating pace. In addition to the hours you completed for a letter grade, we will count the following types of credit: Transfer, In Progress (IP), Incomplete (I), Withdraw (W), FX, WX, Satisfactory/Unsatisfactory and repeated courses. Non-credit (NC) or audited (AU) courses do not count toward the calculation of attempted hours.

Additional Standards of Academic Progress Requirements and Information:

Students must be enrolled in a Financial Aid approved academic degree or certificate program. Attempted credit hours include all courses for which a student is registered as of the end of the drop/add period. The following grades are used to calculate the cumulative GPA: A, B+, B, C+, C, D, F, and FX. The following grades are counted as attempted credit hours when calculating completion rate but will not count as earned credits: F, FX, WX, U, W, I, IE.

The following grades do not affect the cumulative GPA but will be counted as attempted credit hours: I, P and IE, and all withdrawals (or their equivalents from transferring institutions). The College’s Academic Amnesty policy does not apply to the Satisfactory Academic Progress requirements for Federal Financial Aid eligibility.

There is a 30 credit hour maximum limit for remedial courses. Remedial and repeat courses are eligible for Financial Aid, as long as the courses are required by the student’s selected academic program, do not exceed the maximum number of credits allowed, and the student is otherwise maintaining Satisfactory Academic Progress. Multiple changes to your program will negatively impact your academic progress status. Courses not applicable towards your current degree will negatively impact your academic progress status. Any term for which a student receives zero (0) academic credits (total withdrawal, total failure or a combination of both) will result in the student to immediately be placed on SAP warning.

APPEAL PROCESS:

The Vaughn College's SAP Review Committee shall review and validate the documentation attached, to determine if the student has met the conditions for reinstatement, or if extenuating circumstances of the students should be taken into consideration for reinstatement.

Students, whose eligibility for federal financial aid is approved for reinstatement on a temporary* basis by the SAP Review Committee, will be awarded effective with the academic term for which the reinstatement is requested, if funds are still available for the current academic term/year. Approval will not be retroactive to prior terms. All costs of attendance incurred during the period of time the student was suspended are the sole responsibility of the student. Upon student's request, denied appeals may be reviewed by the financial aid director or designee for re-review and a final decision.

SAP APPEAL AND PROGRESS ALERTS

SAP APPEAL

When a student becomes ineligible for financial aid due to failure to meet SAP standards, an opportunity is given to appeal for further financial aid consideration. A student may file a SAP appeal on the basis of:

- death of a relative
- injury or illness of the student
- other special circumstances (such as difficult transition to Vaughn College, family issues, legal troubles, work or budget problems, etc.)

Appeals are considered on an individual basis. Depending on the nature of the appeal, the number of appeals the student has filed and/or the student's academic record, additional steps may be required of the student before the appeal can be accepted. For example, the student may be required to complete an Academic Plan.

Completed SAP appeals will be **reviewed within 15 business days**. The student will be notified by email if the appeal is accepted or denied. If the email is returned undeliverable, a letter will be mailed to the student's current residing address as listed on Vaughn College's administrative portal or Student Aid Report (SAR). Students should keep their Vaughn email and current residing addresses up to date.

Please note: Up to three appeals may be accepted. Per federal financial aid regulations, appeals are not automatically accepted and may be denied based on failure to maintain the Satisfactory Academic Progress standards set forth at Vaughn College.

Any appeals after the third time needs to be review by the Associate Vice President of Enrollment Services.

2023-2024 Appeal Deadlines

- Summer 2023 – June 23, 2023
- Fall 2023 – September 30, 2023
- Spring 2024 – January 31, 2024

SATISFACTORY PROGRESS STANDARD FOR TITLE IV FEDERAL STUDENT ASSISTANCE

SAP PROGRESS ALERTS

A student is placed on a SAP progress alert if they fail to maintain Satisfactory Academic Progress after one award year. A SAP appeal must be filed and accepted before a student can be placed on an SAP progress alert. Progress alert terms are one semester in length. The student is given specific requirements that must be met in order to maintain financial aid eligibility in the future. If the SAP progress alert requirements are not met within the progress alert term, the student will again become ineligible for financial aid and may need to file another SAP appeal.

ACADEMIC PLAN

Students, who at the end of the progress alert period, do not meet Satisfactory Academic Progress (SAP) may submit a second appeal. If Vaughn

College determines, based on the second appeal, that the student will require more than one semester to meet SAP, the student will be placed on progress alert and must develop an Academic Plan, for one semester. At the end of the semester, the student must meet SAP or meet the requirements of the Academic Plan, which leads to program completion.

Note: students whose financial aid eligibility has been reinstated under an academic plan and are making progress under that plan are considered to be eligible students for Title IV purposes.

NEW YORK STATE TUITION ASSISTANCE PROGRAM (TAP) GUIDELINES

Students can receive TAP for six semesters in an associate degree program and eight semesters in a bachelor's degree program.

TUITION ASSISTANCE PROGRAM (TAP)

Students must be New York state residents, enrolled full time and in good academic standing. The award is based on New York state net taxable income. Students must complete the online Free Application for Federal Student Aid (FAFSA) and TAP applications.

Award range: \$500 to \$5,665

PART-TIME TAP PROGRAM

Part-time TAP helps eligible New York residents attending in-state postsecondary institutions on a part-time basis pay for tuition. Part-time TAP is a grant and does not have to be paid back.

Student Eligibility

To be eligible for part-time TAP, a student must:

1. Be a first-time freshman in the 2006-2007 academic year or thereafter.
2. Have earned 12 credits or more in each of the two consecutive semesters for a minimum total of 24 credits earned.
3. Maintain a minimum of a C average.

TAP Credits

Part-time TAP payment will be made for students taking six to 11 credits as shown in the chart below.

NEW YORK STATE AID FOR PART-TIME STUDY (APTS)

This program has the same eligibility criteria as TAP. The Annual award ranges from \$250 to \$1,000; to receive an APTS award, students must:

1. Be enrolled for three to 11 credits
2. Complete an APTS application
3. Submit New York state tax returns for the student and parent
4. Have a cumulative GPA of at least 2.0
5. APTS payment equals to 3 TAPS points

More information about grants and scholarships can be found by visiting: <http://www.hesc.ny.gov/pay-for-college/apply-for-financial-aid/nys-tap.html>.

To maintain eligibility for New York state aid, you must make satisfactory progress toward the completion of a degree. To make satisfactory progress, an undergraduate student must accumulate credits toward the degree, according to the following standards:

TAP Program Pursuit and Good Academic Standing Charts:

Program pursuit and good academic standing chart for students who received TAP before summer 2006:

Before being certified for this payment	Credits completed from prior semester that TAP was received	Cumulative credits needed toward degree	Cumulative Grade Point Average (GPA)
2	6	0	0
3	6	6	1.0
4	9	18	1.2
5	9	31	2.0
6	12	45	2.0
7	12	60	2.0
8	12	75	2.0
9	12	90	2.0
10	12	105	2.0

Program pursuit and good academic standing chart for students who received TAP on or after summer 2006, two-year associate degree programs:

Before being certified for this payment	Credits completed from prior semester that TAP was received	Cumulative Grade Point Average (GPA)
1	0	.0
2	3	.5
3	9	.75
4	18	1.3
5	30	2.0
6	45	2.0

Four- and five-year baccalaureate degree:

Satisfactory Academic Progress

Effective 2010-2011 for nonremedial students receiving New York state award payments.

(Remedial students and approved certificate use the 2006 SAP chart.)

Before being certified for this payment	Credits completed from prior semester that TAP was received	Cumulative Grade Point Average (GPA)
1	0	.0
2	3	1.1
3	9	1.2

4	21	1.3
5	33	2.0
6	45	2.0
7	60	2.0
8	75	2.0
9	90	2.0
10	105	2.0

Baccalaureate Program

Payment	Credits	Cumulative Grade Point Average (GPA)
1st	0	0
2nd	6	1.5
3rd	15	1.8
4th	27	1.8
5th	39	2.0
6th	51	2.0
7th	66	2.0
8th	81	2.0
9th	96	2.0
10th	111	2.0

Associate Program

Payment	Credits	GPA
1st	0	0
2nd	6	1.3
3rd	15	1.5
4th	27	1.8
5th	39	2.0
6th	51	2.0

Program: Baccalaureate Program**Calendar: Semester 2015-2016 and thereafter (ADA part-time students)**

Before being certified for this payment	A student must have accrued at least this many credits	With at least this Grade Point Average (GPA)
1st	0	0
2nd	3	1.5
3rd	9	1.8
4th	21	1.8
5th	33	2.0
6th	45	2.0
7th	60	2.0
8th	75	2.0
9th	90	2.0
10th	105	2.0

Program: Associate Program**Calendar: Semester 2015-2016 and thereafter (ADA part-time students)**

Before being certified for this payment	A student must have accrued at least this many credits	With at least this Grade Point Average (GPA)
1st	0	0
2nd	3	1.3
3rd	9	1.5
4th	18	1.8
5th	30	2.0
6th	42	2.0
7th	51	2.0
8th	60	2.0

If you fail to meet continuing eligibility requirements, you may regain eligibility by:

Making up the deficiency while attending, without state aid

- Leave Vaughn College and return after one year or more
- Receive a one-time TAP waiver. This is granted based on extenuating circumstances and when there is a reasonable expectation that the student will meet future requirements.

WAIVER GUIDELINES

The New York State Education Department allows a one-time waiver of the pursuit and progress standards if, for some exceptional reason such as serious illness or a death in the immediate family, you were unable to meet the standards. Students who apply for waivers must document the reason for the request.

New York State Enhanced Tuition Awards (ETA) Program Guidelines

The Enhanced Tuition Awards (ETA) program provides tuition awards to students who are New York State residents attending a participating private college located in New York State. Recipients will receive \$6,000 through a combination of their TAP award, ETA award and a match from their private college.

Student Eligibility

To be eligible for ETA, a student must:

1. Be a resident of NYS and have resided in NYS for 12 continuous months prior to the beginning of the term;
2. Be a U.S. citizen or eligible non-citizen;
3. Have either graduated from high school in the United States, earned a high school equivalency diploma, or passed a federally approved "Ability to Benefit" test, as defined by the Commissioner of the State Education Department;
4. Have a combined federal adjusted gross income of \$125,000 or less;
5. Be pursuing an undergraduate degree at a participating private college or university located in New York State;
6. Be enrolled in at least 12 credits per term and complete at least 30 credits each year applicable toward his or her degree program, through continuous study with no break in enrollment except for certain reasons that can be documented;
7. If attended college prior to the 2019-20 academic year, have earned at least 30 credits each year (successfully), applicable toward his or her degree program prior to applying for an Enhanced Tuition Award;
8. Be in a non-default status on a student loan made under any NYS or federal education loan program or on the repayment of any NYS award;
9. Be in compliance with the terms of the service condition(s) imposed by any NYS award(s) that you have previously received; and
10. Execute a Contract agreeing to reside in NYS for the length of time the award was received, and, if employed during such time, be employed in NYS.

To apply for New York State Enhanced Tuition Award (ETA) please visit: <https://www.hesc.ny.gov/pay-for-college/financial-aid/types-of-financial-aid/nys-grants-scholarships-awards/enhanced-tuition-awards.html>

VAUGHN COLLEGE GRANTS AND AID

Vaughn College grants and aid are used to assist new and continuing students. Awards are granted to students who are matriculating in a bachelor's or associate degree program. Recipients are selected based on financial need, academic performance and availability of funds. Priority is given to PELL grant recipients and students with the lowest eligibility index. Awards are granted on an annual basis and may be renewed each year, if the student meets the following requirements:

1. Complete the Free Application for Federal Student Aid (FAFSA) on or before the deadline
2. Be registered full time for the fall and spring semesters.

3. Maintain a cumulative grade point average of no less than 2.0
 - Awards range: \$475 to \$2,200 for the year.

BOOK VOUCHERS

Book vouchers are designed to help students who need access to financial aid funds for purchasing books and supplies prior to the scheduled refund date. The following guidelines determine eligibility and how vouchers are used:

- Book vouchers are issued through the office of financial aid to students who have received a financial aid award, have a credit on their tuition account and have proof of registration. These vouchers may be used only at the campus bookstore.
- The voucher must be signed by a member of the financial aid staff to be valid.
- The amount indicated on the voucher must be used to purchase books and supplies for courses in which you are registered. Clothing, snacks and other non-course-related items cannot be purchased with the voucher. A registration form must be presented with the voucher for all transactions.
- A voucher may be used twice during the semester. Subsequent purchases must be paid for out of pocket. Lost vouchers will not be replaced.
- The book voucher is not cash. It cannot be combined with cash transactions, including cash, credit cards, checks, money orders, etc. Cash back and cash refunds are not permitted.
- Returned books are subject to policies established by the Barnes and Noble bookstore, which is neither owned nor operated by the College.
- Credit for any balance shown on a voucher will be assigned to your account once the office of student accounts has reconciled all transactions, which may be as early as the fifth week of classes but no later than the end of the semester.

ADDITIONAL PROGRAMS

HOPE TAX CREDIT

The Hope program provides a tax credit equal to 100 percent of the first \$1,000, and 50 percent of the second \$1,000, of qualified tuition and related expenses paid by the taxpayer (e.g., a maximum tax credit of \$1,500).

This tax credit is available for each student for whom the taxpayer pays qualifying tuition and fees. A student may qualify for the tax credit on his or her own basis, but only if the student is independent and not used as a dependent on another person's tax return. The tax credit may be taken only by a taxpayer for whom the student is a dependent for tax purposes. For more information, please consult with a financial aid counselor.

VETERANS' EDUCATIONAL BENEFITS

VETERANS EDUCATIONAL ASSISTANCE PROGRAM

For more information and applications, please consult with Marcia Gomez, the College's veterans affairs liaison and bursar, at 1.866.6VAUGHN, ext. 190. Her email address is marcia.gomez@vaughn.edu.

GI BILL

The GI bill is available to veterans with at least 181 days of continuous active-duty service, any part of which occurred after January 31, 1955 and before January 1, 1977. Eligible veterans are New York State residents discharged under honorable conditions from US armed forces and who are:

- Vietnam veterans who served in Indochina between February 28, 1961, and May 7, 1975.
- Persian Gulf veterans who served in the Persian Gulf on or after August 2, 1990.
- Afghanistan veterans who served in Afghanistan during hostilities on or after September 11, 2001.
- Veterans who served in hostilities that occurred after February 28, 1961, as evidenced by receipt of an Armed Forces Expeditionary Medal, Navy Expeditionary Medal or a Marine Corps Expeditionary Medal.

Awards are available for up to four years of undergraduate study, or five years for enrollment in an approved five-year program; up to three years of graduate study at degree-granting institutions.

YELLOW RIBBON PROGRAM

The Yellow Ribbon benefit was introduced by the federal government to help veterans go to college. It is a provision of the Post-9/11 Veterans Educational Assistance Act of 2008. It supplements the new Post 9/11 GI Bill, and allows private US colleges and universities to voluntarily enter into an agreement with the Department of Veterans Affairs (VA) to fund tuition expenses that exceed the highest public in-state undergraduate tuition rate. The VA matches tuition contributions made by Vaughn College to eligible students.

Beginning in the 2011-2012 academic year, Vaughn College provided private funds toward tuition balances to veterans at the 100% benefit levels who has been admitted as a full-time undergraduate or graduate student. Student requirements follow:

1. Must complete the FAFSA application for the current academic year
2. Must maintain a GPA of 2.0 or higher

POST-9/11 GI BILL

The Post-9/11 GI Bill provides financial support for education and housing to individuals with at least 90 days of aggregate service on or after September 11, 2001, or individuals discharged with a service-connected disability after 30 days. You must have received an honorable discharge to be eligible for the Post-9/11 GI Bill.

This bill became effective on August 1, 2009. The amount of support that an individual may qualify for depends on where he or she lives and what type of degree is being pursued.

Approved training includes graduate and undergraduate degrees, and vocational/technical training. All training programs must be offered by an institution of higher learning and approved for GI benefits. Tutorial assistance, and licensing and certification test reimbursement are also approved under this bill.

The Post-9/11 GI Bill expands the number of people who qualify for education support from the Department of Veterans Affairs. To learn more about this bill, visit www.gibill.va.gov.

In accordance with Title 38 US Code 3679 subsection (e), this institution adopts the following additional provisions for any students using U.S. Department of Veterans Affairs (VA) Post 9/11 G.I. Bill® (Ch. 33) or Vocational Rehabilitation and Employment (Ch. 31) benefits, while payment to the institution is pending from the VA. This institution will not:

- Prevent nor delay the student's enrollment.
- Assess a late penalty fee to the student.
- Require the student to secure alternative or additional funding.
- Deny the student access to any resources available to other students who have satisfied their tuition and fee bills to the institution, including but not limited to access to classes, libraries, or other institutional facilities.

However, to qualify for this provision, such students may be required to:

- Produce the Certificate of Eligibility by the first day of class.
- Provide written request to be certified.
- Provide additional information needed to properly certify the enrollment as described in other institutional policies.

PRIVATE ALTERNATIVE LOANS

Private loans originate outside of the College and require a separate application. Private loans are offered through commercial lenders and are approved according to the family's ability to repay. Private loans are available to students and parents. Amounts, interest rates, repayment terms and application procedures vary according to the individual loan program. Before considering a private loan, students should be certain they understand their rights and responsibilities under the loan program, including how interest is assessed, when repayment begins and what repayment options are available. The following website can be used to compare private loan interest rates and options: www.privatestudentloans.com

VAUGHN AWARDS FOR NEW STUDENTS

FOUNDERS' SCHOLARSHIPS

These scholarships are awarded to freshman students upon acceptance to a bachelor of science degree program at Vaughn. Students will be considered for awards, based on their grades and exam scores, by Vaughn College's scholarship committee. Which will make the determination to grant the student either a Vaughn Scholarship or a grant. Scholarship recipients must maintain a GPA of no less than 2.75 to continue to participate in the scholarship program at Vaughn. Students with extraordinary circumstances will be reviewed by Vaughn's Scholarship Committee.

Founders' Scholarships are sometimes awarded as:

- The Charles S. (Casey) Jones Scholarship is awarded in memory of one of our founders and the first president of the basic program from which the current curricula have evolved.
- The Lee D. Warrender Scholarship is awarded in the name of one of our founders and an engineer who developed the basic program from which current curricula have evolved.
- The B. Hunt Smith Scholarship is awarded to honor the pioneer aviation executive who provided extensive technical assistance in designing the College's laboratories.
- The Walter A. Neff Scholarship is awarded in honor of the airline executive and charter trustee who was responsible for laboratory equipment acquisition.
- The Elmer A. Sperry Scholarship is awarded in the name of the charter trustee and inventor who contributed substantially to aerial navigation.

RESIDENTIAL LEADERSHIP SCHOLARSHIPS

These partial scholarships are awarded to incoming freshmen upon acceptance to a bachelor of science degree program at Vaughn. Students will be considered for awards based on their grades and exam scores by Vaughn's scholarship committee. Residential Leadership Scholarship recipients' academic progress is reviewed at the end of each academic year to determine renewal. Scholarship recipients must maintain a GPA of no less than 2.75 to continue to participate in the scholarship program at Vaughn. Students with extraordinary circumstances will be reviewed by Vaughn's Scholarship Committee.

GOLD WINGS SCHOLARSHIP

This scholarship covers the complete annual tuition and fees for four consecutive years of full-time study, and is awarded annually to one student graduating from Aviation High School. A high school guidance counselor, teacher or principal must nominate students. Nominees must meet the following minimum criteria:

- Demonstrate a record of strong academic achievement
- Attain a cumulative grade point average of at least a 3.0 (a “B”)
- Score at least a cumulative 1,000 on the SAT 1 exam, and at least 450 on the math section
- Enroll in a bachelor’s degree program

Recipients must file the Free Application for Federal Student Aid (FAFSA) each year and maintain a 2.75 GPA. Recipients are selected annually in the fall semester, and the final decision is made by Aviation High School’s principal. If the recipient is eligible for any federal or state financial aid grants (excluding loans), or receives any additional scholarship funds from agencies other than Vaughn College, those funds will be applied to the Gold Wings award. Books, tools and miscellaneous expenses are the responsibility of the recipient.

TRANSFER STUDENT SCHOLARSHIP

Students who transfer to the College having completed 24 or more credits at an accredited college or university, and who have achieved a cumulative grade point average of at least 3.0 (including all courses at every institution attended), may be awarded scholarships to transfer. The awards may be renewable for up to three years of consecutive study, providing the recipient maintains a 2.75 cumulative GPA. The number of years the scholarship will be provided will depend on the number of credits accepted by the College at the time of transfer. Students with extraordinary circumstances will be reviewed by Vaughn’s Scholarship Committee.

KIWANIS SCHOLARSHIP

The Kiwanis Club of LaGuardia Airport has established an annual scholarship for graduates of Aviation High School to help defray the daily expenses associated with higher education. Candidates selected for this scholarship are those who demonstrate an interest in and a commitment to aviation. Funding for the first two years is provided solely by Kiwanis.

For those students enrolled in a baccalaureate program, Vaughn College will provide matching funds for the remaining two years. Recipients must maintain full-time matriculation and sustain a minimum grade point average of 2.0.

ANNE AND VERNON CRUDGE SCHOLARSHIP

This scholarship is given to a worthy incoming student enrolling in any of Vaughn’s bachelor of science degree programs. Vaughn will solicit students who are in the top 20 percent of the incoming class and demonstrate financial need. The application process will begin on or about February 15 of each year with the publicizing of the Crudge Scholarship to all eligible incoming freshmen. Students will be asked to submit a written recommendation from a teacher or guidance counselor. One student will be awarded the scholarship for the following academic year. This annual award of \$1,000 is made each fall.

FREDERICK R. AND MIMI EINSIDLER SCHOLARSHIP

This award will be given to an incoming student whose high school grade point average places him or her in the top 10 percent of the freshman class. The application process will begin on or about February 15 of each year. Students will submit a written recommendation from a teacher or guidance counselor. One student will be

awarded the scholarship for the following academic year. (The presentation of the award will take place at Vaughn's fall academic honors ceremony.)

ROBERT AND IRENE ZINCONE SCHOLARSHIP

This award will be given to an entering freshman who is pursuing an associate or bachelor's degree program; has achieved a high school grade point average not less than 85 percent; has performed service to the high school community and demonstrates financial need. The number and dollar amount of this award is determined by the level and availability of funding.

JOHN F. KENNEDY INTERNATIONAL AIRPORT CHAMBER OF COMMERCE SCHOLARSHIP

This endowed scholarship fund with the College allows the Chamber of Commerce to make a significant long-term scholarship award to one student who meets its criteria. In turn, Vaughn matches this scholarship amount by awarding four additional scholarships. Vaughn annually awards these scholarships to students who meet the Chamber's criteria:

- Enrolled in either a bachelor of science or an associate in applied science program
- A son or daughter of an aviation industry employee working on or adjacent to John F. Kennedy International Airport
- Demonstrates financial need
- Achieved a high school grade point average of not less than 75 percent
- Performed service to the high school or community
- Recommended by a high school teacher

AIR CARGO ASSOCIATION SCHOLARSHIP

This award will be given to an entering freshman who is pursuing an associate or bachelor's degree program; has achieved a high school grade point average of not less than 85 percent; has performed service to the high school community and demonstrates financial need.

WALTER HARTUNG MEMORIAL SCHOLARSHIP

Vaughn College is pleased to work in partnership with The Resource Foundation to award annual tuition scholarships to promising students enrolled in any of Vaughn's bachelor of science degree programs.

Incoming Vaughn students will need to meet the following eligibility criteria to be considered for the Walter Hartung Memorial Scholarship:

Enrolled in a bachelor of science degree program

- Achieved a high school grade point average of not less than 80 percent
- Recommended by one of his or her high school teachers Demonstrates financial need

Enrolled Vaughn students need to meet the following criteria to be considered for the Walter Hartung Memorial Scholarship:

- Enrolled in a bachelor of science degree program
- Achieved a college grade point average of not less than 3.0
- Recommended by one of his or her college professors
- Demonstrates financial need

The application process will begin on or about February 15 of each year with the publicizing of the Walter Hartung Memorial Scholarship to all eligible students. Incoming freshmen will be asked to write a

250-word essay on their decision to enroll at Vaughn and their career aspirations. Sophomores, juniors and seniors will be asked to submit a 250-word essay on their experience at Vaughn and their career aspirations.

RENO ANGELETTI ENDOWED SCHOLARSHIP

This scholarship is awarded each fall to an enrolled student in the associate in occupational studies degree in aviation maintenance who demonstrates financial need. Students will be asked to submit two personal references that speak to the student's interest and desire to complete the program.

IVO FIORAVANTI MEMORIAL BOOK FUND

The award is given each fall to enrolled students in the bachelor of science degree in mechanical engineering technology who demonstrates financial need and have a minimum 2.75 grade point average. Students will be asked post-award to submit an essay of not more than 250 words discussing their progress within the program and their future goals. This fund provides four (4) \$250 book awards each academic year.

INTERNATIONAL AVIATION WOMENS ASSOCIATION (IAWA) SCHOLARSHIP AWARD

IAWA awards one \$5,000 scholarship to a female student of Vaughn College who maintains a minimum 3.0 grade point average who also demonstrates financial need.

LAURA TABOR BARBOUR FOUNDATION SCHOLARSHIP FUND

This fund awards scholarships to accomplished students who are enrolled in aviation and aviation management career studies at accredited aviation schools, nominated by their professors and selected by the Scholarship Committee. Nominations are based on a student's commitment to a career in aviation, scholastic excellence indicative of success in the future, a strong interest in and aptitude for aviation safety and commendable character, professionalism, and integrity.

VAUGHN AWARDS FOR CONTINUING STUDENTS

ACADEMIC EXCELLENCE SCHOLARSHIPS

Academic excellence scholarships are awarded each year to continuing students who demonstrate outstanding academic achievement.

To be eligible, students must meet the following criteria:

1. Satisfactory completion of at least two semesters (29 credits/units or more) as a matriculated student.
2. Maintain the required cumulative GPA (see below)
3. Be registered full time

Award, range and required cumulative GPA:

- President's Honors: 3.85 GPA or above, \$1,000 per academic year
- Dean's Honors: 3.68 to 3.84 GPA, \$750 per academic year
- Faculty Honors: 3.50 to 3.67 GPA, \$500 per academic year

Note: Vaughn College scholarships and grants are not awarded during the summer semesters.

ASCH-ROOT ENGINES OF INVENTION SCHOLARSHIP

This scholarship seeks to inspire faculty and students to work together on a research project that encourages creativity in the fields of science and math, as well as the desire to improve problem-solving.

Vaughn College will award the \$1,500 Asch-Root Engines of Invention Scholarship to a student enrolled in a bachelor of science degree in engineering or engineering technology with at least 90 completed credits and a minimum grade point average of 3.0.

MICHAEL AND JOSEPH CANNON SCHOLARSHIP

This scholarship is awarded to a student enrolled in a bachelor of science degree program who is among the top 10 percent of the incoming class and demonstrates financial need.

KENNETH E. SENIOR SCHOLARSHIP

This scholarship is offered in conjunction with the Kenneth E. Senior Aerospace Foundation to two students enrolled in any Vaughn bachelor of science program. The annual scholarship of \$10,000 each is awarded to students in the top 20 percent of the incoming class who also demonstrate financial need. Applicants are required to submit a written recommendation from a teacher or guidance counselor, and a committee composed of at least one member of the admissions department, a member of the Kenneth E. Senior Aerospace Scholarship Foundation, and the executive director of corporate and foundation relations will make the selections. Presentation of the award will take place at Vaughn's fall honors ceremony.

JOHN AND IRENE DUFFY SCHOLARSHIP

This award will be provided to a student each fall in the bachelor of science program in either engineering or engineering technology. The requirements are that the student has completed at least 90 credits and earned a minimum grade point average of 3.0.

OTHER SCHOLARSHIPS

RESERVE OFFICERS' TRAINING CORPS (ROTC) SCHOLARSHIPS

All qualified students enrolled in either the Army or Air Force ROTC programs can apply for an ROTC college scholarship.

This scholarship will cover full tuition, laboratory expenses, incidental fees and an allowance for books at the College.

In addition, cadets with these scholarships will receive a modest nontaxable stipend each month. The scholarships are awarded on a competitive basis to freshmen, sophomores or juniors.

SEARCHING THE WEB

Students may use the computer labs to search the Internet for additional scholarships. One useful resource is: <http://www.finaid.org>.

- Please check with the financial aid office for additional resources and information.
- International students are generally more successful finding scholarships and grants in their home countries.

COSTS AND FINANCIAL POLICIES

Students are billed each semester for tuition, fees and other expenses such as housing, meal plans and book vouchers. It is Vaughn's policy that students must clear their tuition account prior to registering for subsequent semesters.

Financial arrangements constitute setting up a deferred no interest payment plan with consistent payments, which are defined and agreed to by the office of student accounts, and the student filing for financial aid, if applicable.

Under no circumstances will students be permitted to register if they have tuition due for more than one semester. Appeals of this policy may be made to the vice president of enrollment services for a final determination.

A fee of \$25 will be charged for all checks that are not honored. Tuition and fees are subject to change at any time at the discretion of the College.

ACCEPTANCE DEPOSIT

A nonrefundable acceptance deposit of \$200 (\$600 US for international students) is required within one month after the applicant is notified of acceptance or by May 1 for traditional freshmen applying for the fall semester.

The acceptance deposit reserves the student's place in class and is credited in full toward tuition, provided that the applicant begins classes within one year of the originally scheduled enrollment date. Requests for waiver of the one-year limit should be submitted to the director of admissions.

TUITION

Students are charged varying rates of tuition based on the program in which they enroll, when they enrolled, and the number of credits being pursued. A flat-fee tuition is charged to academic students who are taking 12 to 18 credits. Students who register for more than 18 credits will incur overload charges. A flat-fee tuition is charged to aviation training students who are taking 12 to 21 units. A per credit/unit charge is applied to students taking 11 or less credits. Exact charges for 2020-2021 are listed on page 37.

ROOM AND BOARD

For the 2022-2023 academic year, the per-semester cost for a room in Vaughn's residence hall is \$6,684.50 for a single in a two-person suite; \$5,400 for a double in a four-person suite; \$4,780 for a room in a triple suite; or \$4,620 for a room in a quadruple suite. A \$250 housing deposit (\$125 per semester) is required. Most residents live in either a two-person or four-person suite with a semi-private bath. The residence hall has laundry, study and kitchen facilities in a common area within the building. Residence hall rooms are supplied with a bed, dresser, closet, desk and, chair and wastebasket for each student. Each room is also equipped with a phone, cable TV hookup and computer port.

Meal plan options include \$1,650, \$1,200, \$880 or \$595 per semester.

HOUSING CANCELLATIONS AND REFUNDS

Students who are assigned housing and who fail to move in will forfeit their deposits and remain responsible for any housing charges due. Students who move into the residence and who then leave or cancel their assignments at any point during the academic term will forfeit all deposits and be charged for the full-semester housing costs.

Students who cancel housing by notifying the office of residence life student affairs in writing prior to July 1 for the fall semester, or by January 1 for the spring semester, will be refunded the \$250 housing deposit less any assessed damages. After these dates, the deposit will not be refunded.

The housing deposit will be held by the College as a damage deposit. At the end of the student's residence, the room will be inspected to determine the amount, if any, of the deposit that will be refunded to the student upon moving out. In the event damages to the room and/or common area exceed the \$250 deposit, the student will be responsible for paying the additional damage amount. Failure to receive a specific type of housing is not a justifiable reason to be refunded the \$250 deposit or to decline or move out of the residence.

If a student is removed from the residence hall for judicial reasons, he or she forfeits the right to a refund of the housing charges and housing deposit, and remains liable for the full amount.

Residents who were enrolled for the fall semester and have been released from their agreement for the spring semester due to withdrawal from the College must vacate their rooms, check out with a staff member and return room keys within 24 hours after their last final exam for the fall semester; their liability for further charges will be assessed at that time.

FEES

APPLICATION/REENTRY FEE

A nonrefundable application fee of \$40 is required with the application for admission. A reentry fee of \$40 is due by all students reentering the College after withdrawal (more than one semester of absence) and is nonrefundable.

BASIC AIR TRAFFIC CONTROL CAPSTONE REVIEW AND SCREENING FEE

A onetime nonrefundable \$500 fee is required for the capstone review and screening course, ATC300. This course is a cumulative review of the basic skills covered in the program and is completed either in the last semester after all pre-requisites are complete, or after graduation. Successfully passing the screening exam with a minimum score of 80 is required for a passing grade to be issued. The one-time fee allows students to retake the course at no additional charge as a refresher.

MAINTENANCE OF MATRICULATION FEE

Students who plan to take a leave of absence for a semester are encouraged to maintain matriculation by paying a \$150 maintenance of matriculation fee. Maintenance of matriculation forms are sent to students following the add/drop period. Maintaining matriculation affords students the opportunity to stay within the curriculum and requirements of their current program. Students may not maintain matriculation for more than two consecutive semesters or in programs that have been canceled. Students must have a zero balance to maintain matriculation. For BS Aircraft Operation students, a review of the student's satisfactory flight progress in relations to the student's academic status is required before any approval can be granted.

Maintenance of Matriculation for Flight Students resides with the Chair, Aviation Department.

Maintenance of Matriculation is required for all students B.S Aircraft Operations students flying during the summer session if they are not registered for any courses.

Maintenance of Matriculation for BS Aircraft Operation students are only authorized for the CFIA and CFII ratings after attainment of the Commercial License.

There is no charge associated with maintenance of matriculations for students flying during the summer, or for CFIA and CFII ratings.

CERTIFICATION FEES

GA02 Certificate Preparation or Seminar fee—General \$175

AA02 Certificate Preparation or Seminar fee—Airframe \$175

PP02 Certificate Preparation or Seminar fee—Powerplant \$175

Note that beginning 08/01/2023 there will be an additional \$10 fee per FAA aviation maintenance oral and practical examination. AVT250 FCC License Review—\$925

AVT250 FCC License Review—\$60

These fees cover the costs of oral and practical examination or seminar fees.

LABORATORY FEE

A laboratory fee of \$70 is required for all subjects that include laboratory activity. This fee, which aids in support of the various laboratories, is payable with the tuition for each semester, and is not refundable after the first day of the semester.

SIMULATION FEE

The following management courses include a computer simulation program and exam fee of \$85: MGT209L; MGT480; MGT509L.

SEMESTER FEE

A nonrefundable semester fee of \$425 is required for each enrolled student. This fee is part of the general fund and is used to offset the cost of student registration, computer usage, student club activities, intramurals, identification cards and other student services.

The following are zero-credit courses and are covered by the semester fee charge:

CD101— Career Development

DP407— Degree Project, maintenance programs only

LATE REGISTRATION FEE

A non-refundable \$75 late registration fee will be applied to students who register for classes on or after the first day of the semester.

SIMULATOR FLIGHT AND EXAM FEES

FLT330L	\$1,000	Covers 10 hours of individual simulator use and instruction at \$100 per hour.
FLT360L	\$500	Covers five hours of individual simulator use and instruction at \$100 per hour.
FLT 101L	\$300	Covers three (3) hours of individual simulator use and instruction at \$100 per hour.

FLT 102L \$300 Covers three (3) hours of individual simulator use and instruction at \$100 per hour.

FLT120L \$500 Covers five (5) hours of individual simulator use and instruction at \$100 per hour.

BYPASS EXAMINATION FEE

Students seeking to bypass any subject by examination are charged a \$150 per course

GRADUATION FEE

A nonrefundable graduation fee of \$100 is required when the graduation declaration form is submitted.

TEXTS, EQUIPMENT AND SUPPLIES

Students are responsible for obtaining necessary books, tools and supplies for their courses. Textbook requirements vary according to the course of study. Students should anticipate a cost of about \$950 per semester for books, tools and supplies.

BILLING

Payment of tuition and fees is due by the first day of the semester. At that time, students must make payment, in full, using one or a combination of these methods: check, money order, credit card, federal or state financial aid, Vaughn College scholarship or grant, private grant, or third-party payment.

INTERNATIONAL STUDENT BILLING

First-year international students must pay tuition and fees in full prior to the first day of the semester. In subsequent years, international students are permitted to participate in the College's deferred payment plan. Students who fail to regularly meet their financial commitment after enrolling in a payment plan will be immediately removed from the program.

SUMMARY OF 2023–2024 FEE SCHEDULE

Activity	Fee
Academic-audit	\$935 per course
ATI-Audit	\$615 per course
Application	\$40 per application
Bypass exam	\$150 per Course
FCC License Review-AVT250	\$925
Flight Dispatch Certificate AD10 - Non degree	\$4000
Certificate (AA02–Airframe)	\$300 per certificate
Certificate (GA02–General)	\$300 per certificate
Certificate (PP02 Powerplant)	\$300 per certificate
FAA/PSI Oral/Practical Exam download fee	\$10 per exam
ATC Simulation Fee ATC200L	\$750
ATC Simulation Fee ATC240L	\$750
Engineering Fee	\$200 per semester
Graduation Fee	No charge
Housing Deposit	\$125 per semester
Immunization	\$10 per shot
ID Fee	\$10 per card
Laboratory	\$70 per lab
Late Payment	\$50 per incident
Late Registration	\$75 per incident
Returned Check Fee	\$25 per incident
Matriculation maintenance	\$150 per semester (maximum, two semesters)
Program Adjustment	
(add, drop, change of curriculum, etc.)	\$10 per transaction
Change of Curriculum	\$10 per transaction
Reentry	\$40 per application
Semester Fee (LaGuardia)	\$450 per semester
Simulator Fee	\$100 (per hour-simulator usage)
Management Simulation Fee MGT480	\$85
Transcript	\$10 per transcript
Tuition Deposit	\$200 first semester
International Tuition Deposit	\$600 first semester
Overload-Academic-Over 18 credits	\$860 per credit
Distance Learning Academic	\$841.50 per credit
Distance Learning ATI	\$553.50 per credit
Distance Learning Graduate	\$931.50 per credit
FCC License Exam Fee-AVT250	*Will be determined by the FCC Testing
ATC300 Basic Air Traffic Control Capstone	\$500
Review and Screening Fee	\$100

Locker Rental	\$20 per semester (fall, spring)
	\$15 for one semester (fall, spring)
	\$10 for summer sessions

Tuition

Full-time Academic	\$14,000 (12-18 credits) flat rate per semester
Part-time Academic	\$935 per credit
Full-time Aviation Training Institute (ATI) Students	\$9,900 flat rate per semester
Part-time ATI Students	\$615 per credit

HOUSING CHARGES

Residence Hall Room Rates	
Single in a Two-Person Suite	\$6,750 per semester
Double in a Four-Person Suite	\$5,495 per semester

Meal Plan- declining balance loaded at the start of each semester;
 additional funds may be added at any time by visiting Student Accounts;
 commuters encouraged to add funds to save on sales tax

Plan 1: \$1800

Plan 2: \$1,400

Plan 3: \$1,000

Plan 4: \$600

Note: Plans 1 and 2 are open to returning residents only; plans 3 and 4 are open to all residents.

Residential Fees

Key Replacement	\$10
Late Checkout	\$50 per hour beyond checkout date
Lockout	\$5 per incident
Lost or Broken Key	\$125 per core change

Housing Incident-Fine

Determined at discretion of director of residence life and housing, in conjunction with the Vaughn Incident Management committee

Improper Checkout

Assessed in direct correlation to extent of Damages

THIRD-PARTY BILLING

You may seek a deferment of payment based on a third-party plan (e.g., employer reimbursement). To do so, you must submit a letter on company letterhead, signed by a benefits officer, stating the terms and conditions for reimbursement. This letter must be presented to the office of student accounts no later than the last day of late registration each semester you apply for a deferment.

PAYMENT PLANS

Vaughn uses Nelnet Business Solutions, a third party, to administer the student payment plans. Students who are interested should see the office of student accounts for information. Students who pay their tuition bill in full by cash, check or money order and subsequently withdraw will have their refunds calculated according to the schedule on page 37. Refund checks are mailed directly to the student's home by the office of student accounts. Students who have made a partial payment on their bills will have their tuition liability calculated according to the schedule on page 37. A reduction in tuition charges may not necessarily result in a refund and, in some instances, a tuition balance may still be due.

REFUNDS TO STUDENTS WHO WITHDRAW

All students who want to withdraw from academic courses or flight training for any reason must officially notify the College; to receive a refund or credit, they must withdraw during the official refund periods. Students officially withdraw using the add/drop or total withdrawal form, submitting the form in person at the campus' registrar's office and/or emailing a copy to Beatriz Novoa-Cruz, associate vice president of enrollment, at beatriz.cruz@vaughn.edu.

Regular attendance is an essential ingredient for satisfactory academic performance. All students are encouraged to attend their courses on a regular basis and abide by the departmental and course-specific attendance requirements (as provided in course syllabi).

Non-attendance in a course or flight training, verbal communication with College offices or instructors, or stopping payment on a check or payment plan are NOT official ways to drop classes. The official withdrawal is the only form of withdrawal that qualifies a student for a partial tuition credit and partial refundable fees.

The College's withdrawal procedure applies to all students including flight students at our partner flight school, including those who receive student loans and financial aid. Withdrawal from college can affect eligibility for financial aid and/or loans, and some students who withdraw, as a result, are liable for amounts due and are billed by the College accordingly.

Program Adjustments and Withdrawal

If you have preregistered and an adjustment is necessary as a result of failure to successfully complete a prerequisite course(s), you may add, drop or change a course section any time after the pre-registration period and before the first day of classes, without penalty. Other adjustments must be made during the program adjustment period, usually on or after the first day of classes, and will be assessed the appropriate fee (\$10 per add/drop). Use the add/drop form to make all program adjustments. Because program adjustments can affect your financial aid eligibility, it is important that you refer to the refund schedule in the current catalog to understand your tuition liability.

Failure to follow the proper withdrawal procedures may result in the student being financially liable for full or partial tuition and fees. For students in the Aviation Training Institute, the Federal Aviation Administration (FAA) requires full attendance in all FAA-approved subjects.

Federal financial aid cannot pay student charges for a class never attended or stopped attending unless official College withdrawal procedures are followed. Students receiving a pro rata reduction of federal

student aid when withdrawing before 60 percent of the semester is completed may be liable for any outstanding tuition due.

Students who do not officially withdraw from a course will receive one of the following grade codes: NA—Registered but never attended.

WX—Withdrawal due to administrative reasons. An appropriate Title IV refund calculation will be performed based on last day of attendance.

FX—Withdrawal due to administrative reasons. Academic penalty will be computed into the grade point average as a grade of “F.” Title IV refund will be calculated if the withdrawal occurs before 60 percent of coursework is completed.

TUITION AND HOUSING REFUND SCHEDULE

Time of Withdrawal	Fall/Spring/ATI Semester	Summer	I/II
Prior to the first day of Semester	100 percent	100 percent	
During first calendar week	90 percent	75 percent	
During second calendar week	75 percent	50 percent	
During third calendar week	50 percent	25 percent	
During fourth calendar week	25 percent	0 percent	
After fourth calendar week	0 percent	0 percent	

TITLE IV TUITION AND HOUSING REFUND

As part of the Higher Education Amendments of 1998, Congress passed new provisions governing what must happen to your federal financial assistance if you completely withdraw from school in any semester. This change of policy has been in effect at the College since the fall 2000 semester. The policy governs all federal grant and loan programs, including Federal Pell Grant and Federal SEOG, but does not affect Federal Work Study.

In general, the new law assumes that you “earn” your federal financial aid awards directly in proportion to the number of days of the term you attend. If you completely withdraw from school during a term, the school must calculate, according to a specific formula, the portion of the total scheduled financial assistance you have earned and are therefore, entitled to receive up to the time you withdrew. If you receive (or the College receives on your behalf) more assistance than you earn, the unearned excess funds must be returned to the Department of Education. If, on the other hand, you receive (or the College receives on your behalf) less assistance than the amount you have earned, you may be able to receive those additional funds.

The portion of your federal grants and loans you are entitled to receive is calculated on a percentage basis by comparing the total number of days in the semester to the number of days you completed before you withdrew. For example, if you complete 30 percent of the semester, you earn 30 percent of the assistance you were originally scheduled to receive. This means that 70 percent of your scheduled award(s) remains unearned and must be returned to the federal government.

Once you have completed more than 60 percent of the semester, you will have earned 100 percent of your assistance. Your withdrawal date will be determined by the College, as outlined in “Refunds to Students Who Withdraw,” page 39.

If funds were released to a student due to a credit balance on the student's account prior to withdrawal, then the student may be required to repay some of the federal grants released. Details on exact amounts to be repaid will be provided by the office of student accounts after the appropriate calculations are made.

Any portion of the student's tuition that becomes due after all Title IV funds are returned will be billed to the student's account.

For more information on the refunds or repayments of Title IV aid, contact the office of student accounts.

Vaughn College recognizes that occasionally a student is forced to withdraw because of circumstances beyond his/her control, such as illness.

Students should be prepared to present evidence of such circumstances in support of any request for special consideration. Any adjustments to the refund policy above will be made by the vice president of enrollment services.

FINANCIAL POLICIES

Payment of tuition and fees is due by the first day of the semester. Students must make payment in full, or arrangements to pay, with the office of student accounts by that time. Students who register after that date must make payment arrangements to pay at that time. Acceptable arrangements to pay include: evidence of eligibility for financial aid, alternative educational loans, Veterans Affairs benefits, employer education benefits, the College's or another payment plan, the College's and/or private grants and scholarships. Students who fail to regularly meet their financial commitment after joining a payment plan will be immediately removed from the program and refused participation in subsequent semesters.

Students who make acceptable financial arrangements to cover their tuition with the office of student accounts and make a good-faith effort to meet their financial obligations will be allowed to maintain their enrollment each semester without interruption. Failure to meet your financial obligation to the College may result in any or all of the following actions against you:

- Denial of permission to register for future semesters
- Denial of participation in commencement exercises (graduating students)
- Denial of receipt of diploma (graduating students)
- Deregistration for the semester
- Surrender of your account to a collection agency (affects your credit rating)

Before deregistration, students affected are notified by first-class mail and given 10 business days to take corrective action. Once deregistration takes place, a program adjustment form is sent to the student by first-class mail, and the student is dropped from the class roster. This action cannot be reversed; the student is liable for tuition in accordance with the College's refund schedule. A grade of WX is issued.

It is important to note that this action may also result in suspension of TAP and Title IV financial aid for students who qualify. A waiver must be obtained from the office of financial aid in order to have aid reinstated for future semesters.

APPEALS OF FINANCIAL DECISIONS

Students can consult with the vice president for enrollment services regarding the appropriate procedure to appeal a financial determination.

FINANCIAL ARREARS POLICY

Vaughn reserves the right to withhold registration material and all information regarding the record of any student who is in arrears in the payment of tuition, fees, loans or other charges (including charges for activities or services) as long as arrears remain.

ACADEMIC AFFAIRS

RECOGNITIONS

Vaughn College is an independent, not-for-profit corporation, chartered by the Board of Regents of the University of the State of New York as a senior college for the purpose of conducting programs of instruction leading to the master's, bachelor's and associate degrees appropriate to the curriculum.

Vaughn College curricula are registered by the New York State Education Department under the Regulations of the Commissioner of Education.

The following is a list of degree programs offered at the College with their corresponding Higher Education General Information Survey (HEGIS) code numbers. Enrollment in other than registered or otherwise approved programs may jeopardize a student's eligibility for certain student aid awards.

Master of Science Degree Curricula –

- Airport Management 0510

Master of Business Administration Degree Curricula –

- Aviation Management 0506

Bachelor of Science Degree Curricula – Engineering

- Mechatronic Engineering 0910
- Mechanical Engineering 0910
- Electrical Engineering 0909
- Computer Engineering 0909

Aeronautical Technology

- Aeronautical Sciences 0925
- Aircraft Operations 0925
- Aviation Maintenance 0925
- Aviation Maintenance Management 0599

Mechanical Engineering Technology

- Aeronautical 0925
- Computer-aided Design 0925

Electronic Engineering Technology

- Avionics 0925
- General 0925

Electronic Technology

- Optical Communications 0925

Management

- General Management 0506

- Airline Management 0599
- Airport Management 0506

Associate in Applied Science Degree Curricula – Aeronautical Engineering Technology

- Aeronautical Engineering Technology 5302

Associate in Applied Science Degree Curricula – Aeronautical Technology

- Aircraft Operations 5302
- Aviation Maintenance 5302

Associate in Applied Science Degree Curricula – Animation and Digital Technologies

- Animation and Digital Technologies 5303

Associate in Applied Science Degree Curricula – Aviation Management

- Airport Management 5099

Associate in Applied Science Degree Curricula – Electronic Engineering Technology

- Avionics 5302

Associate in Occupational Studies Degree Curricula

- Airframe and Powerplant 5302

Airframe and Powerplant Certificate Program

5302

ACCREDITATION

Vaughn College of Aeronautics and Technology is accredited by the Middle States Commission on Higher Education, 3624 Market Street, Philadelphia, PA 19104 (telephone: 215.662.5606). The Commission on Higher Education is an institutional accrediting agency recognized by the US secretary of education and the Commission on Higher Education Accreditation.

The associate in applied science (AAS) in electronic engineering technology, the associate in applied science (AAS) degree in aeronautical engineering technology and the bachelor of science (BS) degree in electronic engineering technology, as well as the bachelor of science (BS) degree in mechanical engineering technology, are accredited by the Engineering Technology Accreditation Commission (ETAC) of ABET, www.abet.org. The BS in Mechatronic Engineering is accredited by Engineering Accreditation Commission (EAC) of ABET. This board is a specialized accrediting agency recognized by the US secretary of education and by the Commission on Higher Education Accreditation.

Vaughn College holds accreditation by AABI-Aviation Accreditation Board International in the Aviation Department for the BS Aircraft Operations, and BS Aeronautical Science Degree Programs.

Vaughn College hold accreditation by the Federal Aviation Administration to certify graduates for an Airline Transport Pilot (ATP) certificate with Reduced Aeronautical Experience for the BS Aircraft Operations and A.A.S Aircraft Operations Degrees

Vaughn College of Aeronautics and Technology also holds accreditation for its associate of applied science degree in airport management; bachelor of science degrees in airport management, airline management and general management; and the master of science degree in airport management through the International Accreditation Council for Business Education (IACBE).

APPROVALS

1. This institution is authorized under federal law to enroll nonimmigrant students.
2. The New York State Education Department has approved Vaughn for the training of veterans.
3. The Federal Aviation Administration (FAA), in partnership with Vaughn, has chosen Vaughn as one of approximately 30 institutions nationwide to participate in the Air Traffic–Collegiate Training Initiative (AT–CTI) program.
4. The Federal Aviation Administration (FAA) in partnership with Vaughn has chosen Vaughn as one of approximately 100 institutions of Higher Learning to participate in the certification process for issuing a Restricted Airline Transport (RATP) certificate with reduced aeronautical experience.

AFFILIATIONS

Vaughn College is associated with distinguished organizations that provide valuable relationships important to the student's educational program, including:

- Accreditation Board for Engineering and Technology
- American Association of Airport Executives
- American Institute of Aeronautics and Astronautics
- American Society for Civil Engineers – Metropolitan Section – Air Transport
- American Society for Engineering Education
- Aviation Accreditation Board International
- Aviation Technical Education Council
- Commission on Independent Colleges and Universities
- Council for Engineering Technology in New York State
- Flight Safety Foundation
- Hispanic Association for Colleges and Universities
- Institute of Electrical and Electronics Engineers
- International Accreditation Council for Business Education (IACBE)
- International Council for Aerospace Training
- International Federation of Airworthiness
- National Aeronautic Association
- National Safety Council
- New York Aviation Management Association
- Professional Aviation Maintenance Association
- Society of Automotive Engineers
- University Aviation Association
- Women in Aviation International

ACADEMIC DEFINITIONS

The following are academic definitions used by Vaughn:

- An associate of applied science or a bachelor of science degree refers to the degree program that will be awarded upon successful completion of all requirements relating to the degree program.
- Curriculum refers to the specific courses of study that need to be completed in order to be awarded a degree.

FAA CERTIFICATION

Certification from the Federal Aviation Administration (FAA) is an important objective of many Aviation Training Institute students, since this rating is a primary qualification for employment in the field of transportation and aviation maintenance.

The FAA certification system is used to ensure airworthiness of an airplane throughout its service life. The engineering design of the vehicle is regulated through the Airworthiness Certificate, which determines the design and construction of all commercial aircraft. The standards established for airworthiness are the basis for engineering technology subject matter. This certificate is one of the objectives of all maintenance-based bachelor and associate degree programs.

An FAA certificate is a valuable document. Graduates of all maintenance-based programs generally find that many areas of employment require the airframe and powerplant certificate.

Pilots and flight engineers also are certified by the FAA. Graduates of Vaughn may combine their technical education with flight training and qualify for interesting and well-paying positions as flight crew members.

RELIGIOUS HOLIDAYS

Vaughn College, in recognition of the various religious faiths represented on campus, provides that a student absent from class because of his or her religious beliefs shall not be penalized for any class, examination or assignment deadline missed on that day(s). A student shall be permitted to make up any exam or classwork or submit an assignment after an absence due to religious observance, and no prejudice or adverse effect shall result to any student because of such religious observance. A student who anticipates being absent for religious observance should notify the appropriate faculty member in advance.

ACADEMIC ADVISING

From enrollment through graduation, the academic progress of students is of primary concern to every member of Vaughn College's faculty and staff. Students can seek assistance in planning their course schedules and programs with a member of the advisement team. The Advisement Center is located on the first floor of the Library. Changes in schedules or programs require consultation with the adviser and, in some cases, the department chair.

Each student is personally responsible for consulting with his or her adviser at least twice each semester. Department chairs and officers of the College can be consulted should the student feel his or her assistance would be beneficial.

CREDIT FOR PRE-CALCULUS MAT115

Often students come to Vaughn having already taken some advanced courses in mathematics. The pre-calculus requirement at Vaughn will be waived for students who have taken Calculus I or a higher-level course at an accredited institution and have earned a grade of C or better. Students who have studied advanced mathematics overseas, where evaluation of transfer credit is problematic, may be permitted to take a bypass exam for pre-calculus. Approval to take a bypass exam for pre-calculus is subject to the approval of the chair of the arts and sciences department.

DIVISION OF ACADEMIC SUCCESS

The Division of Academic Success has a number of support units available to students. Pursuing an education requires time and commitment, and there are many occasions when extra academic help and support are needed. These services help students improve academic performance and supplement their education. All Vaughn College students are encouraged to take advantage of these services.

Academic Success Center (ASC)

The Academic Success Center (ASC) offers a variety of programs that complement the education received within the classroom including the Math and Writing Center, peer tutoring, supplemental instruction, workshops, advisement, and testing. It also provides a collaborative area to study. The ASC has operations on the first and second floors of the Library.

Placement Testing

Placement testing is coordinated by the ASC in cooperation with the admissions department. Appointments for taking the Next Gen Accuplacer test for English and math course placements are made in the ASC.

Peer Tutorial Program

Students who need tutoring in various subjects have the option of turning to their peers for extra help. Peer tutors work with their fellow students on a one-on-one or small group basis.

Math and Writing Centers

The Math and Writing Centers are housed within the ASC. Assistance and technical support for writing and math are available. This assistance includes providing students with writing and math counseling, electronic resources and workshops geared toward math and writing and mentoring. Services are offered at all levels of writing proficiency. Developmental math and the fundamentals of algebra and precalculus are the focus of math proficiency. Supplemental instruction from approved student tutors and additional faculty members in the field is available for advanced math courses.

Starfish

Vaughn College uses an IPASS (Integrated Planning and Advising for Student Success) system – Starfish – to actively monitor progress toward completion of courses. Starfish allows for closed loop communication between classroom instructors, college services and the advisement team. That is, instructors can raise “flags” about various classroom issues (e.g., missed assignments, failed examinations, missed classes, or a need for tutoring). Advisers and various service offices can receive the flags, schedule interventions with the student, then close the loop by indicating to the instructor that the issue was resolved. Notifications are made on workflows that are in accordance with the Family Educational Rights and Privacy Act of 1974 (FERPA) guidelines.

Computer-aided Instruction

Computer-aided instruction offers students a self-help program using electronic and online resources.

Audiovisual Library

Instructional tapes covering mathematics, science, English, and a variety of aviation and aerospace-related subjects are available for individual and small-group viewing in the ARC screening section. They range from general aeronautical information to more specific, detailed topics. The viewing of these tapes may be required for some classes.

Arthur O. Eve Higher Education Opportunity Program

Vaughn College participates in the New York State Education Department’s Arthur O. Eve Higher Education Opportunity Program (HEOP). This program has been designed for educationally and economically disadvantaged New York State residents who otherwise might not be able to attend college. HEOP provides several academic and financial support services to assist students with the competitive requirements of studies at Vaughn College. These services include the summer pre-freshman program, tutorial services, counseling services and financial assistance. To be considered for the Vaughn College’s HEOP program, a HEOP application must be completed and submitted to the HEOP team.

Collegiate Science and Technology Entry Program (CSTEP)

The Collegiate Science and Technology Entry Program (CSTEP) is a New York state grant-funded program intended to increase the number of underrepresented or economically disadvantaged students pursuing professional licensure and careers in engineering, mathematics, science, technology, and health-related fields. CSTEP students have access to resources designed to enrich academic and professional skills. These resources may include free tutoring, faculty-led workshops, a research program, financial support to attend conferences, educational support stipend, internship preparation services, and more. Students should submit a CSTEP application to be considered for the program. Vaughn College students may apply to CSTEP

during any semester in their course of study. For details on the application process and program eligibility requirements, visit www.vaughn.edu/cstep.

Upward Bound Program

The Federal TRIO Program, Upward Bound (UB), is a precollege program designed to help students overcome social and cultural barriers to higher education. The program provides help and educational opportunities to first-generation and low-income students. UB consists of comprehensive and intensive academic support services year-round. Services include tutoring, Regents, and SAT prep. The goal of Upward Bound is to prepare high school students for college and to help them gain important skills necessary for success beyond high school, while gaining access to postsecondary education.

In addition to helping these students successfully complete high school, Upward Bound staff offer personal, career, and college counseling to create a smoother transition into college. The Upward Bound program at Vaughn College serves students from August Martin High School and Grover Cleveland High School.

Science and Technology Entry Program (STEP)

The Science and Technology Entry Program (STEP) is a New York state-funded program dedicated to historically underrepresented and economically disadvantaged students. STEP aims to increase the number of prepared students who enter college and improve participation and performance, specifically in mathematics, science, technology, health-related fields and licensed professions. The program provides participants with tutoring, Regents, and SAT prep during the academic year. STEP also provides a summer program that introduces eligible high school and middle school students to the worlds of aviation and various technologies through seminars and hands-on laboratory experiences.

SUPPLEMENTAL INSTRUCTION

To increase learning effectiveness for incoming first year and community college transfer students, the engineering and technology department with the support of HSI-STEM title III grant established a formal supplemental instruction (SI) that increases academic performance and retention through the use of collaborative learning strategies. The SI program at Vaughn targets challenging mathematics, engineering, physics, and complex lab courses and provides regularly scheduled, out-of-class, peer-facilitated sessions that gives students the opportunity to process the information learned in class. Each semester, the highly talented students who have already completed those fundamental courses with grade of B+ or better are selected to sit-in on the course with the instructor for the second time and serve as a designated supplemental instructor for these courses. The SI is scheduled for 10 hours per week to assist students in the fundamental engineering and engineering technology courses. This includes three hours per week that mentor attends the class with the instructor for the second time, and another seven hours per week to assist students with course materials and assignments.

FIRST YEAR INITIATIVES (FYI)

The objective of the First Year Initiatives program course is to assist students as they make the transition into college. It provides them with the tools they will need to succeed academically and socially at the College.

Quick Start (QS) Summer Immersion Program

The Quick Start (QS) program at Vaughn College is a summer bridge program. It provides incoming first year students to fundamental math and English concepts.

ATTENDANCE POLICY

All students are encouraged to attend their courses on a regular basis, and abide by the departmental and course-specific attendance requirements (as provided in course syllabi). Additionally, students are required to submit an assignment by the posted date for the course of each semester for attendance purposes. attend registered courses at least once during the first three weeks of each semester. Failing to meet this requirement will result in being reported for non-attendance. minimum requirement may affect registration in the course(s) for that semester. If a student is reported for non-attendance, does not meet the minimum attendance requirement, he/she will be informed by the registrar's office regarding his/her will forward the student's attendance status to the advisement department to be and appropriately advised. thereafter by the student academic support services department. Students who are reported for non-attendance will be liable for payment of the general fees.

Courses given by the Aviation Training Institute (ATI) and certain flight courses (FLT120 and FLT330) are certified by the Federal Aviation Administration as vital to continued aviation safety through flight education. These courses must achieve perfect attendance records, with documented evidence of the make-up of each missed class. All students in the BS Aircraft Operations -Pilots License program are required to schedule lesson each week to complete their required Stage Flight Lessons within the semester registered.

ACADEMIC STANDARDS, CATEGORIES AND PROCEDURES

- Good academic standing: Students earning a 2.0 grade point average (GPA) or better and making proper progress toward their degree are considered in good academic standing.
- Warning: Any student who earns a GPA of less than 2.0 or does not complete 60 percent or more of attempted credits in any one semester will be notified of his/her academic standing. He/she the student will be required to see a success coach to register for classes. have his/her registration form reviewed and signed by the associate vice president of academic support services or a representative.
- Progress Alerts: Any student who earns a GPA of less than 2.0 or does not complete 60 percent or more of attempted credits in two consecutive semesters will be notified of his/her academic standing. He/she The student will be required to see a success coach to register for classes. have his/her registration form reviewed and signed by the associate vice president of academic support services or a representative. The student MUST arrange weekly meetings with an adviser to resolve any academic issues. At this point, the student will be limited to part-time study.
- Extended Progress Alerts: Students whose semester GPA remains below the minimum requirements for more than two semesters may be continued on extended progress alert only if their cumulative GPA is greater than 2.0.
- Suspension: Any student who, in three consecutive semesters, earns a cumulative GPA of less than 2.0 will be automatically suspended pending an appeal to the academic standards committee. At that time, the committee may issue requirements regarding credits and courses to be taken.

Students will not be allowed to register for a course more than two times without permission from a department chair. Students who fail any course three times will automatically be suspended pending an appeal to the academic standards committee.

All failed subjects must be repeated during the following semester. The student may be allowed to schedule advanced subjects if all prerequisites are met, or may be allowed to repeat subjects already passed to raise the average, if approved by the academic standards committee.

If a student is suspended and, upon appeal, receives approval from the academic standards committee to register, the student is considered on progress alert status. If the student's overall GPA is less than 2.0 and remains less than 2.0 despite a greater than 2.0 GPA for the semester, he/she reentered in and continues to receive a term GPA of less than 2.0, the student is now on extended Progress Alerts.

- **Academic Dismissal:** If a student, after an appeal to the academic standards committee, is allowed to register and continues to receive a semester grade point average of less than 2.0, the student will not be allowed to reenroll until improved academic performance is shown by taking at least nine credits at another institution and attaining at least a 2.0 GPA for those courses.
- **Incomplete:** Subjects must be completed to the satisfaction of the faculty member within one semester.
- **Issues:** Students must address all issues related to academic progress to the academic standards committee for review. Once the committee issues its decision or recommendation, if unsatisfactory, students may appeal the decision to the vice president of academic affairs. The vice president of academic affairs' decision is final.

Students who wish to audit classes must obtain written permission from the appropriate department chair. Auditing students may attend selected classes but will not receive credit. They will not be required to write examinations or to satisfy prerequisites.

A student may be removed from matriculated status and placed in nonmatriculated status for academic deficiencies. A Flight student may be removed from matriculated status and placed in nonmatriculated status for academic deficiencies if they do not maintain their flight training as specified in the FLIGHT TRAINING REQUIREMENTS Handbook.

ACADEMIC PERFORMANCE

The faculty evaluate students as they progress through their studies. The faculty make formal student evaluations twice during each term: at midterm a P (pass) or F (fail) grade is given, and a letter grade is issued for the final grade.

ACADEMIC STATUS

A matriculated student is one who has been accepted into and is pursuing a program consisting of a sequence of subjects leading to a degree.

An admitted student is considered a conditional matriculant until the receipt of all admission documents, the completion of remedial courses (if required) or the 24-credit equivalency certificate requirement.

ACADEMIC HONORS

Outstanding student achievement in academic standing is recognized in several ceremonies throughout the academic year. Students who carry a full-credit load are named to honors lists based upon earned grade point averages each semester.

President's List:	3.85 to 4.00
Dean's List:	3.68 to 3.84
Faculty List:	3.50 to 3.67

For honors, the minimum full-credit load is considered 12 credits for full-time students or six credits for part-time students. Recognition of honor awards will be noted on the student's transcript

ADVANCED STANDING, TRANSFER AND PRIOR LEARNING CREDIT

Vaughn will consider granting transfer credits (advanced standing) for equivalent studies completed at other accredited institutions and/or for technical training obtained in the armed forces. These studies must meet the College's standards as determined by the faculty.

Applicants seeking transfer credit must submit official transcripts of their previous education and the appropriate catalogs describing these credits to the admissions office at the earliest possible date. If these documents are not submitted at the time of matriculation and must be sent later, their approval and appearance on Vaughn transcripts could be delayed. It is the student's responsibility to inform advisers of classes taken at other colleges.

Generally, transferring students must have a 2.0 grade point average (GPA) at the time of transfer. If the applicant has been out of school for more than a full academic year, a written request for consideration may be made.

Students seeking transfer credit may confer with the department chairs no later than the student's registration day to discuss his/her status and establish an academic schedule. Only those courses of equal or equivalent credit value for which the applicant received a grade of "C" or better will be given transfer credit.

The respective department chair's approval is required for transfer credits (advanced standing) given in that department. In any case, a student must complete the final 30 credits prior to graduation at the College.

Students are discouraged from enrolling in a course if transfer credit is anticipated for the same course. If a student anticipates transfer of credit for a particular course, he/she should be discouraged from enrolling in the same course. If a student elects to enroll in the course for whatever reason (e.g., obtain full-time status for financial aid, increase GPA, etc.), transfer credit will no longer apply. The academic grade will be the grade of record. If the student withdraws from the course or receives a failure in the course, he/she will have to retake the course must be retaken at Vaughn College. (See also "Taking Courses at Another College or University," page 65.)

Students transferring into the BS Aircraft Operations, or the Associates Aircraft Operations degree programs must provide their former colleges FAA Letter of Authorization under the authority for an Institution of Higher Education to Certify it Graduates for an Airline Transport Pilot Certificate with Reduced Aeronautical Experience to receive credit for approved courses to be credited for RATP Certification.

BYPASS EXAMINATIONS

Vaughn offers applicants and students the opportunity to take bypass examinations on the basis of equivalent studies completed at accredited secondary and/or postsecondary institutions. Bypass examinations determine whether or not a student has the knowledge and ability to be exempt from a given course. A passing score will result in full credit for the course.

It is recommended that a student apply for a bypass examination prior to the semester in which the course is offered. This allows time to register for the course in the event the student fails the examination and would prevent undue tuition charges for courses the student registered for but may not need.

Bypass examinations are not available to students who have been or who are registered for the course. Eligibility for the examination is determined by the chair of the particular academic department. Documented past work experience will be considered.

The receipt for the testing fee must be presented before the examination can be administered (see Bypass Examination Fee, page 25). A student may bypass a number of courses but may attempt to bypass any given course only once. Federal Aviation Administration regulations may limit the availability of bypass exams in certain areas. Bypass examinations may adversely impact financial aid, and students receiving aid should confer with a financial aid counselor before taking the bypass examination.

FAA licenses that are earned can only be given credit upon admission to the program.

ACADEMIC HONESTY

Vaughn College is committed to ensuring quality and integrity in all its academic and evaluative activities. A learning environment that promotes high academic standards is beneficial to students and faculty alike. Academic dishonesty of any form is in opposition to the values and mission of the institution and will not be tolerated.

ACADEMIC APPEALS

Students concerned about their grades in a given course should first try to resolve the issue with the instructor and to explain their concerns about the grade. If the student is concerned that the grade has not been correctly determined, he or she should contact the academic department chairperson should be contacted in writing. In writing, the student must detail his or her argument for a grade change, specifically identifying and documenting those factors (other than academic performance) that the student believes affected his or her grade. The student must submit this written statement to both the instructor and the chair no later than 30 days from the start of the fall or spring semester directly following the semester in which the grade in question was assigned. The instructor will then provide a written response to both the student and the chair. On the basis of both the student and instructor reports, the chair will make a decision. In academic departments that also have program coordinators, at the discretion of the department chair, at his or her discretion, may include the coordinator may be included in the process. The student will receive a written reply from the department chair within 15 days from receipt of the appeal. If the problem is still not resolved, and the student wishes to continue the petition, he or she may make an appeal may be submitted in writing to the academic standards committee. The committee will be chaired by the vice president of academic affairs and shall additionally consist of one faculty member representative from each department. The committee shall begin with the presumption that the original grade was assigned correctly, and the burden of proof will lie with the student. If the committee determines the grade assigned was based on factors other than the student's academic performance in the course, the committee may determine a new grade and submit a change of grade form.

ACADEMIC CREDITS AND CERTIFICATION UNITS

COLLEGE CREDITS

College credits are granted for successful completion of courses offered by the arts and sciences, engineering and technology, management and aviation departments.

One credit toward graduation is granted for each 15 hours of lecture or 45 hours of laboratory per semester. Students should allow two preparation hours for each lecture hour.

Transfer credits refer to those subjects for which credit is earned at another college or by nontraditional methods.

CERTIFICATION UNITS

Certification units are granted as a result of successful completion of classes offered by the Aviation Training Institute.

One certification unit is granted toward a Federal Aviation Administration airframe and/or powerplant certificate for each 15 hours of lecture or 45 hours of laboratory work per semester. Individual certification units are transferable only to the associate in occupational studies degree program. However, completion of all airframe and powerplant certification units can be transferred as 30 college credits to the aviation maintenance-based associate in applied science or bachelor of science degree programs. No more than 20 units can be taken during fall or spring semesters, and no more than 10 during the summer, without permission from the director of the Aviation Training Institute.

EQUIVALENT HOURS

Equivalent hours are granted for successful completion of basic skills classes. One equivalent hour is granted for each 15 hours of lecture or 45 hours of laboratory work per semester. Equivalent hours are only transferable to the associate in occupational studies degree program.

CREDIT LOADS

The maximum credit load allowed in the fall or spring semester for full-time students is 18 credits. The maximum credit load during a summer semester is 12 credits. Approval from the vice president of academic affairs is required to register for more than the maximum credit load. Students on academic Progress Alerts are assigned to a reduced load maximum during the Progress Alerts period.

LICENSING/CERTIFICATE ISSUANCE

After successful completion of the GG02*/AA02/PP02 courses, students can take their knowledge exams at the PSI Testing Center and their oral/practicals with a staff-designated mechanic examiner.

*GG02 Certificate allows student to test for only Airman Knowledge exam. Note that a grade of 90 or better is required on screening exams to successfully complete General, Airframe and Powerplant curriculum's.

TAKING A COURSE OUTSIDE OF A DEGREE PROGRAM

If a student takes a course outside the assigned degree program, the student's final grade in the course will count toward the student's cumulative grade point average. Students should consider the potential financial aid implications before enrolling in the course.

No Flight Courses are authorized for BS Aircraft Operation Students from any other flight schools except our approved Part 141 Flight School.

INCOMPLETES

A grade of "I" (incomplete) is to be awarded very rarely, only when the student has not completed a small portion of the coursework due to exceptional circumstances. Granting of this grade is up to the discretion of the instructor but is not recommended when a student has not completed significant portions of course tasks. The instructor must notify the department chair. A signed "Change of Grade" form must be submitted to the registrar's office no later than the end of the semester immediately following the semester in which the student received a grade of "I." For example, if an "I" grade is received in the spring or summer semesters, the grade change form must be submitted by the end of the following fall semester, and so on.

Failure to complete the course work in a timely fashion, and to the satisfaction of the instructor, will automatically result in the conversion of an "I" grade to the grade of "F" (failure).

Incomplete Grades are not authorized for the following Aviation courses: FLT101A, FLT101B, FLT121A, FLT331A, FLT331B. An Incomplete is ONLY authorized for FLT101C, FLT121B, and FLT331C if all Flight coursework is complete, and the student is just awaiting a check-ride by an FAA Designated Examiner (DEI)

GRADE CHANGE POLICY

Grade changes from “F” are generally not permitted. Students receiving final grades of “F” must repeat the course. Under extenuating circumstances, requests will be handled through the vice president of academic affairs.

Due to certain extraordinary circumstances (makeup assignments, retesting, clerical error, etc.), a student may request a grade change. If a student received a previous grade of A, B+, B, C+, C or D and wishes to receive a grade change, an academic appeal must be initiated. Once the instructor signs the form, it must then be submitted to the department chair for approval and signature. The department chair will then sign the form and forward it to the vice president of academic affairs for approval. The vice president’s signature (as well as the signature of the instructor and department chair) must appear on the form before it is sent to the registrar’s office for processing. The proper paperwork must be submitted to the registrar’s office no later than the end of the fall or spring semester directly following the semester in which the grade in question was assigned. Grade change requests after this time requirement will be denied.

REPEATING A COURSE

If a student repeats a course, both grades will remain on the student’s record. However, only the last grade received in the repeated course will be computed into the student’s grade point average.

ATI FAILING GRADES POLICY

GG02/AA02/PP02 – Certification Preparation – (General/Airframe and Powerplant)

There are two grades issued for GG02/AA02/PP02:

P-Pass, F-Fail. Students receiving a passing grade from the instructor in GG02/AA02/PP02 may still be subject to an “F,” if any of the following conditions exist:

1. Failing pre-/co-requisite courses
2. Unable to fulfill makeup hours requirements, if applicable

All Aviation Training Institute courses required a passing grade of 70 or better for successful completion. GG02, AA02 and PP02 certification review courses require a grade of 90 or better for successful completion.

For outstanding tuition balance and/or library dues, students have up to two years to satisfy the above course requirements. Those who fail their screenings must retake the respective review course.

For academic policy on good academic standing and failing grades, etc., see page 49.

DEGREE PROJECT

Candidates for a degree in some disciplines must complete a final project or a comprehensive report and/or laboratory project before the end of their last semester. Students must register a project with the appropriate academic department no later than the first week of the final semester. Graduates seeking the Federal Aviation Administration (FAA) certification must fulfill all requirements by completing the license preparation seminars. Students in maintenance-based programs who elect not to be certified must substitute a degree project seminar (DP405) in lieu of GG02(general), AA02 (general airframe) or PP02 (general powerplant). In addition, students possessing one of two licenses must also complete DP405 if seeking noncertification for graduation.

Courses in the Aviation Training Institute are maintained separately from non-FAA-based programs. Transcripts will reflect two grade point averages: a grade point average for the Aviation Training Institute courses and a GPA for all academic courses.

Students who have received a final grade of “F” (failure) for the final project or course may not receive a grade change. Under extenuating circumstances, students can appeal to the academic standards committee.

INDEPENDENT STUDY

An independent study is a project designed by a student and a faculty mentor that allows the student to pursue an academic topic under the tutelage and supervision of the faculty mentor in more depth than available in a regularly scheduled course.

The faculty mentor must be a full-time faculty member in the discipline of the independent study, and the arrangement must be approved by the department chair. Adjunct faculty may serve as independent study mentors, again only with the approval of the department chair.

The student and faculty mentor are expected to meet for at least one hour weekly during the semester of the independent study. Normally, an independent study involves selected readings, guided research and submission of a paper of at least 15 to 20 pages. Independent study in an area in which the faculty member deems a paper inappropriate must be accompanied by an alternate plan to assess the student’s work and learning outcomes.

Students may register for only one independent study course for a maximum of three credits during any semester or term, and may apply a maximum of six credits of independent study for graduation. Independent study should not normally duplicate coursework available in a regularly offered course, and may not duplicate coursework for which a student has previously received credit. Exceptions must be approved by the vice president of academic affairs.

GRADUATION REQUIREMENTS

Graduation is recommended to the Board of Trustees by the faculty upon completion of the following criteria:

1. A cumulative grade point average of 2.0 or higher must be attained.
2. All assigned work must be completed satisfactorily.
3. Either the degree project requirement or the certification requirement must be satisfied. Previously certified students must fulfill the degree project requirement.
4. Transfer students with advanced credit must complete 30 credits in residency.
5. All financial obligations must be satisfied.
6. Graduation application requirements must be completed as listed under “Applying for Graduation.”
7. Students must complete all academic course requirements in their degree program.
8. Students must complete exit interviews with the office of financial aid.

All courses listed in the curriculum of the degree program are required and may not be substituted unless approved by the chair of the department. If not used as a required elective(s), courses taken outside the degree program will not count toward graduation requirements.

In cases where a course is no longer offered, the department chair may make course substitutions. Students in the Aviation Training Institute must receive passing grades in the certification preparation courses, GG02, AA02 and PP02. Graduation status may be postponed until all the requirements in passing the certification preparation courses are met.

APPLICATION FOR A SECOND DEGREE

A student may apply for another degree if he/she can satisfy one of the following conditions:

1. The student has officially graduated with at least one of Vaughn College’s degree programs, or
2. The student is within his/her last semester toward completion of all degree requirements of the initial degree program and has submitted a degree declaration form for the initial degree program within the appropriate due date.
3. The conferral of two baccalaureate or associate degrees must represent mastery of “two essentially different” areas of specialization. For example, a student may earn a bachelor’s degree in airport management and electronic engineering technology, but not airport management and airline management.

A student who applied for a second degree under condition number two, but subsequently did not graduate in his/her initial program because he/she did not successfully complete all academic requirements, will have his/her second degree application rescinded. In addition, graduation status in the initial program will be deferred until all academic requirements are met, along with other graduation requirements (see above for graduation requirements).

Any student receiving Title IV aid should consult with the office of financial aid to determine eligibility of financial aid. A change of curriculum (see page 62) may be recommended for the student who is at risk academically. If the student is eligible for a second degree, he/she should keep in mind that if a change of curriculum is submitted and approved, the student is forfeiting the initial degree program, even though the student may be close to fulfilling all degree requirements.

DUAL MAJORS

Students may earn a single degree with a dual major within the same department. Dual majors can be awarded in the following areas for degrees:

AAS Degrees

Aeronautical Engineering Technology
Airport Management
Aircraft Operations
Animation and Digital Technologies
Aviation Maintenance
Electronic Engineering Technology

BS Degrees

Aircraft Operations
Airline Management
Airport Management
Aviation Maintenance
Electronic Engineering Technology
General Management
Mechanical Engineering Technology

Students need to file a “Change of Curriculum” form in the records office of the registrar. The chair(s) of the respective department(s) will determine the status of students who have filed applications for a dual major degree on an individual basis.

APPLYING FOR GRADUATION

Students must:

1. File a “Graduation Declaration” form with the registrar’s office. All degree declaration forms must be returned to the registrar’s office the semester prior to the last semester in which they are planning to graduate. For example, students applying for May graduation must file no later than October 15; for December graduation, no later than July 15; for August graduation, no later than April 15.

2. Candidates with more than six outstanding credits, or who have not filed by the deadlines stated above, will be postponed until the next graduation date.

COMMENCEMENT

Commencement is held once per year at Vaughn, generally, the third Saturday in May. Graduates from August, December and May candidates can participate. Candidates who participate in the spring commencement exercise are still considered graduate candidates. Participation in the ceremony **does not imply conferral of a degree**. Degrees are finalized and conferred upon a final academic and financial review. To expedite publishing of the commencement program, cumulative grade point averages may not reflect the semester in which the commencement exercise takes place. Therefore, academic honors are subject to change.

Graduates must complete all requirements as stated under “Graduation Requirements.” (See page 40). Outstanding student achievement is recognized at the College’s honors convocation ceremony.

Honors categories include:

Summa Cum Laude—A grade point average of between 3.85 and 4.0.

Magna Cum Laude—A grade point average of between 3.68 and 3.84.

Cum Laude—A grade point average of between 3.50 and 3.67.

ACADEMIC CALENDAR 2023 – 2024*

* All dates are subject to change. Check the website: www.vaughn.edu.

FALL SEMESTER 2023	
Registration	Tues., February 28, 2023 through Thurs., August 31, 2023**
Labor Day Holiday	Mon., September 4, 7 a.m.
Classes Begin	Tues., September 5, 8 a.m.
Late Registration Begins (late fee will be imposed)	Tues., September 5
Tuition Payment Due	Tues., September 5
Program Adjustment Period (add/drop/change)	Fri., September 1 through Sat., September 9
Last Day to Register	Sat., September 9
Last Day to File for May 2024 Graduation	Fri., October 13, 7 a.m.
Midterm Exam Period	Mon., October 16 through Sat., October 21
Last Day to Withdraw without Academic Penalty	Tues., October 31
Veterans Day Holiday	Fri., November 10
Thanksgiving Recess	Wed., November 22 through Sun., November 26
Classes Resume	Mon., November 27
Classes End	Fri., December 15
Exam Period	Sat., December 16 through Fri., December 22
Spring/Summer 2023 Grade Change Deadline	Fri., December 22
Winter Recess	Sat., December 23, 2023 through Mon., January 15, 2024
SPRING SEMESTER 2024	
Registration	Mon, October 30, 2023, through Fri, January 12, 2024
Dr. Martin Luther King Jr. Holiday	Mon., January 15
Classes Begin	Tues., January 16, 8 a.m.
Late Registration Begins (late fee will be imposed)	Tues., January 16
Tuition Payment Due	Tues., January 16
Program Adjustment Period (add/drop/change)	Tues., January 16 through Sat., January 27
Last Day to Register	Sat., January 27
Presidents Day Holiday	Mon, February 19
Monday Schedule	Tues., February 20
Last Day to Withdraw without Academic Penalty	Mon., March 19
Spring Recess	Mon., March 25 through Sun., March 31
Classes Resume	Mon., April 1
Semester Ends	Tues., May 7
Honors Convocation	Wed., May 8
Commencement	Sat., May 18
ACADEMIC SESSION I SUMMER 2024	
Registration	Wed., March 1, 2023, through Thu., May 9, 2024**
Classes Begin	Fri., May 10, 8 a.m.
Late Registration Begins (late fee will be imposed)	Fri., May 10
Tuition Payment Due	Fri., May 10
Program Adjustment Period (add/drop/change)	Fri., May 10 through Tues., May 14
Last Day to Register	Tues., May 14
Memorial Day Holiday	Mon., May 27
Last Day to Withdraw without Academic Penalty	Mon., June 3

Last Day to File for December 2024 Graduation	Wed., June 12
Juneteenth Holiday	Wed., June 19
Classes End	Mon., June 24
Summer Recess	Mon., July 1 through Sun., July 7
ACADEMIC SESSION II SUMMER 2024	
Registration	Wed., March 1, 2023, through Fri., June 28, 2024**
Classes Begin	Mon., July 8, 8 a.m.
Late Registration Begins (late fee will be imposed)	Mon., July 8
Tuition Payment Due	Mon., July 8
Program Adjustment Period (add/drop/change)	Mon., July 8 through Wed., July 10
Last Day to Register	Wed., July 10
Last Day to Withdraw without Academic Penalty	Mon., July 29
Classes End	Mon., August 19
ACADEMIC SESSION III SUMMER 2024 (Entire Summer)	
Registration	Wed., March 1, 2023 through Thurs., May 9, 2024
Classes Begin	Fri., May 10, 8 a.m.
Late Registration Begins (late fee will be imposed)	Fri., May 10
Tuition Payment Due	Fri., May 10
Program Adjustment Period (add/drop/change)	Fri., May 10 through Tues., May 14
Last Day to Register	Fri., May 10
Memorial Day Holiday	Mon., May 27
Juneteenth Holiday	Wed., June 19
Summer Recess	Mon., July 1 through Sun., July 7
Classes Resume	Mon., July 8, 8 a.m.
Last Day to Withdraw without Academic Penalty	Fri., July 12
Classes End	Sat., August 17

** (Early registration and/or online registration may be available by contacting academic advisement)

AVIATION TRAINING INSTITUTE CALENDAR 2023 – 2024*	
* All dates are subject to change. Check the website: www.vaughn.edu .	
FALL SEMESTER 2023	
Registration	Tues., February 28, 2023 through Thurs., August 31, 2023**
Labor Day Holiday	Mon., September 4
Classes Begin	Tues., September 5, 7 a.m.
Late Registration Begins (late fee will be imposed)	Tues., September 5
Tuition Payment Due	Tues., September 5
Program Adjustment Period (add/drop/change)	Tues., September 5 through Sat., September 9
Last Day to Register	Sat., September 9
Last Day to File for May 2024 Graduation	Fri., October 13
Last Day to Withdraw without Academic Penalty	Tues., October 31
Veterans Day Holiday	Fri., November 10
Thanksgiving Recess	Wed., November 22 through Sun., November 26
Classes Resume	Mon., November 27, 8 a.m.
Semester Ends	Fri., December 22
Winter Recess	Sat., December 23, 2023 through Mon., January 15, 2024

SPRING SEMESTER 2024	
Registration	Mon, October 30, 2023, through Fri, January 12, 2024
Dr. Martin Luther King Jr. Holiday	Mon., January 15
Classes Begin	Tues., January 16, 8 a.m.
Late Registration Begins (late fee will be imposed)	Tues., January 16
Tuition Payment Due	Tues., January 16
Program Adjustment Period (add/drop/change)	Tues., January 16 through Sat., January 20
Last Day to Register	Sat., January 20
Presidents Day Holiday	Mon, February 19
Monday Schedule	Tues., February 20
Last Day to Withdraw without Academic Penalty	Mon., March 18
Spring Recess	Mon., March 25 through Sun., March 31
Classes Resume	Mon., April 1
Semester Ends	Tues., May 7
Honors Convocation	Wed., May 8
Commencement	Sat., May 18

SESSION I SUMMER 2024	
Registration	Wed., March 1, 2023, through Thurs., May 9, 2024
Classes Begin – Wednesday Schedule	Thurs., May 9, 8 a.m.
Late Registration Begins (late fee will be imposed)	Thurs., May 9
Tuition Payment Due	Fri., May 10
Program Adjustment Period (add/drop/change)	Thurs., May 9 through Fri., May 10
Last Day to Register	Fri., May 10
Monday Schedule	Fri., May 10
Memorial Day Holiday	Mon., May 27
Last Day to Withdraw without Academic Penalty	Mon., June 6
Last Day to File for December 2024 Graduation	Wed., June 15
Juneteenth Holiday	Wed., June 19
Classes End	Fri., June 28
Summer Recess	Mon., July 1 through Fri., July 5
SESSION II SUMMER 2024	
Registration	Mon., October 30, 2023 through Fri., June 28, 2024**
Classes Begin	Mon., July 8, 8 a.m.
Late Registration Begins (late fee will be imposed)	Mon., July 8
Tuition Payment Due	Mon., July 8
Program Adjustment Period (add/drop/change)	Mon., July 8 through Tues., July 9
Last Day to Register	Tues., July 9
Last Day to Withdraw without Academic Penalty	Mon., August 1
Classes End	Fri., August 23

** (Early registration and/or online registration may be available by contacting academic advisement)

GRADING SYSTEM

One credit hour represents 15 lecture hours or 45 assigned laboratory hours. One unit represents 15 lecture hours or 45 laboratory hours.

<i>Grade</i>	<i>Standard</i>		<i>Credit Points</i>		<i>Other Marks</i>
A	(90-100)	Excellent	4.0	AU	Audit, No Credit
B+	(85-89)		3.5	NG	No Grade Given
B	(80-84)	Good	3.0	P	Pass
C+	(75-79)		2.5	PE	Pass/Exempt from next level of remediation
C	(70-74)	Average	2.0	S	Satisfactory
D**	(60-69)	Min. Passing	1.0	U	Unsatisfactory
F	Below 60	Failure	0	I	Incomplete—Not Computed in Index
				W	Official Withdrawal
				IE	Incomplete—Extended
				NA	Registered but Never Attended
				WX	Withdrawal Due to Administrative Reasons or Stopping Attendance by Midterm
				FX	Withdrawal Due to Excessive Absences After Midterm

Codes

AL	Credit by Airframe Certificate
APCR	Advanced Placement Credit
APL	Credit by Airframe and Powerplant Certificate
CE	Credit by Examination
CL	Credit by Other License or Certificate
PL	Credit by Powerplant Certificate
H	Life Experience
FCC	Credit by FCC License
NC	No Count
T	Transfer Credit
WV.	Waiver

Grade point average (GPA) is computed by multiplying the number of quality points by the number of credits/units of the course. Total number of quality points is divided by the sum of total credits/units* passed and failed to obtain the grade point average.

* Developmental and special courses carrying credits and receiving pass, pass/exempt or unsatisfactory grades are not computed into the GPA.

** For Aviation Training Institute students, minimum passing grade for all courses in the airframe and powerplant curriculum is a "C." Grades below 70 are "F," except GG02/AA02/PP02 certification preparation courses, which have a minimum passing grade of 90 percent.

Example of a Computed Grade Point Average:

Courses Taken	Credits	Grade	Quality Points
English	3	B (3.0 points)	9
American Government	3	A (4.0 points)	12
Calculus	3	C+ (2.5 points)	7.5
Physics	4	C (2.0 points)	8
Total		13	$36.5 \div 13$ = 2.80 GPA

STUDENT RECORDS AND REGISTRATION

STANDARDS OF ACHIEVEMENT

In all curricula, the student must maintain a rate of progress satisfactory to the faculty. Achievement in course assignments must meet established standards. Admission standards are designed to provide an opportunity to all interested students. Performance standards make certain that each student takes full advantage of this opportunity, while ensuring the competence of all the College's graduates. Academic assistance is available to help each student attain satisfactory performance levels.

ENROLLMENT STATUS

Vaughn's academic semester schedule provides for a fall semester of 15 weeks, a spring semester of 15 weeks and two summer sessions of six weeks each. Examination periods are scheduled during each semester and each summer session. Students enrolled in the Aviation Training Institute follow a three-semester schedule with 15 weeks in the fall, spring and summer.

FULL-TIME ATTENDANCE

A minimum of 12 credits/units of study must be scheduled each fall and spring semester for full-time financial aid certification. Students who elect the minimum full-time schedule are advised that summer attendance is essential if they are to make progress toward graduation.

CLASS SCHEDULES

Classes meet Monday through Saturday. Classes are offered on Saturdays between 8 a.m. and 8 p.m.

There are scheduled breaks and observed holidays during each semester. Consult the academic and Aviation Training Institute calendars (pages 59 and 60, 203 and 204).

ABSENCES AND LATENESS

ACADEMIC COURSES

Regular attendance is essential for satisfactory academic performance. Students are also advised that additional attendance requirements may be mandated depending on the faculty member and/or the

department from which a particular course is taken. The final grade in any subject may be reduced in proportion to the number of unexcused absences.

FLIGHT TRAINING

Regular weekly attendance is essential for satisfactory flight training performance. Failure to schedule and attend weekly flight training at our partner flight school may result in removal from the BS Aircraft Operations Degree Program.

AVIATION TRAINING INSTITUTE COURSES

Make Up Criteria

Lectures: 3-page summarization per hour absent on missed subject matter. (Copy/Paste not accepted). If a student misses more than 15 percent of lecture time they will require counseling by ATI administration to continue lectures.

Labs: Instructor led/signed off competency-based assessment of missed lab work (either caused by lateness, absence, or not meeting performance standards) demonstrating skills and risk management associated with task missed. Students missing more than 15 percent of laboratory time will automatically fail.

Students must complete the makeup within 21 calendar days of when absence occurred or student will receive a failure due to excessive absences, or FX.

CONTINUOUS DEGREE PROGRESSION

One of the important features of Vaughn College is continuous degree progression.

A student whose career goal changes during the course of his or her education may be given the opportunity to change either degree or major. Many courses are common to all curricula and can be transferred readily from one program to another.

Placement test results and a review of the student's high school and college transcripts may be required if the student is requesting permission to advance into a bachelor's degree program. Students may also request to transfer from a bachelor program to an associate program. Only equivalent or higher-level courses will transfer.

Cumulative grade point averages will not be affected by these transfers. However, changes in degree programs may affect financial aid, and students are required to consult with a financial aid counselor before changing degree programs.

Students pursuing additional degrees or programs, or students wishing to change their program, are required to follow the degree program requirements listed in the current catalog.

CHANGE OF CURRICULUM

To change curriculum, students must file a "Change of Curriculum" form with the registrar three weeks prior to registering for the semester in which the change is to take effect. There is a \$10 change of curriculum fee, payable at the office of student accounts.

If students change their curriculum, they must follow the requirements of the catalog that is in effect at the time of the change, regardless of when they first were admitted to the College. In addition, students must consult with a financial aid counselor before submitting the "Change of Curriculum" form to the registrar. No change of curriculum will take effect for the semester in which students are already registered Freshmen who were referred to the associate degree are not allowed to change curriculum until they have completed their second semester, and their GPA is a minimum 3.0.

Appeals can be submitted to the vice president of academic affairs.
vice president of academic affairs.

International students also must seek approval by the international student adviser. Students in the Aviation Training Institute program are required to take a placement exam before changing into an academic program.

ADDING AND DROPPING COURSES OR WITHDRAWAL

A student registered for any term who wishes to adjust his/her make a schedule change, or discontinue studies entirely, must go to the registrar's office. A student will remain registered, whether or not classes are attended, until he/she the student officially withdraws from the course or the College. Students wishing to make a schedule adjustment their schedule must complete the College's Add/Drop form, available in the Office of the Academic Success Center or Office of the Registrar, and have it approved and signed by an Academic adviser. Additional approval might be necessary in cases where:

1. If dropping a course affects financial aid, the add/drop should be approved by a representative of financial aid and/or a student accounts representative;
2. Late registrants need additional approval from the instructor teaching the course or the department chair to determine eligibility; and
3. If a student is considered remedial or academically at risk, approval from a representative of the student success center and/or department chair is necessary.

The Office of the Registrar may reject a program change if the add/drop form is not submitted within the appropriate period. (See the calendar or registration material for last day to withdraw and for the last day to add/change classes).

Students withdrawing from a class with a lecture and a lab may withdraw from the lab and remain enrolled in the lecture. However, a student may not withdraw from the lecture and remain enrolled in only the lab. Special permission is required from the department chair.

Students who are withdrawing entirely from the College must fill out a Total Withdrawal form. Before withdrawing, students must fill out the Total Withdrawal form and seek approval from a financial aid representative or international student adviser (if applicable), and a Student Accounts representative before submitting the form to the Office of the Registrar. Student clearance/exit form must be completed before signed by representatives of the financial aid office. (See "Refunds to Students Who Withdraw," on page 39).

The date on which these forms are completed and approved by the Office of the Registrar will constitute the date of change or withdrawal for the student.

COST OF SCHEDULE CHANGES

If a student preregisters, any program changes (add/drop) made before the first day of the semester will be free of charge. Otherwise, any program changes, including changing sections, will be \$10 per add/drop form. Students will not be charged an add/drop fee if a course is canceled.

ADMINISTRATIVE WITHDRAWALS

Vaughn will withdraw a student from class in the following situations:

1. Fails to meet proper immunization requirements/ documents (refer to "Immunization");
 2. Disciplinary reasons;
 3. Fails to meet tuition/financial obligations;
 4. Discontinued attendance in class*;
 5. Remedial students exceed the 12-credit course load limit; and
 6. Students on military leave must supply the College with a copy of military orders for student records and possible tuition adjustment.
 7. Continue with the numbering
1. BS Aircraft Operation students must obtain by the first day of class and maintain an FAA 1st Class Medical during

- the course of the degree.,
2. BS Aircraft Operation Students fail to obtain their necessary financial aid for flight training.
 3. BS Aircraft Operation Students fail to obtain the required clearances from TSA, if required.
 4. BS Aircraft Operation Students fail to schedule and attend weekly required flight lessons.
 5. BS Aircraft Operation Students fail to complete the required pre and corequisites courses as specified in the FLIGHT REQUIREMENTS HANDBOOK.
 8. BS Aircraft Operation Students failure to follow instructions of CFIA or CFII, or any inappropriate conduct. As a special circumstance explained in writing by department chair.

Depending on the administrative withdrawal date, the student's account may or may not be prorated (refer to page 40, "Tuition Refund Schedule").

As a special circumstance explained in writing by department chair.

*Refer to page 60, under "Grading System," to determine which grade is applicable:
NA, WX or FX, or page 39, "Refunds to Students Who Withdraw."

WITHDRAWAL PERIOD

Students who withdraw before eight weeks have passed in a regular semester are considered to have withdrawn. They will receive a final grade of "W" on their transcripts.

Withdrawal after this period is permitted only in unusual circumstances, which requires the approval of the registrar's office.

MAINTENANCE OF MATRICULATION

Students who need to take a leave of absence (in mid-semester or otherwise) must file a maintenance of matriculation form in the registrar's office.

Students wishing to keep their status as matriculated while on their leave of absence (one semester) pay a maintenance of matriculation fee of \$150 per semester upon taking their leave of absence. Under these circumstances, a reentry fee is not required. Students can maintain their matriculation for up to two consecutive semesters.

International students who have been issued an I-20, or students with outstanding tuition balances, cannot maintain matriculation. Eligible students wishing to maintain matriculation must submit their fees and forms in by the deadline given.

Maintenance of Matriculation for BS Aircraft Operations Students are only authorized for FLT 473 and FLT474 after completion of FLT330, FLT330L, and FLT330C at the end of the students *the Semester. No other maintenance if Matriculations are authorized.

TOTAL WITHDRAWAL

A student who registers in a given term semester and decides to discontinue all his/her classes must submit a Total Withdrawal form. This form must be approved by the office of the Associate Vice President of Academic Affairs an adviser where he/she the student will also be interviewed and then counseled by financial aid, student accounts and the registrar.

Once the total withdrawal form is completed and received by the appropriate offices, the student's financial account will be adjusted according to the date of submission, not the student's last date of class attendance. (Refer to the "Tuition Refund Schedule" on page 40 for additional information).

MATRICULATION

Upon acceptance to Vaughn, the applicant is approved and a matriculation notice is issued by the admissions office. The director of admissions will consider individual requests for admission on a conditional basis.

Candidates who must clear deficiencies in their application should seek the advice and guidance of an admissions counselor. All conditions must be removed within the period prescribed by the director of admissions. The granting of matriculation imposes on the student the obligation to notify the College in writing of all changes in status, including withdrawal from courses or withdrawal from the College.

IMMUNIZATION

New York state law requires all students born on or after January 1, 1957 and taking six or more credits to demonstrate immunity to measles, mumps and rubella (German measles).

Failure to submit proof of immunity to the College may prohibit a student from registering for classes. Immunization status will be checked as part of the registration process.

Students not in compliance 30 days after the start of classes may not be permitted to continue classes and may be de-registered for the semester. This deadline may be extended to a maximum of 45 days for out-of-state or international students. The director of student affairs is available to answer questions students may have concerning immunization requirements. Documents providing proof of immunity should be submitted in the English language.

RE-ENTRY POLICY

A student seeking re-entry to the College after one or more semesters (excluding summer sessions) without maintaining matriculation must submit a completed re-entry application to be reviewed by the Office of the Registrar and pay a \$40 fee to the Office of Student Accounts. (See page 64 for procedures to maintain matriculation.) The re-entry fee is not refundable.

Tuition for re-entry students is based on rates listed in the current catalog. A nonrefundable tuition deposit of \$200 is due and payable prior to registration. Students are responsible for providing official transcripts of work performed at an accredited college while away. Official transcripts must be sent to the registrar, and an unofficial transcript must be provided to the student's academic adviser.

The registrar's office will notify the student regarding his/her re-admission status. All previous financial obligations to the College must be reconciled before re-entry can be considered.

Alumnus of the College returning for the first time after graduation are not required to pay the re-entry fee. They are required to file an application for a second degree with the registrar's office.

Students may not re-enter academic programs that are no longer offered.

NAME CHANGE POLICY

For a name to be changed, any one of the documents listed below (naturalization certificate, birth certificate, marriage certificate, notarized court document, social security card) and a valid not expired Identification (see below reference) must be submitted with the Student Information Change form.

Acceptable Forms of Identification:

ALL Applicants	U.S. Citizens & Resident Aliens	Non-U.S. Citizens
Identification information must be - <ul style="list-style-type: none"> ✓ valid ✓ current Identification must include ALL of the following information – <ul style="list-style-type: none"> ✓ photo ✓ date of birth ✓ signature ✓ physical, residential address 	<ul style="list-style-type: none"> ✓ Identification card issued by any U.S. state, territory, or government entity <ul style="list-style-type: none"> ○ (e.g., driver permit or license, government identification card, or military identification card) <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> ✓ Passport <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> ✓ Alien residency card 	<ul style="list-style-type: none"> ✓ Passport <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> ✓ Driver permit or license issued by a U.S. state or territory <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> ✓ Identification card issued by any government entity

TAKING COURSES AT ANOTHER COLLEGE OR UNIVERSITY

Vaughn College recognizes that students may need to take a course at another college and have it transferred toward their Vaughn degree. Students may apply for permission to take courses outside the College only under the following circumstances:

1. If the course or courses are not offered at Vaughn College during a given semester
2. If the student plans to be away from the area during a given semester

Students who plan to take a course at another college must first receive approval from the appropriate academic department chair at Vaughn College, then file an official form, available at the office of the registrar, before they take the course. Students will use this form to identify the exact course to be taken at the college they propose to attend, and the semester in which the course will be taken. The department chair must verify that the course is equivalent to a Vaughn College course and applicable to curriculum requirements before allowing the student to take the course elsewhere. It is the responsibility of the student to have an official transcript sent to Vaughn College's office of the registrar upon completion of a course taken outside. Once students have enrolled in a degree program at Vaughn, no more than nine credits may be taken toward a bachelor's degree, or six credits toward an associate degree, at another institution. Additionally, students may take no more than three credits in this manner per year.

TRANSCRIPT OF RECORD

A transcript is the College's official statement of a student's academic record. Official transcripts bear the seal and an authorized signature of the College's registrar. The Vaughn College transcript only contains information concerning a student's academic performance and status at the college. The College adheres to the Family Education Rights and Privacy Act of 1974 and in so doing, a student's record will not be released without prior consent from the student.

Vaughn College has authorized Parchment to handle transcript requests through the web. Transcripts may be sent through U.S. Mail and electronically. A valid major credit card and an email account are required to order a transcript. The cost per transcript (undergraduate OR graduate) is \$12.50 for a hardcopy transcript (mailed or pick up) and \$10 for an electronic transcript (PDF). (Please note students that attended prior to 1990 cannot order electronic transcript)

Transcripts are processed within 3 to 5 business days. Processing times may be longer during peak registration periods.

Transcripts marked "Student Copy" follow the same procedure as above. Students wishing to obtain their personal transcript may only obtain a student copy. Official transcripts are either mailed to another designated address or sealed for pickup.

The students transcript of record will show the students completion for their Restricted Airline Transport Pilots Certification (RATP).

COMPLETING YOUR PROGRAM

Vaughn College offers the full-time student an opportunity to earn a bachelor's degree in eight consecutive semesters, the associate in applied science degree in four to six consecutive semesters, or the associate in occupational studies degree in four consecutive semesters.

The part-time student usually completes the degree requirements in eight semesters for the associate in occupational studies, in 10 semesters for the associate in applied science, and in 16 semesters for the bachelor's degree.

The College's semester system makes it possible for each student to select a suitable starting date in the fall, spring or summer. Exact dates may be found in the academic calendars (pages 57 and 185) and the Aviation Training Institute calendars (pages 58 and 186).

FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT (FERPA)

Annually, the College informs students of their rights under the Family Educational Rights and Privacy Act (FERPA) and the relevant regulations. FERPA provides that:

- 1) Each student has a right to inspect and review his or her education records within 45 days of the day the College receives a request for access.
 - a) A student should submit to the Registrar's office a written request that identifies the record(s) the student wishes to inspect. The Registrar's office will make arrangements for access, and notify the student of the time and place where the records can be inspected. If the records are not maintained by the Registrar's office, its official shall advise the student of the correct official to whom the request should be addressed.
- 2) The right to request an amendment of the student's education records that the student believes is inaccurate, misleading or otherwise in violation of the student's privacy rights under FERPA.
 - a) A student who wishes to ask the College to amend a record should write the College official responsible for the record, clearly identify the part of the record the student wants changed and specify why it should be changed.
 - b) If the College decides not to amend the record as requested, the College will notify the student in writing of the decision and the student's right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.
- 3) The right to provide written consent before the College discloses personally identifiable information from the student's education records, except to the extent that FERPA authorizes disclosure without consent.
 - a) The College discloses education records without a student's prior written consent under the FERPA exception for disclosure to school officials with legitimate educational interests. A school official is employed by the College in an administrative, supervisory, academic, or research or support staff position (including law enforcement unit personnel and health staff); a person or third-party company with whom the College has contracted as its agent to provide a service instead of using College employees or officials (such as an attorney, auditor, clearinghouse or collection agent); a person serving on the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee.

- b) A school official has a legitimate educational interest if the official needs to review an education record to fulfill his or her professional responsibilities for the College.
- 4) The right to file a complaint with the US Department of Education concerning alleged failures by the College to comply with the requirements of FERPA. The name and address of the Office that administers FERPA is:

Family Policy Compliance Office
US Department of Education
400 Maryland Avenue, SW
Washington, DC 20202-5901

Consistent with FERPA, the College designates several categories of student information as “directory information” that may be disclosed for any purpose at the discretion of the College, unless such disclosure is specifically prohibited by the student as detailed below. Directory information shall consist of a student’s name, address(es), telephone number, email address, photograph, date and place of birth, major field of study, dates of attendance, participation in officially recognized activities and sports, height and weight of members of athletic teams, degrees, honors and awards received, most recent educational agency or institution attended, and student identification number, user ID, enrollment status (full or part-time) or other unique personal identifier used to communicate in electronic systems that cannot be used to access education records with a PIN, password, etc. (A student’s Social Security number cannot be used for this purpose.)

At the beginning of the academic year, a student may request in writing from the registrar’s office that directory information not be released. Such requests are valid only for that academic year. The College disclaims any and all liability for inadvertent disclosure of directory information.

RETENTION RATES

About 86 percent of Vaughn College students who are eligible to return for a particular semester do so. The retention rate for first-year students is 77%.

STUDENT AFFAIRS

STUDENTS' RIGHTS AND RESPONSIBILITIES

Students who accept an offer of admission to Vaughn College are expected to be responsible citizens of the College community. Vaughn's community is guided by core values which are to: demonstrate integrity, embrace diversity, practice collaboration, achieve impact, and choose courage. Students have a corresponding right to expect that their freedom to learn and develop as individuals will be respected. To preserve these rights and to delineate responsibilities, policies and procedures have been developed to shape the life of the campus community. These policies and procedures are defined in the student handbook, available online.

NONDISCRIMINATION/HARASSMENT

Vaughn College of Aeronautics and Technology is committed to maintaining an environment in its educational programs and activities that is free from discrimination, harassment, or retaliation. Consistent with this commitment, it is the policy of Vaughn College not to tolerate unlawful discrimination based on age, race, color, creed, ethnic origin, national origin, citizenship status, disability, religion, sex, gender, gender expression, sexual orientation, marital or partnership status, pregnancy, military or veteran status, predisposing genetic characteristics, or domestic violence status, or on any other legally protected basis. Such behavior is unlawful and undermines the character and purpose of Vaughn College.

This policy is not intended to abridge academic freedom, the open expression of ideas, or the College's educational mission, and does not extend to statements or written materials that are relevant and appropriately related to the subject matter of courses.

For more information about this policy, or to learn about the procedure for addressing violations of this policy, you may contact the vice president of student affairs via avp.studentaffairs@vaughn.edu or 718.429.6600, extension 371, or the associate vice president of human resources via avp.humanresources@vaughn.edu or 718.429.6600, extension 105.

ATHLETICS AND WELLNESS

The overall mission of Vaughn College's athletics and recreation department is to provide opportunities for all students that will enhance the overall student experience. Our emphasis is to create an atmosphere that encourages personal growth while balancing academic and athletic distinction. The staff is dedicated to selflessly serving our students, while fostering an environment in which mutual respect, a strong work ethic, honesty, integrity and diversity prosper. We strive to maintain and exhibit the highest moral and ethical standards as well as honor the mission, core values, and traditions of Vaughn College.

The intercollegiate athletics and recreational programs at Vaughn College are built upon a philosophy that everyone should enjoy a healthy and active lifestyle. For some students, that will mean competing in intercollegiate athletics. For others, recreational activities will create engagement for students and allow them to build relationships. The athletics and wellness department strives to create a successful balance of academic and athletic excellence, as well as build pride and passion for our student-athletes. The goal is

to unite our campus community through intercollegiate athletics competition. Combined with exceptional coaching and mentoring, the plan is to contribute to helping our student-athletes realize their full potential as individuals and as team members.

In addition to athletic teams, the department of athletics and wellness manages a fitness, intramural, and recreational sports program. There are two fitness centers on campus, one in the Main building available to all students, and the other within the Residence Hall accessible by resident students. The fitness centers contain cardiovascular equipment, free weights and Nautilus equipment. Students who wish to utilize the fitness center must provide a doctor's note certifying that they had a recent physical exam and are medically cleared to use the center(s). All users must abide by the posted guidelines for effective and safe use of the center(s).

The intramural program is determined by student interest. The intramural program is an opportunity for students to have short term commitments in a competitive yet collegial environment. Typical intramural activities include 3-on-3 basketball, coed volleyball, and flag football.

Additionally, the athletics and wellness department provides recreational opportunities for students. Popular events include billiards/pool tournaments, bowling outings. Recreational opportunities may include swimming and fitness classes at a local sports complex.

CLUBS AND ORGANIZATIONS

Vaughn College supports a variety of student organizations. There are professional societies that with chartered student chapters who sponsor industry-related field trips and lectures. There are clubs that unite students with similar interests, and there are groups to encourage social interaction.

Clubs and organizations that are officially recognized by the Student Government Association will be extended the opportunity for leadership development through hosting meetings, planning activities, and management of a college financial account. Each club and organization is moderated by a full-time member of the faculty and staff who serves as an adviser. The advisers ensure, in conjunction with the student affairs staff, that the clubs remain aligned with the mission and vision of the student organization and the College.

During the first few weeks of the fall and spring semesters, a club and activity fair is held so that students may join existing organizations or inquire how to establish new ones. A current listing of active clubs and organizations may be found on the Vaughn College website.

FOOD SERVICES

Vaughn's cafeteria is known as Aviation Café and is located in the lower level of the Main Building. Vaughn's cafeteria provides breakfast, lunch, dinner and snacks for students, faculty and staff, seven days per week. Menu options include hot entrees, grilled items, a salad bar, fruit, home-made soups, and all-day breakfast. Please see the cafeteria for hours of operation. Students with questions or concerns about food services should contact the assistant vice president/dean of students at avp.studentaffairs@vaughn.edu.

INTERNATIONAL STUDENTS

The senior associate director of admissions is available to assist international students in their personal and social adjustments to the College and American culture. Each new international student is expected to contact the senior associate director as soon as possible after his/her arrival. The adviser is available in the Office of Admissions and is the essential source of information regarding immigration. The adviser should also be consulted for help with any special problems that international students may encounter for effective and safe use of the center.

LOCKER RENTAL

A limited number of lockers are available for rent from the office of student affairs. There are lockers in the lower level of the Main Building. The lockers are intended to be used for academic purposes, i.e. to store heavy books and tools; though, they may be used to store jackets, boots, and umbrellas during inclement weather. The use and the contents of the lockers are bound by the code of conduct as found in the student handbook. Rentals are per semester renewable as long as a student remains continuously enrolled. During the first two weeks of each semester, the office of student affairs will email the rental application and instructions. Commuter students are given priority access to locker rentals.

ON-CAMPUS HOUSING

Our three-story residence hall offers all suite-style accommodations for approximately 185 students. Most rooms are double occupancy located in suites, with two rooms sharing a semiprivate bath. Residence hall rooms are supplied with a bed, dresser, closet, desk, and chair for each individual student. Each room is also equipped with phone and cable TV hookups and computer port. The residence hall has a laundry room, study room, fitness room and kitchen facilities within the building. Additionally, there is a common lounge in the lobby. Students interested in living in the residence hall can visit the website at www.vaughn.edu to complete a housing application. All students who reside on-campus are expected to select a meal plan to support their nutritional needs.

STUDENT ACTIVITIES AND ENGAGEMENT

Vaughn promotes a large and varied program of extracurricular and co-curricular activities that offer students a means of supplementing their formal classroom education. Through an array of academic, cultural, social, recreational and educational programs, students are provided with an important opportunity for enriching their college experience.

The office of student activities works with the student government association, student clubs and organizations, and collaborates with other areas of the college to plan programs and opportunities for engagement for the student community. The programs and events provided to the students are an integral part of the educational and leadership development experiences at the College. Because of our location in New York City, students should expect a diverse array of opportunities to explore the rich diversity of the region which may include cultural museums, houses of worship, music and the arts, etc.

Students are encouraged to check their Vaughn emails and the Vaughn Instagram account regularly so that they are aware of activities that are available for their participation, learning, growth, and development.

STUDENT GOVERNMENT ASSOCIATION

The Student Government Association (SGA) is an opportunity for students to participate in self-governance. The SGA leadership is elected by student peers during the Spring semester to serve the student body for the following academic year (fall and spring). The SGA is primarily concerned with the quality of student life on campus. It carries the concerns of its constituency, the student body, to the administration and is the voice of the student body. It serves students as the liaison to the administration, coordinates social programming, and provides a system for co-curricular involvement through recognition of, and support for, many clubs and organizations. The SGA encourages all students to become involved.

STUDENT DISCIPLINE

Students at Vaughn College shall conduct themselves in a manner compatible with the College's mission as an educational institution. Vaughn seeks to foster the transmission of knowledge and the pursuit of truth. Freedom of inquiry and expression are indispensable components in the attainment of these goals. An assertion of rights or freedoms, however, is balanced by a readiness to assume concomitant responsibilities. Students are expected to recognize the institution's academic purposes, respect the rights of others in the community and accept responsibility and accountability for their own behavior.

Vaughn has developed standards of conduct—published in the student handbook—to govern student behavior, policies and procedures, and to deal with specific conduct issues (computer use, drugs and alcohol, sexual misconduct, incivility); a judicial code that sets forth the procedures for adjudicating charges of misconduct; a general grievance procedure; and the applicable sanctions for misconduct. Students whose conduct is not in accord with the College's standards of conduct shall be subject to disciplinary measures. Students are required to familiarize themselves with these policies, rules and regulations. The Assistant Vice President/Dean of Students and staff designees are responsible for adjudicating all student disciplinary concerns, including accepting reports, pursuing investigations, conducting hearings, imposing sanctions, and notification of outcomes.

STUDENT HANDBOOK

The student handbook is a publication of the division of student affairs. The handbook provides current information regarding college expectations, policies, procedures, and the code of conduct. Students are responsible for reading, understanding and abiding by the policies outlined in the handbook available on the College's website.

STUDENT HEALTH INSURANCE

Vaughn College expects all students to have health insurance coverage because in the event of an illness or accident, inadequate or no coverage could cause a disruption in educational pursuits and a financial burden. Out-of-state students with health insurance policies are urged to ensure that they have adequate coverage available while living in New York.

Students who live in the residence hall are required to provide a copy of their health insurance information prior check-in.

STUDENT POLICIES, PROCEDURES AND PROTOCOLS

CRIME STATISTICS

In accordance with the United States Department of Education regulations that require the disclosure of crime statistics, the College compiles and makes available all reports. The Advisory Committee on Campus Safety will provide upon request all campus crime statistics as reported to the United States Department of Education. For more information, please contact the director of security, events and scheduling. You can also visit the Office of Postsecondary Education online at <http://ope.ed.gov/security> for the annual report.

ALCOHOL AND OTHER DRUGS

Vaughn College of Aeronautics and Technology is committed to creating an environment that is not adversely affected by drug and alcohol abuse, and that complies with local, state and federal law. We strongly support a combination of preventive education about drug and alcohol abuse and counseling services for those with drug- and alcohol-related problems as the most effective means to achieve and maintain this environment. The College's respect for individual dignity and commitment to social justice, however, must be balanced by the importance of providing for the safety and wellbeing of the community as a whole and by its responsibility to fulfill its educational mission. At the same time, the College expects that students will conduct themselves in accordance with basic principles of personal responsibility, respect for order and consideration of the rights of others. Implied in these expectations is the recognition that students are responsible for making their own decisions and accepting the consequences of those decisions. To assist members of the College community to make informed choices, students should educate themselves about the consequences of drug and alcohol use.

Vaughn College will not tolerate the unlawful possession, use, abuse or distribution of illegal drugs or alcohol on its property or at its events, or at off-campus activities or business that has a connection to the College. Accordingly, the College sets forth the following basic campus conduct standards for students, faculty and staff which are in addition to the applicable civil and criminal laws and regulations: Vaughn College has established a drug- and alcohol-free workplace policy in order to reaffirm its long-standing opposition to the unlawful or abusive use of controlled substances and alcohol. Vaughn College prohibits the unlawful manufacture, distribution, dispensation or possession on the premises. Vaughn College requires that students, faculty and staff not be under the influence of illegal drugs, prescription drugs (unless as directed by a doctor) or be impaired by the use of alcoholic beverages while on campus for the conduct of his or her education, or the performance of his or her job, or while engaged in College business or activities elsewhere.

To the extent it ever occurs, the possession, use, sale, service or consumption of alcoholic beverages on College premises or at college-related events or activities must be in full compliance with New York state and local laws. For example, persons under the age of 21 are prohibited from possessing any alcoholic beverages at the College campus or any College related or affiliated event, on or off campus. No person shall be sold or served alcoholic beverages if the person is, or appears to be, under the legal drinking age of 21, seems to be intoxicated or is known to be a problem drinker. Similarly, no one under the age of 21 should present or use fraudulent proof of his or her age in order to purchase, or try to purchase, alcoholic beverages or to gain admittance to an activity for which the person must be 21 years of age or older.

The College's policy governing the use of alcohol applies to recognized student groups as well. Any violation of the policy can result in sanctions against the group, including loss of privileges and sanctions against the individual members of the group involved in the violation of policy. The student affairs division and the assistant vice president maintain detailed standards of student conduct and resources that are outlined in the student handbook. The associate vice president of human resources has further information for faculty and staff.

BIAS-RELATED CRIMES AND INCIDENTS

New York State law requires that Vaughn College inform students about the Hate Crimes Prevention Act of 2000 (Article 485) (the “Act”) and how hate crimes, also known as bias-related crimes, can be prevented on campus. The College strives to bring together students from all types of cultural backgrounds, and to provide an environment in which they might interact and learn from one another. To help promote an environment free of hateful acts, the College has policies and procedures to report and prevent bias-related crimes and incidents.

BIAS-RELATED CRIMES

Under the New York State Hate Crimes Act of 2000, a person commits a hate crime when he or she commits a specified offense in the Act and either: (a) Intentionally selects the person against whom the offense is committed or intended to be committed in whole or in substantial part because of a belief or perception regarding the race, color, national origin, ancestry, gender, religion, religious practice, age, disability or sexual orientation of a person, regardless of whether the belief or perception is correct; or (b) Intentionally commits the act or acts constituting the offense in whole or in substantial part because of a belief or perception regarding the race, color, national origin, ancestry, gender, religion, religious practice, age, disability or sexual orientation of a person, regardless of whether the belief or perception is correct.

BIAS-RELATED INCIDENTS

Bias-related incidents are acts or behavior that are in violation of the Student Code of Conduct and reasonably believed to be motivated by a person’s real or perceived race, color, creed, religion, age, sex, gender, national origin, marital or parental status, sexual orientation, citizenship status, veteran status, disability, or any other category prohibited by law.

REPORTING PROCEDURES

Individuals are encouraged to report all incidents immediately to Campus Security, 718 429-6600 extension 130 and the Assistant Vice President/Dean of Students, Elaine T. White at dean.studentaffairs@vaughn.edu. Non-felony hate/bias crime incidents can be adjudicated through the campus policies and procedures governing conduct as outlined in the student handbook. The victim can bring a complaint either through the College judicial system or in criminal courts, or in both. The College will make every reasonable attempt to help any individual who is a victim of an alleged bias-related crime or incident to provide interim accommodations as requested and appropriate.

SANCTIONS FOR BIAS-RELATED CRIMES

The College takes bias-related crimes and incidents very seriously. Criminal penalties may include prison and/or fines depending on the underlying offense. College sanctions may include suspension, termination, and/or expulsion from the College.

MISSING PERSONS

Vaughn College community members who believe that a student is missing, or have been notified that a student is missing, should immediately report her/his concern to the assistant vice president/dean of students at 718.429.6600 ext. 366 and/or Security department at 718.429.6600 ext. 130. Reports will be investigated and may include checking card access data, reviewing videotape, and verifying class attendance. Vaughn College officials will notify local law enforcement after a student is determined to be missing. If the student has designated an emergency contact person on file, the college will also notify the emergency contact

person. Resident students are expected to provide an emergency contact person designated for the college to contact if they are reported as missing.

TITLE IX - SEXUAL AND GENDER-BASED MISCONDUCT

Vaughn College of Aeronautics and Technology (“Vaughn College”) is a community dependent upon trust and respect among its members. The College is committed to promoting and maintaining a healthy and safe learning, residential and working environment that promotes responsibility and respect in all matters where no one is unlawfully excluded from participation in, denied the benefits of, or subjected to discrimination in any College program or activity on the basis of gender, sex, sexual orientation, sexual identity, gender identity, or gender expression (“sex discrimination”).

Sexual and Gender-Based Misconduct, as defined below is a form of sex discrimination prohibited by federal and state law, including Title IX of the Education Amendments of 1972 that may deny or limit an individual’s ability to participate in or benefit from College programs or activities. Sexual and Gender-Based Misconduct offenses within the College community are a violation of trust and respect, are prohibited and will not be tolerated by Vaughn College. This prohibition applies to Sexual and Gender-Based Misconduct incidents occurring between members of the College community (students, employees, and contractors, consultants, or vendors doing business or providing services to the College) on or off campus at any College academic, educational, co- curricular, athletic, study abroad, residential or other College sponsored program, as well as off- campus incidents not associated with College programs if the conduct has the effect of creating a hostile environment impacting members of the College community. This conduct and any retaliation or intimidation associated with it is prohibited by the College and may also violate federal and state law.

The College is dedicated to preventing Sexual and Gender-Based Misconduct offenses by providing:

- Education, prevention, and training programs that inform the community about the risks and myths that contribute to Sexual and Gender-Based Misconduct;
- Assistance and support, including procedures sensitive to a person who has been the victim of a Sexual and Gender-Based Misconduct offense; and
- A process for the prompt and equitable investigation and resolution of incidents of Sexual and Gender-Based Misconduct that includes appropriate disciplinary sanctions for those who commit Sexual and Gender- Based Misconduct offenses, as well as the imposition of remedial actions to address and remedy the effects of such offenses. The College is committed to eliminating Sexual and Gender-Based Misconduct, preventing its recurrence, and addressing and remedying its effects and makes this Policy and accompanying information readily available to all students, employees and other members of the College community. Violations of this Policy may result in the imposition of sanctions up to and including termination, dismissal, suspension or expulsion. The full policy is available within the student handbook. The Title IX Coordinator is Elaine T. White, assistant vice president/dean of students and she may be reached at dean.studentaffairs@vaughn.edu or 718.429.6600 ext. 366

GRIEVANCE POLICY

Vaughn College is a mission centered institution characterized by Core Values. It is expected that all members of the community treat each other with dignity, civility and respect. Furthermore, students should expect fair, ethical, and equitable treatment. The grievance process is enacted on occasions when students believe their treatment is contrary to our espoused ideals; though they may be rare. The College reserves the right to refer a grievance to another individual in the administration or faculty for a determination.

What is a grievance?

A grievance by definition is an official statement of a complaint about process, or treatment that is believed to be inappropriate or unfair. For Vaughn College, a grievance is a written statement of complaint that details the alleged occurrence warranting a grievance. It is recommended that the student would first attempt to resolve the concern informally through direct communication with the person(s) involved. If initial dialogue is unsuccessful, does not resolve the concern, or if there are reasons that prevent the direct dialogue; then the grievance process for concerns not covered elsewhere should be invoked.

What is not covered in this grievance process?

The grievance procedure is designed to address concerns that are not detailed through separate policies or procedures. As such it is not intended to address:

- Disability Grievances – are handled separately, following the 504/ADA process
- Discrimination/Harassment – may be found within the Title IX – Sexual Misconduct policy
- Financial Appeal - covered in the College catalog, <https://www.vaughn.edu/college-catalog/>
- Grade Appeals – covered in the College catalog, <https://www.vaughn.edu/college-catalog/>
- Sexual Misconduct/Title IX – should be reported to the Title IX Coordinator and the process is detailed in a separate policy in the addendum of this Student Handbook.

Who can file a grievance?

Any currently enrolled student who believes that he/she has been treated unfairly by an employed member of Vaughn College community or by a process may file a grievance with the Dean of Students.

Where should a grievance be filed?

The Dean of Students is the chief student advocate and is entrusted to ensure student rights. The Dean of students may be reached at elaine.white@vaughn.edu or 718.429.6600 ext. 366. The Dean's office is located in the Student Affairs suite of offices on the lobby level of the residence hall. Additionally, any Vice President may accept a grievance, particularly within their area of oversight, and inform the Dean.

When should a grievance be filed?

The grievance should be filed as soon as possible after the concern has arisen. The grievance should be received by the Dean of Students within 10 business days of the last attempt to resolve the concern informally or from the occurrence of the concern, whichever event is later.

How to file a grievance:

The grievance is a specific and factual account of what has occurred and should minimally include the following:

- Student complainant information – Full name, SONIS identification number, email and phone number
- Information about the individual the grievance is about – Name, Title, Area/Department
- A detailed statement outlining the occurrence(s) including location, date and time
- Witnesses – Names of other students or employees who were present at the time of the occurrence or who may have pertinent information
- The grievance statement may also include as applicable:
 - Steps taken by the student to resolve the concern
 - An expected outcome of the grievance, i.e. relief sought by the complainant
- Supporting documentation attached to the grievance

How is the grievance managed?

Fairness, equity, and privacy guide the grievance process. The Dean of Students may manage the grievance directly or may refer the grievance to an AVP or Vice President responsible for a particular area for redress. A full investigation will ensue and an outcome will be conveyed to the Dean who will present it to the student complainant within 60 days of the original receipt of the complete formal written complaint. Though it is anticipated that most grievances will be resolved sooner than 60 days, there may be extenuating circumstances when this is not possible. In an event of extenuating circumstances, the Dean should communicate the delay within the 60 day period.

As part of the investigation, it is expected that the Dean/VP will meet with the named individual, gather information from any potential witnesses, and resolve the concern. While confidentiality is not possible to be granted in a situation where there is an investigation or unjust or unfair treatment, efforts will be made to maintain privacy. Furthermore, there is an expectation that there not be retaliation or threat of retaliation by or against the student filing the grievance; likewise, retaliation by witnesses or anyone involved in the grievance is not tolerated. Grievance decisions are final.

How long will grievance be retained?

The college will retain grievance dispositions for six years.

VOTER REGISTRATION

In order for Vaughn College to encourage participatory citizenship and in compliance with federal law, the College will facilitate voter registration activities no less than once per academic year. Because Vaughn College educates students from many states, each with differing voting registration methods, we offer this higher education voting website as a resource to students: <http://yourvoteyourvoice.org/>.

CAREER SERVICES

Vaughn College of Aeronautics and Technology considers the career development of every student a primary responsibility. Career counseling is conducted through the office of career services, department chairs and the faculty.

Throughout its history, the College has assisted its students and graduates in securing meaningful internships and employment that relates to the majors offered. Leaders in aviation, aerospace, manufacturing, engineering design, public utilities, local state and federal government, to name a few, seek the College's graduates.

The office of career services provides ongoing industry updates for both continuing and graduating students. The College is also committed to lifelong learning and advisement on career development issues for its alumni.

Employment opportunities, job prospects, company literature and information are provided through this office as well. Additional information and assistance can be obtained in the College library.

Career development guidance and assistance are always available to students. Contact Chaundra Daniels, director of career services, at 718.429.6600, ext. 148 or email her at chaundra.daniels@vaughn.edu.

Vaughn College is so confident that it prepares its graduates for employment that it is offering a guarantee for those who meet certain criteria. If an eligible student is not employed full time in their field of study one year after graduating, and conducting an active job search, Vaughn College will provide reimbursement for one year of the graduate's federal Direct undergraduate student loan payments. Speak to an admissions counselor to find out about eligibility.

CAREER OBJECTIVES AND ACADEMIC PROGRAMS

The College prepares graduates who are suited to meet important technical and managerial needs in many industries. By offering degrees with separate objectives, Vaughn College enables students to design their program around practices and techniques currently being used in industry. Depending on academic studies and personal goals, alumni are employed in a wide range of fields and organizations. Here is a representative cross section of companies that have recently hired Vaughn graduates:

AAR Technical Service Center Aircraft
Service International Group
AFCO/AvPORTS
Aiken Industries
Alaska Airlines/Horizon Air
Arkwin Industries
Air Wisconsin
Allied Signal
American Airlines
Atlas Air
Aviation Avionics and Instruments Corp.
Bendix
B. F. Goodrich
Bombardier Transportation
British Airways
Cessna Citation
Chautauqua Airlines
Chep
CitationShares

Gulfstream
International Business Machines (IBM) jetBlue
Airways
JFK International Arrivals Terminal Keyspan
Lockheed Martin
Marotta Scientific Controls, Inc. Mesaba
Airlines
Metropolitan Transportation Authority (MTA) Northrop
Grumman Corporation
Northwest Airlink
NY Times
Orion Power Systems
Pall Corporation
Panasonic Avionics
Panorama Flight Services
Pinnacle Airlines
Pratt and Whitney
Raytheon
RCM Technologies

Columbia Helicopter
Consolidated Edison
Continental Airlines Copa
Airlines Covenant Security
Cummins
Cyient
Delta Air Lines
Dynair
Eastman Kodak
Embraer
Emirates
Empire Aero
Endeavor Air Expeditors
Federal Aviation Administration
General Dynamics
General Electric

Rockwell Collins
Safe Flight Instrument
Sikorsky Helicopters
Southern Air
Southwest Airlines
Talon Air
Thales Avionics Corp
Thales Inflight Experience
The Boeing Company
The Port Authority of New York
and New Jersey
United Airlines
United Technologies
USAirways
Virginia America Airlines
Xerox Corporation

ONLINE CAREER SERVICES

The College has a career services online interface, enabling students and alumni to research full- and part-time job opportunities as well as internships. Participation is free, and students can search for job opportunities anytime, manage resumes and cover letters, and maintain a searchable profile for potential employers.

INTERNSHIPS

Vaughn offers and encourages students to take advantage of many available internship opportunities. Industry leaders and major companies partner with the College to provide this unique learning experience. The office of career services and department chairs assist students in selecting appropriate internship programs. Students can learn about available opportunities through the office of career services, faculty advisers and the Vaughn Career Connect job and internship posting services. As a federally designated Hispanic-Serving Institution, Vaughn College participates with the Hispanic Association of Colleges and Universities to place students in internships with various federal agencies year-round.

Listed below are some of the active internships and cooperatives:

Air Canada
Alstate Maintenance
American Airlines
American Eagle
AFCO/AvPORTS
The Boeing Company
Cummins
Delta Air Lines
Disney College Program
Enterprise Holdings
Emirates
Expeditors International
Federal Aviation Administration (FAA)

Metropolitan Transportation Authority
(MTA)
National Aeronautics and Space
Administration (NASA)
NAVSEA
Northrop Grumman Corporation
ORBIS
Pall Corp
Panasonic Avionics Corp.
Passur
Pinnacle Airlines
The Port Authority of New York and New
Jersey

Federal Express
General Electric
Global Air Dispatch
Hispanic Association of Colleges and
Universities (HACU)
INROADS
jetBlue Airways
Jet Propulsion Laboratory
JFK International Arrivals Terminal
Lockheed Martin

RCM Technologies
Republic Airport
Revista Aerea, Latin Aviation Magazine
Sikorsky
Stewart Airport
Swissport
United Airlines
Virgin Atlantic
Westchester County Airport

CONTINUING EDUCATION AND PROFESSIONAL DEVELOPMENT

Vaughn encourages its students to continue their education after graduation. Through the office of career services, students and alumni receive counseling when seeking a graduate degree as well as continuing education and professional development. Graduate schools are invited to campus each spring to provide students with information.

INSTITUTIONAL ADVANCEMENT AND ENGAGEMENT

Vaughn College of Aeronautics and Technology alumni are active in the United States and around the world.

The nationwide network of alumni has proven invaluable as a resource for the College in its lifelong commitment to current students and all graduates. Their financial contributions to scholarships, faculty development and equipment for laboratories are essential to the livelihood of the College.

Timely announcements about alumni engagement and events can be found on the website (www.vaughn.edu); in the alumni newsletter; in the alumni publication, Vaughn College Magazine; or on social media, including Instagram, Facebook, Twitter and LinkedIn. All graduates from every era of this institution— whether the Casey Jones School of Aeronautics, the Academy of Aeronautics, the College of Aeronautics or Vaughn College—are encouraged to attend alumni meetings and events.

For more information about upcoming activities, to organize reunion events or to reconnect with your alma mater or make a contribution, contact Stephen DeSalvo, chief development officer at 718.429.6600, ext. 353 or email stephen.desalvo@vaughn.edu.

MILITARY CAREERS

Graduation from the College with a bachelor's degree meets the educational requirements for officer candidate training leading to commissioned status. Associate degree graduates who are interested in military technical assignments are eligible for the extensive advanced technical training programs for enlisted personnel in all branches of the service.

Many alumni have chosen satisfying military careers as flying officers, flight engineers, as well as aviation and aerospace technicians on the basis of their education at the College.

AIR FORCE RESERVE OFFICER TRAINING COURSE (AFROTC)

Vaughn College of Aeronautics and Technology students in the bachelor's and associate in applied science degree programs can enroll in the Air Force Reserve Officer Training Course (AFROTC). The AFROTC curriculum is designed to prepare college students for initial active-duty assignments as Air Force commissioned officers. The General Military Course (GMC) is a two-year program taken during enrollment for the associate in applied science degree. The course covers two main themes: the development of air power and the contemporary Air Force in the context of US military organizations. The GMC consists of a one-hour class and a one-hour military training period per week. During the GMC, there is no military service obligation as the student seeks to qualify for admission into the Professional Officers Corps (POC).

Admission into the POC follows enrollment into a bachelor of science degree program. Degree requirements are completed at Vaughn College, and the AFROTC sessions are held at Manhattan College in Riverdale. Vaughn College students are eligible to compete for Air Force ROTC scholarships.

ARMY RESERVE OFFICERS' TRAINING CORPS (AROTC)

Army Reserve Officers' Training Corps (AROTC) is open to Vaughn College students, freshmen through senior year, and may lead to a commission as a second lieutenant in the US Army. Army ROTC enhances a student's education by providing unique leadership and management training, along with practical experience. The curriculum is designed to be challenging, educational and flexible enough to allow students to meet scholastic and personal goals. Classes include physical training, leadership development, map reading, land navigation, rappelling, rifle marksmanship, patrolling, military tactics, drill and ceremonies, military history, ethics and military law.

The program is divided into two major courses—basic and advanced. The basic course is given during the freshman and sophomore years, and the advanced course during the junior and senior years. All students must attend, and complete an ROTC Advanced Camp, between their junior and senior years. Military classes will be given either at St. John's University in Queens, NY, or Hofstra University in Hempstead, NY. All academic classes will be held at Vaughn.

Vaughn College students can compete for Army ROTC scholarships.

CERTIFICATE PROGRAMS

MAINTENANCE CERTIFICATE

Graduates from any of the aviation maintenance or maintenance management degree programs must qualify for certification to take the Federal Aviation Administration (FAA) examinations. FAA certification requires the following:

1. All degree requirements for graduation must be satisfied, with the exception of the 30-credit residency requirement.
2. A minimum grade of “C” in every airframe and powerplant subject, and a minimum GPA of 2.0 in the airframe and powerplant certification curriculum are required.
3. Satisfaction of all financial obligations.
4. Certification preparation seminars are to be completed satisfactorily with a grade of 90 or better. All general courses must be completed by the end of the semester in which GG02 is taken. All airframe courses must be completed by the end of the semester in which AA02 is taken. With PP02, an airframe certificate of completion or an airframe certificate must have been issued as a requirement prior to taking PP02, and the candidate must have completed all powerplant courses by the end of the semester in which PP02 is taken. Failure of any prerequisite of GG02, AA02 or PP02 requires a retake of GG02, AA02 or PP02.
5. Students receiving advanced transfer credit in the technical courses must complete a minimum of 23 certification units to receive the Aviation Training Institute’s certification. For airframe certification only, a minimum of 23 certification units in general and airframe courses is required; for powerplant certification only, a minimum of 23 certification units of general and powerplant courses is required. For both airframe and powerplant certification, a minimum of 23 certification units of airframe or powerplant, or a combination, of both is required.

Special Students

Students who have the FAA airman authorization rating/certificate can enroll in AA02 Certification Preparation—airframe course and/or PP02 Certification Preparation—powerplant course. Students receiving this special permission will not be certified by Vaughn College of Aeronautics and Technology. They will be auditing the course(s), receiving an “AU” grade code. Students auditing GG02/AA02/PP02 will be charged a seminar fee that will cover the examination fee if taken at Vaughn. Refer to “Certification Fees” on page 35.

Students who want to be certified by Vaughn College will have to follow certification requirements listed above.

Transfers

Transfer students from similar Part 147 institutions (as defined by the FAA) must complete certification requirements listed above.

FEDERAL COMMUNICATIONS COMMISSION (FCC) LICENSE

Graduates from the associate in applied science and bachelor of science electronic engineering technology in avionics programs must pass a qualifying exam in course AVT250 for the General Radio Telephone

Operator License from the Federal Communications Commission to graduate. To be eligible to take the FCC written exam, you must be a legal resident or eligible for employment in the US.

Any student possessing a valid General Radio Telephone Operator License prior to the start of the final semester in each of these programs can receive advanced-standing credit for AVT250. The license must be presented to the coordinator of the electronic technology department during the first week of the semester for approval. A license obtained any time during the semester will not be accepted for credit. Full attendance, along with other class criteria, are required to complete course AVT250.

FLIGHT CERTIFICATES

Students enrolled in the aircraft operations degree programs must obtain a minimum grade of “C” in FLT101, FLT102, FLT330L, FLT360, FLT470 and FLT471 and pass relevant laboratory section of each course. A minimum grade of “B” is required for FLT120, and FLT330., and pass the relevant laboratory sections of each course.

MANAGEMENT CERTIFICATE PROGRAMS

Credits earned from these programs are transferable to degree programs at the College.

These certificate programs are an investment in your professional career as you progress into middle- and upper-management positions. They enable busy, career-minded people to further their education and knowledge anywhere, at any time, to fit into a busy, professional life. Course prerequisites are not required for the certificate program. Students who complete half of the required credits in a management certificate will receive a badge indicating this displayed on their transcript.

AIRLINE MANAGEMENT CERTIFICATE PROGRAM

Four-course sequence – 12 credits

ALM362 – Airline Management – 3 credits

This course covers the complex area of operational techniques and problems confronting the air travel industry today. Market research, passenger trends, route studies, on-time operations, emergency measures and safety considerations will be studied.

ALM240 – Airline Economics and Finance – 3 credits

This course examines issues related to the function of airlines from an economic perspective. They include government regulation, supply, demand, cost and pricing, and air cargo. The course introduces the basic principles of insurance and risk with their special application to the aviation industry.

FLT241 – Aviation Safety – 3 credits

This course introduces students to concepts of aviation safety, as well as practical methods of maintaining safety. Students will gain factual and conceptual knowledge to conduct current and future aviation operations in a professional and safe manner. The role of safety programs in management is also discussed.

MGT470 – Industry and Labor Relations – 3 credits

This course outlines the behavioral aspects of the management and collective bargaining agency interface. Emphasis is placed on arbitration, mediation, conciliation and fact finding.

AIRPORT MANAGEMENT CERTIFICATE PROGRAM

Four-course sequence – 12 credits**APM241 – Airport Administration – 3 credits**

An introduction to the complexities of airport planning and its importance to achieve a successful airport operation is provided. Content includes a study of the duties and responsibilities of the airport manager, with emphasis on the Federal Aviation Regulations governing the operation and administration of commercial airports within the United States. Critical issues are discussed, such as the impact of technology, airport capacity and airport master planning to improve/enhance infrastructure, environmental issues, safety, and airport privatization.

APM485 – Airport Development and Management – 3 credits

This course builds upon APM241 Airport Administration, and further develops the skills and understanding of operation, management and conceptual design of airports of any size. Content focuses on practical application of airport manager skills and includes educational tours of operating airports. Relations with tenants, public officials and patrons will be emphasized through writing and public speaking skills. An expansion of the issues affecting modern airports today, such as safety, how airports are funded, and technological innovations affecting airports are discussed.

MGT470 – Industry and Labor Relations – 3 credits

This course outlines the behavioral aspects of the management and collective bargaining agency interface. Emphasis is placed on arbitration, mediation, conciliation and fact finding.

ATM320 – Aviation Law – 3 credits

This course concentrates on the functions of federal and local regulatory agencies regarding legislation concerning aviation. Topics discussed include aircraft operation, maintenance, noise and air pollution. Case studies will provide the foundation for discussions.

SUPPLY CHAIN MANAGEMENT (SCM) CERTIFICATE PROGRAM

The Supply Chain Management (SCM) certificate program was developed in response to a growing need to provide employment-ready students for the workforce across the entire spectrum of SCM activities including manufacturing, intermodal and multimodal transportation, distribution, and supplier management.

The program, expanding on Vaughn's existing survey course in Cargo Management, is a natural and logical extension of existing Bachelors-level programs in Airport Management and Airline Management. Courses in the certificate program will receive credits that may be applied to a full Bachelor's program with a concentration in SCM. The program currently includes six (6) courses, with others currently in the planning stages. Of these six, two are required and students have a choice of two of the remaining four courses to complete the program. The courses are as follows:

ATM450 - INTRODUCTION TO MULTIMODAL CARGO OPERATIONS (Required) – 3 credits

Course Description

The course describes the processes involved and the issues confronted in the management of cargo operations, Focus is on cargo movement via air, but the other modalities (i.e., road, ocean, and rail) are addressed as well. Common terminology is presented, distribution center and transportation solutions are examined, and cargo handling processes are studied in depth.

The course examines the impact of transportation on the overall economy, the principal operating and financial factors for each mode of transportation, management practices and challenges confronted by the air cargo industry, and decision-making from a process perspective for cargo carriers, shippers, and intermediaries.

There is also coverage of pricing for services and an overview of dangerous goods regulations and cold chain management. **Prerequisites:** ALM135, ATM345

AAM210 - OPERATIONS MANAGEMENT (REQUIRED) – 3 credits

Course Description

This course will familiarize the student with problems encountered by the operating management of a business enterprise and the methods used to analyze and solve these problems.

Throughout the course, there will be introductions to basic problem solving and project management tools.

Topics will include the role of operations management in a successful product or service organization, productivity and competitiveness, basics of forecasting, product and Service Design Reliability, Strategic planning for products and services, process selection and facility layout, work design and measurement, learning curves, inventory management, maintenance and scheduling.

Prerequisite: MGT110

SCM100 - SOURCING and PROCURMENT MANAGEMENT – 3 credits

Course Description

The course provides an understanding of how sourcing and procurement management works, and how it can serve as a capability that provides strategic competitive advantage to a business organization.

Prerequisites: None

SCM200 - CARGO DISTRIBUTION SYSTEMS: DESIGN AND OPERATIONS – 3 credits

Course Description

The course provides an understanding of how cargo distribution networks are designed and operated.

Prerequisites: None

MGT300 - PROJECT MANAGEMENT – 3 credits

Course Description

Students will be introduced to the role of the Project Manager and the fundamental concepts and competencies necessary to participate in and to lead projects.

A high-level overview of project management processes and knowledge areas include planning, scheduling, resource allocation and budgeting, implementation and dynamic adjustments, and evaluation of project success. **Prerequisites:** None

MGT200 - BUSINESS PROCESS MANAGEMENT – 3 credits

Course Description

The course provides an understanding of how businesses work in practice and how to effect process-based improvements and transformations in any and all areas of business activity.

Prerequisites: None

SAFETY MANAGEMENT SYSTEMS CERTIFICATE PROGRAM

Four-course sequence – 12 credits

Safety Management Systems (SMS) implementation is required in practically all aviation organizations throughout the world. Vaughn College offers the only academically accredited SMS program in the tristate area serving the aviation community. This certificate program will address both the conceptual basis of SMS and ways to implement SMS principles. SMS has risen in an industry that is extremely safe but is rapidly growing.

The SMS Certificate requires completion of any four (4) of the following five (5) courses, to make up the twelve (12) credits necessary.

FLT241 – AVIATION SAFETY – 3 credits

This course will introduce students to concepts of aviation safety as well as practical methods of maintaining safety. Students will gain factual and conceptual knowledge to conduct current and future aviation operations in a professional and safe manner. The role of safety programs in management is also discussed.

MGT360 – BUSINESS COMMUNICATIONS – 3 credits

This course analyzes elements in the communication process with business and management applications, including safety management systems. Emphasis is placed on a variety of communication methods including letters, reports, memoranda, oral presentations, and technology.

ATM340 – AUDITING AND RISK MANAGEMENT – 3 credits

The auditing and risk management course provides students with the opportunity to create an emergency management plan for an aviation organization. Principles for forming an organization-wide safety culture that includes a non-punitive reporting system to identify hazards before they become incidents, accidents or violations will be discussed. Students will investigate inspection systems that aim to ensure that procedures, personnel and hardware are functioning well. Monitoring systems to track and predict operational trends to assess risks and inform decisions for the organization will be analyzed. These preventive measures are considered in relation to economic business principles as well as to national and international regulations and trends. Emergency response principles and procedures will also be studied.

AER300 – CURRENT TOPICS IN AVIATION WITH THE HON. JOHN GOGLIA – 3 credits

The course examines the leading issues in aviation today with a world-recognized aviation expert. From topics such as the controversy over outsourced maintenance to the growth and safety record of commuters to the impacts of fatigue on air traffic controllers, pilots and mechanics, the course will encourage frank and candid exploration of these and other contemporary aviation topics. The course enables students to explore the complexities of these issues, and the difficulties faced by industry and regulatory agencies. The course will include behind-the-scenes views of how the FAA, NTSB and other agencies interact, and how that affects aviation safety.

FLT385 – SAFETY MANAGEMENT SYSTEMS – 3 credits

Safety Management Systems (SMS) is a course designed to provide students with a solid foundation in basic SMS concepts within the aviation industry. The course will explore SMS as a proactive management system that offers the capability to increase levels of operational safety beyond regulatory minimums by viewing safety as a core business enterprise. The course will provide an in-depth study of the Four Pillars of SMS, the root causes of accidents and related hazards, the use of analytical tools, taxonomies, establishing a positive safety culture within an organization, and organizational structures linking responsibility and accountability. The course will also include discussing the implementation of an SMS as the future of aviation safety.

AIRCRAFT DISPATCHER CERTIFICATE TRAINING PROGRAM

Vaughn College offers a comprehensive program for Federal Aviation Administration (FAA) Aircraft Dispatcher Certificate Training. The program is offered to Vaughn matriculated students as well as individuals who want to obtain the aircraft dispatcher certificate only. These students must register for AD10, and separate fees will be charged for the certificate program. Vaughn students may be eligible to earn up to 12 credits.

Performing one of aviation's most important roles, aircraft dispatchers share with pilots the ultimate responsibility for a flight's commencement and completion.

To prepare individuals to fill these important positions, this specialized course of study provides thorough training that includes preparation for FAA examinations.

Initial training consists of a minimum of 217 hours of full-time study over six to eight weeks. An aviation background is helpful but not a requirement for initial training. Course content initial training covers the following:

- FAA regulations
- Meteorology
- Navigation
- Aerodynamics
- Aircraft specifics
- Communication
- Air traffic control
- Emergency and abnormal procedures
- Practical dispatch applications
- Dispatch resource management

By enrolling in this specialized program, degree track students will be permitted to earn up to 12 Vaughn College credits toward a bachelor's degree in general management, airport management, aircraft operations, aeronautical sciences or airline management. After satisfactory completion of the dispatch courses, the student may be able to sit for the FAA flight dispatcher exam.

Students will be charged as enrolled full-time matriculated students. Given the number of hours required for this program, students can only take an additional three credits during the spring and fall semesters, and they may not take any additional credits during the summer semester.

The following prerequisites are required by the Federal Aviation Administration's regulations Part 65.Sec. 53:

- 1) To be eligible to take the aircraft dispatcher knowledge test, you must be at least 21 years of age.
- 2) To be eligible for an aircraft dispatcher certificate, you must be at least 23 years of age.
- 3) You must be fluent in reading, speaking, writing and understanding the English language.
- 4) Foreign students must have a valid M-1 or F-1 visa and legal status in the US.
- 5) Students must present two forms of identification showing exact matching information. One form of identification should have a picture and present address; and
- 6) A background in aviation subjects or other related fields is helpful, but not required, as the full certificate course will adequately prepare applicants for the written and practical exams.

To qualify, a degree track student must enroll under Vaughn College's academic requirements in the specified FLT441, FLT442, FLT443 and FLT444 courses as well as AD10 flight dispatch certification. Students who already hold a current FAA aircraft dispatcher certificate at the time they enroll at Vaughn College may obtain three technical elective credits in their relevant bachelor's degree program.

For complete details, see the section under aviation degrees, aircraft dispatch program on our website (www.vaughn.edu) or contact Domenic Proscia, vice president of training, at domenic.proscia@vaughn.edu or 718.429.6600, ext. 139.

COMPUTER AIDED DESIGN FOR ADDITIVE AND SUBTRACTIVE MANUFACTURING CERTIFICATE

This certificate program covers manufacturing systems utilized in the additive and subtractive manufacturing fields. Students taking this certificate will gain hands on experience developing CAM programs for Haas CNC machines. Rapid prototyping will be covered via 3D Printing systems such as Form 2, Stratasys Fortus 250 MC, 3D Systems ProJet 3600, and Magics 3D printing software. Reverse engineering through the use of 3D scanning will be also be explored to develop parts using Artec Eva Scanners, Catia, Geomagic, and SolidWorks. At the end of the program students will have a strong foundation in real world computer aided design problem solving skills and fabrication techniques.

The educational goals of this certificate are to provide students with:

- A strong foundation in computer aided design and 3D modeling using both SolidWorks and CATIA.
- The CAD-Base additive and subtractive manufacturing skills and techniques.
 - The technical additive manufacturing knowledge and skills along with hands-on experience in using computer aided design and computer aided manufacturing along with the implementation of 3D printing for use in a given practical situation.

The courses required to earn this certificate are:

- 1) CDE 117: Computer Aided Design with Solidworks
- 2) CDE 385: Catia Fundamentals
- 3) CDE 375: Computer Graphics for Additive Manufacturing
- 4) CDE 487: Catia for Prismatic Machining and Subtractive Manufacturing

Each course is two (2) credits and is delivered using 1 lecture hour, 3 lab hours.

COMPOSITE MANUFACTURING CERTIFICATE

This certificate program provides a “well-rounded” education to prospective engineers and technicians who are interested in composite materials, its manufacturing process and application. Students will be introduced to the analysis of composite materials along with hands-on experience in composite manufacturing. Students will also be introduced to mold fabrication and adhesive bonding of composite and metals which is an integral part of composite manufacturing. Finally, students will be exposed to the most common and latest Non-Destructive Inspection (NDI) equipment, methods and techniques used in the field of composite inspection.

The educational goals of this certificate are to provide students with:

- A strong foundation in in composite materials their manufacturing processes and application.
- The technical knowledge and skills in analysis of composite materials along with hands on experience in composite manufacturing and the ability to apply these approaches for use in a given practical situation.
- Introduce students to mold fabrication and adhesive bonding of composite and metals as well as learning various types of Non-Destructive Inspection (NDI) methods and techniques which is an integral part of composite manufacturing.

The courses required to earn this certificate are:

1. Introduction to Engineering Materials CCM1 - 3 credits, 3 lecture hours
2. Introduction to Composite Materials CCM2 - 3 credits, 3 lecture hours
3. Introduction to Composite Manufacturing CCM3 - 2 credits, 3 lab hours, 1 lecture hour

4. Mold Fabrication and Adhesive Bonding of Composite and Metals CCM4 - 2 credits, 3 lab hours, 1 lecture hour
5. Non-Destructive Testing Techniques for Composite Materials CCM5 - 2 credits, 3 lab hours, 1 lecture hour

CNC SUBTRACTIVE MANUFACTURING CERTIFICATE

This certificate program will cover CNC manufacturing equipment and systems used in the subtractive manufacturing field. Students will gain hands on experience developing CAM programs with G-Code, Mastercam and Catia for the Hass mill and Okuma Lathe CNC machines. Best industry practices for safety machine shop management, and organization will be shown to students in preparation for entry into the manufacturing field. Part inspection will be conducted using traditional gauges and a granite inspection table in addition to precision. Measuring using a Complex Measuring Machine (CMM) from Aims Metrology and Renishaw. Upon completion of this program students will have a strong foundation in real world CNC and CAM problem solving skills for manufacturing.

The student learning outcomes for this certificate are the following:

- Students will demonstrate an ability to solve technical CNC manufacturing problems by applying principles of engineering, science, and mathematics.
- Students will demonstrate an ability to design, test, and conduct hands-on projects current with today's CNC manufacturing industry.
- Students will demonstrate an ability to apply creativity in the design of CNC manufacturing systems, components and process.
- Students will demonstrate an appropriate mastery of the knowledge, techniques, skills, and modern tools used in the CNC programming and manufacturing field.

The courses required to earn this certificate are (All courses are 2 credit lectures and 1 credit lab (3 lab contact hours)):

1. CNC100: Precision Measurement for CNC
2. CNC 201: Computer Numerical Control (CNC) Manufacturing I
3. CNC 202: CNC G code Programming Fundamentals
4. CNC 203: CNC Manufacturing II
5. CNC 204: CAM Programming

UAS DESIGN APPLICATION AND OPERATION CERTIFICATE PROGRAM

This certificate program will cover design, construction, application, operation, and system integration of Uncrewed Aerial Vehicles (UAV). In this certificate program students will take courses such as introduction to UAV, drones rapid prototyping, and application for land surveying will gain hands-on experience in designing, constructing, and operating a UAV for a specific application with consideration of payload types, communication and control systems. Also, through drone law and remote pilot course, student will learn about FAA's new part 107 regulation and course prepare them with require aeronautical knowledge test to acquire the remote pilot construction, application and operation.

The student learning outcomes for this certificate are as follows:

- Students will demonstrate an ability to solve technical problems by applying principals of engineering, mathematics and science.
- Students will demonstrate an ability to design test and conduct hands-on projects current

with today's UAS industries.

- Students will demonstrate an ability to apply creativity in the design of UAS systems, components, and process.
- Students will demonstrate an appropriate mastery of the knowledge, techniques, skills, and modern tools used in the UAS field.

The courses required to earn this certificate are:

1. UAS200: Introduction to Uncrewed Aerial Vehicles, 3 Lecture Credits
2. UAS220: Drone Laws and Remote Pilot Certification, 3 Lecture Credits
3. UAS231: Introduction to Drone Aeronautics, 2 Lecture Credits, 1 Lab Credit
4. UAS241: Drone Applications Series- Introduction to Land Surveying, 2 Lecture Credits, 1 Lab Credit
5. UAS251: Drones Rapid Prototyping and System Integration, 2 Lecture Credits, 1 Lab Credit

Credits earned from these programs are transferable to degree programs at the College.

These certificate programs are an investment in your professional career as you progress into middle- and upper-management positions. They enable busy, career-minded people to further their education and knowledge anywhere, at any time, to fit into a busy, professional life. Course prerequisites are not required for the certificate program. Students who complete half of the required credits in a management certificate will receive a badge indicating this displayed on their transcript.

ACADEMIC DEGREE PROGRAMS

ARTS AND SCIENCES CORE CURRICULUM

As part of their degree requirements, all students in baccalaureate programs are required to complete a core curriculum in the arts and sciences. This core is derived from the mission of the College, and reflects what the institution believes is essential to students' education and development.

Arts and Sciences Core Curriculum for Bachelor's Degree Students

Course	Credits
ENG290 Public Speaking	3
ENG110 English I	3
ENG120 English II	3
HUM255 Technology and Culture	3
ENG240 Technical Writing	3

Any Laboratory Science Class

Note: Core mathematics courses are dependent on major.

In addition, baccalaureate degree students are required to pass at least one course within each of the following nine general education competencies. Some courses may be found in more than one category; however, students may not use a single course to satisfy more than one general education requirement.

- A – Scientific Reasoning
- B – Technical Skills
- C - Information Literacy
- D – Critical Thinking
- E – Quantitative Reasoning
- F – Diverse Perspectives
- G – Written Communication
- H – Oral Communication
- I – Values & Ethics

A list indicating the courses which fulfill individual general education competencies is found on page 104.

Arts and Sciences Core Curriculum for Associate Degree Students

Course	Credits
ENG290 Public Speaking	3
ENG110 English I	3
ENG120 English II	3
ENG240 Technical Writing	3
Any Laboratory Science Class	

Note: Core mathematics courses are dependent on major.

As part of their degree requirements, all students in associate programs are required to complete a core curriculum in the arts and sciences. This core is derived from the mission of the College, and reflects what the institution believes is essential to students' education and development. The core curriculum for Vaughn associate degree students consists of the following seven basic competencies:

- A - Scientific Reasoning
- B - Technical Skills
- C - Information Literacy
- D - Critical Thinking
- E - Quantitative Reasoning
- G - Written Communication
- H - Oral Communication

Once the required competencies have been filled, students may take additional credits from the following areas:

- I - Values and Ethics
- F - Diverse Perspectives

A list indicating the courses which fulfill individual general education competencies is found on page 94.

Courses That Fulfill General Education Competencies:

A - Scientific Reasoning

Any Laboratory Science class
CHE230 Chemistry

B - Technical Skills

CSC215 MATLAB
CSC111 Visual Basic
CSC316 C++

C - Information Literacy

ENG110 English I
ENG120 English II
ENG240 Technical Writing
ILT101 Information Literature and Technology

D - Critical Thinking

ENG120 English II

HUM255 Technology and Culture
HUM256 Critical Thinking

E – Quantitative Reasoning

Any Math course numbered 115 or higher

F - Diverse Perspectives

ENG120 English II
ENG210 World Literature
ENG220 American Literature
HIS141 Global Civilization
HIS250 Music and Art Appreciation
HUM251 International Studies
HUM255 Technology and Culture
PSY150 General Psychology

G - Written Communication

ENG110 English I
ENG120 English II
ENG240 Technical Writing

H - Oral Communication

ENG110 English I
ENG290 Public Speaking

I - Values and Ethics

ENG110 English I
ENG120 English II
ENG210 World Literature
ENG220 American Literature
ENG240 Technical Writing
ENG290 Public Speaking
HIS252 Survey of American History
HUM472 Practical Ethics
POL254 American Government
PSY150 General Psychology

Students must consult their individual program curriculum sheets to determine the total number of credits and additional requirements for their program.

GENERAL LEARNING OUTCOMES

Vaughn College faculty have established certain general learning outcomes that each student should attain in order to acquire a degree. In addition, each major also has specific goals for its students.

STUDENT LEARNING OUTCOMES IN THE ARTS AND SCIENCES FOR BACCALAUREATE AND ASSOCIATE STUDENTS

A - Scientific Reasoning

Scientific Reasoning involves the understanding of scientific principles, techniques and the ability to critically compare, through inference and analogy, experimental information with expected theoretical outcomes. Students will be able to:

- 1 - Apply scientific methods of data acquisition and evaluation to investigate measurable phenomena
- 2 - Represent scientific data symbolically graphically and verbally
- 3 - Interpret scientific information represented in formulas, equations, graphs and tables
- 4 - Evaluate results obtained from scientific methods for accuracy

B - Technical Skills

Technical skills involves the use of computers to write and develop documents, prepare presentations, and represent real world data. A further application of this skill is demonstrated by the ability to write simple computer programs. Students will be able to:

- 1 - Write, edit and save documents using a word processing program
- 2 - Use spreadsheet programs to produce graphs and charts.
- 3 - Create power point presentations.
- 4 - Write computer programs in basic, c++, or matlab

C - Information Literacy

This competency involves the ability to effectively evaluate, and responsibly use and share information. Students will be able to:

1. Apply an established citation style to document the sources used

D - Critical Thinking

This competency is characterized by the exploration and analysis of issues and ideas before accepting or formulating an opinion. Students will be able to:

1. Analyze contexts to reach conclusions supported by evidence

E - Quantitative Reasoning

Quantitative Reasoning (QR) is competency in working with numerical data. Individuals with strong QR skills possess the ability to reason and solve quantitative problems in real-world situations. Individuals with QR skills can clearly communicate this competency in a variety of formats including words, tables, graphs and mathematical equations. Students will be able to:

- 1 - Accurately interpret and represent problems verbally, symbolically, numerically and graphically.

- 2 - Solve problems accurately and draw conclusions based on the quantitative analysis of data.
- 3 - Evaluate solutions and assumptions and communicate the quantitative evidence in support of the argument or purpose of the work.

F – Diverse Perspectives

Students with diverse perspectives demonstrate the ability to engage and learn from points of view different from their own. Students will be able to:

1. Demonstrate ability to explain multiple perspectives through the exploration of personal and cultural contexts. G – Written Communication

This competency involves the effective employment of thesis and purpose in writing. Students will be able to:

1. Demonstrate effective sentence structure
2. Demonstrate logical organization of their ideas
3. Employ the grammar and mechanics of Standard American English

H. – Oral Communication

This competency involves the effective delivery of public presentations. Students will be able to:

1. Effectively deliver oral presentations

I - Ethics and Values

This competency involves the ability to access major ethical and moral issues in a historical and contemporary context. Students will be able to:

1. Construct their own arguments using reason and apply these ideas to practical moral issues

ENGINEERING AND ENGINEERING TECHNOLOGY DEGREE PROGRAMS

COMPUTER ENGINEERING BACHELOR OF SCIENCE (BS) DEGREE

The BS in Computer Engineering plays an important role on the technologies that define modern-day life and society. With the rapid development of technology in the information era, this ever-growing field demands well-trained individuals with knowledge and skills for a broad range of computing industries including hardware, computer networking, security, and telecommunication to design, develop and produce new components and systems for the technical challenges we face now and in the future. The study of Computer Engineering involves many technological aspects such as: Operating Systems, Programming, and Networking of Components and Systems ranging from Computer Architecture, Computer Algorithms, digital logic design, active hybrid semiconductor chips, networking, embedded computing systems, artificial intelligence, and security.

At Vaughn College, the curriculum in Computer Engineering emphasizes two well-defined concentrations: Cybersecurity and Artificial Intelligence--giving the students a well-rounded education in either concentration. Students in the Computer Engineering will learn the fundamentals of programming, computer algorithms, networking, systems security, and addresses the multi-disciplinary nature of the field. This program provides students with a solid foundation in mathematics, physical sciences, and computer programming. The course of study trains students to use their skills and knowledge to solve specific problems and ultimately to design systems according to the specified criteria for performing the specific functions set by the project objectives. Furthermore, students in this program will be exposed to industry-related experiences through undergraduate research and internships opportunities.

PROGRAM OBJECTIVES

Upon graduation, students are expected to work in industry holding diverse positions as a computer engineer, software engineer, algorithm development, machine learning, networking/security system engineer, technical sales representatives, and many other computer related positions either in the civilian or military sectors.

- 1) Provide students with a strong foundation in computer programming, computer algorithms, artificial intelligence, networking, and systems security.
- 2) Provide students with knowledge and experience in problem solving, hands-on industry-related computing, project development and technical writing, and the ability to evaluate these approaches for use in each practical situation.
- 3) Enable students to engage in life-long learning and adapt as needs in the profession change. Broaden their vision by incorporating the student chapters of professional societies into student activities and encourage students to get involved and take responsibilities in the professional organizations or extracurricular groups.
- 4) Involve students in projects, including computing and design exercises in which both group and individual efforts are required.

STUDENT OUTCOMES

Career objectives in the Computer Engineering with concentration in cybersecurity graduates are expected to work in an industry with diverse objectives:

1. Graduate of computer engineering will demonstrate an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. Graduate of computer engineering will demonstrate an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. Computer engineering graduate will demonstrate an ability to communicate effectively with a range of audiences.
4. Graduate of computer engineering will demonstrate an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. Graduate of computer engineering will demonstrate an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. Graduate of computer engineering will demonstrate an ability to develop and conduct appropriate experimentation, analyze, and interpret data, and use engineering judgment to draw conclusions.
7. Graduate of computer engineering will demonstrate an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

COMPUTER ENGINEERING — (BS) CURRICULUM

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development Seminar	0	0
Total Credits		3	0
General Education (Non-Math/Science) Courses			
CDE118	Electrical circuit implementation with Eagle or KiCAD	2	0
ENG110	English I	3	0
ENG120	English II	3	0
ENG150	American Literature	3	0
ENG240	Technical Writing	3	0
ENG290	Public Speaking	3	0
HIS141	Global Civilization	3	0
HUM255	Technology and Culture	3	0
POL254	American Government	3	0
Total Credits		26	0
Math and Sciences Courses			
MAT125	Calculus I (Applied Calculus)	3	1
MAT225	Calculus II (Applied Calculus)	3	0
MAT325	Engineering Math I (Applied Differential Equation)	3	0
MAT356	Probability and Statistics	3	0
MAT415	Multivariable Calculus	3	0
MAT455	Linear Algebra	3	0

Math and Sciences Courses Cont.

PHY125	Engineering Physics	4	0
PHY225	Engineering Physics II	4	1
PHY335	College Physics III	3	1
CHE230	Chemistry	3	0
Total Credits		32	3

Computer Engineering Courses

CPE101	Introduction to Computer Engineering	0	1
CSC114 or	Cyber-I Introduction to Cybersecurity	2	0
CSC115	AI-Introduction to Artificial Intelligence		
CSC116	Object Oriented Programming C++	3	0
CSC200	CISCO Academy- Level I Network Infrastructure	2	1
CPE 215	Computer Architecture	3	0
CSC216	API Development Design Python	2	1
CPE217	Introduction to Discrete Mathematics	3	0
CSC310	Data Structures and Algorithms	3	0
CSC320 or	Cyber-II Information Security	2	1
CSC321	AI-II Machine Learning		
CSC322	Computer Operating Systems	3	0
CPE326	Systems Analysis and Design	2	1
CPE330	Data Communication and Cloud Networking	2	1
CSC335	Computer Networks	2	1
CPE350	Secured Embedded Systems	2	1
CSC360 or	Cyber III: Ethical Hacking and Network Defense	2	1
CSC361	AI-III: Data Mining and Data Warehouse		
CSC390	CISCO Cybersecurity Operations	2	1
CPE409	Senior Capstone Project	3	0
Total Credits		38	10

Electrical Engineering Courses

ELE117	DC/AC Circuits (Combined)	2	1
ELE220	Electronics Circuits	2	1
ELE230	Digital System Designs	2	1
Total Credits		6	3

Engineering Management

EGR380	Engineering Project Management	3	0
EGR460	Engineering Economics	3	0
Elective	Technical Elective	3	0
Elective	Technical Elective	3	0
Elective	Technical Elective	3	0
Total Credits		15	0

Total Lecture and Lab Credits**136**

Refer to page 104 for a list of competencies and associated courses.

ELECTRICAL ENGINEERING BACHELOR OF SCIENCE (BS) DEGREE

The BS degree in electrical engineering involves many aspects of electrical components and systems, ranging from the passive analog circuits, digital logic circuits, active hybrid semiconductor chips, and very large scale integrated circuits (VLSI), to the advanced control and communication systems that span the applications from domestic home appliances to aerospace/military systems. Mass media broadcast systems, digital home entertainment systems, smart cell phone and pervasive personal networks, intelligent robots, GPS satellites, active array radars and stealth aircrafts or guided missiles, are just a few examples of the applications in which electrical engineers have been actively involved.

At Vaughn College, the curriculum in Electrical Engineering emphasizes both the fundamentals of electronics and systems, and addresses the multi-disciplinary nature of the field. The undergraduate program in electrical engineering prepares students with a solid background in mathematics and science. The course of study trains students to use analytical procedures to solve specific problems; accompanied by laboratory exercises to examine electrical phenomena and ultimately to design the systems according to the specified criteria for performing the specific functions set by the project objectives. Furthermore, the EE program is constantly adapted to the ever-changing industrial needs by providing the updated and advanced courses to the students who will enter the field of electronics and related industries.

Upon graduation, students are expected to work in the industry holding diverse positions as electrical/electronic engineers, system engineers, technical sales representatives, technical writers, and many more not described here, either in civilian or military sectors.

PROGRAM OBJECTIVES

Program educational objectives for the BS in the BS Electrical Engineering program educational objectives are developed to prepare students for the post-graduation activities. These program objectives are intended to produce versatile engineering graduates who:

- 1) Will be successful and in their chosen career. Graduates of this program will obtain positions that require design, development, analysis, and implementation of electrical systems and processes.
- 2) Will pursue graduate program, professional and/or continued education.
- 3) Will conduct themselves as responsible members of society through involvement in community and professional engagement.

STUDENT OUTCOMES

The BS Electrical Engineering program seeks to provide an engaging educational experience for students. These form the basis for particular abilities that students should be able to demonstrate prior to graduation. These abilities coincide with new EAC ABET criterion 3 (1) through (7) student outcomes requirements as presented below:

1. Graduate of electrical engineering will demonstrate an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. Graduate of electrical engineering will demonstrate an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. Electrical engineering graduate will demonstrate an ability to communicate effectively with a range of audiences.
4. Graduate of electrical engineering will demonstrate an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. Graduate of electrical engineering will demonstrate an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. Graduate of electrical engineering will demonstrate an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. Graduate of electrical engineering will demonstrate an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

ELECTRICAL ENGINEERING — (BS) CURRICULUM

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development Seminar	0	0
	Total Credits	3	0
General Education (Non-Math/Science) Courses			
CSC316	C++ Programming	3	0
ENG110	English I	3	0
ENG120	English II	3	0
ENG220/ENG210	American Literature or World Literature	3	0
ENG240	Technical Writing	3	0
ENG290	Public Speaking	3	0
HIS141	Global Civilization	3	0
HUM255	Technology and Culture	3	0
POL254	American Government	3	0
	Total Credits	27	0
Math and Sciences Courses			
CHE231	General Chemistry	2	1
MAT125	Calculus I for Engineers	3	0
MAT225	Calculus II for Engineers	3	0
MAT325	Differential Equations for Engineers	3	0
MAT330	Calculus III for Engineers	3	0
MAT356	Probability and Statistics	3	0
MAT410	Linear Algebra	3	0
PHY125	Engineering Physics I	3	1
PHY225	Engineering Physics II	3	1
PHY335	Modern Physics - Physics III	3	0
	Total Credits	29	3
Electrical Engineering Courses			
CDE117	Computer-aided Design I (CAD I)	1	1
CDE386	CATIA for Wiring and Harnessing	2	1
EGR380	Engineering Project Management	3	0
EGR460	Engineering Economics	3	0
ELE117	DC/AC Circuits	2	1
ELE118	Electric Circuits II	1	1
ELE220	Electronic Circuits	2	1
ELE230	Digital Systems Design	2	1
ELE320	Linear Systems Analysis	2	1
ELE322	Signals and Systems	3	0

ELE323	Electromagnetism	3	0
ELE325	Electric Machines	2	1
ELE326	Microprocessors	2	1
ELE330	Principles of Communication Systems	2	1
ELE350	Control Systems	2	1
ELE355	Microprocessor System Design and Interfacing	2	1
ELE375	Engineering Reliability	3	0
ELE401	EE Pre Capstone Project	1	0
ELE409	EE Capstone Degree Project	3	0
ELE450	Data Acquisition and Applied Control System Designs	2	1
MCE101	Introduction to Robotics0		1
ELE451	Power Electronics	1	1
MEE115	Engineering Mechanics I	3	0
MEE235	Material Science and Failure Analysis	3	0
MEE340	Computational Methods with Matlab	3	0
Elective	Technical Elective	1	1
Elective	Technical Elective	1	1
	Total Credits	55	17

Total Lecture and Lab Credits

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Refer to page 104 for a list of competencies and associated courses.

MECHANICAL ENGINEERING BACHELOR OF SCIENCE (BS) DEGREE

The BS degree in mechanical engineering is designed to provide our students with both the fundamental knowledge of mechanical engineering and practical, hands-on technical projects which enable them to design engineering components that exhibit precise performance.

Graduates of this program will acquire knowledge in the areas of mechanical engineering, computer-aided engineering, computer-aided design, controls theory and the design process to create smart and more functional and adaptable products. In addition to taking courses in basic engineering sciences and application, students in this field are also required to take design courses such as Computer Aided Three-dimensional Interactive Application (CATIA), Patran-Nastran and Matrix Laboratory (MATLAB) to develop components of an engineering system and conduct analysis on these components. Exposure to the design process exists throughout the curriculum in various engineering courses. Ten credit hours of technical elective coursework allows students to choose courses to specialize in the area of structural mechanics, thermal science, and robotics. To complete this program, students are required to take a 3 credit hour senior project course, which involves the engineering design of a better and more functional product.

The goals of the engineering and technology department in designing this mechanical engineering program and in keeping with the NSPE distinction, are to provide students with a strong foundation in engineering mechanics, mathematics, computer-aided design and fundamentals of engineering, as well as to provide them with knowledge and experience in analytical, computational, and experimental methods. Students should graduate with the ability to design and evaluate these approaches for use in practical situations.

PROGRAM OBJECTIVES

The BS Mechanical Engineering program educational objectives are developed to prepare students for the post-graduation activities. These program objectives are intended to produce versatile engineering graduates who:

- 1) Will be successful and in their chosen career. Graduates of this program will obtain positions that require design, development, analysis, and implementation of mechanical systems and processes.
- 2) Will pursue graduate program, professional and/or continued education.
- 3) Will conduct themselves as responsible members of society through involvement in community and professional engagement.

STUDENT OUTCOMES

The BS Mechanical Engineering program seeks to provide an engaging educational experience for students. These form the basis for particular abilities that students should be able to demonstrate prior to graduation. These abilities coincide with new EAC ABET criterion 3 (1) through (7) student outcomes requirements as presented below:

1. Graduate of mechanical engineering will demonstrate an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. Graduate of mechanical engineering will demonstrate an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Graduate of mechanical engineering will demonstrate an ability to communicate effectively with a range of audiences
4. Graduate of mechanical engineering will demonstrate an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts

5. Graduate of mechanical engineering will demonstrate an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Graduate of mechanical engineering will demonstrate an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Graduate of mechanical engineering will demonstrate an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

ENGINEERING — (BS) MECHANICAL ENGINEERING CURRICULUM

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development Seminar	0	0
	Total Credits	3	0
General Education (Non-Math/Science) Courses			
CSC316	C++ Programming	3	0
ENG110	English I	3	0
ENG120	English II	3	0
ENG220/ENG210	American Literature or World Literature	3	0
ENG240	Technical Writing	3	0
ENG290	Public Speaking	3	0
HIS141	Global Civilization	3	0
HUM255	Technology and Culture	3	0
POL254	American Government	3	0
	Total Credits	27	0
Math and Sciences Courses			
CHE231	General Chemistry	2	1
MAT125	Calculus I for Engineers	3	0
MAT225	Calculus II for Engineers	3	0
MAT325	Differential Equations for Engineers	3	0
MAT330	Calculus III for Engineers	3	0
MAT356	Probability and Statistics	3	0
MAT410	Linear Algebra	3	0
PHY125	Engineering Physics I	3	1
PHY225	Engineering Physics II	3	1
PHY335	Modern Physics - Physics III	3	0
	Total Credits	29	3
Mechanical Engineering Courses			
CDE117	Computer-aided Design I (CAD I)	1	1
CDE385	CATIA I	1	1
CDE486	CATIA II	1	1
EGR230	Mechanical Testing and Evaluation Lab	0	1
EGR375	Thermo-Fluids Lab	0	1
EGR380	Engineering Project Management	3	0
EGR460	Engineering Economics	3	0
ELE117	DC/AC Circuits	2	1
ELE350	Control Systems	2	1

MCE101	Introduction to Robotics	0	1
MEE115	Engineering Mechanics I	3	0
MEE210	Thermodynamics	3	0
MEE215	Engineering Mechanics II	3	0
MEE220	Mechanics of Materials	4	0
MEE235	Material Science and Failure Analysis	3	0
MEE340	Computational Methods with MATLAB	3	0
MEE345	Fluid Mechanics	3	0
MEE350	Mechanical Vibrations	3	0
MEE355	Engineering Reliability	3	0
MEE365	Elements of Machine Design	3	0
MEE370	Finite Elements Analysis	3	0
MEE401	ME Pre-Capstone Degree Project	0	0
MEE409	ME Capstone Degree Project	3	0
MEE440	Heat Transfer	3	0
Elective	Technical Elective	3	0
Elective	Technical Elective	3	0
Elective	Technical Elective	1	1
Elective	Technical Elective	1	1
	Total Credits	61	10

Total Lecture and Lab Credits

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Refer to page 104 for a list of competencies and associated courses.

MECHATRONIC ENGINEERING BACHELOR OF SCIENCE (BS) DEGREE

Mechatronic engineering is the study of the synergistic use of mechanical, electrical and computer engineering. Mechatronic engineering produces “smart” products from the Mars Rover to a desktop printer.

The rigorous program has several objectives: It provides a link between academia and industry; and provides students with the knowledge of analytical, computational and experimental methods. Graduates will have the ability to evaluate these methods for use in practical situations.

Core courses include a strong foundation in mechanical engineering and electronics. Students then choose electives in engineering analysis, design and computer programming. In the last two semesters of the program, students will work on design projects related to mechatronics components development.

The program instills a broad-based understanding of the fundamental technical subject areas associated with mechatronic engineering so students are ready for immediate employment in industry or graduate study.

This program is accredited by the Engineering Accreditation Commission of ABET, www.ABET.org.

PROGRAM OBJECTIVES

The BS mechatronic engineering program educational objectives are developed to prepare students for the post-graduation activities. These program objectives are intended to produce versatile engineering graduates who:

- 1) Will be successful and in their chosen career. Mechatronic engineering graduates will obtain positions that require design, development, analysis, control, and automation of mechatronic systems and processes.
- 2) Will pursue graduate program, professional and/or continued education.
- 3) Will conduct themselves as responsible members of society through involvement in community and professional engagement.

STUDENT OUTCOMES

The BS Mechatronic Engineering program seeks to provide an engaging educational experience for students. These form the basis for particular abilities that students should be able to demonstrate prior to graduation. These abilities coincide with new EAC ABET criterion 3 (1) through (7) student outcomes requirements as presented below:

1. Graduate will demonstrate an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Graduate will demonstrate an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Graduate will demonstrate an ability to communicate effectively with a range of audiences
4. Graduate will demonstrate an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Graduate will demonstrate an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Graduate will demonstrate an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

7. Graduate will demonstrate an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

MECHATRONIC ENGINEERING — (BS) CURRICULUM

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development Seminar	0	0
	Total Credits	3	0
General Education (Non-Math/Science) Courses			
CSC316	C++ Programming	3	0
ENG110	English I	3	0
ENG120	English II	3	0
ENG220/ENG210	American Literature or World Literature	3	0
ENG240	Technical Writing	3	0
ENG290	Public Speaking	3	0
HIS141	Global Civilization	3	0
HUM255	Technology and Culture		
	Total Credits	24	0
Math and Sciences Courses			
CHE231	General Chemistry	2	1
MAT125	Calculus I for Engineers	3	0
MAT225	Calculus II for Engineers	3	0
MAT325	Differential Equations for Engineers	3	0
MAT330	Calculus III for Engineers	3	0
MAT356	Probability and Statistics	3	0
MAT410	Linear Algebra	3	0
PHY125	Engineering Physics I	3	1
PHY225	Engineering Physics II	3	1
PHY335	Modern Physics - Physics III	3	0
	Total Credits	29	3
Mechatronic Engineering Courses			
CDE117	Computer-aided Design I	1	1
CDE385	CATIA I	1	1
EGR230	Mechanical Testing and Evaluation Lab	0	1
EGR375	Thermo-Fluids Lab	0	1
EGR380	Engineering Project Management	3	0
EGR460	Engineering Economics	3	0
ELE117	DC/AC Circuits	2	1

ELE220	Electronic Circuits	2	1
ELE230	Digital Systems Design	2	1
ELE326	Microprocessors	2	1
ELE350	Control Systems I	2	1
MCE101	Introduction to Robotics	0	1
MCE310	Introduction to Linux and ROS	0	1
MCE355	Robot Mechanics and Control	3	0
MCE401	MCE Pre-capstone Project	0	0
MCE410	Mechatronics I	2	1
MCE420	Mechatronics II	2	1
MEE115	Engineering Mechanics I	3	0
MEE210	Thermodynamics	3	0
MEE215	Engineering Mechanics II	3	0
MEE220	Mechanics of Materials	4	0
MEE235	Material Science and Failure Analysis	3	0
MEE340	Computational Methods with MATLAB	3	0
MEE345	Fluid Mechanics	3	0
MEE365	Elements of Machine Design	3	0
MEE370	Finite Element Analysis	3	0
MCE409	MCE Capstone Degree Project	3	0
MEE440	Heat Transfer	3	0
Elective	Technical Elective	2	1
	Total Credits	61	14
	Total Lecture and Lab Credits	134	

Refer to page 104 for a list of competencies and associated courses.

AERONAUTICAL ENGINEERING TECHNOLOGY ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

The AAS aeronautical engineering technology program stresses the fundamentals of engineering technology and science. This major has been designed primarily as a transfer program to BS degrees, although graduates will be prepared to enter industry as engineering technologists.

Graduates will have the skills necessary to obtain entry-level positions within engineering technology and related fields or continue their education toward a bachelor's degree.

After this program is completed, students can either continue on in the College's bachelor of science degree programs in engineering or engineering technology (by taking some additional courses), or transfer to other colleges or universities.

This program is accredited by the Engineering Technology Accreditation Commission of ABET, www.ABET.org.

PROGRAM OBJECTIVES

Aeronautical engineering technology AAS program educational objectives are developed to prepare students for the post-graduation activities. These program objectives are intended to produce graduates who:

- 1) Will obtain a career as technician in the aero-mechanical engineering technology field.
- 2) Will be able to pursue professional and/or continued education.
- 3) Will conduct themselves as responsible members of society and understand the need for continuous professional improvement.

STUDENT OUTCOMES

The AAS aeronautical engineering technology program seeks to provide an engaging educational experience for students. These form the basis for particular abilities that students should be able to demonstrate prior to graduation. These abilities coincide with new ETAC ABET criterion 3 (1) through (5) requirements as presented below:

1. Graduates will demonstrate an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems used in aeronautical/mechanical engineering technology program.
2. Graduates will demonstrate an ability to design solutions for well-defined technical problems and assist with the engineering design of systems, components, or processes of an aeronautical/mechanical engineering system.
3. Graduates will demonstrate an ability to apply written, oral, and graphical communication in well-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.
4. Graduates will demonstrate an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results.
5. Graduates will demonstrate an ability to function effectively as a member of a technical team.

AAS Aeronautical Engineering Technology Curriculum

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development Seminar	0	0
Total Credits		3	0
Liberal Arts Courses			
ENG110	English I	3	0
ENG120	English II	3	0
ENG290	Public Speaking	3	0
HUM255	Global Civilization	3	0
Technology and Culture			
POL254	American Government	3	0
Total Credits		15	0
Math and Sciences Courses			
MAT115	Pre-calculus	4	0
MAT120	Calculus I	4	0
MAT220	Calculus II	3	0
PHY120	College Physics I	3	1
PHY220	College Physics II	3	1
Total Credits		17	2
Aeronautical Engineering Courses			
CDE117	Computer-aided Design I (CAD I)	1	1
CDE385	CATIA I	1	1
DP209	AAS Aircraft Design Degree Project	2	0
EGR115	Engineering Mechanics I	3	0
EGR210	Thermodynamics	3	0
EGR215	Engineering Mechanics II	3	0
EGR220	Strength of Materials I	3	0
EGR230	Mechanical Testing and Evaluation Lab	0	1
EGR235	Material Science and Composites	3	0
EGR340	Computational Methods in Engineering	3	0
EGR260	Aerodynamics	3	0
Total Credits		25	3
Total Lecture and Lab Credits		65	

Refer to page 104 for a list of competencies and associated courses.

ANIMATION AND DIGITAL GRAPHICS ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

The AAS in animation and digital technologies degree has been developed to provide students proficiency in computer-aided design, graphic imaging and animation. In addition to basic college courses, students will be taught to develop 2-D and 3-D images that can be combined to create still renderings of any style or complexity and whose sequential succession can be used to form animated sequences on videotape.

Graduates of this program will find their computer skills applicable to a multitude of computer and related fields, including architecture, construction, graphic design and advertising.

Graduates can also pursue one of the College's bachelor of science degree programs or transfer to bachelor of science degrees in architectural or graphic design at other institutions.

PROGRAM OBJECTIVES

Graduates will:

- 1) Develop solid foundation skills in the field of computer-aided graphic design, 3-D animation for video games, motion graphics and interactive media.
- 2) Gain proficiency with modern 2-D/3-D computer graphics tools and related design methodologies. Students will attain skills required for internships, entry-level positions or higher-education opportunities such as a BS degree in animation and digital technologies.
- 3) Empower themselves with self-promotion, communication and career networking skills relevant to the computer graphics industry.
- 4) Experience career success in a global marketplace through discipline, creativity and a lifetime of self-improvement.

PROGRAM OUTCOMES

The program outcomes for the AAS in animation and digital technologies concentration are as follows.

- a) Graduates will be able to apply their knowledge of design, graphics and 3-D animation principles toward the development of a portfolio and demo reel.
- b) Graduates will learn relevant technology and market trends as used in the computer graphics industry.
- c) Graduates will learn teamwork and creative project management through group critique, oral and multimedia presentations.
- d) Graduates will develop critical thinking, creative problem solving and time management skills.
- e) Graduates will leverage 3-D modeling knowledge to develop product visualization and rapid prototyping skills.
- f) Graduates will be positioned as computer graphics generalists with a specialization in 3-D animation for video games. Students will display a broad knowledge of 3-D modeling, texturing and rigging for both hard-surface and character models.
- g) Graduates will understand the ethical standards and professional responsibilities in their field.

AAS Animation and Digital Graphics Curriculum

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development Seminar	0	0
	Total Credits	3	0
Liberal Arts Courses			
ENG110	English I	3	0
ENG120	English II	3	0
HIS141	Global Civilization	3	0
POL254	American Government	3	0
HUM255	Technology and Culture	3	0
	Total Credits	15	0
Math and Sciences Courses			
MAT115	Pre-calculus	4	0
MAT120	Calculus I	4	0
PHY120	College Physics I	3	1
PHY220	College Physics II	3	1
Elective	General Education	3	0
	Total Credits	17	2
Animation and Digital Technologies Courses			
DSG110	Design, Drawing and Aesthetics	2	1
DSG245	2-D Computer Graphics/Photoshop	2	1
DSG246	Adobe Illustrator Vector Graphics	2	1
DSG250	Introduction to 3-D Studio Max	2	1
DSG260	3-D Studio Max Animation	2	1
DSG261	3-D Graphics Modeling with MAYA	2	1
DSG262	3-DS Max Visual Effect Animation	2	1
DSG263	Digital Video Editing	2	1
DSG265	Introduction to Interactive Media	2	1
DSG267	Animation for Video Games	2	1
Elective	Technical Elective	3	0
	Total Credits	23	10
Total Lecture and Lab Credits		70	

Refer to page 104 for a list of competencies and associated courses.

ELECTRONIC ENGINEERING TECHNOLOGY — AVIONICS ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

This degree program provides the necessary technical foundation to prepare graduates for entry-level employment in the field of electronic technology and related technologies, as well as the ability to transfer to baccalaureate-level technology programs.

Avionics encompasses electronic communication, navigation, surveillance and flight control systems. These systems have become complex, integrated and computer-controlled. The need for avionics technicians to service and maintain this equipment is growing accordingly. This two-year program develops these skills, starting from fundamentals and proceeding to the study of aircraft electronic systems. Graduates are prepared for positions with aircraft maintenance or manufacturing organizations. In addition, graduates of this program will find career opportunities in the field of general electronics, system construction and product design. Students are encouraged to pursue the College's bachelor of science in electronic engineering technology degree program, which provides in-depth application of theory and physical science to advanced avionics systems.

Graduates of the program are also prepared for the Federal Communications Commission (FCC) General Radiotelephone Operator License examination. Graduates must pass a qualifying exam for the FCC License to graduate.

This program is accredited by the Engineering Technology Accreditation Commission of ABET, www.ABET.org.

Upon completion of curriculum requirements, students in this program are eligible to participate in Technical Operations - Collegiate Training Initiative program. See TO-CTI section.

PROGRAM OBJECTIVES

Program educational objectives for the AAS in electronic engineering technology – avionics are developed to prepare students for post-graduate activities. These program objectives are intended to produce graduates who:

- 1) Will be able to obtain careers as avionics/electronics technicians. AAS avionics graduates will be able to pursue positions that require avionics/electronics design, development, installation, maintenance and repair.
- 2) Will pursue FCC license, professional and/or continued education.
- 3) Will conduct themselves as responsible members of society and understand need for continuous professional improvement.

STUDENT OUTCOMES

The AAS electronic engineering technology – Avionics program seeks to provide an engaging educational experience for students. These form the basis for particular abilities that students should be able to demonstrate prior to graduation. These abilities coincide with new ETAC ABET criterion 3 (1) through (5) requirements as presented below:

1. Graduates will demonstrate an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems used in electronic engineering technology program
2. Graduates will demonstrate an ability to design solutions for well-defined technical problems and assist with the engineering design of systems, components, or processes of an electronic/avionic system

3. Graduates will demonstrate an ability to apply written, oral, and graphical communication in well-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature
4. Graduates will demonstrate an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results
5. Graduates will demonstrate an ability to function effectively as a member of a technical team.

AAS ELECTRONIC ENGINEERING TECHNOLOGY - AVIONICS CURRICULUM

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development Seminar	0	0
	Total Credits	3	0
Liberal Arts and Sciences Courses			
ENG110	English I	3	0
ENG120	English II	3	0
ENG290	Public Speaking	3	0
HUM255	Technology and Culture	3	
POL254	American Government	3	0
	Total Credits	15	0
Math and Sciences Courses			
MAT115	Pre-calculus	4	0
MAT120	Calculus I	4	0
PHY120	College Physics I	3	1
PHY220	College Physics II	3	1
	Total Credits	14	2
Electronic Engineering Technology Courses			
AVT235	Aircraft Navigation Systems	2	1
AVT240	Aircraft Pulse Systems	2	1
AVT245	Radar Systems	2	1
AVT250	FCC License Review	0	0
CDE117	Computer-aided Design I (CAD I)	1	1
EET115	Electrical Circuits I	2	1
EET116	Electrical Circuits II	2	1
EET125	Digital Electronics	2	1
EET210	Electronic Laboratory Practices	1	1
EET220	Electronic Circuits	2	1
EET230	Principles of Communications Systems	2	1
Elective	Technical Elective:	3	0
	Total Credits	21	10
Total Lecture and Lab Credits		65	

Refer to page 104 for a list of competencies and associated courses.

ELECTRONIC ENGINEERING TECHNOLOGY — AVIONICS CONCENTRATION BACHELOR OF SCIENCE (BS) DEGREE

The major course component of the electronics technology BS degree with a concentration in avionics has been developed to provide students proficiency in sophisticated aviation electronics systems found on board commercial, corporate and private aircraft. The program will stress science and technology as they apply to today's modern fleet of aircraft.

This degree program provides in-depth application of theory and physical sciences to advanced avionics systems found on today's modern fleet of aircraft. The curriculum includes the avionics courses of the AAS avionics degree program, which applies mathematics and science to electrical circuits, digital electronics, aircraft communication/navigation systems, and aircraft pulse/radar systems. The additional avionics courses of the BS degree cover aircraft power/distribution systems, flight control/management systems, electronics flight instrument systems, long-range navigation systems integrated avionics systems, and traffic alert and avoidance systems. Avionics installation and maintenance, reliability and maintainability, as well as integrated logistics support courses, are also covered as part of this degree program.

The Lab View program Graphical Programming for Instrumentation is used for the avionics laboratory/exercises wherever applicable.

Students must complete an avionics degree project (see AET409 in the course descriptions) in order to graduate. The project must be approved by the department chair.

Graduates of the program are also prepared for the Federal Communications Commission (FCC) General Radiotelephone Operator License examination. Graduates must pass a qualifying exam for the FCC License to graduate.

This program is accredited by the Engineering Technology Accreditation Commission of ABET, www.ABET.org.

Upon completion of curriculum requirements, students in this program are eligible to participate in Technical Operations - Collegiate Training Initiative program. See TO-CTI section.

PROGRAM OBJECTIVES

Program educational objectives for the BS in Electronic Engineering Technology - Avionics are developed to prepare students for the post-graduation activities. These program educational objectives are intended to produce versatile graduates in engineering technology who:

- 1) Will be successful in their chosen avionics/electronics career path. Graduates of this program will be able to pursue positions that require avionics/electronics design, development, implementation, and manufacturing of avionics systems and processes.
- 2) Will be able to pursue FCC license, professional education, graduate study and/or continued education.
- 3) Will conduct themselves as responsible members of society through involvement in community and professional engagement.

STUDENT OUTCOMES

The BS electronic engineering technology – Avionics program seeks to provide an engaging educational experience for students. These form the basis for particular abilities that students should be able to demonstrate prior to graduation. These abilities coincide with new ETAC ABET criterion 3 (1) through (5) requirements as presented below:

- 1) Graduates will demonstrate an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems used in electronic engineering technology program

- 2) Graduates will demonstrate an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate of an electronic/avionic system
- 3) Graduates will demonstrate an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature
- 4) Graduates will demonstrate an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes of an electronic/avionic system
- 5) Graduates will demonstrate an ability to function effectively as a member as well as a leader on technical teams.

BS ELECTRONIC ENGINEERING TECHNOLOGY — AVIONICS CURRICULUM

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development	0	0
	Total Credits	3	0
Liberal Arts Courses			
Elective	General Education	3	0
ENG110	English I	3	0
ENG120	English II	3	0
ENG220/ENG210	American Literature or World Literature	3	0
ENG240	Technical Writing	3	0
ENG290	Public Speaking	3	0
HIS141	Global Civilization	3	0
HUM255	Technology and Culture	3	0
HUM472	Practical Ethics	3	0
	Total Credits	27	0
Math and Sciences Courses			
MAT115	Pre-calculus	4	0
MAT120	Calculus I	4	0
MAT220	Calculus II	3	0
MAT356	Probability and Statistics	3	0
MAT445	Differential Equations	3	0
PHY120	College Physics I	3	1
PHY220	College Physics II	3	1
POL254	American Government	3	0
	Total Credit	26	2
Management Course			
ECO255	Principles of Economics	3	0
	Total Credit	3	0
Electronic Engineering Technology Courses			
AET409	AET Capstone Degree Project	3	0
AVT235	Aircraft Navigation Systems	2	1
AVT240	Aircraft Pulse Systems	2	1

Electronic Engineering Technology Courses (continued)

AVT245	Radar Systems	2	1
AVT250	FCC License Review	0	0
AVT346	Aircraft Power and Distribution Systems	2	1
AVT347	Flight Control Systems	2	1
AVT349	Electronic Flight Instrument Systems	2	1
AVT351	Long Range Navigation Systems	2	1
AVT352	Integrated Avionics Systems	3	0
AVT453	Traffic Alert/Collision Avoidance Systems	2	1
AVT454	Avionics Installation and Maintenance	2	1
AVT455	Reliability and Maintainability	3	0
AVT456	Avionics Integrated Logistics Support	3	0
CDE117	Computer-aided Design I	1	1
EET115	Electrical Circuits I	2	1
EET116	Electrical Circuits II	2	1
EET125	Digital Electronics	2	1
EET210	Electronic Laboratory Practices	1	1
EET220	Electronic Circuits	2	1
EET230	Principles of Communications Systems	2	1
EET326	Microprocessors	2	1
EGR380	Engineering Project Management	3	0
Elective	Technical Elective	2	1
	Total Credits	49	18

Total Lecture and Lab Credits

128

Refer to page 104 for a list of competencies and associated courses.

ELECTRONIC ENGINEERING TECHNOLOGY — ELECTRONICS BACHELOR OF SCIENCE (BS) DEGREE

Innovation in the ever-growing field of electronics depends more than ever on properly educated and trained individuals who can conceive, design, develop and produce solutions to modern technical problems. Accordingly, the Electronic Engineering Technology program prepares graduates with technical and managerial skills necessary to enter careers as technologists in such industries as aerospace, computers, communications, medical, chemical and energy supply.

Students are offered training in a wide range of areas such as control systems, microprocessors, communications systems, computer applications and computer-aided design. Moreover, the program emphasizes written and oral communication skills as well as modern methods of industrial administration and supervision.

This program is accredited by the Engineering Technology Accreditation Commission of ABET, www.ABET.org.

PROGRAM OBJECTIVES

Program educational objectives for the BS in Electronic Engineering Technology - Electronics are developed to prepare students for the post-graduation activities. These program educational objectives are intended to produce versatile graduates in engineering technology who:

- 1) Will be successful in their chosen careers. Graduates of this program will be able to pursue positions that require design, development, implementation, and manufacturing of electronics systems and processes.
- 2) Will be able to pursue professional education, graduate study and/or continued education.
- 3) Will conduct themselves as responsible members of society through involvement in community and professional engagement.

STUDENT OUTCOMES

The BS electronic engineering technology – Electronics program seeks to provide an engaging educational experience for students. These form the basis for particular abilities that students should be able to demonstrate prior to graduation. These abilities coincide with new ETAC ABET criterion 3 (1) through (5) requirements as presented below:

1. Graduates will demonstrate an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems used in electronic engineering technology program
2. Graduates will demonstrate an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate of an electronic system
3. Graduates will demonstrate an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature
4. Graduates will demonstrate an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes of an electronic system
5. Graduates will demonstrate an ability to function effectively as a member as well as a leader on technical teams.

BS ELECTRONIC ENGINEERING TECHNOLOGY — ELECTRONICS CURRICULUM

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development	0	0
	Total Credits	3	0
Liberal Arts Courses			
ENG110	English I	3	0
ENG120	English II	3	0
ENG220	American Literature	3	0
HUM255	Technology and Culture	3	0
ENG240	Technical Writing	3	0
ENG290	Public Speaking	3	0
HIS141/ENG210	Global Civilization or World Literature	3	0
POL254	American Government	3	0
HUM472	Practical Ethics	3	0
	Total Credits	27	0
Math and Sciences Courses			
MAT115	Pre-calculus	4	0
MAT120	Calculus I	4	0
MAT220	Calculus II	3	0
MAT445	Differential Equations	3	0
PHY120	College Physics I	3	1
PHY220	College Physics II	3	1
PHY335	Modern Physics - Physics III	3	0
	Total Credits	23	2
General Education Electives			
Elective	General Education	3	0
Elective	General Education	3	0
Elective	General Education - Math	3	0
	Total Credits	9	0
Electronic Engineering Technology Courses			
AVT240	Aircraft Pulse Systems	2	1
CDE117	Computer-aided Design I	1	1
CDE385	CATIA I	1	1
CDE386	CATIA for Wiring and Harnessing	2	1
EET115	Electrical Circuits I	2	1
EET116	Electrical Circuits II	2	1
EET125	Digital Electronics	2	1
EET210	Electronic Laboratory Practices	1	1
EET220	Electronic Circuits	2	1
EET230	Principles of Communications Systems	2	1
EET326	Microprocessors	2	1
EET345	Computer Control of Instruments	2	1
EET350	Control Systems	2	1

Electronic Engineering Technology Courses (continued)

EET355	Advanced Microprocessors	2	1
EET409	EET Capstone Degree Project	3	0
EET445	Principles of Communications Networks	3	0
EET475	Reliability and Maintainability	3	0
EGR235	Material Science and Composites	3	0
EGR380	Engineering Project Management	3	0
EGR460	Engineering Economics	3	0
Elective	Technical Elective	2	1
Total Credits		45	15

Total Lecture and Lab Credits**124**

Refer to page 104 for a list of competencies and associated courses.

MECHANICAL ENGINEERING TECHNOLOGY BACHELOR OF SCIENCE (BS) DEGREE — AERONAUTICAL AND COMPUTER-AIDED DESIGN OPTIONS

The BS degree in mechanical engineering technology has been developed to provide students with a solid foundation in the use of computers in math, science and the graphic arts with application to the mechanical engineering technology field, and to engage students with technical problems and projects that stimulate their critical thinking and build communication and teamwork skills.

Exposure to the design process exists throughout the curriculum in various engineering courses such as Solid Edge, Computer Aided Three-dimensional Interactive Application (CATIA), PATRAN/NASTRAN, Computational Method in Engineering with MATLAB and a capstone degree project.

The goal is to provide students with the fundamentals of engineering, and the knowledge and experience in analytical, computational and experimental methods as well as an ability to design and evaluate these approaches for use in a given situation. With this in mind, students in the mechanical engineering technology program can choose one of the following two options:

1. Aeronautical Option: This option strives to provide an in-depth application of engineering technology with a focus on aeronautical engineering principles.
2. Computer-aided Design Option: This option stresses the fundamentals of engineering with an emphasis on 3-D graphics using CATIA and Solid Edge for the design and analysis of structures.

This program is accredited by the Engineering Technology Accreditation Commission of (ABET), www.ABET.org.

PROGRAM OBJECTIVES

The mechanical engineering technology program educational objectives are developed to prepare students for the post-graduation activities. These program objectives are intended to produce versatile engineering technology graduates who:

- 1) Will be successful in their chosen career. Graduates of this program will obtain positions that require design, analysis, development and implementation of mechanical systems
- 2) Will pursue professional education, graduate study, and/or continued education.
- 3) Will conduct themselves as responsible members of society through involvement in community and professional engagement.

STUDENT OUTCOMES

The BS mechanical engineering technology program seeks to provide an engaging educational experience for students. These form the basis for particular abilities that students should be able to demonstrate prior to graduation. These abilities coincide with new ETAC ABET criterion 3 (1) through (5) requirements as presented below:

1. Graduates will demonstrate an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems used in mechanical engineering technology program
2. Graduates will demonstrate an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate of a mechanical engineering technology related system
3. Graduates will demonstrate an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature

4. Graduates will demonstrate an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes of a mechanical system
5. Graduates will demonstrate an ability to function effectively as a member as well as a leader on technical teams.

MECHANICAL ENGINEERING TECHNOLOGY — (BS)

AERONAUTICAL AND COMPUTER-AIDED DESIGN CURRICULUM

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development Seminar	0	0
	Total Credits	3	0
Arts and Science Courses			
ENG110	English I	3	0
ENG120	English II	3	0
ENG220/ENG210	American Literature or World Literature	3	0
ENG240	Technical Writing	3	0
ENG290	Public Speaking	3	0
HIS141	Global Civilization	3	0
HUM255	Technology and Culture	3	0
POL254	American Government	3	0
Elective		3	
	Total Credits	27	0
Math and Sciences Courses			
MAT115	Pre-calculus	4	0
MAT120	Calculus I	4	0
MAT220	Calculus II	3	0
MAT445	Differential Equations	3	0
PHY120	College Physics I	3	1
PHY220	College Physics II	3	1
	Total Credits	20	2
Mechanical Engineering Technology Courses			
CDE117	Computer-aided Design I	1	1
CDE385	Intro to CATIA	1	1
CDE480	Computer-aided Design II	1	1
CDE486	CATIA II	1	1
EET115	Electrical Circuits I	2	1
EGR115	Engineering Mechanics I	3	0
EGR210	Thermodynamics	3	0
EGR235	Material Science and Composites	3	0
EGR215	Engineering Mechanics II	3	0
EGR220	Strength of Materials I	3	0

Mechanical Engineering Technology Courses (continued)		Lecture Credits	Lab Credits
EGR225	Strength of Materials II	3	0
EGR230	Mechanical Testing and Evaluation Lab	0	1
EGR260	Aerodynamics I	3	0
EGR340	Computational Methods in Engineering	3	0
EGR345	Fluid Mechanics	3	0
EGR350	Mechanical Vibrations	3	0
EGR365	Elements of Machine Design and Kinematics	3	0
EGR370	Finite Element Analysis with Matlab	3	0
EGR375	Thermo-fluids Laboratory	0	1
EGR380	Engineering Project Management	3	0
EGR440	Heat Transfer	3	0
EGR460	Engineering Economics	3	0
EGR489	Patran Nastran Structural Analysis	1	1
MET409	Degree Project	3	0
	Total Credits	55	8
 Aeronautical Option			
ERG355	Reliability Method in Structural Mechanics	3	0
ERG360	Aerodynamics II	3	0
ERG455	Aircraft Structural Analysis	3	0
Elective	Technical Elective	1	1
	Total Credits	10	1
 CAD Option			
CDE487	CAM and Prismatic Machining (CATIA III)	1	1
ERG450	Aircraft Configuration Design	1	1
Elective I	Technical Elective	1	1
Elective II	Technical Elective	1	1
	Total Credits	4	4
Total Lecture and Lab Credits for MET Aeronautical Option		126	
Total Lecture and Lab Credits for MET CAD Option		123	

Refer to page 104 for a list of competencies and associated courses.

COMPUTER SCIENCE BACHELOR OF SCIENCE (BS) DEGREE

The BS in Computer Science plays an important role on the technologies that define modern-day life and society. With the rapid development of technology in the information era, this ever-growing field demands for well-trained individuals with knowledge and skills for a broad range of computing industries including computer software design, computer networking, security, and data analytics to design, develop and produce new components and systems for the technical challenges imposed upon us today. The computer science program will meet this demand. The study of computer science involves many technological aspects such as: operating systems, software design, programming, networking of components and systems ranging from computer architecture, computer algorithms, computer organization, computer operating systems, computer programming, software design, artificial intelligence, data science, and security. At Vaughn College, the curriculum in computer science emphasizes fundamentals of programming, computer algorithms, networking, systems security, and addresses the multi-disciplinary nature of the field. This program provides students with a solid foundation in mathematics, physical sciences, computer networking, programming, security, and software design. The course of study trains students to use their skills and knowledge to solve specific problems and ultimately to design systems according to the specified criteria for performing the specific functions set by the project objectives. Furthermore, students in this program will be exposed to industry-related experiences through undergraduate research and internships opportunities. Upon graduation, students are expected to work in industry holding diverse positions as data scientist, software design, algorithm development, machine learning, networking/security, system development, technical sales representative, and many other computer related positions either in civilian or military sectors.

PROGRAM OBJECTIVES

Program educational objectives for the BS in Computer Science are developed to prepare students for the post-graduation activities. These program educational objectives are intended to produce versatile graduates in computer science who:

- 1. Will be successful in their chosen career.** Graduates of this program will obtain positions that require knowledge and experience in problem solving, hands-on industry-related computing, project development and technical writing, and the ability to evaluate these approaches for use in each practical situation.
- 2. Will pursue graduate program, professional and/or continued education.** Graduates of this program will obtain all necessary knowledge and skills in computer programming, networking, algorithms, operating systems, systems security, data science, artificial intelligence, and cybersecurity. They will also be able to continue their education toward post-graduate degree.
- 3. Will conduct themselves as responsible members of society through involvement in community and professional engagement.** This program will engage students in life-long learning and broaden their vision by incorporating student chapters of professional societies into student activities and encourage students to get involved and take responsibilities in professional organizations or extracurricular groups

STUDENT OUTCOMES

The BS Computer Science program seeks to provide an engaging educational experience for students. These form the basis for particular abilities that students should be able to demonstrate prior to graduation.

Graduates will be successful in their chosen careers and will obtain positions that require knowledge and experience in problem solving, hands-on industry-related computing, and the ability to evaluate these approaches for use in each practical situation. These outcomes form the basis for abilities that students should be able to demonstrate prior to graduation. These abilities coincide with CAC ABET criterion 3 (1) through (5) student outcomes requirements as presented below:

1. Graduate of computer Science will demonstrate an ability to analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Graduate of computer science will demonstrate an ability to design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Computer science graduate will demonstrate an ability to communicate effectively in a variety of professional contexts

4. Graduate of computer science will demonstrate an ability to recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
 5. Graduate of computer science will demonstrate an ability to function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- In addition to outcomes 1 through 5, graduates of the program will also have an ability to:
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.
- [CS]

COMPUTER SCIENCE — (BS) CURRICULUM

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development Seminar	0	0
Total Credits		3	0
Liberal Arts Courses			
ENG110	English I	3	0
ENG120	English II	3	0
ENG220	American Literature	3	0
ENG240	Technical Writing	3	0
ENG290	Public Speaking	3	0
HIS141	Global Civilization	3	0
HUM255	Technology and Culture	3	0
POL254	American Government	3	0
Liberal Arts Elective		3	0
Total Credits		27	0
Math and Sciences Courses			
CHE231	General Chemistry	2	1
MAT125	Calculus I for Engineers	3	0
MAT225	Calculus II for Engineers	3	0
MAT325	Differential Equations for Engineers	3	0
MAT340	Applied Numerical Method	3	0
MAT356	Probability and Statistics	3	0
MAT358	Introduction to Discrete Mathematics	3	0
MAT410	Linear Algebra	3	0
PHY125	Engineering Physics I	3	1
PHY225	Engineering Physics II	3	1
Total Credits		29	3
Computer Science and Engineering Courses			
CSC101	Intro to Computer Science	1	1
CSC114	Intro to Cybersecurity	2	0
CSC115	Intro to Artificial Intelligence	2	0
CSC116	Object Oriented Programming	3	0
CSC118	Computer Organization Fundamentals	2	1

CSC211	Database Fundamentals	2	1
CSC216	API Development Design	2	1
CSC217	Computer Architecture	2	1
CSC220	Principles of Software Design	2	1
CSC224	Principles of Data Science	3	0
CSC310	Data Structures and Algorithms	2	1
CSC320	Computer and Information Security	2	1
CSC321	Principles of Machine Learning	3	0
CSC322	Computer Operating Systems	2	1
CSC326	Systems Analysis and Design	2	1
CSC330	Cloud Computing and Networking	2	1
CSC335	Computer Networks	2	1
CSC340	Ethical Hacking and Network Defense	2	1
CSC409	Senior Degree Project	3	0
EGR380	Engineering Project Management	3	0
EGR460	Engineering Economics	3	0
Technical Elective 1		3	0
Technical Elective 2		3	0
Total Computer Science/Engineering Credits		53	13

Total Lecture and Lab Credits

128

Technical Elective Courses

As listed above, students in the BS in Computer Science program have the freedom to take 6 credits as tech electives either in data analytics, principles of computer security, cloud data base, blockchain technology, cryptography, parallel programming, secured embedded systems, web design principles, and wireless network. Technical electives are listed below.

Course	Credit
CSC325 Cloud Application Design and Development	3
CSC350 Secured Embedded Systems	3
CSC355 Introduction to Blockchain technology	3
CSC352 Cloud Database Development	3
CSC360 Computer and Network Forensics	3
CSC370 Network Programming	3
CSC372 Parallel Programming	3
CSC374 Web Design Principles	3
CSC380 Cryptography	3
CSC382 Principles of computer security	3
CSC384 Wireless network & Security	3
CSC385 Data Analytics	3

Refer to page 104 for a list of competencies and associated courses.

ENGINEERING AND TECHNOLOGY DEPARTMENT ADVISORY COUNCIL

MOUSTAFA ABOALI

Pratt & Whitney

ROBERT ANDERSON

Bakery Innovative Technology

CARLO ASARO

Lockheed Martin/Sikorsky Corp.

MARVIN BLACKMAN

Carbon Rkayd

RICH BROWN

Lockheed Martin/Sikorsky Corp.

AL BUNSHAFT

3DS, Dassault Systems

DR. APARICIO CARRANZA

CUNY-NYC College of Technology

OMAR ELDEEBO

Lockheed Martin/Sikorsky Corp.

ARIEL FERRERA

Blue Origin

MAX GROSS

SciMax Technologies, LLC

WASEEM HUSSAIN

Union Crate

ROBERT ISOLDI

CPI Aero

TERRY JACK

Lockheed Martin/Sikorsky Corp.

MICHAEL A. JOSEPH, III

Corning, Incorporated

PETER KALAITZDIS

New York Power Authority

SHIVA LALL

Federal Aviation Administration (FAA)

JEFFERSON MALDONADO '16

ArcBest Technologies

FELIPE I. MUNOZ

Lockheed Martin/Sikorsky Corp.

MUHAMMAD NOMAN

Lockheed Martin/Sikorsky Corp.

JOHN PAVON '02

Pavon Manufacturing Group

MATTHEW PEARCE

National Aeronautics and Space Administration (NASA)

DIOGENES RAMOS

Federal Aviation Administration (FAA)

ARYA RANASINGH

Micro Merchant Systems

MANNY SANTANA

Defense Contract Management Agency

OLIVER SCHEEL

U.S. Didactic

HITESH SHAH

Cyient Inc.

BEANT SINGH

Siemens

RAJDEEP SINGH

Lockheed Martin/Sikorsky Corp.

IVAN STAMATOVSKI

Easy Aerial

RAUL TELLES

Pratt & Whitney

NICK VISCIOTTI

Cyient Inc.

MICHAEL WROBLEWSKI

Stark Products

DI YANG

Federal Aviation Administration (FAA)

JONATHAN ZUBARRIAIN

Cox & Company Inc.

AVIATION DEGREE PROGRAMS

THE MISSION OF THE VAUGHN COLLEGE AVIATION DEPARTMENT

The mission of the Vaughn College Aviation Program is to produce motivated, professional aviators who will serve the industry and public as trusted researchers, developers and operators of the aviation system.

AVIATION PROGRAM GOALS

1. Be the leading transportation safety research and learning provider
2. Build upon Vaughn Aviation's role as the premier academic center in the New York region for developing aviation experts capable of serving in varied technical and leadership roles in the global aviation industry
3. Be the center for international aeronautical research and learning

AERONAUTICAL SCIENCES BACHELOR OF SCIENCE (BS) DEGREE

This degree program is accredited by the Aviation Accreditation Board International (AABI). The mission of the Aeronautical Sciences Program is to produce graduates who have the complete technical knowledge to pursue a career as a commercial pilot, with the opportunity to complete one of the following options: Air Traffic Control (under the FAA AT-CTI program), Flight Dispatcher certification or other aviation options under development. This degree has been developed to provide academic studies similar to those offered in the Aircraft Operations Bachelor of Science Degree, but without the requirement to complete any Part 141 ground training at Vaughn College or flight training under the Vaughn College partnership with a FAA certified Part 141 flight school. In other words, a student who wishes to pursue any Part 61 or Part 141 ground or flight certificates would be free to do so without Vaughn requirements. This also means that the student in the BS Aeronautical Sciences program would not be eligible for any relief under the RATP program from the minimum flying hours required for an Airline Transport Pilot certificate, which is currently 1500 hours. Pilot candidates would take the BAS program if, for example, they are:

1. Students who wish to pursue actual flight training during their college studies, but want to do it on their own time, with their own financial resources, or,
2. Students who were accepted to a military flight training and commissioning program, and who will be trained as pilots by the military.

PROGRAM OBJECTIVES

The program educational objectives are intended to produce versatile aviation graduates who:

- 1) Are successful in their chosen career path. They will be able to obtain positions which require detailed technical knowledge and skills in the operation and management of aircraft.
- 2) Pursue graduate study and professional education.
- 3) Conduct themselves as responsible members of society through involvement in their community and engagement in their profession.

STUDENT LEARNING OUTCOMES

The aeronautical sciences program learning outcomes are as follows. Graduates will be able to:

- Apply learning in mathematics, science, and applied sciences to aviation-related disciplines;
- Analyze and interpret aeronautical data;
- Work effectively on crews, and multi-disciplinary and diverse teams;
- Make professional and ethical decisions;
- Communicate effectively using both written and oral skills;
- Know that an aviator is a student for life, and pursue the desired knowledge relentlessly;
- Assess contemporary issues in aviation, and in any related fields of interest;
- Research, assimilate and display proficiency in the techniques, skills and technology of aeronautics;
- Assess the national and international aviation environment;
- Apply pertinent knowledge in identifying and solving problems;
- Apply knowledge of business sustainability to aviation issues.

AERONAUTICAL SCIENCES (BS) CURRICULUM

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development	0	0
	Total Credits	3	0
Liberal Arts Courses			
ECO255	Principles of Economics	3	0
ENG110	English I	3	0
ENG120	English II	3	0
ENG220	American Literature	3	0
ENG210	World Literature	3	0
ENG240	Technical Writing	3	0
ENG290	Public Speaking	3	0
HIS141	Global Civilization	3	0
POL254	American Government	3	0
Elective	General Education (Competency I)	3	0
HUM255		3	0
Technology and Culture			
Elective	General Education (Competency F)	3	0
	Total Credits	36	0
Math and Sciences Courses			
MAT115	Pre-calculus	4	0
MAT210	Statistics	3	0
PHY120	College Physics I	3	1
PHY220	College Physics II	3	1
Elective	(Competency A, D or E)	3	0
Elective	Math/Science (Competency B)	3	0
	Total Credits	19	2

Aeronautical Sciences Courses

ATC200	Basic Air Traffic Control I	2	2
ATC240	Basic Air Traffic Control II	3	1
FLT101AS	General Aeronautics I	3	0
FLT102AS	General Aeronautics II	3	0
FLT120AS	Intermediate Aeronautics	4	0
FLT330L	Advanced Aeronautics Simulator	2	0
FLT230	Aviation Weather	3	0
FLT240	Advanced Aircraft Systems (Flight)	3	0
FLT241	Aviation Safety	3	0
FLT330AS	Advanced Aeronautics	3	0
FLT345	Human Factors or FLT447 or FLT441	3	0
FLT383	Accident Investigation or FLT442	3	0
FLT384	Management of Aviation Environmental Issues or FLT443	3	0
FLT470	Certified Flight Instructor Aerodynamics	3	0
FLT471	Fundamentals of Teaching Aeronautics	3	0
Elective	Technical	3	0
Elective	Aviation, Management, Engineering, Technology	3	0
Elective	Technical or FLT444	3	0
Elective	Technical	3	0
Elective	Technical or INT401	3	0
Total Credits		59	3

Total Lecture and Lab Credits**122**

Refer to page 104 for a list of competencies and associated courses.

AIRCRAFT OPERATIONS (AAS) DEGREE

Provide students with an opportunity to enter various entry positions in the aviation industry. The mission and primary objective of the aircraft operation associates program is to prepare the graduate for an entry-level flight operations position in the aviation industry and aviation-related government agencies. In the case of Vaughn students transferring to the BS Aircraft Operations degree students must obtain a minimum of a “C” in all applicable aviation courses. The course of study for the associate degree also qualifies the student for the FAA Collegiate Training Initiative for Air Traffic Control.

PROGRAM OBJECTIVES

Graduates will:

Have the foundation necessary to pursue a bachelor’s degree in aircraft operations or aeronautical sciences. In addition, they will acquire the skills to obtain entry-level positions in the aeronautical sciences or aircraft operations fields.

STUDENT LEARNING OUTCOMES

The aircraft operations program learning outcomes are as follows. Graduates will be able to:

- a. Apply learning in mathematics, science, and applied sciences to aviation-related disciplines;
- b. Analyze and interpret aeronautical data;
- c. Work effectively on crews, and multi-disciplinary and diverse teams;
- d. Make professional and ethical decisions;
- e. Communicate effectively using both written and oral skills, and
- f. Know that an aviator is a student for life, and pursue the desired knowledge relentlessly.
- g. Assess contemporary issues in aviation, and in any related fields of interest.

AIRCRAFT OPERATIONS (AAS) CURRICULUM

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development	0	0
	Total Credits	3	0
Arts and Sciences Courses			
ENG110	English I	3	0
ENG120	English II	3	0
ENG290	Public Speaking	3	0
HIS141	Global Civilization	3	0
POL254	American Government	3	0
	Total Credits	15	0
Math and Sciences Courses			
MAT115	Pre-calculus	4	0
MAT210	Statistics	3	0
PHY120	Physics I	3	1
PHY220	College Physics II	3	1
CSC111	Visual Basic Programming	3	0
	Total Credits	16	2
Aircraft Operations Courses			
FLT 101	General Aeronautics I & Lab	3	0
FLT 102	General Aeronautics II & Lab	3	0
FLT241	Aviation Safety Basic Air Traffic Control I	3	0
ATC200	Basic Air Traffic Control II	2	2
ATC240	Air Traffic Control Weather Lab	2	2
ATC220	Air Traffic Weather	2	0
ATC220L	ATC Weather LAB (RATP) (CTI)	0	1
	Total Credits	15	5
FLT250	Aviation System Introduction	3	0
ATM320	Aviation Law	3	0
FLT447	Crew Resource Management	3	0
FLT385	Safety Management Systems	3	0
ATC300	Basic ATC Capstone Review and Screening	0	0
	Total Credits	12	0
	Total Lecture and Lab Credits	68	

Note 1: Successful Completion of ATC200, ATC220, ATC240, ATC300, FLT101, FLT102 and associated LABS QUALIFY FOR an FAA-CTI Recommendation Note 2: Bachelor Aircraft Operation students who subsequently transfer to the associate degree must have completed, FLT120, FLT330, and received their Instrument and Commercial License at our Part 141 School, Heritage in addition to the qualifying minimum 30 RATP credits to qualify for 1,250 hours RATP under 14 CFR Part 61 par §61.160 (c)

Note 3: All FLT and ATC courses require a minimum grade of “C” with an overall GPA of 2.50

Note 4: A GPA of 3.0 is required to transfer into the bachelor’s Program

AIRCRAFT OPERATIONS BACHELOR OF SCIENCE (BS) DEGREE

This degree program is accredited by the Aviation Accreditation Board International (AABI) and Vaughn College is a FAA-approved Part 141 pilot school.

The bachelor’s degree in Aircraft Operations qualifies the graduate for the eventual attainment of the FAA Restricted Airline Transport Pilot (R-ATP) certification with as little as 1,000 hours of flying experience. Degree certifications and ratings include Private Pilot Certification, Instrument-Airplane Rating, Commercial Pilot Certification, Certificated Flight Instructor with Airplane Single-Engine rating (CFI), and CFI with Instrument-Airplane rating (CFII). To be eligible for the FAA R-ATP, the ground and flight training for the Instrument-Airplane rating and Commercial Pilot certification must be completed at Vaughn.

Upon entry to this program, it is required that students have the following by the first date of class: (1)AN FAA Class I medical certificate, (2) Financial Clearance for all applicable licenses< and (3) FTSP (TSA) Clearance if necessary.

To advance through the program, students must obtain a minimum of a “C” in FLT101, FLT102, FLT230L, FLT360, FLT470 and FLT471. Both FLT120 and FLT330 have mandatory attendance requirements as well as a minimum course grade requirement of “B”, and 80% in the required FAA Stage/EOC Exams Each of the flight education courses at Vaughn is concurrent with the following flight courses that are taught at our partner Part 141 Flight School: FLT111, FLT121, FLT331, FLT473, FLT474 Students in this program are eligible to participate in ATC certificate training. The Aircraft Operations BS program requires a Capstone course or internship or degree project.

FAA CERTIFICATIONS: PART 141 PILOT SCHOOL AND RESTRICTED AIRLINE TRANSPORT PILOT (RATP)

The FAA has issued a letter of authorization recognizing that Vaughn College flight courses, specifically FLT120, Instrument Flying, and FLT330, Commercial Flying, are being conducted in accordance with 14 CFR Part 141, and therefore are certified by the FAA as a Pilot Ground School. When taken in conjunction with our partner Part 141 flight school the coursework provided under the BS in Aircraft Operations constitute complete Part 141 training.

Consequently, Vaughn has also achieved recognition by the FAA for a level of academic instruction which complies with Advisory Circular (AC) 61-139. The College is therefore granted the authority to certify that graduates who have successfully completed specific aviation courses identified in this catalog (as well as the FAA letter of authorization) as (RATP credit) for a restricted privileges Airline Transport Pilot (ATP) Certificate. Bachelor’s Degree graduates with 60 or more RATP credits will receive a 500-hour reduction in the ATP required hours, down to 1,000 hours required for an ATP. Qualifying graduates should request this RATP Certification for inclusion on the student’s transcript prior to graduation.

PROGRAM OBJECTIVES

The program educational objectives are intended to produce versatile aviation graduates who:

- 1) Are successful in their chosen career path. They will be able to obtain positions which require detailed technical knowledge and skills in the operation and management of aircraft.
- 2) Pursue graduate study and professional education.
- 3) Conduct themselves as responsible members of society through involvement in their community and engagement in their profession.

Program Educational Goals

Our goal is to:

1. Develop aviation professionals with exceptional knowledge, skills and values. Graduates will be highly educated, technically proficient, safety-oriented and business-minded.
2. Develop aviation professionals that advance global aviation. Graduates will have a global perspective and embrace diverse cultures and ideas. Graduates will recognize historical trends, current issues and emerging opportunities.
3. Develop aviation professionals that aspire to lead. Graduates will champion integrity, cultivate professional and personal growth opportunities, subscribe to a philosophy of lifelong learning, and lead by serving others.

STUDENT LEARNING OUTCOMES

a. Aircraft Operations, B.S. Degree Student Learning Outcomes

b. Students graduating from the Aircraft Operations B.S. program will:

- c.
- 4) Conduct aviation operations in a professional, safe and efficient manner.
- 5) Describe historical trends, current issues and emerging opportunities in aviation.
- 6) Apply effective oral and written communication skills to function effectively in the aviation environment.
- 7) Articulate the value of integrity, lifelong learning and building diverse teams in serving and leading others.
 - a. Possess the necessary knowledge, skills and attitude to competently and ethically function as a professional pilot in the aviation industry
 - b.
 - c. Apply knowledge of business sustainability to aviation operations issues.

Restricted Privileges ATP Certificate

The Aircraft Operations degree qualifies for the attainment of the FAA Restricted Airline Transport Pilot (R-ATP) certification with as little as 1,000 hours of flying experience. Ground and flight training for the commercial pilot certificate and instrument rating must be completed at Vaughn College to be R-ATP eligible. Graduates of the Aircraft Operations and Aviation Management degree with at least 60 credit hours of FAA-approved coursework, per Vaughn College's FAA R-ATP Letter of Authorization, will need a minimum of 1,000 hours total time to meet the requirements of FAR 61.160. Aircraft Operations graduates with less than 60 credit hours but at least 30 credits of FAA-approved coursework, per Vaughn College's FAA R-ATP Letter of Authorization, will need a minimum of 1,250 hours total time to meet the requirements of FAR 61.160 for an R-ATP. Your Restricted Airline Transport Pilot (R-ATP) Certifying Statement will be entered on your Vaughn's Official Transcript. Note: Per the FAA, academic credit and flight training conducted outside of Vaughn College will not count toward the Restricted Airline Transport Pilot (R-ATP) certificate requirements unless from an approved college on the FAA's Institutional Authority List.

Flight Fees

Flight lab courses have an associated flight fee established by the School of Aviation prior to the start of the academic year. Flight fees cover aircraft, flight simulation, flight instructor and FAA knowledge exam fees at our approved Part 141 Flight School. The training hours and fees outlined in the Vaughn College Student Handbook are the minimum to complete a flight lab course. Students requiring additional instruction will incur additional flight lab fees. Unexpected large changes in fuel prices may necessitate the addition of a fuel surcharge for all training airplane usage.

Admissions, Standards and Requirements

Eligibility for admissions to Aircraft Operations is determined by the Vaughn College University Admissions Office on the basis of the candidate's test scores and previous academic record. Aircraft Operations students must earn a grade of at least C in all courses in the major and maintain a minimum 2.50 overall GPA. The Instrument Ground (FLT120) and Commercial Ground (FLT330) require a "B" average on all exams as well as the Stage Exams. The Aircraft Operations curriculum is designed for progressive development of flight knowledge and skills, and students who earn less than a C will not be allowed to progress to the next course. A course in which a student earns a grade less than a C may be repeated one time only. Successful completion of the repeated course will result in the student being allowed to continue to progress through the Aircraft Operations degree curriculum. Students who earn a grade less than C in two or more Aircraft Operations major courses, or maintain an overall GPA below 2.50, will be considered for dismissal from the program.

Transfer Students

Transfer students (external and internal) may enter the Aircraft Operations program during fall or spring semester and will be accepted on a space-available basis as determined by the department chair. A minimum cumulative grade point average of 3.00 is required. Transfer students accepted into the program should anticipate that it will still take a minimum of six semesters to complete the program.

Advanced Credit for Pilot Certification

Per the Aircraft Operations curriculum model, students may earn advanced credit for pilot certification/rating upon evidence of the FAA pilot certificate/rating at enrollment. Evidence consists of the certificate and the knowledge and skills required to exercise the flight privileges associated with the certificate. To receive advance standing credit for pilot certification/rating earned elsewhere, a student must pass a 25-question general knowledge written exam administered by their assigned flight instructor and pass a proficiency flight check to Vaughn College University's End-Of-Course standard for the corresponding FAA certificate/rating. To be considered for advanced credit, incoming students must have their certificates/ratings completed prior to matriculation into Vaughn College. Note: Per the FAA, academic credit and flight training conducted outside of Vaughn College will not count toward the Restricted Airline Transport Pilot (R-ATP) certificate requirements unless from an approved college on the FAA's Institutional Authority List.

Orientation for Incoming Students

Incoming Aircraft Operations students:

1. Must bring an original birth certificate (with the raised seal) and a government- issued photo identification or your current passport to the college. The Transportation Security Administration requires pilot schools to keep a copy on file for every student pilot.
2. Must obtain a FAA 1st Class Medical Certificate before classes begin. Students will not be allowed to register for a flight block without a current medical certificate. Be sure you carefully proof all information on your student pilot

certificate before leaving the physician's office.

3. Must have all financial aid in order to begin your flight lessons.
4. Failure to complete all of the above may result in reassignment to a different program as flight lessons are contingent on fulfilling the above requirements as well as a condition for an Aircraft Operations Degree,

Student Life

Major coursework for the Aircraft Operations degree starts in the freshman year with ground school and flight education courses for the Private Pilot Certificate, or the next certification or rating if the Private Pilot Certificate has already been attained. Students seeking course credit for pilot certification/ratings held at the time of enrollment will take a knowledge and practical test supervised by the Chief Flight Instructor and then begin their next certificate/rating.

In addition to flight courses, students take college core curriculum courses that promote development of analytical and critical thinking skills, communication skills, and mathematical skills to prepare for the 21st century workforce. Students should get involved with a student organization such as the Wings Club, and Women in Aviation, to begin connecting with other students, alumni and industry professionals.

In the sophomore year, students complete the next pilot certificate or rating, and continue taking courses from the university core curriculum. Students who fly during the summer semesters will be able to advance their flight education and ratings and may become a CFI by their junior year.

As seniors, students continue to advance their flight education and ratings and should consider running for an officer position in a student organization to develop leadership skills in the aviation environment. Students pursue flight operations internships to build professional experience and networks. Students who earn their CFII rating may flight instruct and will build flight hours while getting paid if they meet the requirements of our Part 141 Flight School. Students complete their coursework and begin the job interview process. Graduate school is an option for those wishing to continue their education.

Equipment

Vaughn College's Part 141 flight school maintains the following flight training aircraft fleet which consists of 12-Cessna 172S Skyhawks with Aspen E5 Digital PFD, Garmin 430/650 IFR GPS, and 1-Beechcraft Duchess (BE76) Twin. Advanced Aviation Training Devices (AATDs) include Redbird Simulators with Garmin 430/530 GPS.

The college also maintains the following in our \$1-million flight simulator lab which features the following training devices for both aviation and Air Traffic Control.

- Vaughn's two Redbirds, the industry's newest motion simulators. The Redbird's FMX motion platform manipulates your sense of balance, simulating actual roll, pitch and yaw motions. From varying weather conditions to equipment failures, these new simulators not only provide a wide range of training scenarios, but they're also approved by the Federal Aviation Administration, so you can log the simulator hours you need to earn your license.
- The FRASCA 241 simulates a Cessna 172—the general aviation standard in aircraft. This simulator features a fully enclosed flight deck with 220-degree wraparound visuals. All flight deck controls, panels, knobs and switches and other components are of the size, placement and functionality of a real aircraft. Vaughn also maintains a Frasca 142 in this complex that can be configured as a single or twin engine.
- Our CRJ-200 simulator, which simulates the Canadair two-engine fan jet and is a great transition from the stationery FRASCA and full-motion Redbird reciprocating engines to jet engines.

- Regarding Air Traffic Control Vaughn College has selected UFA, Inc., a leading provider of air traffic control (ATC) simulation and voice technologies, to provide the ATTower® and ATCoach® products for its new, state-of-the-art radar and tower training facility. With a five-channel, high definition, LCD based ATTower training simulator, Vaughn students will experience a “real world” airport environment with aircraft, ground vehicles, wildlife, and simulated weather conditions. For en route and approach radar training, Vaughn implemented a 5-position ATCoach radar simulator. ATCoach provides a comprehensive and high-fidelity simulation for both en route and approach air space.

Accreditation

The Aircraft Operations degree is accredited by Aviation Accreditation Board International (AABI), the organization responsible for academic accreditation of aviation and aerospace educational programs.

AIRCRAFT OPERATIONS (BS) CURRICULUM

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development Seminar	0	0
	Total Credits	3	0
Liberal Arts Courses			
ECO255	Principles of Economics	3	0
ENG110	English I	3	0
ENG120	English II	3	0
ENG210	World Literature	3	0
ENG220	American Literature	3	0
ENG240	Technical Writing	3	0
ENG290	Public Speaking	3	0
POL254	American Government	3	0
HIS141	Global Civilization	3	0
Elective		3	0
Elective		3	0
	Total Credits	33	0
Math and Sciences Courses			
CSC210	Advanced Computer Applications	3	0
MAT115	Pre-calculus	4	0
MAT210	Statistics	3	0
PHY120	College Physics I	3	1
PHY220	College Physics II	3	1
Elective		3	0
Elective		3	0
	Total Credits	22	2
Aircraft Operations Courses			
FLT101	General Aeronautics I & Lab	3	0
FLT101L	General Aeronautics I LAB	0	0
FLT102	General Aeronautics II & Lab	2	2
FLT102L	General Aeronautics II LAB	0	0
FLT111	General Aeronautics Flight Review	0	1
FLT120	Intermediate Aeronautics & Lab	4	0
FLT120L	Intermediate Aeronautics LAB	0	0
FLT121	Intermediate Aeronautics Flight Review	0	1

FLT330L	Advanced Aeronautics Simulator	2	0
FLT230	Aviation Weather	3	0
FLT240	Advanced Aircraft Systems (Flight)	3	0
FLT241	Aviation Safety	3	0
FLT330	Advanced Aeronautics	3	0
FLT331	Advanced Aeronautics Flight Review	0	1
FLT360	Multi-Engine Operations & Lab	2	1
FLT470	Certified Flight Instructor Aerodynamics	3	0
FLT471	Fundamental of Teaching Aeronautics	3	0
FLT473	Certified Flight Instructor- Airplane	0	1
FLT474	Certified Flight Instructor- Instrument	0	1
ATC200	Basic Air Traffic Control I with LABS	2	2
ATC240	Basic Air Traffic Control II with LABS	2	2
ATC300	Basic Air Traffic Control Capstone Review & Screening	0	0
ATC220L	ATC Weather LAB	0	1
FLT250	Aviation Systems Introduction	3	0
FLT385	Safety Management Systems	3	0
FLT447	Crew Resource Management	3	0
FLT345	Human Factors	3	0
FLT482	Turbine Aircraft Operations	3	0
FLT490	Aviation Capstone	3	0
FLT101A	Private Pilot Stage I Flight	0	0
FLT101B	Private Pilot Stage II Flight	0	0
FLT101C	Private Pilot Stage III Flight	0	0
FLT120A	Instrument Stage I Flight	0	0
FLT120B	Instrument Stage II & III Flight	0	0
FLT330A	Commercial Stage I Flight	0	0
FLT330B	Commercial Stage II Flight	0	0
FLT330C	Commercial Stage III Flight	0	0
Total Credits		53	13

Total Lecture and Lab Credits

126

Refer to page 104 for a list of competencies and associated courses.

Note 1: Successful Completion of ATC200, ATC220, ATC240, ATC300, FLT101, FLT102 and associated LABS QUALIFY FOR an FAA-CTI Recommendation

Note 2: All FLT and ATC courses require a minimum grade of “C” with an overall GPA of 2.50

AVIATION MAINTENANCE ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

The aviation maintenance associate degree program has been developed to provide students a balanced combination of theoretical study, practical hands-on laboratory experience and a broad background in mathematics and physics. This course of study contains a balanced combination of theoretical study, practical hands-on laboratory experience and a broad background in mathematics and physics. Maintenance overhaul and modification techniques are included, as well as a sound background in manufacturing practices. Computer applications are also emphasized.

The completion of the program qualifies graduates to enter general, corporate or airline aviation as maintenance and overhaul technicians or to assume positions in aircraft manufacturing or related industries. Thirty college credits are awarded to students who possess the airframe and powerplant certificate or who successfully complete Federal Aviation Administration (FAA) Part 147 at the Aviation Training Institute or an equivalent military certificate of eligibility. Students holding either an airframe or powerplant certificate, or who have advanced standing toward this certificate, may be eligible to enroll in academic courses while pursuing their airframe and powerplant certification, at the discretion of the department chair.

Students in this program are also eligible to participate in the Air Traffic Control Collegiate Training Initiative (AT-CTI). Please see the AT-CTI section for details.

PROGRAM OBJECTIVES

The program educational objectives are intended to produce versatile aviation graduates who:

- 1) Are successful in their chosen career path. They will be able to obtain positions which require detailed technical knowledge and skills in the maintenance of aircraft.
- 2) Pursue a bachelor of science degree and professional education.
- 3) Conduct themselves as responsible members of society through involvement in their community and engagement in their profession.

STUDENT LEARNING OUTCOMES

The aviation maintenance program learning outcomes are as follows. Graduates will be able to:

- a. Apply learning in mathematics, science, and applied sciences to aviation maintenance-related disciplines;
- b. Analyze and interpret aeronautical data;
- c. Work effectively on crews, and multi-disciplinary and diverse teams;
- d. Make professional and ethical decisions;
- e. Communicate effectively using both written and oral skills;
- f. Know that an aviator is a student for life, and pursue the desired knowledge relentlessly;
- g. Assess contemporary issues in aviation maintenance, and in any related fields of interest.

AVIATION MAINTENANCE (AAS) CURRICULUM

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development	0	0
Total Credits		3	0

Liberal Arts Courses

ENG110	English I	3	0
ENG120	English II	3	0
ENG290	Public Speaking	3	0
HUM255	Technology and Culture	3	0
POL254	American Government	3	0
Total Credits		15	0

Math and Sciences Courses

CSC111	Visual Basic Programming	3	0
MAT115	Pre-Calculus	4	0
MAT210	Statistics	3	0
PHY120	College Physics I	3	1
PHY220	College Physics II	3	1
Total Credits		16	2

Technical Elective**3 0****Airframe and Powerplant Component****30 0****Total Lecture and Lab Credits****69**

Refer to page 104 for a list of competencies and associated courses.

AVIATION MAINTENANCE BACHELOR OF SCIENCE (BS) DEGREE

The mission of the aviation maintenance bachelor of science degree program is to provide students with the entry technical skills required by the aviation transport industry, corporate aviation divisions and the general aviation community. The aviation maintenance BS degree has been developed to provide students with the entry-level technical skills required by the aviation transport industry, corporate aviation divisions and the general aviation community.

The graduate of this program will possess an increased ability to communicate and a higher degree of critical and analytical skills to become one of the managers or other mid-level professionals sought by today's rapidly changing aviation industry.

This educational background affords the student many career opportunities in the fields of aircraft manufacturing and aviation maintenance.

The bachelor of science degree consists of three components: 1) the satisfactory completion of a Federal Aviation Administration (FAA) Part 147 curriculum from the Aviation Training Institute, or possession of the airframe and powerplant certificate for which students are awarded 30 college credits, or who have a military certificate of eligibility; 2) 34 credits of advanced maintenance technology coursework, including electives and avionics technology; and 3) a solid foundation of 61 credits in liberal arts and sciences.

At the discretion of the department chair, students holding either an airframe or powerplant certificate, or who have advanced standing toward this certificate, may be eligible to enroll in academic courses while pursuing their airframe and powerplant certification.

Students in this program are eligible to participate in the ATC Certificate training. The Aviation Maintenance BS program requires a capstone course or internship or degree project.

PROGRAM OBJECTIVES

The program educational objectives are intended to produce versatile aviation graduates who:

- 1) Are successful in their chosen career path. They will be able to obtain positions which require detailed technical knowledge and skills in the maintenance of aircraft.
- 2) Pursue a master of science degree and professional education.
- 3) Conduct themselves as responsible members of society through involvement in their community and engagement in their profession.

STUDENT LEARNING OUTCOMES

The aviation maintenance program learning outcomes are as follows. Graduates will be able to:

- a. Apply learning in mathematics, science, and applied sciences to maintenance-related disciplines;
- b. Analyze and interpret aeronautical and aircraft technical data;
- c. Work effectively on maintenance crews, and multi-disciplinary and diverse teams;
- d. Make professional and ethical decisions;
- e. Communicate effectively using both written and oral skills;
- f. Know that an aviator is a student for life, and pursue the desired knowledge relentlessly.
- g. Assess contemporary issues in aviation, and in any related fields of interest;
- h. Research, assimilate and display proficiency in the techniques, skills and technology of aeronautics;
- i. Assess the national and international aviation maintenance environment;
- j. Apply pertinent knowledge in identifying and solving problems;
- k. Apply knowledge of business sustainability to aviation maintenance issues.

AVIATION MAINTENANCE (BS) CURRICULUM

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development	0	0
	Total Credits	3	0
Liberal Arts Courses			
ENG110	English I	3	0
ENG120	English II	3	0
ENG210	World Literature	3	0
ENG220	American Literature	3	0
ENG240	Technical Writing	3	0
ENG290	Public Speaking	3	0
HIS141	Global Civilization	3	0
HUM255	Technology and Culture	3	0
POL254	American Government	3	0
	Total Credits	27	0
Math and Sciences Courses			
CSC111	Visual Basic Programming	3	0
MAT115	Pre-calculus	4	0
MAT210	Introduction to Statistics	3	0
MAT220	Calculus II	3	0
PHY120	College Physics I	3	1
PHY220	College Physics II	3	1
Elective	Math/Science	3	0
Elective	Math/Science	3	0
	Total Credits	25	2
Management Course			
ECO255	Principles of Economics	3	0
	Total Credits	3	0
Aviation Maintenance Courses			
AAM381	Advanced Aircraft Systems for Maintenance	3	0
AAM382	Advanced Gas Turbine Engines	3	0
AAM490	Maintenance Resource Management	3	0
AAM491	Quality Systems/ISO 9000	3	0
AAM492	Rotocraft Design Technology	3	0
AVM332	Avionics Circuits I	3	1
AVM481	Avionics Line Maintenance	3	1
AVM482	Avionics Line Maintenance II	3	1
AVM483	Avionics Line Maintenance III	3	1
DP407	Degree Project (Aviation Maintenance/Maintenance Management)	0	0
Elective	Technical Elective	3	0
Elective	Technical Elective	3	0
	Total Credits	33	4
Airframe and Powerplant Certificates		30	0

Total Lecture and Lab Credits

127

Refer to page 104 for a list of competencies and associated courses.

AVIATION MAINTENANCE MANAGEMENT BACHELOR OF SCIENCE (BS) DEGREE

The mission of the aviation maintenance management bachelor of science program is to broaden the perspective of the aviation professional. It provides the education and training necessary to prepare men and women to assume leadership and management roles in aviation maintenance. The aviation maintenance management program has been designed to broaden the perspective of the aviation professional. It provides the education and training necessary to prepare men and women to assume leadership and management roles in aviation maintenance.

This option builds upon a solid technical background with courses that will prepare the graduate for management positions in the aviation industry.

This program requires training in maintenance, avionics and operations of aircraft systems, blending theoretical and practical approaches.

Emphasis is also placed on training in accounting, business communications, industry and labor relations, economics and finance.

The bachelor of science maintenance management degree consists of four components: 1) the satisfactory completion of all courses required for certification through the Aviation Training Institute or possession of the airframe and powerplant certificate, for which students are awarded 30 college credits; 2) 43 credits of advanced maintenance and technology coursework, including advanced aircraft systems and avionics technology; 3) a solid foundation in liberal arts and science of 30 credits; and 4) students will complete 18 credits in management coursework. Students holding either an airframe or powerplant certificate, or who have advanced standing toward this certificate, may be eligible to enroll in academic courses while pursuing their airframe and powerplant certification, at the discretion of the department chair.

Students in this program are eligible to participate in the ATC Certificate training. The Aviation Maintenance Management BS program requires a capstone course or internship or degree project.

PROGRAM OBJECTIVES

The program educational objectives are intended to produce versatile aviation graduates who:

- 1) Are successful in their chosen career path. They will be able to assume leadership roles in the management of aviation maintenance.
- 2) Pursue a master of science degree and professional education.
- 3) Conduct themselves as responsible members of society through involvement in their community and engagement in their profession.

STUDENT LEARNING OUTCOMES

The aviation maintenance management program learning outcomes are as follows. Graduates will be able to:

- a. Apply learning in mathematics, science, and applied sciences to aviation-related disciplines;
- b. Analyze and interpret aeronautical data;
- c. Work effectively on crews, and multi-disciplinary and diverse teams;
- d. Make professional and ethical decisions;
- e. Communicate effectively using both written and oral skills;
- f. Know that an aviator is a student for life, and pursue the desired knowledge relentlessly;
- g. Assess contemporary issues in aviation, and in any related fields of interest;
- h. Research, assimilate and display proficiency in the techniques, skills and technology of aeronautics;
- i. Assess the national and international aviation environment;
- j. Apply pertinent knowledge in identifying and solving problems;
- k. Apply knowledge of business sustainability to aviation issues.

AVIATION MAINTENANCE MANAGEMENT (BS) CURRICULUM

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development	0	0
	Total Credits	3	0
Liberal Arts Courses			
ENG110	English I	3	0
ENG120	English II	3	0
ENG210	World Literature	3	0
ENG220	American Literature	3	0
ENG240	Technical Writing	3	0
ENG290	Public Speaking	3	0
Foreign Language	SPA160 or FRE160	3	0
Foreign Language	SPA261 or FRE261	3	0
HIS141	Global Civilization	3	0
HUM255	Technology and Culture	3	0
POL254	American Government	3	0
	Total Credits	33	0
Math and Sciences Courses			
CSC111	Visual Basic Programming	3	0
MAT115	Pre-Calculus	4	0
MAT210	Statistics	3	0
MAT210	Statistics	3	0
PHY120	College Physics I	3	1
PHY220	College Physics II	3	1
	Total Credits	19	2
Aviation Management Courses			
AAM490	Maintenance Resource Management (MRM)	3	0
AAM491	Quality Systems/ISO 9000	3	0
DP407	Degree Project	0	0
ECO255	Principles of Economics	3	0
INT401	Internship	3	0
MGT110	Introduction to Management	3	0
MGT120	Principles of Accounting	3	0
MGT210	Organizational Behavior	3	0
MGT230	Financial Management	3	0
MGT240	Managerial Economics	3	0
MGT360	Business Communications	3	0
AAM210	Operations Management	3	0
MGT470	Industry and Labor Relations	3	0
	Total Credits	36	0
Airframe and Powerplant Component		30	0
Total Lecture and Lab Credits		123	

Refer to page 104 for a list of competencies and associated courses.

AIR TRAFFIC – COLLEGIATE TRAINING INITIATIVE PROGRAM

Air traffic control professionals utilize knowledge of aircraft operating limitations and performance, weather and atmospheric processes, radar theory and radar systems, federal regulations, the US air traffic control system, as well as navigation methods within the National Airspace System.

The Air Traffic Control option is not a degree granting program; it is a set of courses that can be taken in conjunction with several degree programs offered by Vaughn College. The set of courses (15 credits) includes: ATC200, ATC220/FLT230, ATC240, FLT101 and FLT102 (or FLT110) and ATC300 with corresponding labs, as well as the capstone course ATC300, which is completed during students' last semester. At the completion of this program, students will be able to:

- Demonstrate knowledge of the theory of aircraft operating limitations and performance, including methods of air and ground navigation within the National Airspace System.
- Demonstrate knowledge of weather and atmospheric processes, and how each affect the air traffic control system.
- Demonstrate knowledge of Federal Regulations and the US air traffic control system interactions, including FAA publications.
- Demonstrate knowledge of fundamentals of aircraft separation in radar, nonradar, and terminal environments, as well as operating techniques of air traffic control facilities in visual and instrument conditions.
- Demonstrate awareness of air traffic control industry trends, future developments, global implications, and current management practices and techniques.
- Demonstrate broad knowledge of the aviation industry.

Students in the following degree programs are eligible to participate by taking the aforementioned courses not only for the technical requirements of their degree but also to understand the interaction of air traffic control in the Tower, En-Route, NonRadar, or Terminal Radar options:

- BS in Aeronautical Science
- AAS in Aircraft Operations
- BS in Aircraft Operations
- AAS in Airport Management
- BS in Airport Management
- BS in Airline Management
- AAS in Aviation Maintenance
- BS in Aviation Maintenance
- BS in Aviation Maintenance Management
- AAS in Electronic Engineering Technology

Every day of the year, and especially on holidays, more than 15,000 federal controllers at 315 FAA air traffic facilities are on the job, guiding more than 87,000 flights every day across our national airspace system.

Disciplined, tough-minded, meticulous and driven — these are characteristics of the exceptional men and women who provide the safe and orderly flow of air traffic at airports and in our skies. Vaughn College will give you the basic training and encouragement you need to keep our air traffic system running smoothly as an air traffic control specialist. Qualifying with the FAA is challenging, but the support and satisfaction you will receive make this career worthwhile. The minimum requirements to be an Air Traffic Control Specialist, you must:

- Be a United States citizen
- Start at the FAA Academy no later than your 31st birthday

- Pass a medical examination
- Pass a security investigation
- Have a Bachelor's degree, or three years of progressively responsible work experience, or a combination of post-secondary education and work experience that totals three years
- Pass any FAA air traffic pre-employment tests which consists of an air traffic aptitude test.
- Speak English clearly enough to be understood over communications equipment
- All vacancies for air traffic control specialist positions will be announced via USAJOBS.

MANAGEMENT DEGREE PROGRAMS

AIRPORT MANAGEMENT ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

The associate degree in airport management is intended to prepare students to work in airports and related client businesses. There are three major international and several regional airports in the tristate area. Airports create numerous ancillary occupations and businesses, all of which require qualified personnel.

This program provides a strong combination of liberal arts, math and science, general management and airport management courses. The liberal arts foundation is intended to strengthen students' general awareness of issues in recent history and politics; in particular, it aims to develop their written and verbal communication skills. Additionally, it includes math and science courses to enhance numeracy and further analytical abilities.

The general management courses build on the skills derived from the English and math foundation to prepare students in the various functional areas of management and business—accounting, finance, economics, public relations and planning. The airport management courses expand the lessons of the general management courses to apply them to the functions and duties of various agents in an airport environment. This degree program gives students a variety of options in general management as well as aviation, which is a field with substantial career opportunities.

PROGRAM OBJECTIVES

Graduates will:

Be prepared for careers in airports and related businesses; for entry-level positions of administrative responsibility in public or private enterprises or managing agencies; and for entry at the junior level into baccalaureate programs in this and related fields.

STUDENT LEARNING OUTCOMES

The airport management program learning outcomes are as follows. Graduates will be able to:

1. Describe the introductory concepts of traditional areas of business and general management.
2. Utilize current knowledge, issues and decision-support tools used in the airport industry.
3. Demonstrate effective oral and written communication via multiple channels of exchange, ethics and interaction.

AAS Airport Management Curriculum

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development Seminar	0	0
Total Credits		3	0
Liberal Arts Courses			
ENG110	English I	3	0
ENG120	English II	3	0
ENG240	Technical Writing	3	0
ENG290	Public Speaking	3	0
HUM255	Technology and Culture	3	0
POL254	American Government	3	0
Total Credits		18	0

Math and Sciences Courses

MAT115	Pre-calculus	4	0
MAT210	Statistics	3	0
PHY120	College Physics I	3	1
Total Credits		10	1

Social Sciences Courses

ECO 255	Principles of Economics	3	0
Total Credits		3	0

Management and Aviation Courses

AER101	Introduction to Aeronautics or AER300 Current Topics or FLT101 and FLT 101 L General Aeronautics (AT-CTI Option) and FLT102 General Aeronautics 2 and FLT 102L (AT-CTI Option)	3/6	0
APM241	Airport Administration	3	0
APM485	Airport Development and Management	3	0
ATC200	Basic Air Traffic Control I	2	2
FLT230	Aviation Weather or ATC220 (AT-CTI Option)	3	0
FLT241	Aviation Safety	3	0
MGT110	Introduction to Management	3	0
MGT120	Principles of Accounting	3	0
MGT230	Financial Management	3	0
MGT470	Industry and Labor Relations	3	0
Elective -	Aviation Management, Engineering, Technology	3	0
Total Credits		32/35	2

Total Lecture and Lab Credits**69/72**

Refer to page 104 for a list of competencies and associated courses.

AIRPORT MANAGEMENT BACHELOR OF SCIENCE (BS) DEGREE

The field of airport management is a unique discipline with its roots in general business, but driven by the high-tech world of aviation and transportation. In this program, students concentrate on subjects as diverse as wildlife hazards, ecosystem management, and emergency planning and control.

Our location, adjacent to LaGuardia Airport, provides an excellent learning environment. Students can investigate firsthand the areas of airport planning, management, business and finance, control of ground vehicles, communication systems, airport security, fire and rescue services, and airport maintenance. Students may also pursue a variety of areas of elective study, including supply chain management, Fixed Base Operations and other technical, aviation and management areas. Students may complete the dispatch program in accordance with the requirements described in the section titled "Aircraft Dispatcher License Training Program." Similarly, eligible students may complete the AT-CTI program as described in the section entitled, "Air Traffic Control-Collegiate Training Initiative." and the Safety Management Systems (SMS) or other certificate programs as described in the "Certificates" section.

LANGUAGE REQUIREMENT

To ensure that our graduates are well prepared to work in a global environment, a foreign language requirement has been included in our management curriculum. The language requirement can be satisfied by enrollment in two terms of either French or Spanish. A native speaker of either French or Spanish is therefore expected to complete the other language offered or if he or she has not studied another language at the college level. The computerized language lab in the Teaching and Learning Center should be utilized for review and enhancement for at least two hours per week.

Vaughn College recognizes that many of our students come to Vaughn already documented as speaking two or more languages. To address this, Vaughn has instituted a policy that is academically sound and provides flexibility: Students who have studied a foreign language at another college (with a 2.0 or higher) or have taken a foreign-language AP exam (with a 3.0 or higher) will be given transfer credit. On the other hand, those who have become multilingual through other means should substitute six liberal arts credits in place of the language requirement.

PROGRAM OBJECTIVES

Graduates will:

Be prepared for careers in airports and related businesses, for entry- to mid-level positions of administrative responsibility in public or private enterprises or managing agencies and for further study at the graduate level.

STUDENT LEARNING OUTCOMES

The airport management program learning outcomes are as follows. Graduates will be able to:

1. Apply major concepts within the traditional areas of business and management.
2. Apply understanding of professional, legal, ethical, economic and global issues.
3. Demonstrate an ability to obtain and process information in order to make decisions and solve problems as used in the airport industry.
4. Deliver effective, ethical and professional oral and written communication.
5. Apply decision-support tools as well as quantitative concepts and skills to address managerial issues and decision making.
6. Contribute to the development of a high performing team and collaborative environment.

BS Airport Management Curriculum

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development	0	0
	Total Credits	3	0
Liberal Arts Courses			
ENG110	English I	3	0
ENG120	English II	3	0
ENG210	World Literature	3	0
ENG220	American Literature	3	0
ENG240	Technical Writing	3	0
ENG290	Public Speaking	3	0
	Foreign Language SPA160 or FRE160	3	0
	Foreign Language SPA261 or FRE261	3	0
HIS141	Global Civilization	3	0
HUM251	International Studies	3	0
POL254	American Government	3	0
HUM255	Technology and Culture	3	0
	Total Credits	36	0
Math and Sciences Courses			
MAT115	Pre-calculus	4	0
MAT210	Statistics	3	0
PHY120	College Physics I	3	1
PHY220	College Physics II		
	or CHE200 Topics in Chemistry	3	1
Elective	(Competency B)	3	0
	Total Credits	16	2
Management and Aviation Courses			
AER101	Introduction to Aeronautics or AER300 Current Topics or FLT101 and FLT101 L General Aeronautics (AT-CTI Option) and FLT102 General Aeronautics 2 and FLT 102L (AT-CTI Option)	3/6	0
ALM362	Airline Management	3	0
APM241	Airport Administration	3	0
APM485	Airport Development and Management	3	0
ATC200	Basic Air Traffic Control I	2	2
ATM320	Aviation Law	3	0
FLT241	Aviation Safety	3	0
FLT384	Management of Aviation Environmental Issues	3	0
MGT110	Introduction to Management	3	0
MGT120	Principles of Accounting	3	0
MGT210	Organizational Behavior	3	0
MGT230	Financial Management	3	0
MGT240	Managerial Economics	3	0
MGT360	Business Communications	3	0

MGT372	Marketing Management and Public Relations	3	0
MGT403	Internship / Degree Project: Management	3	0
MGT470	Industry and Labor Relations	3	0
MGT480	Capstone: Strategic Management	3	0
Elective	Aviation, Management, Engineering, Technology	3	0
Elective	Aviation, Management, Engineering, Technology	3	0
Total Credits		59/62	2

Total Lecture and Lab Credits	124
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Refer to page 104 for a list of competencies and associated courses.

AIRLINE MANAGEMENT BACHELOR OF SCIENCE (BS) DEGREE

The airline management program is targeted toward meeting a need in the airline and related industries for qualified managers who have specialized training in this profession. Graduates of this program will be able to secure entry- to mid-level management positions in airlines, their related businesses and agencies as well as in general management organizations. The program includes a substantial component of liberal arts and basic science courses. Courses in the major address issues in general, aviation and airline management. Students may complete a variety of elective courses related to airline aviation management as well as in some technical areas, such as international finance, cargo, supply chain and logistics management, drone laws or entrepreneurship.

Students interested in this program are eligible to participate in the Federal Aviation Administration's Air Traffic-Collegiate Training Initiative (AT-CTI) according to the requirements listed in the AT-CTI section.

Students may also complete the dispatcher program according to the requirements described in the section "Aircraft Dispatcher License Training Program." and the Safety Management Systems (SMS) or other certificate programs as described in the "Certificates" section.

LANGUAGE REQUIREMENT

To ensure that our graduates are well prepared to work in a global environment, a foreign-language requirement has been included in our management curriculum. The language requirement can be satisfied by enrollment in two terms of either French or Spanish. These courses are designed for nonnative speakers; therefore, no bypass examinations will be allowed. However, Vaughn College recognizes that many of our students come to Vaughn already documented as speaking two or more languages. To address this, Vaughn has instituted a policy that is academically sound and provides flexibility. Students who have studied a foreign language at another college (with a 2.0 or higher) or have taken a foreign-language AP exam (with a 3.0 or higher) will be given transfer credit. On the other hand, those who have become multilingual through other means should substitute six liberal arts credits in place of the language requirement.

PROGRAM OBJECTIVES

Graduates will:

Be prepared for careers in airlines and related businesses for entry- to mid-level positions of administrative responsibility in public or private enterprises and for further study at the graduate level.

STUDENT LEARNING OUTCOMES

The airline management program learning outcomes are as follows. Graduates will be able to:

Apply major concepts within the traditional areas of business and management.

Apply professional, legal ethical, economic and global issues.

Demonstrate an ability to obtain and process information in order to make decisions and solve problems as used in the airline industry.

Deliver effective, ethical and professional oral and written communication.

Apply decision-support tools as well as quantitative concepts and skills to address managerial issues and decision making. (Peregrine) Broad-Based Student Learning Goals Associated with this Outcome: 1, 2
Key Learning Outcomes for Bachelor's-Level Business Programs to which this Outcome is Linked: 5, 1, 6. Contribute to the development of a high performing team and collaborative environment.

1. Apply quantitative and qualitative concepts and skills to address managerial issues.

2. Demonstrate knowledge of basic principles of different functional areas of management.

3. Demonstrate an appropriate mastery of current knowledge, issues and tools used in the airline industry.

4. Function individually and on multidisciplinary teams.
5. Communicate effectively orally and in writing.
6. Understand professional, ethical and social responsibilities.
7. Recognize the need for and possesses the ability to pursue lifelong learning.
8. Have a respect for diversity and knowledge of contemporary professional, societal and global issues.
9. Demonstrate a commitment to quality, timeliness and continuous improvement.

BS Airline Management Curriculum

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development Seminar	0	0
	Total Credits	3	0
Liberal Arts Courses			
ENG110	English I	3	0
ENG120	English II	3	0
ENG210	World Literature	3	0
ENG220	American Literature	3	0
ENG240	Technical Writing	3	0
ENG290	Public Speaking	3	0
Foreign Language	SPA160 or FRE160	3	0
Foreign Language	SPA261 or FRE261	3	0
HIS141	Global Civilization	3	0
HUM255	Technology and Culture	3	0
POL254	American Government	3	0
	Total Credits	33	0
Math and Sciences Courses			
CSC210	Advanced Computer Applications	3	0
MAT115	Pre-calculus	4	0
MAT210	Statistics	3	0
PHY120	College Physics I	3	1
PHY220	College Physics II		
	or CHE200 Topics in Chemistry	3	1
Elective	Competency B	3	0
	Total Credits	19	2
Management and Aviation Courses			
AER101	Introduction to Aeronautics or AER300 Current Topics or FLT101 and FLT101L General Aeronautics (AT-CTI Option) and FLT102 General Aeronautics 2 and FLT 102L (AT-CTI Option)	3/6	0
ALM240	Airline Economics and Finance	3	0
ALM362	Airline Management	3	0
APM241	Airport Administration	3	0
ATC200	Basic Air Traffic Control I	2	2
ATM320	Aviation Law	3	0
ATM345	International Trade and Finance	3	0
ATM450	Air Transportation and Cargo Management	3	0
Elective	Aviation, Management, Engineering, Technology	3	0

FLT241	Aviation Safety	3	0
FLT384	Management of Aviation Environmental Issues	3	0
MGT110	Introduction to Management	3	0
MGT120	Principles of Accounting	3	0
MGT210	Organizational Behavior	3	0
MGT230	Financial Management	3	0
MGT240	Managerial Economics	3	0
MGT360	Business Communications	3	0
MGT372	Marketing Management and Public Relations	3	0
MGT403	Internship/Degree Project: Management	3	0
MGT470	Industry and Labor Relations	3	0
MGT480	Capstone: Strategic Management	3	0
	Technical Elective	3	0
	Total Credits	65/68	2

Total Lecture and Lab Credits

124/127

Refer to page 104 for a list of competencies and associated courses.

GENERAL MANAGEMENT BACHELOR OF SCIENCE (BS) DEGREE

The bachelor of science program in general management is targeted toward meeting a need across a broad spectrum of industries for qualified managers who have generalized training in their profession. Graduates of this program will be able to secure entry- to mid-level management positions in small or large corporations.

The management program is designed to enable individuals to further their education, gain valuable management expertise and take maximum advantage of credits earned at other institutions or through professional training.

The program is open to traditional four-year students. These students will be required to work with a faculty adviser to use the 30 elective credits to design a coherent concentration in an area other than airport management, airline management and aviation maintenance management. For example, a student might select courses in aeronautical engineering technology to fashion a concentration in technology management. Faculty advisers will ensure that this degree plan is academically sound and can be completed within four years.

In this program, students concentrate on subjects as diverse as financial accounting, principles of economics, entrepreneurship, import/export, industry and labor relations, business communications and technical writing.

While pursuing a BS in general management, students add valuable experience to their résumés by participating in an internship or cooperative education program. Opportunities are available with major leading corporations in the metropolitan area.

LANGUAGE REQUIREMENT

To ensure that our graduates are well prepared to work in a global environment, a foreign language requirement has been included in our management curriculum.

The language requirement can be satisfied by enrollment in two terms of either French or Spanish. These courses are designed for nonnative speakers; therefore, no bypass examinations will be allowed. A native speaker of either French or Spanish is therefore expected to complete the other language offered if he or she has not studied another language at the college level. The computerized language lab in the Teaching and Learning Center should be utilized for review and enhancement for at least two hours per week.

However, Vaughn College recognizes that many of our students come to Vaughn already documented as speaking two or more languages. To address this, Vaughn has instituted a policy that is academically sound and provides flexibility. Students who have studied a foreign language at another college (with a 2.0 or higher) or have taken a foreign language AP exam (with a 3 or higher) will be given transfer credit. On the other hand, those who have become multilingual through other means should substitute six liberal arts credits in place of the language requirement.

PROGRAM OBJECTIVES

Graduates will:

Be prepared for management careers in businesses related to their fields of study, for entry-to mid-level positions of administrative responsibility in public or private enterprises and for further study at the graduate level.

STUDENT LEARNING OUTCOMES

The BS in general management program learning outcomes are as follows. Graduates will be able to:

1. Apply major concepts within the traditional areas of business and management.
2. Apply professional, legal ethical, economic and global issues.

3. Demonstrate an ability to obtain and process information in order to make decisions and solve problems as used in general management.
4. Deliver effective, ethical and professional oral and written communication.
5. Apply decision-support tools as well as quantitative concepts and skills to address managerial issues and decision making.
6. Contribute to the development of a high performing team and collaborative environment.

BS General Management Curriculum

		Lecture Credits	Lab Credits
Seminars			
FYI101	Freshman Year Initiatives	3	0
CD101	Career Development Seminar	0	0
	Total Credits	3	0
Liberal Arts Courses			
ENG110	English I	3	0
ENG120	English II	3	0
ENG210	World Literature	3	0
ENG220	American Literature	3	0
ENG240	Technical Writing	3	0
ENG290	Public Speaking	3	0
Foreign Language	SPA160 or FRE160	3	0
Foreign Language	SPA261 or FRE261	3	0
HIS141	Global Civilization	3	0
	Technology and Culture	3	0
POL254	American Government	3	0
	Total Credits	33	0
Math and Sciences Courses			
CSC210	Advanced Computer Applications	3	0
MAT115	Pre-calculus	4	0
MAT210	Statistics	3	0
PHY120	College Physics I	3	1
PHY220	College Physics II or CHE200 Topics in Chemistry	3	1
Elective	Math/Science Elective	3	0
	Total Credits	19	2
Social Sciences Courses			
ECO255	Principles of Economics	3	0
	Total Credits	3	0
General Management Courses			
MGT110	Introduction to Management	3	0
MGT120	Principles of Accounting	3	0
MGT210	Organizational Behavior	3	0
MGT220	Corporate Accounting	3	0
MGT230	Financial Management	3	0
MGT240	Managerial Economics	3	0
MGT360	Business Communications	3	0

MGT372	Marketing Management and Public Relations	3	0
MGT403	Internship Degree Project: Management	3	0
MGT470	Industry and Labor Relations	3	0
MGT480	Capstone: Strategic Management	3	0
ATM345	International Trade and Finance	3	0
Total Credits		36	0
Open Electives		24	
Total Lecture and Lab Credits		120	

Refer to page 104 for a list of competencies and associated courses.

MANAGEMENT AND AVIATION DEPARTMENTS' INDUSTRY ADVISORY COUNCIL

LORETTA ALKALAY, ESQ.
Regional Counsel
Federal Aviation Administration (FAA) (retired)

JOHN ALLEN
JetBlue

MICHAEL BARTRON
Pratt & Whitney

KAREN BATSON
Atlas Air

GERARD BISCARDI
Allied Aviation

NELSON CAMACHO, ESQ.
Fitzpatrick & Hunt LLC

VLADIMIR CAMACHO
SmartKargo

ALICE CHAN, ESQ.
Chan & Grant, LLP

VINCENT CIMINO
Federal Aviation Administration (FAA)

JOHN DE FELICE
JFK International Air Terminal LLC Terminal
4 (retired)

JIM DOLLE
JFK International Air Terminal LLC Terminal 4 (retired)

STEVE FERGUSON
Westchester County Airport

VENNY FUENTES
County College of Morris

THE HON. JOHN GOGLIA
National Transportation Safety Board (retired) Safe
Skies

AL GRASER
The Port Authority of New York and New Jersey (retired)

HENK GUITJENS
Guitjens Associates

WIL GUZMAN
The Port Authority of New York and New Jersey (Retired)

DR. ALAN HOBBS
NASA

WARREN KROEPPPEL
SheltAir

STEPHEN JONES
Federal Aviation Administration (FAA)

DARREN LARGE
Morristown Municipal Airport

RALPH LOPEZ
American Airlines

PETER LUETHI
Dreamjet SAS

MYLES MATTHEWS
Global Trade and Technology Center

STEVE MIKHLIN, '99
The Port Authority of New York and New Jersey

CHRISTOPHER SANGIOVANNI
Uber

LYSA SCULLY
The Port Authority of New York and New Jersey

JOHN STARACE
Westchester County Airport

JEFFREY TIME '03
Port Authority of New York and New Jersey

DAN VORNEA
The Port Authority of New York and New Jersey (retired)

AVIATION TRAINING INSTITUTE

The Aviation Training Institute, a division of Vaughn College of Aeronautics and Technology, is dedicated to providing excellence in aviation technical education to fill the employment needs of air carriers and corporate and general aviation groups.

AVIATION MAINTENANCE CERTIFICATE PROGRAM

Through the Aviation Maintenance Certificate Program, students complete intensive blocks of technical courses in as little as four, 15-week consecutive terms to prepare for airframe and powerplant (A&P) certification. They will learn to install, assemble, build, diagnose and maintain multimillion-dollar high-tech equipment and systems that power today's most advanced aircraft.

A total of 78.5 certification units are required. In addition, students who complete their A&P certification and who decide to pursue a more advanced degree at Vaughn College will be awarded 30 credits toward a bachelor's or associate degree in aviation maintenance.

Aviation Maintenance Certification

Airframe and powerplant certification is an integral part of all maintenance-based degree and certificate programs. All airframe and powerplant courses required for certification are offered through the Aviation Training Institute (ATI). Courses that are part of the Federal Aviation Administration FAR Part 147 are listed below.

AIRFRAME AND POWERPLANT CERTIFICATION UNITS

Subject Number	Subject Name	Theory Units	Lab Units	Total Certification Units
FYE101	Freshman Year Experience	1	0	1
GD01	Introduction to Aircraft Graphics	2	0	2
GP01	Introduction to Aircraft Physics	3	0	3
GM21	Aircraft Materials and Processes	3	1.5	4.5
AH31	Hydraulics and Pneumatics I	2	1	3
GL31	Aircraft Weight and Balance	0	1	1
GE10	Basic DC-AC Electricity	4	1.5	5.5
AL32	Aircraft Rigging and Alignment	1	1	2
GO41	Aircraft Operations and Publications	2	1	3
GG02	Certification Preparation - General	0	0	0
AC32	Aircraft Structures I	3	2	5
AC41	Aircraft Structures II	2	1	3
AS41	Aircraft Systems	3	2	5
AH40	Aircraft Landing Gear Systems	2	1	3
AE20	Aircraft and Engine Electrical Systems	3	1.5	4.5
AS42	Aircraft Avionics Systems	3	1.5	4.5
AA02	Certification Preparation – Airframe	0	0	0
CD101	Career Development Seminar	0	0	0
PP53	Powerplant Theory and Maintenance	3	2	5

PS51	Powerplant Systems I	2	2	4
PC52	Aircraft Ignition Systems	2	1	3
PS60	Powerplant Systems II	2	1	3
PO60	Powerplant Maintenance Operations	3	2	5
PE30	Powerplant Electrical Systems	2	0.5	2.5
PP61	Turbine Engine Maintenance	4	2	6
PP02	Certification Preparation – Powerplant	0	0	0
		—	—	—
Total Units		52	26.5	78.5

AIRFRAME AND POWERPLANT TECHNOLOGY ASSOCIATE IN OCCUPATIONAL STUDIES (AOS) DEGREE

The airframe and powerplant technology curriculum is specifically designed for students who wish to concentrate on the mechanical skills involved in airframe and powerplant maintenance operations. It is approved by the Federal Aviation Administration (FAA) as preparation for the airframe and powerplant (A&P) certificate.

Students gain practical hands-on laboratory experience and develop skills in the servicing, repair and maintenance of airframe structures and powerplants, including accessory and system components. FAA-certified technicians are responsible for maintaining all aircraft in airworthy condition. FAA technicians also obtain positions in aircraft manufacturing and related industries. Students holding either an airframe or powerplant license, or who have advanced standing toward those licenses, may be eligible to enroll in academic courses while pursuing their airframe and powerplant certification at the discretion of the department.

FAA certification requires the completion of basic skills courses in the areas of mathematics, science and technical drawing. Below is a suggested semester sequence for the AOS 16-month (four-semester) program.

16-MONTH AIRFRAME AND POWERPLANT CERTIFICATE (DAY) PROGRAM

Number	Name	Theory Units	Lab Units	Total Units
SEMESTER I				
FYE101	Freshman Year Experience	1	0	1
GD01	Introduction to Aircraft Graphics	2	0	2
GP01	Introduction to Aircraft Physics	3	0	3
GM21	Aircraft Materials and Processes	3	1.5	4.5
AH31	Hydraulics and Pneumatics I	2	1	3
GL31	Aircraft Weight and Balance	0	1	1
GE10	Basic DC-AC Electricity	4	1.5	5.5
AL32	Aircraft Rigging and Alignment	1	1	2
Semester total		16	6	22
SEMESTER II				
GO41	Aircraft Operations and Publications	2	1	3
GG02	Certification Preparation - General	0	0	0

AC32	Aircraft Structures I	3	2	5
AC41	Aircraft Structures II	2	1	3
AS41	Aircraft Systems	3	2	5
AH40	Aircraft Landing Gear Systems	2	1	3
Semester total		12	7	19
SEMESTER III				
AE20	Aircraft and Engine Electrical Systems	3	1.5	4.5
AS42	Aircraft Avionics Systems	3	1.5	4.5
AA02	Certification Preparation – Airframe	0	0	0
CD101	Career Development Seminar	0	0	0
PP53	Powerplant Theory and Maintenance	3	2	5
PS51	Powerplant Systems I	2	2	4
Semester total		11	7	18
SEMESTER IV				
PC52	Aircraft Ignition Systems	2	1	3
PS60	Powerplant Systems II	2	1	3
PO60	Powerplant Maintenance Operations	3	2	5
PE30	Powerplant Electrical Systems	2	0.5	2.5
PP61	Turbine Engine Maintenance	4	2	6
PP02	Certification Preparation – Powerplant	0	0	0
Semester total		13	6.5	19.5
Total Units		52	26.5	78.5

COURSE DESCRIPTIONS

CREDIT COURSES

All courses will be offered in both the fall and spring semesters unless otherwise noted.

AAM 210 - OPERATIONS MANAGEMENT – 3 credits

This course will familiarize the student with problems encountered by the operating management of a business enterprise and the methods used to analyze and solve these problems. Throughout the course, there will be introductions to basic problem solving and project management tools.

AAM210 - OPERATIONS MANAGEMENT (Required) – 3 credits

This course will familiarize the student with problems encountered by the operating management of a business enterprise and the methods used to analyze and solve these problems.

Throughout the course, there will be introductions to basic problem solving and project management tools.

Topics will include the role of operations management in a successful product or service organization, productivity and competitiveness, basics of forecasting, product and Service Design Reliability, Strategic planning for products and services, process selection and facility layout, work design and measurement, learning curves, inventory management, maintenance and scheduling.

Prerequisite: MGT110

AAM381 – ADVANCED AIRCRAFT SYSTEMS FOR MAINTENANCE – 3 credits

This course is a comprehensive study into the most recent technology innovations incorporated into advanced aircraft system design. It includes in-depth analysis of the latest engineering disciplines associated with fluid motion, mechanical and electronic subsystem anatomy. Students can substitute ERG450, Aircraft Configuration Design, for the AAM381 course. Prerequisites: MAT120, PHY120; FAA RATP Qualified

AAM382 – GAS TURBINE ENGINES – 3 credits

This course is a comprehensive study of the most recent innovations incorporated into advanced gas turbine engine design. It includes in-depth analysis of the latest in gas turbine high bypass propulsion and accessory component technology. The student will function at industry-level standards, utilizing state-of-the-art computer-based software. Prerequisites: MAT120, PHY120; FAA RATP Qualified

AAM490 – MAINTENANCE RESOURCE MANAGEMENT (MRM) – 3 credits

The aviation maintenance technician's work environment encompasses a wide variety of tasks. MRM will be used to enhance the safety culture of an aviation organization by encouraging a profound awareness of safety issues. Safety program failure is indicated by occupational injuries, ground damage, accidents, incidents, decreased reliability and airworthiness. Prerequisite: ENG110; fall offering only

AAM491 – QUALITY SYSTEMS/ISO 9000 – 3 credits

A three-credit course introducing the student to the basics of quality as it applies to aircraft maintenance, using the ISO 9000 quality standard. Students will be shown the intricacies of why certification is obtained. The course will include topics such as history of aviation quality systems, quality terminology, inspection and test status, and control of quality records. Prerequisite: ENG110; fall offering only

AAM492 – ROTORCRAFT DESIGN TECHNOLOGY – 3 credits

A detailed analysis of the aerodynamics involved in rotorcraft flight. Focuses on the engineering concepts associated with rotor wing design, control functions and load factors. The principles of rotorcraft performance and structural composition are included. Prerequisites: MAT120, PHY120; *spring offering only*

AER101 – INTRODUCTION TO AERONAUTICS – 3 credits

Presents an overview of aviation, enabling the student to gain an appreciation of the complexities of the field of aeronautics. Course content includes historical background, aeronautical technology, the social and economic impact

of aerospace, and future developments and government regulation.

AER250 – HISTORY OF AVIATION – 3 credits

A comprehensive study of the history of aviation, its influences and its economic effects on everyday living.

AER260 – THE NATIONAL AIRSPACE SYSTEM – 3 credits

An overview of the proposed national airspace system that covers problems encountered in implementing the system, airspace allocation and usage, facilities, safety considerations, new developments in electronic navigation and control systems, economic and social impact, as well as political implications. FAA RATP Qualified

AER 270 INTRODUCTION TO AVIATION SECURITY – 3 credits

This course explores the evolution of security within the world's aviation industry from the 1930s to the present time. The impact of particular events in shaping aviation security policies will be examined. Technological advances and their impacts on airports, passengers and other users will be described. Procedures that are currently followed in various sectors of the industry, including passenger, cargo and other operations, will be examined. Methods used to carry out and enforce security policies will be discussed. This course will describe the regulatory agencies governing aviation security in the US. FAA RATP Qualified

AER300 – CURRENT TOPICS IN AVIATION WITH THE HON. JOHN GOGLIA – 3 credits

The course examines the leading issues in aviation today with a world-recognized aviation expert. From topics such as the controversy over outsourced maintenance to the growth and safety record of commuters to the impacts of fatigue on air traffic controllers, pilots and mechanics, the course will encourage frank and candid exploration of these and other contemporary aviation topics. The course enables students to explore the complexities of these issues, and the difficulties faced by industry and regulatory agencies. The course will include behind-the-scenes views of how the FAA, NTSB and other agencies interact, and how that affects aviation safety.

AET409 – ELECTRONIC ENGINEERING TECHNOLOGY – AVIONICS CONCENTRATION DEGREE PROJECT – 3 credits

This project is a capstone for students enrolled in Electronic Engineering Technology-Avionics concentration. The project should demonstrate applications of the knowledge and technical skills gained through the curriculum. Students are required to submit a synopsis of the project at the beginning of the semester that must be approved by the degree project faculty advisers. At the end of the semester, students must submit a complete project report and present a seminar. Prerequisites: EGR380, Final Semester Status

ALM135 – AIRLINE OPERATIONS – 3 credits

The course describes various aspects of the operation of an airline—the services it provides, how those processes work and how they can be improved vis-à-vis customers' needs. The course will provide an overview of issues such as general ground operations, safety and management, sources of planning for disruptions, passenger- and cargo-specific operations, measurement and enhancement of operational efficiency, airspace, weather and regulations.

spring offering only

ALM240 – AIRLINE ECONOMICS AND FINANCE – 3 credits

Examines issues related to functioning of airlines from an economic perspective. They include government regulation, the role of airlines in the economy, entry into and exit from the industry, supply, demand, cost, pricing and air cargo. The course introduces the basic principles of insurance and risk with their special application to the aviation industry. *spring offering only*

ALM362 – AIRLINE MANAGEMENT – 3 credits

This course covers the complex area of operational techniques and problems confronting the air travel industry today. Topics covered include market research, passenger trends, route studies, on-time operations, emergency measures and safety considerations. *fall offering only*

APM241 – AIRPORT ADMINISTRATION – 3 credits

An introduction to the complexities of airport planning and its importance to achieve a successful airport operation is provided. Content includes a study of the duties and responsibilities of the airport manager, with emphasis on the Federal Air Regulations governing the operation and administration of commercial airports within the United States. Critical issues such as the impact of technology, airport capacity and airport master planning to improve/enhance infrastructure, environmental issues, safety, and airport privatization.

APM360 – FUNDAMENTALS OF FBO MANAGEMENT – 3 credits

This course provides an introduction to the basics of Fixed Base Operator (FBO) management, with an emphasis on development of the knowledge and skills necessary to successfully manage an FBO. The content focuses on practical application of FBO manager skills.

APM485 – AIRPORT DEVELOPMENT AND MANAGEMENT – 3 credits

This course builds upon APM241 Airport Administration, and further develops the skills and understanding of operation, management and conceptual design of airports of any size. Content focuses on practical application of airport manager skills and includes educational tours of operating airports. Relations with tenants, public officials and patrons will be emphasized through writing and public-speaking skills. An expansion of the issues affecting modern airports today, such as safety, how airports are funded, and technological innovations affecting airports are discussed.

ATC200 – BASIC AIR TRAFFIC CONTROL I – 4 credits

This course will introduce students to topics on airport communications and airspace use, including separation, Federal Airworthiness Regulations (FARs), principles of flight, wake turbulence and aircraft characteristics and recognition, and weather, with particular emphasis on air traffic control systems.

A basic knowledge of meteorology is required. This course is intended for students who are not enrolled in the associate in applied science or bachelor in aircraft operations (flight) degree programs, but those who intend to become eligible for recommendation to the AT-CTI program.

This course may be taken as an elective for some programs. Completion of this course with a grade of “C” or better, with ATC240 Basic Air Traffic Control II, FLT231 Aviation Weather and FAA-required counseling, would allow students to become eligible for recommendation to the AT-CTI program. Refer to the AT-CTI program description in this catalog for more information on FAA requirements.

Students enrolling in this course after spring 2013 and are enrolled in the CTI Program are required to have simulator training lab credits. Simulator lab fee required. FAA RATP Qualified

ATC200CL – BASIC AIR TRAFFIC CONTROL I: CONTROL TOWER PROCEDURES – 1 credit

Explains operating techniques of air traffic control (ATC) airport facilities in visual and instrument conditions. Includes operations of airport lighting systems, proper phraseology, separation requirements, control techniques and emergency actions.

ATC200TL – BASIC AIR TRAFFIC CONTROL I: TERMINAL RADAR PROCEDURES – 1 credit

Explores RADAR theory fundamentals and systems operation in air traffic control. Examines procedures of instrument traffic control in the terminal radar environment.

ATC200CS – BASIC AIR TRAFFIC CONTROL I: CONTROL TOWER PROCEDURES SIMULATION – 0 credits

Employs hands-on time in the control tower simulator. Emphasizes real life air traffic control situations to develop techniques for the manipulation of air traffic during taxi, takeoff and landing. Corequisite: ATC200CL or concurrent enrollment.

Simulator lab fee required. Grade mode: pass/no pass

ATC200TS – BASIC AIR TRAFFIC CONTROL I: TERMINAL RADAR PROCEDURES SIMULATION – 0 credits

Employs hands-on time in the control tower simulator. Emphasizes real life air traffic control situations to develop techniques for the manipulation of air traffic during taxi, takeoff and landing. Corequisite: ATC200TL or concurrent enrollment.

Simulator lab fee required. Grade mode: pass/no pass

ATC220 – ATC WEATHER – 3 credits

Multiple phases of meteorology are examined and applied by students. Principles of meteorology, familiarization with preflight weather briefings, en-route weather reports and weather hazards are studied, preparing students for flight applications. The laboratory portion ensures that the use of the Aviation Digital Data Service (ADDS) is completely integrated into flight plan preparation by using weather maps and forecasts. This course can be taken as a basic science elective and is also part of the required set of courses for any student wishing to participate in the College's partnership program with the Federal Aviation Administration, the Air Traffic-Collegiate Training Initiative (AT-CTI) program. A grade of "C" or better is required for the AT-CTI program. Students not in the AT-CTI program can take an alternative section of the weather course, FLT230, Aviation Weather.

Both ATC220 and lab and FLT230 also count as math/science electives. FAA RATP Qualified

ATC240 – BASIC AIR TRAFFIC CONTROL II – 4 credits

This course builds upon instruction of airport communications and airspace use covered in ATC200, with particular emphasis on air traffic control systems. Topics include special operations, basic navigation, charts and publications, emergencies, search and rescue standard instrument departures and standard arrival routes, weather, pilot's environment, strip making and air traffic control clearances. A basic knowledge of meteorology is required.

Completion of this course with a grade of "C" or better, together with ATC200 Air Traffic Control I, ATC220 Aviation Weather and Federal Aviation Administration required counseling, allows students to become eligible for recommendation to the AT-CTI program. Please refer to the air traffic control program description in this catalog for more information on FAA requirements. Simulator lab fee required. Prerequisite: ATC200; corequisite: ATC220

ATC240EL – BASIC AIR TRAFFIC CONTROL II: ENROUTE PROCEDURES – 1 credit

Explores procedures of instrument traffic control in an EnRoute RADAR environment. Emphasizes longitudinal, vertical and lateral separation of air traffic. Prerequisite: ATC200

ATC240NL – BASIC AIR TRAFFIC CONTROL II: NON-RADAR PROCEDURES – 1 credit

Explores procedures of instrument traffic control in a non-RADAR environment. Emphasizes longitudinal, vertical and lateral separation of air traffic. Prerequisite: ATC200

ATC240ES – BASIC AIR TRAFFIC CONTROL II: ENROUTE SIMULATION – 0 credit

Explores techniques of longitudinal, vertical and lateral separation of air traffic using lab scenarios designed to develop routine problem-solving processes to adapt the student controller to real-life air traffic control situations. Corequisite: ATC240EL or concurrent enrollment.

Simulator lab fee required. Grade mode: pass/no pass

Prerequisite: ATC200

ATC240NS – BASIC AIR TRAFFIC CONTROL II: NON-RADAR SIMULATION – 0 credit

Explores techniques of longitudinal, vertical and lateral separation of air traffic using lab scenarios designed to develop routine problem-solving processes to adapt the student controller to real-life air traffic control situations. Corequisite: ATC240NL or concurrent enrollment.

Simulator lab fee required. Grade mode: pass/no pass

Prerequisite: ATC200

ATC300 – BASIC AIR TRAFFIC CONTROL CAPSTONE REVIEW AND SCREENING – 0 credits

This course will be a cumulative review of the basic skills covered in the program and is completed after graduation. Students will be tested at the end of this course as part of the overall screening process. This course will assist students in reinforcing the material covered during the program and serve as a refresher course before the selection process and prior to entering the Federal Aviation Administration Academy.

The review course will be offered online only. To pass the course, students need to score a grade of 80 or better on the screening exam. The course grading will be a P (pass) for satisfactory course completion or an F (fail) for unsatisfactory course completion. Students can participate in as many ATC300 sections as they desire, to ensure a strong air traffic basics foundation as they enter the FAA Academy. The course was incorporated into the curriculum for students entering the program beginning in the fall 2008 semester. Prerequisites: ATC200, ATC200L, ATC220, ATC220L, ATC240, ATC240L, FLT101, FLT 102, FLT110L, graduated from an approved program.

ATC456 – AIR TRAFFIC CONTROL AND CONTROL TOWER OPERATION – 3 credits

This course provides an extension to those who have completed the Air Traffic Control-Collegiate Training Initiative(AT-CTI) program and who wish to advance toward a Federal Aviation Administration Control Tower Operator's (CTO) certificate. Topics include navigation, Federal Aviation regulations, emergencies, search and rescue, instrument departures and terminal arrival routes, pilot's environment and air traffic control communications. Thorough knowledge of meteorology is required. Prerequisites: successful completion of AT-CTI courses with a grade "B" or higher, including ATC200, ATC220 and ATC240.

ATC457 – BASIC OBSTRUCTION EVALUATION AND AIRPORT/AIRSPACE ANALYSIS – 4 credits

This course is primarily designed to learn what is involved in the obstruction evaluation and airport airspace analysis program and route structure in the United States. Course content includes responsibilities for Air Traffic, Flight Procedures, Airports, Flight Standards, Technical Ops, and military representatives; the application of Title 14, Code of Federal Regulations (14 CFR) Part 77 criteria; evaluation of aeronautical effect; issuance of hazard/no hazard determinations; issuance of airport airspace determination; and obstruction marking and lighting with regards to navigable airspace for aviation and urban air mobility (UAM) operations.

ATC474 – FEDERAL AVIATION REGULATIONS – 3 credits

A survey of the administrative laws, administrative law procedures, and civil penalty assessments of the Federal Aviation Administration and the National Transportation Safety Board. Includes the FARs, Advisory Circulars, the rulemaking process, violations, enforcement actions, seizures, expunction policy, appellate forum, and appeals to the U.S. Court of appeals. FAA RATP Qualified

ATC481 – AIR TRAFFIC ADMINISTRATION – 3 credits

The background and operation of the Federal Aviation Administration with emphasis on the air traffic control system.

ATC483 – AIR TRAFFIC/ FAA INTERNSHIP – 3 credits

Practical experience in a support function of the Air Traffic Control System of the Federal Aviation Administration. Qualifying internships can also be earned under the FAA Contract Tower program. Students participating in this internship program must obtain approval and meet all the requirements for the internship as outlined by the department chair, sponsoring company, and the College's career services office. Students may conduct a research project in lieu of an internship. Students must complete written and oral assignments as part of the course requirements. This internship may count as an air traffic, aviation or technical elective course related to the student's course of study. Students who have already satisfied course requirements can participate in internships for additional credit.

Prerequisites: ATC200, ATC220, & ATC240 with a "B" or higher

ATC484 – DIRECTED INDIVIDUAL STUDY – 3 credits

Concentrated individual study of aviation subjects not currently offered on a regular basis.

ATM320 – AVIATION LAW – 3 credits

This course concentrates on the functions of federal and local regulatory agencies regarding legislation concerning aviation. Topics discussed include aircraft operation, maintenance, noise and air pollution. Case studies will provide the foundation for discussions. FAA RATP Qualified

ATM340 – AUDITING AND RISK MANAGEMENT – 3 credits

The auditing and risk management course provides students with the opportunity to create an emergency management plan for an aviation organization. Principles for forming an organization-wide safety culture that includes a non-punitive reporting system to identify hazards before they become incidents, accidents or violations will be discussed. Students will investigate inspection systems that aim to ensure that procedures, personnel and hardware are functioning well. Monitoring systems to track and predict operational trends to assess risks and inform decisions for the organization will be analyzed. These preventive measures are considered in relation to economic business principles as well as to national and international regulations and trends. Emergency response principles and procedures will also be studied.

ATM345 – INTERNATIONAL TRADE AND FINANCE – 3 credits

An analysis of the theory of international trade and trade policies; the foreign exchange markets and factors affecting exchange rates; and open-economy macroeconomics. Attention will be focused on the impact of foreign trade on the aviation industry and the industry's contribution to economic development. Aviation applications include code sharing and other international airline agreements, the impact of trade subsidies and open skies treaties.

Prerequisites: MGT230; ECO255 or MGT240, *fall offering only*

ATM 360 – EXPORT AND IMPORT POLICIES AND PRACTICES – 3 credits

The course focuses on procedural practices and methods used in the handling of exports and imports. Areas treated are the US Customs and Border Protection regulations and practices, tariff legislation, types of duties, sales contracts, price quotations, landed cost prices, merchandise entries, import documents and the preparation of export documents applicable to specific countries.

ATM400 – INTERNATIONAL AIR TRANSPORT MANAGEMENT – 3 credits

This course addresses issues related to the international aviation marketplace, the current international regulatory framework and the environment within which they exist. It examines cost effectiveness, marketing, operations, finance, strategic planning and management within air transportation, and the efficient utilization of aircraft for the international transportation of passengers and cargo. This course can be used as a management elective in airport management, general management or the aircraft operations programs or in lieu of ATM345 International Trade and Finance in the airline management program.

ATM420 – CUSTOMS BROKER POLICIES AND PRACTICES, LOGISTICS AND FREIGHT FORWARDING – 3 credits

This course will explain the policies and procedures underlying the operation of private sector industry export and import businesses with a view to helping students develop their entrepreneurial skills in these areas. Topics that will be covered include import and export management, domestic and international government agencies and their regulations, compliance management, packing and shipping requirements, and customs explanations.

ATM450 – AIR TRANSPORTATION AND CARGO MANAGEMENT – 3 credits

Students learn the principles and logistics of air travel and other forms of transportation. This course examines the impact of transportation on the overall economy; the principal operating and financial factors for each mode of transportation; management practices and problems involved in the air cargo industry; and decision-making from the perspective of process for both carrier and user. There is also some coverage of the International Air Transport Association (IATA) rate and tariff problems, and an overview of dangerous goods regulations.

Prerequisites: ATM345; *spring offering only*

ATM452 – AVIATION TRANSPORT REGULATIONS – 3 CREDITS

This course offers an overview of the role of government in the growth of aviation transportation. The development of the Federal Aviation Administration (FAA) and the Federal Aviation Regulations (FARs) pertaining to aviation management are discussed. The impact of regulations for the earlier modes of maritime and railroad transportation on aviation are examined. The roles of other aviation organizations, including the International Civil Aviation Organization (ICAO) and select major aviation milestones in the development of aviation transportation are reviewed. FAA RATP Qualified. *fall offering only*

AVM332 – AVIONICS CIRCUITS I – 4 credits

This course discusses basic electronic devices and circuits. Topics include diodes, bipolar transistors, field effect transistors, rectification, filters, voltage regulators, voltage amplification, power amplifiers and vacuum tubes. Classwork is complemented by laboratory experiments. Prerequisites: A&P certificate, MAT115; *fall offering only*

AVM481 – AVIONICS LINE MAINTENANCE I – 4 credits

This course covers fundamental issues in heavy transport aircraft line avionics maintenance such as scope of line maintenance and ramp safety, introduction to logic circuits and digital information transfer systems, use of aircraft wiring diagrams and schematics, multiengine and twin-engine heavy transport aircraft electrical power generation, control and distribution systems. Laboratory work is included in this course.

Prerequisite: A&P certificate; *spring offering only*

AVM482 – AVIONICS LINE MAINTENANCE II – 4 credits

This systems course begins with a continuation of the introduction to digital electronics and information transfer systems such as Aeronautical Radio Incorporated (ARINC) 429, 561 and 629. Other systems covered include electromechanical flight instruments and synchros, Electronic Flight Instrument System (EFIS), Engine Instrument Crew Alert System (EICAS), and inertial reference systems, as well as flight management and navigation systems. Very high frequency omnidirectional range (VOR), instrument landing system (ILS) and surveillance systems such as air traffic control transponders, traffic alert and collision avoidance systems (TCAS), and weather radar will also be covered. Introduction to global positioning system (GPS) satellite navigation is also included. Laboratory work is a significant part of the course. Prerequisite: AVM481; *fall offering only*

AVM483 – AVIONICS LINE MAINTENANCE III – 4 credits

This course covers additional selected avionics systems beginning with the fundamentals of radio frequency issues for the line avionics technician, including typical super heterodyne receiver and transmitter operation at the block diagram level, antennae, transmission lines and wave guides. Systems include very high frequency (VHF) and high frequency (HF) communications, aircraft communication and reporting system (ACARS), interphone systems, cockpit voice recording and flight data recording. Also covered are heavy transport flight control and hydraulics systems, in which students are introduced to flight operations and navigation methods involving autoflight control systems. Laboratory projects using line aircraft, avionics communications, radio and cockpit mock-ups reinforce lecture material. Prerequisite: AVM481; corequisite: AVM482; *spring offering only*

AVT235 – AIRCRAFT NAVIGATION SYSTEMS – 3 credits

This course covers the principles of very high frequency navigation receivers, including very high frequency omnidirectional range (VOR) localizer, glide-slope and marker beacon receivers. Other topics include long-range navigation systems, such as inertial navigation systems and GPS. Classwork is supplemented by lab exercises.

Prerequisites: EET220, EET220L

AVT240 – AIRCRAFT PULSE SYSTEMS – 3 credits

This course is a study of air traffic control transponders and distance measuring equipment, including encoding, decoding pulse transmission, signal reception and processing. Classwork is supplemented by lab computer-aided testing, alignment and troubleshooting. Prerequisite: EET220, EET220L

AVT245 – RADAR SYSTEMS – 3 credits

This course covers the principles of pulse and microwave circuits as typically applied to search and weather radar. Weather radar and radar altimeter system topics include timing, transmitter, modulator, receiver, signal processing and display circuits. Classwork is complemented by laboratory exercises.

Prerequisite: EET220, EET220L

AVT250 – FCC LICENSE REVIEW – 0 credits

This course prepares students for the Federal Communications Commission (FCC) General Radiotelephone License examination. This course requirement must be satisfied to be eligible for graduation. Prerequisite: EET116

AVT346 – AIRCRAFT POWER AND DISTRIBUTION SYSTEMS – 3 credits

This course covers the operation of common types of small and large aircraft power-generating systems, including AC and DC aircraft power distribution systems. It also covers aircraft batteries, their use in the electrical system as well as their limitations. Classwork is complemented by laboratory exercises.

Prerequisite: EET220, EET220L; *fall offering only*

AVT347 – FLIGHT CONTROL SYSTEMS – 3 credits

This course covers the principles of conventional and fly-by-wire flight control systems, including the autopilot and flight director system. The course also covers gyroscopes, synchros and instrumentation. Classwork is complemented by laboratory exercises.

Prerequisite: AVT235, AVT235L; *fall offering only*

AVT349 – ELECTRONIC FLIGHT INSTRUMENT AND FLIGHT MANAGEMENT SYSTEMS – 3 credits

This course covers the principles of conventional analog and glass cockpit electronic flight instrument systems (EFIS) and flight management systems (FMS). The course includes control maintenance computers, avionics data bus principles, cathode ray tube and liquid crystal display technology. Classwork is complemented by laboratory exercises. Prerequisite: AVT235, AVT235L

AVT351 – ADVANCED NAVIGATION SYSTEMS – 3 credits

This course covers the principles of advanced navigation systems, including SBAS (Satellite-based augmentation systems) such as WAAS, EGNOS, etc. Also covers elements of NEXTGEN such as RNAV/RNP, LPV and ADS-B. International GNSS systems such as GLONASS and GALILEO are discussed. Classwork is complemented by laboratory exercises. Prerequisites: AVT 235, AVT235L

AVT352 – INTEGRATED AVIONICS SYSTEMS – 3 credits

This course covers the principles of integrated avionics systems, including flight management systems (FMS), area navigation (RNAV), integrated avionics processor systems (IAPS), integrated modular avionics (IMA) and advanced distributed architectures. These systems are discussed as implemented on small general aviation aircraft as well as large commercial airliners. Prerequisite: AVT235, AVT235L AVT240, AVT240L

AVT453 – TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEMS – 3 credits

This course covers the principles of traffic alert and collision avoidance systems (TCAS), including mode “s” transponder integration, diversity operation and flight displays. It also covers principles of wind shear detection. Classwork is complemented by laboratory exercises. Prerequisite: AVT240, AVT240L

AVT454 – AVIONICS INSTALLATION AND MAINTENANCE – 3 credits

This course covers the principles and practices of avionics system integration and installation on current aircraft. Subjects include avionics line replaceable unit design, aircraft mechanical/electrical and environmental interfaces, Federal Aviation Administration regulations and certification, standardization of avionics systems and avionics manufacturers’ specifications. Also covers sheet metal/composite familiarization and fabrication, maintenance and inspection practices. Aircraft weight and balance computations are included. Classwork is complemented by laboratory exercises. Prerequisites: EET210, EET210L; *fall offering only*

AVT455 – AVIONICS RELIABILITY AND MAINTAINABILITY – 3 credits

This course covers the application of probability theory and statistics to avionics systems, with emphasis on reliability and maintainability engineering, failure reporting and maintenance actions. Prerequisite: MAT220

AVT456 – AVIONICS INTEGRATED LOGISTICS SUPPORT – 3 credits

This course covers the integrated logistics support (ILS) of avionics and support systems, including test equipment, tools and maintenance resources. Also covers field service, customer service, product support, publications, training, packaging, computer resources, reliability and maintainability engineering. Prerequisite: AVT349, AVT349L

CCM1 – INTRODUCTION TO ENGINEERING MATERIALS – 3 credits

The purpose of this course is to present to students the basic principles necessary to understand structure-property relations in engineering materials. The student will be introduced to concepts of structure from bonding to microstructure. They will then identify the relationships between structure and property of a material. Properties ranging from mechanical, thermal, electrical, optical, magnetic, and chemical in nature will be considered. This course will also introduce the concepts of stress, deformation, and strain in solid materials. Basic relationships between loads, stresses, and deformation of structural and machine elements such as rods, shafts, and beams will be developed. The load carrying capacity of these elements under tension, compression, torsion, bending and shear forces are considered.

CCM2 – INTRODUCTION TO COMPOSITE MATERIALS – 3 credits

This course introduces basic terminologies used in composite design and manufacturing. An introduction to the various composite manufacturing processes is also introduced. The foundations for the mechanics of composite materials are presented with special emphasis on the long-fiber and woven lamina. On both a micro-mechanics and macro-mechanics level we study the elastic behavior and strength of a composite lamina, i.e. a single layer of unidirectional fibers within a matrix. On the macro-mechanics level we also study composite laminates (two or laminae stacked together) with respect to elastic behavior, hydrothermal effects, stress, and failure analysis.

CCM3 – INTRODUCTION TO COMPOSITE MANUFACTURING – 3 credits

Students will work with prepreg carbon fiber unidirectional tape to explore the effects of orientation; “balance” and “symmetry” in a laminate. Students will also work with dry glass fabric and liquid epoxy resin to understand the fundamental vacuum bagging, bleeder & breather concepts. Work with prepreg 9 glass and aramid fiber harness-satin fabrics, along with honeycomb and polyurethane foam core materials, making sandwich panel structures and utilizing laminate “nesting” techniques will be done in details. Finally, basic repair methods and techniques will be presented along with performing a “wet layup” repair in the lab. The final repaired part will be cut in half for evaluation of the manufactured and repaired panel. Prerequisite: CCM2

CCM4 – MOLD FABRICATION AND ADHESIVE BONDING OF COMPOSITE METALS – 2 credits, 3 lab hours, 1 lecture hour

This course is designed to teach students about designing and building molds and fixtures using advanced composite materials. In this course, students will learn about tool design techniques that contribute to both dimensional stability and tool longevity. Students will also gain skills in adhesive bonding technology, while gaining a deeper understanding of the surface preparation and the fundamental adhesion principles necessary to achieve a good bond to both (polymeric) composite and metallic surfaces. Co-requisites: CCM3

CCM5 – NONDESTRUCTIVE TESTING TECHNIQUES FOR COMPOSITE MATERIALS – 2 credits, 3 lab hours, 1 lecture hour

This course is designed for students interested in identifying and quantifying defects in new or damaged composite panels using the latest equipment, methods, and techniques. The course is very “hands-on” in nature. Four of the most commonly used NDI techniques will be discussed and practiced in class. These techniques include Visual Inspection, Tap Testing (both manual and instrumented tap testing), Resonance Bond Testing, Acoustic Emission testing, Radiographic testing, and Ultrasonic Inspection. Co-requisites: CCM3

CD101 – CAREER DEVELOPMENT SEMINAR – 0 credit

A second-semester course that prepares students for the many career opportunities available to them as students and graduates. Topics covered include resume preparation, networking and interviewing skills, industry news, internships and various other job search techniques.

CDE117 – COMPUTER-AIDED DESIGN I – 2 credits

The goal of this course is to provide an introduction to engineering graphics and computer-aided design with engineering standards. This is accomplished by examining the role of the computer in the present design process. Topics include computer graphics, computer aided-design and drafting (CAD) geometric construction, orthographic projection dimensioning, section and auxiliary views, dimensioning, developing detailed drawings, 3-D modeling and introduction to assembly drawings.

CDE118 – ELECTRICAL CIRCUITS IMPLEMENTATION – 2 credits, 1 lecture and 3 lab hours

This course introduces students to circuit drawing and prototyping using CAD software. Students will have the opportunity to know the components used in electronics and use the CAD software to create, simulate and obtain a printed circuit board (PCB) prototype. The lecture session introduces students to basic knowledge of components and how they can create their design base on their understanding of each part. Students also learn the types of PCB parts, e.g., surface mount devices and through-hole mount components. This course is project-based learning. Lectures are supplemented with laboratory work. **Prerequisite: None**

CDE375 – COMPUTER GRAPHICS FOR ADDITIVE MANUFACTURING – 2 credits

This course will introduce engineering students to practical 2-D/3-D computer graphics and rapid prototyping. Special attention will be given to the development of portfolio and presentation materials. Students will practice manipulation of 2-D bitmaps, scans, vectors and digital photos. Students will develop presentation graphics for print, animation and the Internet using Adobe Photoshop and Illustrator. Modeling and animation with 3-D's Max 2010 will focus on architectural and product renderings. Solid Edge and CATIA models will be converted to 3-D's Max for product visualization and animation. The class will end with a rapid prototyping project in which students explore options for printing out 3-D solid models.

CDE385 – CATIA I – 2 credits

Computer-aided three-dimensional application (CATIA) fundamentals is a course that is organized around real-world problems that would be solved using descriptive geometry exercises as a foundation and the computer-aided design (CAD) application as a helpful tool. Vectors, transformations, geometric modeling concepts, techniques and methodologies are discussed. Demonstrating the use of the CAD tool to the solution of concepts in other courses in the mechatronic engineering program is a primary focus of the course. This will enable students to revisit concepts in other solid mechanics courses within the program (e.g., statics and strength of materials). One example will be a free-body wireframe model that students will solve by sketching and representing in a CAD drawing. The dynamic link between the two files (.catpart and .catdrawing) is used to illustrate changes in loading conditions.

The application of CAD to industrial problems is also a topic of discussion, such as how design and manufacturing can be improved through the linking of CAD to computer-aided manufacturing applications. The standards used for file conversions and incompatibility issues will also be discussed. Prerequisite: CDE117, CDE117L

CDE386 – CATIA FOR WIRING AND HARNESSING – 3 credits

The primary objective of this course is to teach students the basic skills needed to design 3-D electrical wire harnesses and parts using CATIA V5. In addition, students will learn how to read and use wiring block diagrams and schematics; gain a healthy knowledge of aircraft power distribution system and wiring practices based on industry standard (SAE and FAA guidelines). Two hours of classwork will be complemented by three hours of lab work per week. Hands-on exercises representing real-world, industry specific design scenarios are included. Prerequisites: CDE117, CDE117L

CDE480 – COMPUTER-AIDED DESIGN II – 2 credits

This goal of this course is to provide the students with the knowledge of more advanced topics in engineering graphics and parametric modeling using widely available commercial CAD package (Solid Works). The topics will also include assembling, geometric tolerances, gear design, threads and fasteners standards, lofting concept and sheet metal bending. Students will also improve their ability to communicate using graphics. Prerequisite: CDE117, CDE117L

CDE486 – CATIA II – 2 credits

This course focuses on more advanced assemblies. Other workbenches not covered in CDE385 are used, such as Digital Mock-up (DMU), Prismatic Machining and Kinematics. Students are required to make a final presentation on an approved project. Prerequisite: CDE385, CDE385L

CDE487 – CATIA III – 2 credits

The course will cover measurement, quality assurance and tolerances in addition to material removal processes. It will include chip-type machining, and cutting tools for machining, turning, boring and its derivatives. Milling and drilling will also be covered extensively, as well as numerical control and machining centers and the principles of the languages used in their operations. During the second half of the semester, the CATIA prismatic machining module will be used to virtually design and machine a series of parts using the processes already learned. Students will create a network computer code and input it into the program to prove out the part. Upon completion of the course, the student will feel a sense of accomplishment in not only designing the part but also in its manufacture. Prerequisite: CDE385, CDE385L

CDE488 – FINITE ELEMENT ANALYSIS WITH CATIA – 2 credits

This advanced elective course presents students with an introduction to computer aided engineering (CAE). Finite Element Analysis (FEA) is a numerical technique for finding approximate solutions to field equations in engineering. The field equations can originate from different fields such as solid mechanics, heat transfer and electromagnetism, where complex domains such as aircraft and automobiles undergo a solid-state reaction. The course also includes a laboratory component that incorporates linear stress analysis using the CATIA V5 application. Prerequisite: CDE385, CDE385L, EGR220

CDE490 – CATIA COMPOSITE PRODUCT DESIGN – 2 credits

This composites design course is intended to provide a comprehensive introduction to the CATIA Composites Design Workbench, covering composites engineering, including the definition of zones, plies, limit contours, staggering, laminate stack, cores, composites/stack information and composites manufacturing; productibility analysis, transfer to production tool form, ply flattening, splicing, darting, inspection, ply export and ply book generation. From this course students will be able to develop CATIA composite parts from the initial surface form through to the ply book detailing all cutting and placement details. Prerequisites: CDE385, CDE385L, EGR340

CHE200 – TOPICS IN CHEMISTRY – 4 credits (3 lecture credits, 1 laboratory credit)

This Course serves as an introduction to chemistry. The connections between chemistry and society are explored through applying chemical principles to real world issues such as air quality, energy, global warming and water use through interactive classroom lectures, discussions and laboratory exercises. Prerequisites: ENG110, PHY120, PHY120L, Placement or MAT109

CHE231 – GENERAL CHEMISTRY I – 3 credits

This course is the first semester of a two-semester sequence. The goal of the first semester is to provide students with a fundamental knowledge of the modern theory of General Chemistry. The experimental nature of chemistry is stressed. Topics Include: atomic and molecular structure, chemical bonding and chemical reactions, stoichiometry and gases. The prerequisites are: MAT120 or MAT125

CNC100 – PRECISION MEASUREMENT FOR CNC – 3 credits (2 lecture hours and 3 lab hours)

This course will introduce students to the world of precision part inspection. After completion of the course students will understand the multi-view orthographic drawing and its importance in all stages part development from design to inspection. Students will be able to identify all print abbreviations and use common systems of measurement in their designs. Geometric dimensioning and tolerance concepts will be explored as used in manufacturing. All major instrumentation used in measuring geometric tolerances will be covered including gauges, micrometers, go, no-go gages, calipers and Coordinate Measuring Machines (CMM). Measurements of surface finish and thread gauges will be covered in addition to using an indicator to perform open setup inspections. At the completion of this course students will have hands on experience in the major aspects of part inspection. Prerequisites: None

CNC201 – CNC MANUFACTURING I – 3 credits (2 lecture hours and 3 lab hours)

Students will learn about CNC machine operation through the use of the Haas VF2SS mill and Okuma lathe. Basic CNC terms such as MCU, MDI keys, and the grid coordinate system movements will be explored. Machine tool operations, speeds, feeds, and their use in part development will be covered in addition to coolant use and chip removal. As the course progresses students will practice manual machine controls and program execution. Machine

shop best practices, organization, and safety will also be covered through hands on exercises. At the end of the course students will be able to run a job and prepare all work holding as they safely operate the machine.

Corequisites: CNC100

CNC202 – CNC G CODE PROGRAMMING FUNDAMENTALS – 3 credits (2 lecture hours and 3 lab hours)

This course will cover G-Code from both the programmer perspective and the machine operator standpoint. Students will learn to code parts and troubleshoot common problems in CNC programming. Program blocks, G, L, M, and T codes are explored in relation to programs and subprograms. As the course progresses conversational, absolute, and incremental programming is covered in addition to subprograms. Program inspection, execution, and testing through the use of a dry run will be covered along with program edits and coordinate adjustments. Students will leave the course with a strong understanding of the G code programming process in the context of CNC manufacturing.

Prerequisites: CNC100 and CNC201

CNC203 – CNC MANUFACTURING II – 2 credits (1 lecture hour and 3 lab hours)

An introduction to 3 and 4 axis CNC machines as a system to run part programs ranging from small parts to production runs on the HAAS CNC mill and Okuma lathe. Setting tool length and work offsets using manual and probed methods will be explored using the Hass MCU and Renishaw Probe. Tooling geometry, live tooling, and tool selection will be taught for mill and lathe operations. G-Code Program edits using the MCU will be shown in depth towards the end of the course to optimize production runs. The importance of part inspection during the machining process will be explained to ensure quality parts in CNC. Prerequisites: CNC100 and CNC201

CNC204 – CNC CAM PROGRAMMING – 3 credits (2 lecture hours and 3 lab hours)

The computer will be explored as both a design tool and a CAM programming tool. Mastercam and Catia software will be used to produce parts and tool paths for CNC manufacturing throughout the course. Students will learn how to develop part designs for machining on the Haas and Okuma range of CNC machines. All the industry standard tooling paths, work holding, and machining operation tasks will be covered in the context of CAM using 2.5,3 and 4 axis systems. At the end of the course students will be able to design a part in CAD and deliver post processed G-CODE for manufacturing on the Haas Mill and Okuma Lathe. Prerequisites: CNC100 and CNC201

CPE101 – INTRODUCTION TO COMPUTER ENGINEERING – 1 credit, 3 lab hours

This course introduces students to a complete, step-by-step approach to learning the fundamentals of hardware devices needed for a computer system. It covers installing and configuring PC system unit components and peripheral devices, configuring, and troubleshooting display, multimedia devices, storage devices, and internal system components. Students also learn to configure and troubleshoot network connections, implement client virtualization to support and troubleshoot desktops, laptops, mobile devices, and print devices. This course also covers installing, configuring, maintaining operating systems, and troubleshooting Microsoft Windows and Apple devices. This course teaches students how to manage users, workstations, shared resources, and implement physical security to secure workstations and data. Lectures are supplemented with laboratory work. **Prerequisite: None**

CPE215 – COMPUTER ARCHITECTURE – 3 credits (2 lecture and 3 lab hours)

This course provides students with a solid understanding of fundamental architectural techniques used to build today's high-performance processors and systems. The course also highlights the evolution of computer architecture and the factors influencing the design of hardware and software elements of computer systems. Various computer architecture topics will be covered, including x86, ARM architecture, RISC, bus designs, ISA, performance, cache, internal memory, processor control, I/O, parallel processing, and multithreading. It also addresses microarchitecture issues such as dynamic instruction scheduling, branch instruction, cache allocation, instruction-level parallelism, fetching, and multicore computing. It is a lecture and lab-based course. **Prerequisite: ELE230**

CPE217 – INTRODUCTION TO DISCRETE MATHEMATICS – 3 credits

This course offers an introduction to discrete mathematics oriented toward computer engineering. The topics cover includes fundamental concepts of mathematics for definitions, proofs, sets, and functions. Also, the introduction to discrete structures in elementary number theory, graphs, counting, and discrete probability theory. **Prerequisite: MAT225**

CPE326 – SYSTEM ANALYSIS AND DESIGN – 3 credits (2 lecture hours and 3 lab hours)

This course introduces the fundamentals of systems analysis and how they are applied to the development of computer systems for operations in the business environment. Students are introduced to basic systems principles and concepts, logical analysis, design, and hardware and software systems modeling. This course also examines structured analysis and logical design techniques for stating and analyzing requirements, logical design, and system outputs, inputs, files, and processing specifications. Procedures for system cost and benefit analysis and the life-cycle concept of information system development. **Prerequisite: CPE217**

CPE330 – DATA COMMUNICATION AND CLOUD COMPUTING – 3 credits (2 lecture hours and 3 lab hours)

This course explores in-depth the challenges of cloud networking and how students can build network infrastructure. The supportive infrastructure should provide the ability to deploy virtual networks on a shared infrastructure. Also, to enable both efficient transfer of big data and low latency communication, enabling applications to be shared across multiple platforms and operating systems. This course emphasizes both operations and design rationale, for example, how things work and why they are designed that way. Students will also learn about critical communications infrastructure for many applications today. Lectures are supplemented with laboratory work. **Prerequisite: CPE326**

CPE350 – SECURE EMBEDDED SYSTEMS – 3 credits (2 lecture hours and 3 lab hours)

This course examines the foundations of embedded systems using the mbed and demonstrates how it can be applied to rapidly produce successful embedded designs. It also aims to give full support to a reader, moving through a carefully constructed series of concepts designs and exercises. **Prerequisites: CPE215**

CPE409 – COMPUTER ENGINEERING PROGRAM DEGREE PROJECT – 3 credits (3 lecture hours)

This is a capstone project for students in Computer Engineering program. The project should demonstrate applications of the knowledge and technical skills gained through the curriculum. Students are required to submit a project proposal at the beginning of the semester, and the degree project faculty advisor must approve. At the end of the semester, students must submit a complete project report and present a seminar. **Prerequisite: EGR460, EGR380, CSC390**

CSC101 - Introduction to Computer Science - 2 credits, (1 lecture hour, 3 lab hours)

This course introduces students to the field of computer science. Students will acquire a complete, step-by-step approach to learning computer science fundamentals such as hardware, software, computer communication, and security. The course covers additional topics of current events and concerns, such as artificial intelligence. This course is not an introduction to programming but focuses on teaching how computers work and what the field of computer science encompasses. Gaining a high-level introduction to computer hardware, software, communication, security, and applications will benefit students, especially now that the world is applying computer operations in all areas. **Prerequisites: None**

CSC114 – INTRODUCTION TO CYBERSECURITY – 2 credits (2 lecture hours)

This course introduces detailed concepts of cybersecurity. It explains some major computer malware and cybersecurity attacks within the cyber world in recent years. The analysis and details of the major attacks and their impacts on the global economy and the malware codes that helped hackers initiate hacking attacks on networks are also covered. This course also introduces high-tech security programs, devices, and mechanisms adopted in modern security systems. This course gives informative examples of intrusion detection systems (IDS), intrusion prevention systems (IPS), and security firewalls. A general prevention mechanism from the cyberattacks using password management with modern technologies that help create and manage passwords more effectively is also covered. **Prerequisite: None.**

CSC115 – INTRODUCTION TO ARTIFICIAL INTELLIGENCE – 2 credits (2 lecture hours)

This course is a general introduction to Artificial Intelligence. It covers studying the design of computer systems that exhibit traits generally associated with intelligence in human behavior, such as understanding natural language to reason about the visual environment and solve complex problems. It also explores current events and state-of-the-art in this field and looks into knowledge representation formalisms, search techniques, and tools used in the AI space. Content areas include natural language processing, computer vision, logic and theorem proving, game-playing programs, inheritance networks, neural networks, genetic algorithms, and expert systems. Topics include logic and representation in intelligent agent design, reasoning (search, prediction, planning, explanation), and an overview of AI problems in vision, language, learning, robotics, medicine, and computational design. A particular emphasis will be focused on programming logic using Prolog. Lectures are supplemented with laboratory work. **Prerequisite: None**

CSC116 – C++ OBJECT ORIENTED PROGRAMMING – 3 credits (2 lecture hours, 3 lab hours)

This course teaches students to apply top-down modular programming techniques to generate computer engineering solutions to common problems in mathematics, science, and engineering. Some of the concepts covered in the course include interactive programming on the microcomputer, arithmetic operations, logical operations, selection and looping, functions, arrays, and inheritance. The C++ language implementation will help students to test and evaluate application techniques. **Prerequisite: MAT125**

CSC118 - Computer Organization Fundamentals - 3 credits, (2 lecture hours, 3 lab hours)

Computer organization is the science and art of selecting and interconnecting hardware components to create a computer that meets functional, performance, and cost goals. This course teaches the fundamentals of computer architecture and organization, including CPU, memory, registers, arithmetic unit, control unit, and input/output components. This course lays the foundation of the latest techniques implemented in current and future high-performance computing platforms for students who continue in computer architecture. At the same time, it gives an overview of the techniques used in today's microprocessors for students not continuing in computer architecture. Topics include reduced instruction set, an interface between assembly and high-level programming constructs and hardware, I/O, and memory cache systems.

Prerequisites: CSC101

CSC211 - Database Fundamentals - 3 credits, 2 lecture hours, 3 lab hours

Developing and managing efficient and effective database applications requires understanding the fundamentals of database management systems, techniques for the design of databases, and principles of database administration. This course introduces the basics of database systems with the emphasis on relational and distributed database system. The course also illustrates concepts and application of the entity relationship diagram as well as the principles and application of normalization. Students will understand the use of structured query language (SQL) to extract information from the database. Topics covered include entity relationship data model, database design, data administration, Structured Query Language, NoSQL, database management, database vulnerabilities and security. **Prerequisites: None**

CSC217 - Computer Architecture - 3 credits (2 lecture and 3 lab hours)

This course provides students with a solid understanding of fundamental architectural techniques used to build today's high-performance processors and systems. The course also highlights the evolution of computer architecture and the factors influencing the design of hardware and software elements of a computer system. Variety of topics in computer architectures will be covered including, x86, ARM architecture, RISC, bus designs, ISA, performance, cache and internal memory, processor control, I/O, parallel processing and multithreading. It also addresses microarchitecture issues such as dynamic instruction scheduling, branch instruction, cache allocation, instruction-level parallelism, fetching, and multicore computing. **Prerequisites: None**

CSC200 – NETWORK INFRASTRUCTURE – 3 credits (2 lecture hours, 3 lab hours)

This course introduces students to network infrastructure design and implementation. Students are exposed to tools needed for networking careers on how networks operate. This course introduces architecture models, protocols, and networking elements – functions needed to support the operations and priorities of companies for small innovative retailers. Students are guided to build simple local area networks (LANs). They also learn IP addressing schemes and foundational network security by performing basic routers and switches configurations. Lectures are supplemented with laboratory work. **Prerequisite: CSC114 or CSC115.**

CSC216 – API DEVELOPMENT AND DESIGN WITH PYTHON – 3 credits (2 lecture, 3 lab hours)

The course covers the data gathering from various sources, including web scraping, web API's, CSV and other structured data files, and databases; data cleansing; using the panda's library for data analysis; regular expressions and other string processing methods; classes and object-oriented programming; and building real-world software applications. Lectures are supplemented with laboratory work. **Prerequisite: CSC116.**

CSC310 – DATA STRUCTURE AND ALGORITHMS - 3 credits (2 lecture, 3 lab hours)

This course presents a conceptual and practical study of structures and algorithms. Students will learn how to use objects and classes and implement object-oriented thinking to solve computer engineering problems. Topics covered are fundamental data structures, algorithms, and abstract data types. Students understand data structures such as arrays, linked lists, stacks, queues, graphs, trees, and algorithms used for list manipulation, graph searches, sorting, searching, and tree traversals. They also understand the implementation of data structures and algorithms in C++ or Python. Lectures are supplemented with laboratory work. **Prerequisite: CSC116, CPE217.**

CSC320 – INFORMATION SECURITY – 3 credits (2 lecture, 3 lab hours)

This course provides an overview of security challenges and strategies of countermeasure in the information systems environment. Topics include the definition of terms, concepts, elements, and goals incorporating industry standards and practices focusing on confidentiality, availability, and integrity aspects of information systems. Students learn about crucial issues for protecting information assets, determining the levels of protection, and responding to security incidents using the latest technologies. Students learn authentication techniques and how to distinguish different types of attacks and malicious codes. Lectures are supplemented with laboratory work. **Prerequisite: CSC114.**

CSC321 – MACHINE LEARNING – 3 credits (2 lecture, 3 lab hours)

This course presents a broad introduction to Machine Learning, the study of computing systems that improve their performance with experience, and discussions of each practical approach. The primary focus of the course is to understand the underlying algorithms used in various learning systems. Students will discuss general issues and present abstract algorithms implemented versions of many of the algorithms used today for machine learning to give a feel for how the systems discussed in class are applied and experimented. **Prerequisite: CSC115**

CSC322 – COMPUTER OPERATING SYSTEMS – 3 credits (2 lecture, 3 lab hours)

This course is an introduction to operating systems (OS) and their functions. It is intended for students with backgrounds in hardware design. The course presents basic operating systems concepts covering storage, memory management, virtual memory management, processor scheduling, processes management, concurrent processes, device management, and networking functions. Some of the current operating systems such as Unix/Linux, Windows, and Android are considered case studies. Lectures are supplemented with laboratory work. **Prerequisite: CSC116**

CSC220 - Principle of Software design - 3 credits, 2 Lecture hours, and 3 Lab hours

This course focuses on techniques for software design in the development of large and complex software systems. The course will balance design principles with an understanding of applying techniques and methods to create successful software systems. Topics covers include software architecture, modeling (including UML), object-oriented design patterns, and processes for carrying out analysis and design. More advanced or recent developments may be included at the instructor's discretion. **Prerequisites: CSC118**

CSC224 - Principle of Data Science - 3 credits, 3 lecture hours

Data science encapsulates the interdisciplinary activities required to create data-centric products and applications that address specific scientific, socio-political, or business questions. It has drawn tremendous attention from academia and industry and is making deep inroads in industry, government, health, and journalism. This course introduces students to the principles of Data Science that underpin vital tools and techniques used to describe and gain insights into the properties of often large and complex datasets. The approach taken in the course will combine the development of mathematical theory with case studies taken from real-world application domains such as communications networks. The case studies will also highlight modern software packages, including R for both statistical computations and the graphical visualization of statistical properties and results. The topics covered include an introduction to R language, fundamental data analysis, primary data visualization, predictive models and training, basic supervised and unsupervised learning models, evaluation measures Prerequisites:: MAT356

CSC325 - Cloud Application Design and Development - 3 credits (3 hours)

This course is about Cloud Application Design and Development following the approach of web-base projects. With each project the student will create a complete client-server application while learning about different aspects of web development. With each project detailed steps to build the software that executes both the client and server sides will be presented. Introductory examples will highlight the techniques and programming concepts that further will be used in the projects. Prerequisites: CSC211, CSD310

CSC326 - Systems Analysis and Design - 3 credits (2 lecture and 3 lab hours)

This course introduces the fundamentals of systems analysis and how they are applied to the development of computer systems for operations in the business environment. Students are introduced to basic systems principles and concepts, logical analysis, design, and modeling of hardware and software systems. This course also examines structured analysis and logical design techniques for stating and analyzing requirements, logical design and specifications of system outputs, inputs, files, and processing. Procedures for system cost and benefit analysis and the life-cycle concept of information system development. Prerequisites: MAT358

CSC330 - Cloud Computing and Networking - 3 credits, 2 lecture hours, 3 lab hours

This course introduces students to the core concepts of cloud computing and networking. Students will gain the fundamental knowledge required to understand cloud networking. The course covers the definition and essential characteristics of cloud computing. The course begins with a general overview of cloud computing, an introduction to prominent services providers (e.g., AWS, Google, IBM, Microsoft etc.), and explains the services they offer. Students will learn about the various cloud service models (IaaS, PaaS, SaaS) and deployment models (Public, Private, Hybrid) and the critical components of cloud infrastructure (VMs, Networking, database, Storage - File, Block, Object, CDN). The course also covers other topics like cloud billing, security and serverless services. Prerequisites: CSC326

CSC335 – FUNDAMENTAL OF COMPUTER NETWORKS – 3 credits (2 lecture, 3 lab hours)

This course is designed for students' understanding of computer networks and data communications. Students are exposed to network topologies and standards that support today's computer network systems and their applications. Some of the topics include networking protocols, Ethernet standards, OSI model, transmitting media, interfaces case study of various Network Operating Systems, Internet Protocols, network management, and network security. Lecture and Laboratory sessions will be run concurrently. No prerequisite

CSC340 – ETHICAL HACKING AND NETWORK DEFENSE – 3 credits (2 lecture, 3 lab hours)

Network security is one of the biggest concerns on every network. Countries are taking the proper precautions in securing Networks from cyber-crime and hackers. This course provides a solid foundation on Network Security and Countermeasures. First, students are introduced to Network Security by developing their skills on how information passes through heterogeneous networks. Students are later exposed to the tools and techniques that are necessary to protect and

secure data. Also, students are introduced to system penetration to check for exploitable network flaws and learn how vulnerable unsecured networks can be an easy target to hackers. Students will also be encouraged to use virtual machines to create safe network security and a countermeasure environment. Lectures will be complemented with laboratory work. Prerequisite: CSC320

CSC341 – DATA MINING AND DATA WAREHOUSE – 3 credits (2 lecture and 3 lab hours)

This course presents a conceptual and practical study of the basic concepts in data mining. Students will learn the fundamental principles of data querying, data analysis, inferential statistics, data classification and then implement solutions to extract meaningful insights from big data. Building upon previous course requirements in coding, students will develop programmatic solutions using Microsoft SQL Server and the Python environment. Lectures will be complemented with laboratory work. Prerequisite: CSC321

CSC350 - Secure Embedded Systems - 3 credits, 2 lecture hours, 3 lab hours

This course examines the foundations of embedded systems using mbed and demonstrates how it can be applied to rapidly-produce successful embedded designs. It also aims to give full support to a reader, moving through a carefully constructed series of concepts designs and exercises. Students will gain the basic knowledge of embedded systems that will enable them to test systems. The course introduces mbed and moves through to digital and analogue I/O, ADC, etc. At the end of the course, students will understand embedded system techniques. Prerequisites: CSC215

CSC352 - Cloud Database Development - 3 credits, 3 lecture hours

This course provides practical technical knowledge of cloud computing, relational databases, NoSQL databases, and Database-as-a-Service (DaaS). It explores the architecture and features of different implementations of cloud databases and discusses their ability to effectively handle scalability and flexibility issues raised by modern applications. Students will get experience performing standard cloud databases management tasks, such as creating and replicating databases, loading and querying data, modifying database permissions, and indexing, aggregating and partitioning data. Prerequisites: CSC210

CSC355: Introduction to Blockchain - 3 credits, 3 lecture hours

This course introduces the technical foundations of the blockchain and its applications to various industries, including finance, computer science, supply chain, smart power grid, and social networking. The course provides students with the required knowledge to research blockchain and basic skills to design smart contracts and implement distributed applications (DAPPs). Students will understand how to set up private blockchain networks. Students will describe Web3 accounts, Ethers, and smart contracts. The course covers the rudiments of Bitcoin blockchain, decentralized database, and security aspects of blockchain. Students will also learn about different standard blockchain platforms e.g., Hyperledger, Ethereum

CSC360 – COMPUTER AND NETWORK FORENSICS – 3 credits (2 lecture, 3 lab hours)

Computer and Network Forensics most called “Digital Forensics” provides a solid foundation of forensics topics to those who have a thorough grounding in computer and networking basics. It will guide the reader toward becoming a skilled digital forensics investigator. Prerequisites: CSC340

CSC361 – DEEP LEARNING – 3 credits (2 lecture, 3 lab hours)

Deep learning examines the foundations of machine learning and neural networks and makes use of TensorFlow to implement its solution. It shows how to manage problems that arises as the networks get deeper. Prerequisites: CSC341

CSC370 - Network Programming - 3 credits, 3 lecture hours

This course exposes students to the world of network programming with Python. Python is a full-featured object-oriented programming language with a standard library that includes everything needed to rapidly build powerful network applications. This course will focus on writing programs for networks that use the Internet protocol suite. Particularly the sets of protocols supported by the Python standard library, the TCP/IP protocol is by far the most widely employable. It contains the principle protocols used by the Internet. Prerequisites: CSC335

CSC372 - Parallel Programming - 3 credits, 3 lecture hours

This course special focus is given on the relationship between hardware architectures and software. Until recently, programmers could rely on the work of the hardware designers, compilers, and chip manufactures to make their software programs faster or more efficient without the need for changes. This era is over. So now, if a program is to run faster, it must become a parallel program. To introduce the concepts of parallel programming, the Python programming language has been adopted in this course. The course will examine the principles of software design for parallel architectures, insisting in the importance of clarity of the

programs and avoiding the use of complex terminology in favor of clear and direct examples. Prerequisites: CSC215, CSC310

CSC374 - Web Design Principles - 3 credits, 3 lecture hours

This course presents some important general information about web design environment, including the various roles, technologies and tools available. HTML, CSS and how the web and web pages generally work will be studied. The Course will also cover the nittygritty of every element and attribute available to give content semantic structure: markup for text, links, images, tables, forms, and embedded media. Cascading Style Sheets for changing the presentation of text to creating multicolumn layouts and even adding time-based animation and interactivity to the page will be covered. Introduction to Responsive Web Design, as well as the tools and techniques that are part of the modern developer's workflow will be studied. Prerequisites: CSC210, CSC216

CSC380 – Cryptography - 3 credits, 2lecture hours, 3 lab hours

Cryptography is becoming increasingly important to enhance security in data storage and communication and various kinds of electronic transactions. This course introduces modern cryptography and communication security. It focuses on how cryptographic algorithms and protocols work and how to use them. This course begins with a detailed discussion of an overview of basic cryptographic concepts. The course covers the concepts of block ciphers and message authentication codes, public-key encryption, digital signatures, critical establishment, and typical examples and uses of such schemes, including the AES, RSA-OAEP, and the Digital Signature Algorithm. Symmetric algorithms, Asymmetric algorithms, Block and stream modes, cryptographic hash functions are covered in the course. Also, students will learn about how cryptography is implemented in network and internet security. Prerequisites: CSC320

CSC382 - Principle of Computer Security - 3 credits, 3 lecture hours,

This course introduces students to computer security fundamentals with a specific focus on the computing aspects. The topics covered include cryptography, software security, access control, O.S. security, secure internet protocols, authentication application, mobile and wireless security, and security auditing and forensics. Students will learn about the history of computer security and common computer threats and vulnerabilities. Students will be exposed to diverse ways of securing computer systems ranging from physical security to access control. Prerequisites: CSC335

CSC384 - Wireless Networks - 3 credits, 3lecture hours

Wireless networks play an increasingly important role in the world of communications. This course introduces various current and next-generation wireless networking technologies and undertakes a detailed exploration of fundamental architectural and design principles used at all layers. The course also covers long-range transmission, LTE and 5G cellular concept, wireless communication, orthogonal frequency division multiplexing, coding and error control, mobile communication system, Wi-Fi and Bluetooth technologies, network protocols, wireless LANs and PANs, and wireless network security Prerequisites: CSC335

CSC385 - Data Analytics - 3 credits (3 Hours)

This course provides students with some of the main concepts used in data science and analytics using tools developed in Python such as Scikit-learn, Pandas, Numpy and others. It also presents a bridge to the data science and analytics world for programmers and developers, as well as to others in scientific areas such as mathematics, physics, computational biology and engineering, to name a few. The course will focus on showing concepts and ideas behind popular algorithms and their use, but it does not get into details of their implementation in Python. It does, however, use open source implementations of those algorithms. Prerequisites: CSC310, MAT356

CSC390 – CYBERSECURITY OPERATIONS – 3 credits (2 lecture, 3 lab hours)

Large enterprises depend heavily on the smooth operation of their network infrastructures. This course focuses on switching technologies and router operations that support small-to-medium business networks, including wireless local area networks (WLAN) and their security concepts. Students will perform basic network configuration and troubleshooting, identify, and mitigate LAN security threats, and configure and secure a basic WLAN. Students will learn to describe the architectures and considerations related to designing, securing, operating, and troubleshooting enterprise networks. It covers wide area network (WAN) technologies and quality of service (QoS), mechanisms used for secure remote access, and the introduction of software-defined networking, virtualization, and automation concepts that support the digitalization of networks. Lectures will be complemented with laboratory work. Prerequisite: CSC200

CSC111 – COMPUTER SCIENCE I – VISUAL BASIC – 3 credits

Introduction to structured programming in the Visual BASIC language. Emphasis is placed on applications to science and technology. The course includes flow charting, variable assignments, conditional looping and input/output statements. Students are required to complete programming projects utilizing the BASIC programming language. CSC111 may be replaced by CSC215 or CSC316 in any program. Prerequisite: Placement or MAT109

CSC210 – ADVANCED COMPUTER APPLICATIONS – 3 credits

An advanced course in document management using Microsoft Office. Topics covered in this course include desktop publishing, outlines, tables, styles and macros, advanced database and worksheet design, multiple table queries, subforms, 3-D workbooks and Solver. PowerPoint presentation graphics and multimedia will be used.

CSC316 – C++ PROGRAMMING – 3 credits

An introduction to object-oriented programming using the C++ language. Topics include C++ syntax, basic input/output, data types, pointers and functions. This course will involve programming exercises intended to increase students' understanding of the use of computers for computation and data manipulation. CSC316 may replace CSC111 in any curriculum. Corequisite: MAT120 or MAT125.

CSC409 - Computer Science Program Degree Project - 3 credits, 3 lecture hours

This project is a capstone for students in Computer Science program. The project should demonstrate applications of the knowledge, techniques, programming, networking, security, and computing skills gained through the curriculum. Students are required to submit a proposal of the project at the beginning of the semester that must be approved by the degree project faculty advisor. At the end of the semester students must submit a complete project report and present a seminar. Prerequisites: Final semester status, CSC220, CSC320, CSC324, CSC335, EGR380

DP209 – AAS DEGREE PROJECT – 2 credits

This project course involves the writing of a report and the construction of a model or device that is of current technical interest. The level of required performance is commensurate with that of the AAS in aeronautical engineering technology degree. Students enrolled in the AAS in aeronautical engineering technology program must complete a project that includes a working model and report that must be approved by the department chair. This course should be taken during the last semester.

DP407 – DEGREE PROJECT – 3 credits

A requirement for graduation for those seeking a bachelor of science degree in aviation maintenance or aviation maintenance management. Each student is required to submit a comprehensive research report and make an oral presentation demonstrating an exceptional level of knowledge in their area of study. This project is prepared to qualify for graduation and must be on an approved technical subject. Students are required to prepare a proposal at the beginning of the semester for approval; a strict timeline will be followed for successful completion. The paper and oral presentation shall be prepared using American Psychological Association (APA) format.

DSG110 – DESIGN, DRAWING AND AESTHETICS – 3 credits

The purpose of this foundation lecture/studio is to provide engineering and technology students with fundamental design, drawing and aesthetic skills. We will explore theories, concepts and ideas related to design, the design process, creative drawing visualization, experimentation, audience and users, visual design principles, aesthetics, concept development, organizational and structural methods and systems, perception and communication. Exercises to develop basic design skills will be done throughout the semester.

DSG245 – 2-D COMPUTER GRAPHICS PHOTOSHOP – 3 credits

This course explores Photoshop possibilities for printing and computer graphics, showing the preparation of images for publishing (print and the World Wide Web), advertising, multimedia and broadcasting. It presents principles for effective graphic design and composition of still and moving images for several software applications, such as 3-D Studio Max, Premiere, Flash, Director and others. Prerequisites: DSG110, DSG110L

DSG246 – IMAGE-READY PHOTOSHOP FOR THE WEB – 3 credits

This course will cover Photoshop design tools and techniques, image capturing, selection and manipulation. It will concentrate on designing with type, creation of logos, animated banners and special visual effects (glows, masks and drop shadows) with special focus on design for the Internet. Students will also learn image optimization for quick web images upload, gif animation and creation of 3-D animated logos for the web through current bandwidth–56k, T1 and DSL. The course will feature lectures with hands-on demonstrations, screening and analysis of samples. Students will be required to complete several assignments and a final project. Given the intensive nature of this course, basic knowledge of Photoshop techniques is helpful. Prerequisite: DSG245, DSG245L

DSG247 – STORYBOARD AND CHARACTER DESIGN – 3 credits

This course includes the concept and development of storytelling through storyboards. Introduction to character design, expressions, motion, styles by drawing on paper, then scanning to computer. Students must complete a storyboard for future modeling and animation classes. Prerequisite: DSG110, DSG110L

DSG250 – 3-D ANIMATION – INTRODUCTION TO 3-D STUDIO MAX – 3 credits

This course covers 3-D design using 3-D Studio Max software. Topics include the main tools: 3-D geometric primitives, Boolean objects, morphing techniques and the materials editor. With the use of camera placements, lighting techniques and surface materials, students will create artistically rendered and photo-realistic 3-D scenes. Introduction to beginning animation techniques will also be covered. Prerequisite: CDE117, CDE117L

DSG260 – ADVANCED ANIMATION 3-D STUDIO MAX – 3 credits

This course covers more advanced rendering and lighting techniques, as well as basic 3-D animation using 3-D Studio Max and Crystal 3-D. Students learn to set up a camera, lenses, dummy objects, motion paths and the use of Video Post. Prerequisite: DSG250, DSG250L.

DSG261 – 3-D GRAPHICS – MODELING MAYA – 3 credits

This course covers more complex 3-D modeling, rendering, lighting and basic animation techniques using Maya software. The focus will be on the creation of more complex 3-D geometry through the use of Boolean, morphed and lofted objects, as well as creating photo realistic scenes. Animating 3-D objects through the use of cameras and motion paths will be covered.

DSG262 – ADVANCED ANIMATION – SPECIAL EFFECTS – 3 credits

This course covers advanced animation using 3-D Studio Max with Particles. Students will learn to create complex animated scenes, warps, distortions, use of plug-ins and special visual effects (explosions, pyrotechnics, rain, snow, etc.) for broadcasting, motion pictures, DVDs and video games. Prerequisites: DSG250, DSG250L, DSG260, DSG260L

DSG263 – DIGITAL VIDEO EDITING – 3 credits

This course offers students the opportunity to learn prepublication and basic digital video editing using Adobe Premiere. It includes production of completed shorts. Emphasis is placed on creating professional videos used in television advertising, broadcasting and the motion picture industry. Prerequisites: DSG245, DSG245L

DSG264 – AUDIO EDITING FOR VIDEO AND MULTIMEDIA – 3 credits

This course offers students the opportunity to learn advanced digital video editing using Adobe Premiere, Ulead Video and A. It includes the production of completed video exercises. Emphasis is placed on creating professional videos used in television advertising, broadcasting and the motion picture industry. Prerequisite: DSG110, DSG110L

DSG265 – INTRODUCTION TO INTERACTIVE MEDIA – 3 credits

This introductory lecture/workshop will explore interactivity as an emerging form of communication in the information age, and provide students with a comprehensive understanding of the uses, theory, production methods, technology and vernacular of interactive media. The students will use current tools (such as Director 7, Photoshop and HTML) and techniques in creating an interactive media project. Commercial multimedia titles, sales and marketing presentations, and websites are analyzed as models. Prerequisites: DSG245, DSG245L

DSG266 – INTRODUCTION TO COMPOSITING – 3 credits

The essence of contemporary advertising, motion pictures, video games and music videos, combining live action scenes with elements (from 3D Max and Maya), using After Effects and plug-ins. Students create scenes using the above tools. Prerequisites: DSG245, DSG263

DSG267 – ANIMATION FOR VIDEO GAMES/BLENDER – 3 credits

This course offers students the opportunity to learn basic animation for video games using Maya models and interactive concepts with Blender technology. A brief introduction to Lingo is included. This course offers students the opportunity to learn interactive techniques for video games with Blender, combining animated models, navigation menus and altitude as well as time play controls. Prerequisites: DSG250, DSG250L

DSG269 – ADVANCED MAYA MODELING AND ANIMATION – 3 credits

This project-based course covers complex model building and rigging for 3-D animation. Students will learn the workflow required to create high-quality models for video games and the product design industries. Course projects will focus on building detailed characters, vehicles and environments. The class objectives include UV texturing, detailing, animation and rendering objects in Mental Ray. At the end of the course, students will have a solid foundation required to build scalable high-resolution models suitable for both next-gen video games and movies. Prerequisites: DSG261, DSG261L

DSG272 – ZBRUSH DIGITAL SCULPTING – 3 credits

Students will learn how to use ZBrush's advanced Pixol technology to create 3-D organic forms, such as animals, human anatomy and hard-surface scene assets. The course will provide special focus on 3-D retopology for animation and game engines. Students will practice vertex-based polypainting, UV coordinate texturing for geometry. Students will use ZBrush to create 16/32-bit displacement maps and the extraction of diffuse, specular and normal maps for production. This course will cover the workflow required for rapid prototype output and print their creations on the Z-Corporation 450 3D printer. The first half of the course covers software use and related theories. The second half employs a project-based approach in which students design and build their character or scene asset.

ECO255 – PRINCIPLES OF ECONOMICS – 3 credits

This first course in economics will begin with basic concepts in Economics and the tools of economic analysis. Topics covered include supply and demand, their determinants and market equilibrium, total output and growth of an economy, employment, inflation and interest rates. The course will finish with an introduction to international economics. Prerequisite: MAT 115.

EET115 – ELECTRICAL CIRCUITS I – 3 credits

This course will cover resistance, Ohm's law, Kirchhoff's laws, networks with DC current and voltage sources; branch current analysis, and mesh and nodal analysis. Topics will also include superposition theorem, Thevenin's and Norton's theorems. Two hours of lecture will be supplemented by a three-hour lab per week.

EET116 – ELECTRICAL CIRCUITS II – 3 credits

This course builds upon EET115 with a review of the application of Thevenin's, Norton's and superposition theorems, and the analysis of AC circuits through sinusoidal waveforms; impedance and phasor quantities. It also includes electromagnetism and electromagnetic induction, inductance and inductors, series and parallel RL circuits, series and parallel RC circuits, transformers, RLC series and parallel circuits. Two hours of lecture will be supplemented by a three-hour lab per week. Prerequisites: EET115, EET115L, MAT115

EET125 – DIGITAL ELECTRONICS – 3 credits

Students will study number systems; Boolean algebra; logic circuits, gates, combinational circuits, flip-flops, sequential circuits, counters, shift register, memory interfacing and introduction to microprocessors. Two hours of lecture will be supplemented by a three-hour lab per week. Prerequisite: EET115, EET115L

EET210 – ELECTRONICS LABORATORY PRACTICES – 2 credits

This course provides an introduction to safe practices to be followed to ensure basic electrical safety in the laboratory. The course also provides the necessary skills in soldering techniques, both on printed circuit boards and on connectors and harnesses with an emphasis on aircraft wiring. The course covers the wiring problems associated with aging aircraft. Crimping techniques used for wiring on aircraft are covered. One hour of classwork will be complemented by three hours of lab work per week. Prerequisites: EET115, EET115L

EET220 – ELECTRONIC CIRCUITS – 3 credits

This course introduces the basic electronic devices and circuits. Topics include diodes, rectifier, filters, voltage regulator, limiter, and clipper/clamper circuits. Basic transistor theory, common emitter, common base and common collector connections, current gain, various biasing techniques of transistor and power amplifier are also covered. Both bipolar and field effect transistors will be discussed. Prerequisite: EET116. EET116L

EET230 – PRINCIPLES OF COMMUNICATION SYSTEMS – 3 credits

Study and analysis of communication principles and systems will be covered. Topics include AM, FM modulation techniques, modulators, demodulators, superheterodyne receiver, mixer, automatic gain control, feedback circuit, voltage control oscillator, phase-locked loop, frequency synthesizer circuits, transmission line and microwave system. Two hours of lecture will be supplemented by a three-hour lab experiment per week. Prerequisites: EET220, EET220L, MAT120

EET325 – PLC PROGRAMMING – 3 credits

This course will cover fundamentals of PLC programming. Topics include introduction to programmable logic controllers (PLCs) and programming languages: Ladder, Function Block Diagram (FBD), Instruction List (IL) and Structured Text (ST), implementation of gates, timers and counters in PLC, and essential concepts of industrial automation using PLC. In laboratory, Simatic manager Step 7 and Siemens 300 PLC will be practiced.

Prerequisite: EET125, EET125L

EET326 – MICROPROCESSORS – 3 credits

Study of microprocessors and microcomputer systems. Topics include: microprocessor architecture, memory and memory interfacing, input/output systems, interrupt processing, microprocessor communications and microprocessor peripherals and interfacing, and assembly language programming. Two hours of lecture will be supplemented by a three-hour lab experiment per week. Prerequisites: EET125, EET125L, EET220, EET220L

EET345 – COMPUTER CONTROL OF INSTRUMENTS – 3 credits

This course covers computer control of electronic instrumentation via Institute of Electrical and Electronics Engineers (IEEE) standard 499 General Purpose Interface Bus for the purpose of data acquisition and its presentation. It also includes an introduction to Lab View programming and its application to the control of instruments. Prerequisites: EET125, EET125L, EET220, EET220L; Corequisite: EET345L

EET350 – CONTROL SYSTEMS – 3 credits

Basic control systems using Laplace transforms will be covered in this course, in addition to principles of electromechanical control systems. Other topics include servomechanism components, operational amplifiers, block diagram algebra, transfer functions, steady state and transient analysis of second order systems, frequency response analysis and bode plots. In addition, moments of inertia and friction are discussed.

Prerequisite: MAT220; corequisite: EET450L

EET355 – ADVANCED MICROPROCESSORS – 3 credits

This course is a study of microprocessors, interfacing and applications. Interfacing basics include concepts of address decoding, three-state buffering, latching and timing. Topics include peripheral interface adapters, serial/parallel communications, memory and programmable timers. Application is made for optical sensing, displays, force sensors and control devices for relays and servers. Prerequisite: EET326, EET326L

EET409 – ELECTRONIC ENGINEERING TECHNOLOGY – ELECTRONIC CONCENTRATION DEGREE PROJECT – 3 credits

This project is a capstone for students enrolled in the electronic engineering technology program. The project should demonstrate applications of the knowledge and technical skills gained through the curriculum. Students must submit a synopsis of the project in the beginning of the semester that must be approved by the faculty advisers. At the end of the semester, students must submit a complete report and present a seminar. Prerequisites: EGR380, EET355, EET355L

EET445 – PRINCIPLES OF COMMUNICATIONS NETWORK – 3 credits

This is an introductory course in data communications, computer communications and networking. Data communications principles and techniques and local metropolitan area networks will be covered. Introduction to protocols, architecture and Internet working will also be given. Prerequisites: EET230, EET230L, MAT445

EET475 – RELIABILITY AND MAINTAINABILITY – 3 credits

This course covers the application of probability theory and statistics to systems with emphasis on reliability and maintainability, engineering, failure reporting and maintenance action. Prerequisite: MAT220

EGR115 – ENGINEERING MECHANICS I – 3 credits

This course is an analysis of forces on engineering structure in equilibrium. Properties of forces, moments, couples and resultants are discussed. Equilibrium conditions, friction, centroids and area moments of inertia are covered. Students receive an introduction to free body diagrams, mathematical modeling and problem solving. Vector methods are used throughout the course. Prerequisites: MAT115, PHY120, PHY120L

EGR210 – THERMODYNAMICS – 3 credits

This course discusses the fundamentals of thermodynamics, which include system concepts, state of equilibrium, processes' properties, Zeroth, first and second laws of thermodynamics, flow and non-flow processes. Carnot cycle and efficiencies of reversible conversions, irreversibility, entropy concepts, ideal gases and use of property tables are also covered. Prerequisites: MAT120, PHY220, PHY220L

EGR215 – ENGINEERINGMECHANICSII – 3 credits

Course content includes rectilinear, curvilinear and dynamic motion, kinetics of rigid bodies, plane motion of rigid bodies and an introduction to mechanical vibrations. Prerequisites: EGR115, MAT120, PHY220, PHY220L

EGR220 – STRENGTHOFMATERIALSI – 3 credits

This course deals with the concept of stress and strain in materials under the action of axial and shearing forces, bending and twisting moments. The course content includes analysis of stress and strain, Hooke's law (stress-strain diagram), thermal stresses, torsion and beam analysis. Prerequisites: EGR115, MAT120

EGR225 – STRENGTHOFMATERIALSII – 3 credits

This course deals with the concept of stress and strain in materials under the action of transverse and combined loadings. This course will cover topics on transformation of stress and strain, principle stresses, beam deflection analysis, statically indeterminate beam analysis, strain energy and Castigliano's theorems for deformation analysis of beam, truss and frame structures. Prerequisites: EGR220, MAT220

EGR230 – MECHANICAL TESTING AND EVALUATION LAB – 1 credit

This laboratory course deals with the mechanical properties of testing and evaluation. The course involves both destructive and nondestructive testing. The object is to test, analyze and understand the important mechanical properties in engineering design. The lab project involves teamwork activities from project development, analysis, testing and report presentation. Prerequisites: EGR235 or MEE235

EGR235 – MATERIAL SCIENCEAND COMPOSITES – 3 credits

This course covers atomic structure, metallurgy, plastic and ceramic materials. Material characteristics related to mechanical properties are emphasized. Composite materials and their application are investigated. Prerequisites: MAT115, PHY120, PHY120L

EGR260 – AERODYNAMICS I – 3 credits

This course introduces the basic principles of gas flow, the properties of air and their relationships to the standard (earth's) atmosphere, thermodynamic relationships, momentum equations, mach number and Reynold's numbers. This course also discusses fundamental aircraft theory, and the elements of lift and drag. Prerequisites: EGR210, PHY220, PHY220L

EGR340 – COMPUTATIONAL METHODS IN ENGINEERING – 3 credits

Topics covered are numerical analysis, finite difference approximation, matrix inversion methods, and implicit and explicit procedures. The course will feature analytical and numerical solutions to the differential equation of a physical problem, roots determination and application to the engineering systems, estimating first and higher derivatives using Taylor series expansion together with finite-difference techniques, finite-difference numerical solution to the governing equation of an engineering system, numerical integration and solution to the systems of linear algebraic equations with application to the engineering problems. The course will utilize MATLAB. Prerequisites: EGR220, MAT220

EGR345 – FLUID MECHANICS – 3 credits

The principles of fluid mechanics will be applied to various fluid systems. Topics covered include the flow of fluids in pipes, dimensional analysis, energy loss and addition, laminar and turbulent viscous flows, and friction and area change losses in piping systems. The course also includes computer applications. Prerequisites: EGR210, MAT220

EGR350 – MECHANICAL VIBRATIONS – 3 credits

This course is the study of free and forced vibrations of single- and multiple-degree of freedom systems with and without damping, vibration isolation and absorbers, resonance phenomenon, introduction to the vibration of continuous systems, and mechanical and electrical models of vibrating systems. Prerequisites: EGR215, EGR225, MAT445

EGR355 – RELIABILITY METHODS IN STRUCTURAL MECHANICS – 3 credits

The purpose of this course is to introduce the concepts of the theory of structural reliability and the reliability-based design formats. The tools needed in the course are probability, statistics and basic mechanics (statics, dynamics and strength of materials). Students are expected to have working knowledge of differential and integral calculus as well as basic mechanics. Upon completion of this course, students will be expected to be able to perform statistical load analysis and strength analysis, as well as to solve structural reliability problems, including design and safety checking under quasistatic loads. Prerequisites: EGR225, MAT220; *spring offering only*

EGR360 – AERODYNAMICS II – 3 credits

This course is a continuation of EGR260 Aerodynamics I and includes basic compressible flow theory. The subject matter includes inviscid compressible flow, shock and expansion waves, one-dimensional flow theory, wing theory, principles of stability and control, and aircraft propulsion. Prerequisite: EGR260

EGR365 – ELEMENTS OF MACHINE DESIGN AND KINEMATICS – 3 credits

This introductory course utilizes the principles of statics, dynamics and strength of materials in the design of machine elements such as gears, shafts, bearings, springs, clutches and brakes. Topics covered include fatigue, theory of failure, dynamic loading conditions, fasteners, and the kinematic motion and control of machine parts and linkages by use of graphical, analytical and computer methods. Prerequisite: EGR215, EGR225; *fall offering only*

EGR370 – FINITE ELEMENT ANALYSIS WITH MATLAB – 3 credits

This course deals with finite element modeling and analysis of engineering systems and analytical solution based on strain energy method. Topics covered include calculus of variation, derivation of Euler equations for the bar, heat transfer and beam-type problems. In this introductory course, students will learn about one-dimensional finite element modeling and analysis of rod, truss and heat transfer-type problems. Students will also learn to apply calculus of variation in developing finite element formulation for the beam-type problems. This course will feature the use of MATLAB in modeling and solving engineering problems. Prerequisite: EGR340

EGR375 – THERMO-FLUID LABORATORY – 1 credit

The course is designed to illustrate the main concepts and theories of the area of thermodynamics, fluid mechanics using applications in aerodynamics, heat transfer and hydrodynamics. The course will cover topics such as error propagation, statistical analysis, flow measurements techniques, and data acquisition equipment. The experiments included are heat exchanger using free and forced convection, wind tunnel experiments such as Bernoulli's equation, flow over flat plate, and drag experiments over different geometries, and hydrostatic experiments. In this class, student will develop the skills needed to write professional reports and to interpret and present experimental data. Prerequisite: EGR210 or MEE210, EGR345 or MEE345

EGR380 – ENGINEERING PROJECT MANAGEMENT – 3 credits

This course deals with the process of managing, allocating and timing resources to achieve a given goal in an efficient and expedient manner. Exposure to real-world problems through case studies and other tools used to motivate personnel and to track progress of projects will be discussed. In addition to the book materials, Microsoft Project will be utilized for class exercises. Topics include: Work Breakdown Structure (WBS), Gantt Charts, Critical Path Method and Critical Chain Project Management (CCPM). Prerequisite: MAT220 or MAT225

EGR440 – HEAT TRANSFER – 3 credits

This course discusses the principles of heat transfer. Included is a discussion of conduction, convection, radiation and heat exchangers. Computer applications are also covered. Prerequisites: EGR210, MAT220

EGR450 – AIRCRAFT CONFIGURATION DESIGN – 2 credits

Given a specification for a small, two-engine turboprop-type airplane, the student develops its overall configuration. Characteristics include fuselage, propulsion system, wing and high-lift devices, tail surfaces, landing gear arrangements, and weight and balance limitations. This is then adapted to a specified mission profile, all in conformance with the appropriate regulatory airworthiness and operational criteria. Lectures are supplemented with laboratory work.

Prerequisites: CDE117, CDE117L, EGT210 or MEE210

EGR455 – AIRCRAFT STRUCTURAL ANALYSIS – 3 credits

In this course, an attempt is made to emphasize basic structural theory related to the aircraft design. Heavy emphasis is placed on the application of the elementary principles of mechanics to the analysis of aircraft structures. This course will cover topics on shear and bending stresses, spanwise air-load distribution, external load on the airplane, joints and fittings, design of members in tension, bending and torsion, design of webs in shear and deflections of structures. Prerequisites: EGR225, EGR340

EGR460 – ENGINEERING ECONOMICS – 3 credits

Economic aspects of engineering design, construction and operation are covered. Selection among several alternatives, including annual cost, present worth and rate of return, are some of the methods of analysis discussed. Economic life and replacement are covered. Prerequisite: MAT220 or MAT225

EGR470 – QUALITY CONTROL – 3 credits

A basic course in industrial inspection methods, the use of gauges, electronic and optical comparators, statistical analysis of mass produced items and the use of control charts to detect changes in process. Other topics covered are the setting of control limits and lot sizes for sampling, sampling by variables and attributes, percent prediction of probable defects in a monitored process, production control and production reliability. Prerequisite: MAT356

EGR489 – PATRAN-NASTRAN ANALYSIS – 3 credits

This course is presented as an introductory course for new PATRAN users. This course deals with finite element modeling and analysis of engineering systems. Students will master the basic skills required to use PATRAN-NASTRAN in mechanical engineering application. The course emphasizes practical skills development through comprehensive, hands-on laboratory sessions. Students will become familiar with and learn to build analysis models using PATRAN with one-dimensional (rod, truss, beam and frame), two-dimensional (tension plate) and three dimensional (solid objects) finite element modeling and analysis of engineering systems and components.

Prerequisites: CDE117, CDE117L, EGR225 or MEE220

ELE117 – DC/AC CIRCUITS – 3 credits; 2 credit lecture and 1 credit lab/3 contact lab hours

This course covers DC and AC sinusoidal circuit analysis, including resistive, capacitive and inductive circuit elements, independent sources, and the ideal transformer, using Thevenin's and Norton's theorems.

Two-hour lectures are supplemented by a three-hour lab per week. Prerequisite: MAT125

ELE118 – ELECTRIC CIRCUITS II – 2 Credits, 1 credit lecture and 1 credit lab/3 contact lab hours

Course focused on more advanced topics on circuit analysis. Topics include: transient analysis of first-order and second-order circuits; passive filters; AC power analysis; poly-phase AC circuits; balanced and unbalanced circuits; magnetically coupled circuits; transformers and two-port circuits. One-hour lecture is supplemented by a three-hour lab per week. Prerequisites: ELE117, ELE117L

ELE220 – ELECTRONIC CIRCUITS – 3 credits; 2 credit lecture and 1 credit lab/3 contact lab hours

This course covers basic electronic devices and circuits. Topics include diodes, rectifiers, filters and regulators. Basic transistor theory, biasing, gain and power amplifiers. Both bipolar and field effect transistors will also be analyzed. Introduction to basic logic gate circuits will be included. Prerequisite: ELE117, ELE117L

ELE230 – DIGITAL SYSTEMS DESIGN – 3 credits; 2 credit lecture and 1 credit lab/3 contact lab hours

This course covers number systems, Boolean algebra, logic circuits, gates and combinational circuits. Flip-flops,

sequential circuits, counters, shift registers, memory interfacing and introduction to microprocessors. Prerequisite, ELE117, ELE117L

ELE320 – LINEAR SYSTEM ANALYSIS – 3 credits, 2 credits lecture and 1 credit lab/3 contact lab hours

This course covers first and second order circuits, Laplace Transform, s-domain circuit analysis, network functions, Fourier series and Fourier Transform, Parseval Theorem as well as basic concepts of feedback systems and modeling of linear systems. Two-hour lectures are supplemented by a three-hour lab per week. Prerequisites: MAT325. Corequisite: ELE320, ELE320L

ELE322 – SIGNAL AND SYSTEMS – 3 credits lecture

Study and modeling of electromechanical components and systems. Characterizes linear systems by impulse response, convolution, correlation, and transfer function. Study of continuous and discrete signals including filters and their effects. Examines transform methods such as Fourier series and transforms, FFT, Laplace transforms and Z transforms via MATLAB simulation environment. Prerequisites: ELE320, ELE320L, MEE340.

ELE323 – ELECTROMAGNETISM – 3 credits lecture

Course Description: Vector description of the electric and magnetic properties of free space (using the laws of Coulomb, Ampere, and Faraday). Maxwell's electromagnetic field equations. Wave propagation in unbounded regions, reflection and refraction of waves, and transmission lines and antennas. Prerequisite: MAT330, PHY225.

ELE325 – ELECTRIC MACHINES – 3 credits, 2 credits lecture and 1 credit lab/3 contact lab hours

Course focused on the basic principles of operation and analysis of electrical machines and drives, under different operation conditions and models. Topics include DC motors, AC motors: universal motors; single phase; asynchronous and synchronous motors and generators; three-phase multifunction machines. Prerequisite: ELE323

ELE326 – MICROPROCESSORS – 3 credits; 2 credits lecture and 1 credit lab/3

This course is the study of microprocessors and micro-computer systems. Topics include: microprocessor architecture, memory and memory interfacing input/output systems, interrupt processing, microprocessor communications and microprocessor peripherals, and interfacing and embedded C programming. Two hours of lecture will be supplemented by a three-hour lab per week. Prerequisites: ELE230, ELE230L, CSC316

ELE330 – PRINCIPLES OF COMMUNICATION SYSTEMS – 3 credits, 2 credits lecture and 1 credit lab/3 contact lab hours

Study and analysis of communication principles and systems will be covered. Topics include AM, FM modulation techniques, modulator, demodulators, superheterodyne receiver, mixer, automatic gain control, feedback circuit, voltage control oscillator, phase locked loop, frequency synthesizer circuits, transmission line and microwave system. Two hours of lecture will be supplemented by a three-hour lab experiment per week. Prerequisites: ELE220, ELE220L, MAT225

ELE350 – CONTROL SYSTEMS – 3 credits; 2 credits lecture and 1 credit lab/3

This course provides a foundation in continuous-time linear control system analysis and design. Topics will include modeling dynamic systems, system transfer functions, transient response and frequency response, stability, control system design methods in both time and frequency domains. Prerequisites: MAT325, MEE340

ELE355 – MICROPROCESSOR SYSTEM DESIGN AND INTERFACING – 3 credits, 2 credits lecture and 1 credit lab/3 contact lab hours

This course is a study of microprocessors, interfacing and applications. Interfacing basics include concepts of address decoding, three-state buffering, latching and timing. Topics include peripheral interface adapters, serial/parallel communications, memory and programmable timers. Application is made for optical sensing, displays, communications and control devices. Prerequisites and Corequisites: ELE326, ELE326L.

ELE375 – ENGINEERING RELIABILITY – 3 credits

This course covers the application of probability theory and statistics to systems with emphasis on reliability and maintainability, engineering, failure reporting and maintenance action. Prerequisites: MAT356.

ELE401 – EE PRE-CAPSTONE PROJECT – 1 credit

This course prepares senior electrical engineering students for their capstone degree project. In this course, students begin working on their capstone degree project by studying the engineering design process and learning about professional topics related to the engineering industry. Topics in the engineering design process include customer needs identification, project concept generation and selection, engineering specifications, costs and project planning. Professional topics include communication, teamwork, ethics, safety, sustainability, globalization and engineering economics. Students work in a team to develop a project topic, specifications and a project plan, perform background research necessary to fully understand the project and the problem solving approach. Students are evaluated on their proposal report and presentation skills, as well as their ability to function as a team. Prerequisites and Corequisites: Seven semester standing. Prerequisite One semester prior to ELE409

ELE409 – EE CAPSTONE DEGREE PROJECT – 3 credits

This project is a capstone project for students enrolled in electrical engineering program. The project should demonstrate applications of the knowledge and technical skills gained throughout the curriculum. Students are required to submit a synopsis of the project in the beginning of the semester that must be approved by the department chair. At the end of the semester students must submit a complete project report and present a seminar. Prerequisites: final semester status, ELE401, ELE330, ELE330L, ELE450, ELE450L, ELE451, ELE451L, EGR380.

ELE450 – DATA ACQUISITION AND APPLIED CONTROL SYSTEM DESIGN – 3 credits; 2 credits lecture and 1 credit lab/3 contact lab hours

This course covers electronic instrumentation for the purpose of data acquisition and control. Matlab/Simulink and relevant hardware interface tools will be used to implement the control panel and functions of electronic instruments. Applied control system designs using the measurements for real-time processes will be studied. Prerequisites: ELE326, ELE326L, ELE350, ELE350L

ELE451 – POWER ELECTRONICS – 2 credits; 1 credit lecture, 1 credit lab-3 contact lab hours

Course examines the application of solid-state electronic devices for electric energy conversion and control. Topics include modeling, analysis and control techniques; power circuits design, AC to DC rectifiers; DC to AC inverters; DC to DC and AC to AC converters. Prerequisite: ELE220, ELE220L

ELE452 – INTRODUCTION TO POWER SYSTEMS – 2 credits; 1 credit lecture, 1 credit lab-3 contact lab hours

Electro-mechanical energy conversion, torque, AC and DC rotating machines, and transformers; basic analysis of power generation and distribution systems. **Prerequisite:** ELE325.

ELE453 – TRANSMISSION AND DISTRIBUTION – 2 credits; 1 credit lecture, 1 credit lab-3 contact lab hours

This course is an introduction to the principle of electric power transmission and distribution. Students will learn the design, operation, maintenance and topology structure of subsystems that carry electricity from generating sources. It also covers high voltage equipment protection and distribution from the grid. Renewable energy transmission systems and integration to the power grid. **Prerequisite:** ELE325.

ELE454 – INTRODUCTION TO ELECTRIC POWER SYSTEMS – 3 credits, 2 credits lecture and 1 credit lab/3 contact lab hours

This technical elective course will provide an introductory view to the field of electric power systems. Students will learn about the components, the theory behind the design and analysis of power systems as well about the type of faults that these systems can experienced. Protection, and control schemes will also be discussed. Prerequisite: ELE117, ELE117L, MAT325

ELE462 – ADVANCED DIGITAL DESIGN – 3 credits

This course deals with the design implementation and testing of digital systems using field programmable gate arrays (FPGAs). Topics include combinational logic technologies; multilevel logic synthesis, sequential logic

design; basic computer architectures; design fundamentals and techniques using FPGAs; timing and hazards in digital logic; finite state machine optimization and state assignment, VHDL. This is an elective course for the mechatronic engineering program. Prerequisites: ELE230, ELE230L, ELE326, ELE326L

ENG108 – BASIC SKILLS IN READING AND WRITING – 3 equivalent hours

See Basic Skills Courses

ENG109 – INTRODUCTION TO COLLEGE WRITING – 3 equivalent hours

See Basic Skills Courses

ENG109L – INTRODUCTION TO COLLEGE WRITING LABORATORY

ENG110 – ENGLISH I – 3 credits

As the first college-level writing course, this class prepares students to write the full essay required in college coursework. Through the analysis of primarily non-fiction essays students learn how to consider audience, voice and purpose across the curriculum. Prerequisite: Placement or ENG108, ENG108L. Corequisite: ENG109L

ENG120 – ENGLISH II – 3 credits

This course, as a continuation of ENG110, furthers close reading and analysis of texts through the study of culturally diverse works of literature including poetry, drama and the short story. Students will review how to document sources in the Modern Language Association (MLA) style. Prerequisite: ENG110

ENG210 – WORLD LITERATURE – 3 credits

This comprehensive survey course integrates the literary classics of the world, from ancient Greece through the contemporary period, with their historical and cultural backgrounds, including examination of major literary figures and their works. Prerequisite: ENG120

ENG220 – AMERICAN LITERATURE – 3 credits

This course deals with the historical background and development of American writing and the relation of this heritage to a selection of 19th- and 20th-century authors. Formal papers are required of the student. Prerequisite: ENG120

ENG240 – TECHNICAL WRITING – 3 credits

This course provides practice in the techniques of gathering, organizing and presenting information in the appropriate technical and business formats. Prerequisite: ENG120

ENG290 – PUBLIC SPEAKING – 3 credits

This course gives the student an opportunity to design, organize and practice several aspects of public speaking. It covers methods for informing, arguing and persuading, while it emphasizes self-presentation, focused on the needs of the audience and the use of illustrative materials. Prerequisite: ENG110

FLT101 – GENERAL AERONAUTICS I – 3 credits

This course covers the first half of the Private Pilot curriculum. Topics include aeronautical decision making, airplane systems and instruments, aerodynamics, the National Airspace System, sources of flight information, and Federal Aviation Regulations. A grade of C or higher is required to complete this course. All students taking this course will utilize five hours of simulator lab time to enhance the Private Pilot/ATC curriculum. An additional fee may be charged for FAA test preparation software. A Class II medical certificate and financial counseling is required for students in the Aircraft Operations program. FAA RATP Qualified Co-requisite: FLT 101L and FLT101A

FLT101AS – GENERAL AERONAUTICS I – 3 credits

This course covers the first half of the Private Pilot curriculum. Topics include aeronautical decision making, airplane systems and instruments, aerodynamics, the National Airspace System, sources of flight information, and Federal Aviation Regulations. A grade of C or higher is required to complete this course. All students taking this course will utilize five hours of simulator lab time to enhance the Private Pilot/ATC curriculum. Co-requisite: FLT 101ASL

FLT102AS - GENERAL AERONAUTICS II – 3 credits

This course covers the second half of the Private Pilot curriculum. Topics include weather theory and forecasting, performance calculations, navigation systems, cross-country flight planning, and applied human factors. A grade of C or higher is required to complete this course. Unused simulator lab time from FLT 101ASL shall be completed during FLT 102ASL. Pre-requisites: FLT 101AS Co-requisite: FLT 102ASL

FLT120AS – INTERMEDIATE AERONAUTICS – 4 credits

This course covers instrument pilot operations required to safely and accurately operate an airplane under Instrument Flight Rules (IFR) within the National Airspace System. It includes a study of the operation of airplane flight instruments and navigation equipment, meteorology, Federal Aviation Regulations pertinent to instrument flight, air traffic control procedures, flight physiology and instrument approach procedures. A grade of “C” or better is required to complete this course. In addition, as part of a laboratory experience, students are required to take five hours of simulator training. THIS COURSE IS NOT PART 141 QUALIFIED. Prerequisites: A grade of C or better in FLT102AS. Co-requisite: FLT 120ASL

FLT330AS – ADVANCED AERONAUTICS – 3 credits

This course covers federal regulations and operations pertaining to the duties of a commercial pilot. Principles of advanced flight maneuvers and procedures required to meet Federal Aviation Administration (FAA) standards are included. A grade of “C” or better is required to pass this course. THIS COURSE IS NOT PART 141 QUALIFIED. Prerequisite: A grade of C or better in FLT120AS, Co-requisite: FLT 330ASL

FLT101L- PRIVATE GROUND SIMULATOR TRAINING - 0 Lab Credit Hours

This course covers 3 hours of aircraft simulator lab time to enhance and familiarize the student with the private pilot curriculum. Flight simulator lessons are a supplement to the ground class. LAB fees apply. Co-requisite: FLT101, FLT101A

FLT102L- PRIVATE GROUND SIMULATOR TRAINING – 0 Lab Credit Hours

This course covers 3 hours of aircraft simulator lab time to enhance and familiarize the student with the private pilot curriculum. Flight simulator lessons are a supplement to the ground class. LAB fees apply. Pre-Requisite: FLT101, FLT101L, FLT101A. Co-requisite: FLT102, FLT101B

FLT101A – PRIVATE PILOT STAGE I FLIGHT – 0 Lab Credit Hours

This course is the first of three sequential flight training courses that include the requisite aircraft and simulator training and experience required for the FAA Private Pilot License. Students are required to complete Stage I Flight at our FAA Approved Partner Flight School. Flight School certifies as to successful completion of Stage I Flight. Flight Fees Apply. Co-requisite: FLT101, FLT101L

FLT101B - PRIVATE PILOT STAGE II FLIGHT – 0 Lab Credit Hours

This course is the second of three sequential flight training courses that include the requisite aircraft and simulator training and experience required for the FAA Private Pilot License. Students are required to complete Stage II Flight at our FAA Approved Partner Flight School. Flight School certifies as to successful completion of Stage II Flight. Pre-Requisite: FLT101, FLT101L, FLT101A, Co-requisite: FLT102, FLT102L

FLT101C - PRIVATE PILOT STAGE III FLIGHT – 0 Lab Credit Hours

This course is the third and final of three sequential flight training courses that include the requisite aircraft and simulator training and experience required for the FAA Private Pilot License. Students are required to complete Stage III Flight at our FAA Approved Partner Flight School with Private Pilot Certification. Flight School certifies as to successful completion of Stage III Flight with the required Private Pilot License certification by an FAA DPE. Pre-Requisite: FLT102, FLT102L, FLT101B

FLT120L- INSTRUMENT GROUND SIMULATOR TRAINING – 0 Lab Credit Hours

This course covers 5 hours of aircraft simulator lab time to enhance and familiarize the student with the Instrument rating curriculum. Flight simulator lessons are a supplement to the ground class. LAB fees apply.

Pre-Requisite: FLT102, FLT102L, FLT101C, Co-requisite: FLT120, FLT120A

FLT120A – INSTRUMENT STAGE I FLIGHT – 0 Lab Credit Hours

This course is the first of two sequential flight training courses that include the requisite instrument and simulator training and experience required for the FAA Instrument Rating. Students are required to complete Stage I Instrument Flight at our FAA Approved Partner Flight School. Flight School certifies as to successful completion of Stage I Flight. Flight Fees Apply. Pre-Requisite: FLT102, FLT102L, FLT101C, Co-requisite: FLT120, FLT120L

FLT120B – INSTRUMENT STAGE II & III F – 0 Lab Credit Hours

This course is the second of the sequential flight training courses that include the requisite Instrument and simulator training and experience required for the FAA Instrument Rating. Students are required to complete Stage II AND Stage III Instrument Flight at our FAA Approved Partner Flight School. Flight School certifies as to successful completion of Stage II AND Stage III Instrument Flight with the required Instrument Rating certification by an FAA DPE.

Pre-Requisite: FLT120, FLT120L FLT120A, Co-requisite: None

FLT330A –COMMERCIAL STAGE I FLIGHT – 0 Lab Credit Hours

This course is the first of three sequential flight training courses that include the requisite Commercial and simulator training and experience required for the FAA Commercial License. Students are required to complete Stage I Commercial Flight at our FAA Approved Partner Flight School. Flight School certifies as to successful completion of Stage I Commercial Flight. Flight Fees Apply. Pre-Requisite: FLT120, FLT120L FLT120B, Co-requisite: FLT330, FLT330L

FLT330B - COMMERCIAL STAGE II FLIGHT – 0 Lab Credit Hours

This course is the second of three sequential flight training courses that include the requisite **Commercial** and simulator training and experience required for the FAA Commercial License. Students are required to complete Stage II **Commercial** Flight at our FAA Approved Partner Flight School. Flight School certifies as to successful completion of Stage II **Commercial** Flight. Pre-Requisite: FLT330, FLT330L, FLT330A, Co-requisite: None

FLT330C - COMMERCIAL STAGE III FLIGHT – 0 Lab Credit Hours

This course is the third and final of three sequential flight training courses that include the requisite **Commercial** and simulator training and experience required for the FAA **Commercial** License. Students are required to complete Stage III **Commercial** Flight at our FAA Approved Partner Flight School with **Commercial License** Certification. Flight School certifies as to successful completion of Stage III **Commercial** Flight with the required **Commercial** License certification by an FAA DPE. Pre-Requisite: FLT330B, Co-requisite: None

FLT475A – MULTI ENGINE ADD-ON (ME) FLIGHT – 0 Lab Credit Hours

This course is the flight training courses that include the requisite **ME Flight and Ground** training and experience required for the FAA **ME Rating**. Students are required to complete ME Flight and Ground at our FAA Approved Partner Flight School. Flight School certifies as to successful completion of ME with the required **ME** certification by an FAA DPE. Flight Fees Apply. Pre-Requisite: FLT330, FLT330L, FLT330C, FLT360, FLT360L, Co-requisite: None

FLT490 - AVIATION CAPSTONE - 3 Credit Hour(s)

The Aviation Capstone Course is a culminating effort of the entire learning experience for the student in the School of Aviation. The goal of the capstone is to provide students with an industry-centered educational experience. The course will expose students to real-world problems, constraints, and performance issues faced across a wide variety of aviation-oriented disciplines. The course will also require students to develop, and tests essential skills required in the aviation industry. Students will seamlessly merge a worldview into practical applications within the aviation industry. Pre-Requisite: Senior Status, All Licenses completed, and the last course taken in an Aviation Degree

FLT102 - GENERAL AERONAUTICS II – 3 credits

This course covers the second half of the Private Pilot curriculum. Topics include weather theory and forecasting, performance calculations, navigation systems, cross-country flight planning, and applied human factors. A grade of

C or higher is required to complete this course. Unused simulator lab time from FLT 101L shall be completed during FLT 102L. Financial counseling is required for students in the Aircraft Operations program as well as a Class II medical certificate. FAA RATP Qualified. Co-requisite: FLT 102L and FLT101B Prerequisite: FLT101, FLT 101L and FLT 101A

FLT102L- PRIVATE GROUND SIMULATOR TRAINING – 0 credits

This course covers 3 hours of aircraft simulator lab time to enhance and familiarize the student with the private pilot curriculum. Flight simulator lessons are a supplement to the ground class. LAB fees apply. Co-requisite: FLT101, FLT101A

FLT111 – GENERAL AERONAUTICS FLIGHT REVIEW – 1 credit

The flight review course will include the review and evaluation of students' flight operations during general flight training. Explanation and discussion of specific tasks, procedures and maneuvers, in which pilot competency must be obtained and demonstrated as per Airman Certification Standards (ACS), will be conducted on an individual basis. A prerequisite for this course is the FAA Private Pilot Certificate. Students must present their certificate to their instructor which will be scanned and saved as part of their Vaughn academic record. In addition, students will complete a simulator flight review. A simulator lab fee is required. FAA RATP Qualified Prerequisite: FAA Private Pilot Certificate

FLT120 – INTERMEDIATE AERONAUTICS – 4 credits

This course covers instrument pilot operations required to safely and accurately operate an airplane under Instrument Flight Rules (IFR) within the National Airspace System. It includes a study of the operation of airplane flight instruments and navigation equipment, meteorology, Federal Aviation Regulations pertinent to instrument flight, air traffic control procedures, flight physiology and instrument approach procedures. The course also includes preparation for the Federal Aviation Administration (FAA) instrument rating written examination. It is recommended that students also complete the FAA instrument instructor knowledge examination. A grade of "B" or better is required to complete this course as well as 80% on the Stage/EOC exams along with mandatory attendance requirements. The Flight Instructor will evaluate student knowledge during the flight phase and authorize the student to take the written exam. In addition, as part of a laboratory experience, students are required to take five hours of simulator training and additional training to prepare for the FAA written exam as needed. FAA RATP Qualified. Prerequisites FLT102, FLT102L, FLT101C Co-requisite: FLT120L and FLT120A

FLT 121 – INTERMEDIATE AERONAUTICS FLIGHT REVIEW – 1 credit

The instrument flight course will focus on the students' knowledge related to the actions and tasks in the instrument phases of flight training. The instructor will aid the students in advancing their flight knowledge and skills by sole reference to aircraft instrument systems and operations in the National Airspace System of electronic navigation. On an individual basis, students' flight activity will be evaluated according to the current published FAA airman certification standards (ACS) for the instrument pilot rating. A prerequisite for this course is the FAA Private Pilot with Instrument Rating Certificate. As a requirement for the completion of this course, students must present their certificate to their instructor which will be scanned and saved as part of their Vaughn academic record. In addition, students will complete a simulator flight review. A simulator lab fee is required. FAA RATP Qualified. Prerequisites: FLT111 and Instrument Rating.

FLT330L – ADVANCED AERONAUTICS SIMULATOR – 2 credits

The intermediate aeronautics lab concentrates on operations of an airplane under Instrument Flight Rules (IFR). Students will utilize their IFR flying skills in the College's flight simulator (10 hours). Prerequisites: FLT120, FLT120L, FLT120B; simulator fee is required. FAA RATP Qualified. Note this course was previously numbered FLT 221. The contents of the course have not changed.

FLT230 – AVIATION WEATHER – 3 credits

Multiple phases of meteorology are examined and applied by students. Principles of meteorology, familiarization with preflight weather briefings, enroute weather reports and weather hazards are studied, preparing students for flight applications. The laboratory portion ensures that the use of Aviation Digital Data Service (ADDS) is completely integrated in flight plan preparation by using weather maps and forecasts. This course, and ATC200 and lab, can be taken as a basic science elective. Students in the AT-CTI program must take a different section of the weather course, ATC220 and Lab, ATC Weather. FAA RATP Qualified

FLT240 – ADVANCED AIRCRAFT SYSTEMS (FLIGHT) – 3 credits

This course discusses the theory and operation of aircraft systems. Topics include heating ventilation and air conditioning, oxygen and pressurization, fire detection, anti-icing and deicing, pilot static system, instruments and fuel system. There is also a comprehensive study of engine operations, performance and systems, required maintenance records and manufacturers' service information. FAA RATP Qualified. Prerequisite: FLT330, FLT330L FLT360

FLT241 – AVIATION SAFETY – 3 credits

This course will introduce students to concepts of aviation safety as well as practical methods of maintaining safety. Students will gain factual and conceptual knowledge to conduct current and future aviation operations in a professional and safe manner. The role of safety programs in management is also discussed. FAA RATP Qualified

FLT241L – AVIATION SAFETY PROGRAM LABORATORY – 1 credit

This course is designed for students to practice all the safety investigation, analysis, decision making, reporting and education discussed in FLT241 safety programs. This laboratory is facilitated by an industry expert experienced in the operation of an air carrier, airport or aviation union safety program. The practical exercises are derived from actual reports submitted to the Vaughn College Safety Management System (SMS), or from incidents described in the Aircraft Owners and Pilots (AOPA) safety reporting system. Class members will work on the data and presentations for the Vaughn SMS, so students are limited to 10 per semester, and will be recommended by their FLT241 instructor. This lab course requires three hours interaction with instructor per week. Prerequisite: FLT241.

FLT250 – AVIATION SYSTEM INTRODUCTION – 3 credits

Provides a deep technical orientation to the national flight and air traffic control systems. This course is suitable for airport and airline management, engineering and students considering education in the Air Traffic Control or Aircraft Operations career fields. Orientation in flight is equivalent to information up to the Commercial level, but does not include operation of aircraft or simulators, and does not require completion of FAA written exams at the Private Pilot, Instrument, or Commercial level. Air Traffic Control information presented covers the ATC-200 and ATC-240 level, but does not include any of the simulation or FAA examination practice courses. No prerequisites, lab, testing or simulator fees. FAA RATP Qualified

FLT330 – ADVANCED AERONAUTICS – 3 credits

This course covers federal regulations and operations pertaining to the duties of a commercial pilot. Principles of advanced flight maneuvers and procedures required to meet Federal Aviation Administration (FAA) standards are included. Preparation for FAA commercial pilot written exam is included. A grade of “C” or better is required to pass this course. This written exam is also required before one applies to take the FAA practical exam. FAA RATP Qualified Prerequisite: Prerequisite: FLT120, FLT120L, FLT120B Corequisite: FLT330L, FLT330A

FLT331 – ADVANCED AERONAUTICS FLIGHT REVIEW – 1 credit

The commercial pilot flight lab will focus on those pilot operations required of a commercial pilot, including advanced flight maneuvers and techniques used to develop precision flying skills and instrument flight proficiency, cross-country flight (IFR and VFR), resource management (single- and multi-pilot), accident causes and prevention, safety management systems awareness and pilot continuing education. On an individual basis, students’ flight activity will be evaluated following the current FAA Airman Certification Standards (ACS). A prerequisite for this course is the FAA commercial pilot certificate. As a requirement for the completion of this course, students must present their certificate to their instructor which will be scanned and saved as part of their Vaughn academic record. In addition, students will complete a flight simulator review. A simulator lab fee is required. FAA RATP Qualified. Prerequisites: FLT111, FLT121, passed Class I FAA Medical, FAA Private Pilot Certificate, Instrument Rating and Commercial Pilot Certificate.

FLT345 – HUMAN FACTORS – 3 credits

Students will be introduced to basic human factor issues for pilots. This course explores applications of understanding of human behavior and physiology to the design, evaluation, operation and maintenance of aviation systems in order to improve efficiency and safety. In addition, each student will conduct a human factors research project. FAA RATP Qualified

FLT360 – MULTI-ENGINE OPERATIONS – 3 credits

This course will focus on multi-engine operations, including relevant terminology, aerodynamics, systems, performance, engine out and instrument operations required to pass the Federal Aviation Administration's (FAA) multi-engine rating. Emphasis on pilot techniques and scenarios in emergencies using crew resource management will be used. Simulator sessions will reinforce emergency single-engine procedures in the Instrumental Flight Rules (IFR) environment. A grade of "C" or better is required to pass this class, unless it is taken as an elective. All students' flight activity will be evaluated according to the current published FAA practical test standards (five hours in simulator). Prerequisites: FLT330, FLT120B Corequisite: FLT360LFAA RATP Qualified

FLT361 – MULTI-ENGINE OPERATIONS FLIGHT REVIEW – 1 credit

The multi-engine operations flight lab will focus on those pilot operations required of a multi-engine rated pilot in both VFR and IFR flight. The student will have gained the academic and aeronautical knowledge, experience and understanding of aircraft systems, performance, abnormal and emergency procedures, resource management (single- and multi-pilot), aerodynamics and accident causes/prevention as applied to multi-engine aircraft operation. On an individual basis, students' flight activity will be evaluated following the current FAA Airman Certification Standards (ACS) for airplane multi-engine rating. A prerequisite for this course is the FAA multi-engine pilot certificate. As a requirement for the completion of this course, students must present their certificate to their instructor which will be scanned and saved as part of their Vaughn academic record. In addition, students will complete a simulator flight review. A simulator lab fee is required. FAA RATP Qualified
Prerequisites: FLT360, FLT121, Class II FAA Medical (Class I recommended), FAA Private Pilot certificate with Instrument-Airplane rating as well as multi-engine pilot rating.

FLT383 – ACCIDENT INVESTIGATION – 3 credits

This course provides an overview of the process of aviation accident investigation. Possible causes, including human factors, mechanical, environmental and security issues, will be discussed. An overview of procedures followed by the National Transportation Safety Board and other government and industry organizations will be provided. A historical perspective, including government policies regarding aviation safety, will be presented. FAA RATP Qualified

FLT384 – MANAGEMENT OF AVIATION ENVIRONMENTAL ISSUES – 3 credits

This course is an in-depth study of the environmental concerns within the aviation industry and how policy and decision-makers can implement effective strategies toward compatibility between the aviation industry and its environment. The course covers methods of managing the environmental effects of aviation. It presents various environmental issues faced by airports and airlines, including legal and regulatory aspects, noise, pollution, and the ways that management can deal with various environmental situations ethically and profitably.

FLT385 – SAFETY MANAGEMENT SYSTEMS – 3 credits

Safety Management Systems (SMS) is a course designed to provide students with a solid foundation in basic SMS concepts within the aviation industry. The course will explore SMS as a proactive management system that offers the capability to increase levels of operational safety beyond regulatory minimums by viewing safety as a core business enterprise. The course will provide an in-depth study of the Four Pillars of SMS, the root causes of accidents and related hazards, the use of analytical tools, taxonomies, establishing a positive safety culture within an organization, and organizational structures linking responsibility and accountability. The course will also include discussing the implementation of an SMS as the future of aviation safety. FAA RATP Qualified

FLT441 – FLIGHT DISPATCH I – 3 credits

This course is a comprehensive study of federal regulations applicable to the field of aircraft dispatch. It also covers topics such as air traffic control procedures, airport planning and communications. Students are required to present a paper on federal regulations as they apply to flight dispatchers. Flight dispatch I, II, III and IV are four elective courses designed to be taken simultaneously in one 12-credit block. The Dispatch series is recommended for consideration by Aircraft Operations and Aeronautical Science students as a Capstone Course, utilizing knowledge gained from all previous FLT courses. Students who have not taken FLT coursework will find this course difficult.”

FLT442 – FLIGHT DISPATCH II – 3 credits

This course is a comprehensive study of aviation weather as applied to aircraft dispatch. Students are required to present a paper on aviation weather as applied to flight dispatchers.

FLT443 – FLIGHT DISPATCH III – 3 credits

This course is a comprehensive study of aircraft performance and aerodynamics as applied to aircraft.

FLT444 – FLIGHT DISPATCH IV – 3 credits

This course is a comprehensive study of aircraft navigation and practical dispatching as applied to aircraft dispatch. Students are required to present a paper on aircraft navigation and practical dispatching as applied to flight dispatchers.

FLT447 – CREW RESOURCE MANAGEMENT – 3 credits

This course will cover communications theories and systems, an overview of group dynamics, including leadership development, team-building principles and crew interactions. Discussion will also include how to use all resources available to the individual and crew pilot. Practical demonstrations in the flight simulator will be conducted (about five demonstration hours in simulator). FAA RATP Qualified

FLT470 – CERTIFIED FLIGHT INSTRUCTOR AERODYNAMICS – 3 credits

This course will prepare students to take the Federal Aviation Administration (FAA) Certified Flight Instructor (CFI) exam. Topics include special training procedures such as stall and spin awareness, performance and aerodynamics. Syllabus and lesson plans will be developed for flight maneuvers and aerodynamic theories in accordance with FAA teachings. A grade of “C” or better is required to complete this course, unless it is taken as an elective. The relevant FAA-CFI written exam must be successfully passed to complete this course. Additional training for the FAA written exam is given as part of a laboratory experience. FAA RATP Qualified Prerequisite: A grade of C or better in FLT330, FLT330L or FLT 330 AS, FLT330 ASL.

FLT471 – FUNDAMENTALS OF TEACHING AERONAUTICS – 3 credits

This course offers practical knowledge and skills in order to teach aviation topics effectively and responsively. The course expands on the learner’s earlier education experiences (both in and out of aviation), and discusses the processes of teaching and learning, effective communication, and human behavior as each applies to helping people learn. Participants also learn to enhance their own future learning experiences. At course completion, learners are encouraged to pursue appropriate FAA ground instructor certificates, and emphasis is placed on how effective teaching helps both the learner and the instructor become safer, more valuable members of the aviation community. A grade of “C” or better is required to pass this course, unless it is taken as an elective. FAA RATP Qualified. Prerequisite: A grade of C or better in FLT330, FLT330L or FLT330 AS, FLT330 ASL

FLT472 – CERTIFICATED FLIGHT INSTRUCTOR FLIGHT REVIEW – 1 credit

The Certified Flight Instructor Flight Review lab will focus on those flight and classroom operations required of a CFI. The student will have gained the practical understanding of the responsibility, skills and proficiency required to successfully flight instruct in airplanes (single-engine and instrument). The student will be able to provide ground instruction appropriate to the flight training being given. The need for continuing education for the CFI will be emphasized. All students' teaching and flight activity will be evaluated using the FAA Airman Certification Standards (ACS). Prerequisites for this course are the FAA Certificated Flight Instructor Certificates (CFI, CFII). As a requirement for completion of this course, students must present their certificates which will be scanned and saved as part of their Vaughn academic record. In addition, students will complete a simulator flight review. A simulator lab fee is required. FAA RATP Qualified. Prerequisites: FLT470, FLT471, Class II FAA Medical, FAA Commercial Pilot Certificate. This course (FLT482) is being replaced by FLT473 and FLT474.

FLT473 – CERTIFIED FLIGHT INSTRUCTOR AIRPLANE (CFIA) – 1 credit

The Certified Flight Instructor Flight - CFIA will focus on those flight and classroom operations required of a CFIA. The student will have gained the practical understanding of the responsibility, skills and proficiency required to successfully flight instruct in airplanes. The student will be able to provide ground instruction appropriate to the flight training being given. The need for continuing education for the CFI will be emphasized. All students' teaching and flight activity will be evaluated using the FAA Airman Certification Standards (ACS). Earning the Certified Flight Instructor - CFIA is a requirement of this course. FAA RATP Qualified. Prerequisites: FLT330, FLT330L, FLT330C, FLT470, and FLT471

FLT474 – CERTIFIED FLIGHT INSTRUCTOR INSTRUMENT - CFII – 1 credit

The Certified Flight Instructor Instrument - CFII will focus on those flight and classroom operations required of a CFII. The student will have gained the practical understanding of the responsibility, skills and proficiency required to successfully flight instruct in instrument airplanes. The student will be able to provide ground instruction appropriate to the flight training being given. The need for continuing education for the CFI I will be emphasized. All students' teaching and flight activity will be evaluated using the FAA Airman Certification Standards (ACS). Earning the Certified Flight Instructor Instrument- CFII is a requirement of this course. FAA RATP Qualified. Prerequisites: FLT473

FLT482 – TURBINE AIRCRAFT OPERATIONS – 3 credits

This course will cover operational procedures used by airline crews with extensive preparation of flight profiles, crew resource management (callouts, memory items and emergency procedures) to specific aircraft standards. Emphasis will be placed on normal and emergency flight procedures in the Instrument Flight Rules (IFR) environment. An in-depth study of IFR charts and approach plates, aircraft performance and operational considerations will be discussed. FAA RATP Qualified. Prerequisites: FLT330, FLT330L, FLT360

FLT483 - AIR TRANSPORT OPERATIONS FOR PROFESSION - 3 credits

The study of flight operations at the major airline level and role the professional pilot plays in the safe and efficient conduct of airline operations. Students will cover the applicable regulations, supporting departments and personnel, international flight operations, safety programs as well accident investigation, the role of unions and the flight department in the corporate structure. High altitude operations, aerodynamics and physiology will also be Covered. FAA RATP Qualified. Pre-requisite: FLT330, FLT360

FLT484 - AVIATION INTERNSHIP - 3 credits

Practical experience in flying or aviation management as approved by the department head. Students participating in this internship program must obtain approval and meet all the requirements for the internship as outlined by the department chair, sponsoring company, and the College's career services office. Students may conduct a research project in lieu of an internship. Students must complete written and oral assignments as part of the course requirements. This internship may count as an air traffic, aviation or technical elective course related to the student's course of study. Students who have already satisfied course requirements can participate in internships for additional credit. Prerequisites: FLT330, FLT360 with a "B" or higher

FLT 485 - DIRECTED INDIVIDUAL STUDY - 3 credits

Concentrated individual study of aviation subjects not currently offered on a regular basis. Prerequisites: FLT330, FLT360

FLT486 - AIR CARRIER EQUIPMENT OPERATION I – 3 credits

Aircraft specific training for air carrier flight operations. Emphasis on standard operating practices manual, checklist philosophy, radio practices and procedures, performance data, specific pre-flight responsibilities, systems operations and limitations, normal and emergency procedures, and in-flight and post flight responsibilities. A component of the culminating experience for aircraft operations majors. Special Fee. FAA RATP Qualified. Prerequisite: FLT330, FLT360, AND FLT481 OR FLT483

FLT480 – TURBOPROP TECHNIQUES AND PROCEDURES – 3 credits

This course will cover operational procedures used by airline crews with extensive preparation of flight profiles, crew resource management (callouts, memory items and emergency procedures) to specific aircraft standards. Emphasis will be placed on normal and emergency flight procedures in the Instrument Flight Rules (IFR) environment. An in-depth study of IFR charts and approach plates, aircraft performance and operational considerations will be discussed. FAA RATP Qualified. Prerequisites: FLT330, FLT360, FAA commercial written exam.

FLT481 – AIRLINE TRANSPORT PILOT AERONAUTICS – 3 credits

Certified commercial and instrument-rated pilots will revise and extend their training for the multi-engine land class rating. Ground instruction will add detailed instrument-oriented training to airline transport pilot proficiency standards. Emphasis is placed on precision altitude flying techniques, operations and procedures. Integration of applicable emergency procedures during all phases of instrument flight will be provided. FAA RATP Qualified. Prerequisites: FLT330, FLT360, FAA commercial license.

FRE160 – FRENCH I – 3 credits

This introductory course emphasizes conversation, writing and reading skills, and provides a foundation in French grammar, pronunciation and vocabulary. This course may not be taken by French-speaking students.

FRE261 – FRENCH II – 3 credits

This course is a continuation of FRE160 French I. It will develop additional conversation, writing and reading skills and will aid in furthering the study of French grammar, pronunciation and vocabulary. This course may not be taken by French-speaking students. prerequisite: FRE160

FYE101 – FRESHMAN YEAR EXPERIENCE – 1 credit

As part of the Freshman Year Experience, FYE101 is designed to provide a quality learning environment empowering students to be successful both academically and developmentally while making the transition into college. Informative topics include academic policies, College rules and regulations, as well as the registration and advisement processes. FYE serves as a link to the institution's different departments and exposes students to key personnel on campus. FYE instructors encourage new students to take full advantage of what Vaughn has to offer by developing an appreciation for the value of a higher education in a technologically evolving and culturally diverse world.

FYI101 – FIRST YEAR INITIATIVES – 3 credits

This course is designed to assist students in becoming more effective in the college setting. Throughout the course, first year students will adjust to the college environment by engaging collaboratively with the college community and developing a sense of belonging. Discussions entail experiences unique to first year students and academic expectations. These include transitional stages that students may undergo; coping strategies that can help students manage various phases of their college life. First year students will also develop skills to increase leadership and civic engagement. In addition to learning Vaughn's academic policies, students will learn how technology is used as an educational resource. Students will enhance their research abilities while understanding how technology affects their education and career. Students will utilize in-class instruction while integrating with online resources.

HIS141 – GLOBAL CIVILIZATION – 3 credits

This course offers an analysis of the origins and development of the societies of the contemporary world. The course traces the growth of modern national states, the role of technology, the emergence of capitalism and democracy, the rise of socialist and third-world nations, and the cultural features of modern civilization. Prerequisite: ENG110

HIS250 – HISTORY OF AVIATION – 3 credits

This course is a survey of the development of the aviation industry viewed from a historical perspective. Topics covered will range from the early days of flight to the present. At the conclusion of this course the student will have a comprehensive knowledge of the air transportation/aviation industry and will understand its significant social, military, literary, political, diplomatic and economic impact upon the United States and the world. Prerequisite: ENG110

HIS252 – SURVEY OF AMERICAN HISTORY – 3 credits

A survey of American history that is an attempt to explain and understand the major forces, events and personalities responsible for molding the United States. The westward movement, domestic political movements, such as progressivism, and the rise to the urban-industrial megalopolis are emphasized. Prerequisite: HIS141; corequisite: POL254

HUM250 – WESTERN MUSIC AND ART HISTORY – AN INTRODUCTION – 3 credits

This course uses examples from mechanics, history, construction, show business, nature and sports to help students follow the development of European and North American music and art from the Middle Ages (1050) through the beginning of the 21st century. The course includes an introductory study of the elements of music, music notation and composition, and the evolution of visual art through the study of influential visual artists such as Michelangelo, Goya and Pollack. Recordings, photos and videos are used in addition to the text. Prerequisite: ENG110

HUM251 – INTERNATIONAL STUDIES: A GLOBAL PERSPECTIVE – 3 credits

This course is an exploration of cultural universals and differences around the world, with an overview of world geography, family life, economics, politics and religion. Prerequisite: ENG110

HUM255 – TECHNOLOGY AND CULTURE – 3 credits

This course examines US technology from a historical perspective. Beginning with the colonial period, it covers the early years of the US and its rise as a major technological power in the late 1800s, the development of mass production and the assembly line in the early 20th century, the technological consequences—military and civilian—of both World Wars, and ends with late 20th-century and early 21st-century technological developments such as atomic power, biotechnology and computerization. Within the historical framework, this course assesses the social, economic and political ramifications of technological advances. Prerequisite: ENG110

HUM256 – INTRODUCTION TO CRITICAL THINKING – 3 credits

This course is designed to introduce students to logic and critical-thinking theory. Course topics include issues such as: reasoning, clarity, bias, evidence, assumptions, implications and accuracy. Students will be asked to apply critical-thinking and reasoning patterns to a variety of problems and situations. Prerequisite: ENG110

HUM472 – PRACTICAL ETHICS – 3 credits

This course involves a study of the application of ethical and moral systems to family life, peer groups and, in particular, to professional careers in industry, the community and on various governmental levels—including international relationships. Students will prepare papers dealing with theory and practice. Prerequisite: ENG110

IWA101- INTRODUCTION TO COMPOSITES – 1 credit

This 15-hour, one credit lecture/lab course introduces students to the field of advanced composites. Topics include the history of composites, materials, bonding methods, manufacturing, vacuum bagging, curing, repair procedures, and composite safety. The course is delivered in partnership with the Institute of Workforce Development and delivered at the Cradle of Aviation Museum. No prerequisites.

INT401 – INTERNSHIP – 3 credits

Students participating in an internship program must obtain approval and meet all the requirements for the internship as outlined by the sponsoring company and/or the College's career services office. Students may conduct a research project in lieu of an internship. Students must complete written and oral assignments as part of the course requirements. This internship may count as a aviation or technical elective course. Students who have already satisfied course requirements can participate in internships for additional credit.

MAT108 – FUNDAMENTALS OF ALGEBRA – 3 equivalent hours

See Basic Skills Courses

MAT109 – FUNDAMENTALS OF PRE-CALCULUS – 3 equivalent hours

See Basic Skills Courses

MAT115 – PRE-CALCULUS – 4 credits

This course covers polynomial, rational, logarithmic, exponential and trigonometric functions, including elementary operations with Vectors. Topics for each type of function will include finding roots, graphing and modeling using applications from physics and engineering. This course prepares students for upper-level mathematics and science courses. Prerequisites: MAT109, high school equivalent or standardized placement test.

MAT120 – CALCULUS I – 4 credits

This first calculus course will begin with the study of limits and continuity. It will continue with a study of techniques to differentiate algebraic, transcendental and rational functions. Applications of differentiation will be included. The course will end with an introduction to integration. Prerequisite MAT 115.

MAT125 - CALCULUS I FOR ENGINEERS – 3 credits

This course analyzes limits and continuity. The derivative and applications to related rates, maxima, minima and curve sketching will be discussed. An introduction to the definite integral and area computations will be covered as well. A grade of "C" or higher is required before proceeding to MAT225. Prerequisite: permission of the department chair

MAT210 – INTRODUCTION TO STATISTICS – 3 credits

This is a one-semester course designed for management students, but can be taken as an elective by other students wanting a basic knowledge of statistics. Topics include: data analysis, control charts, linear regression, correlation and hypothesis testing. Students will also use either Excel or SPSS to analyze data. Prerequisite: MAT115.

MAT220 – CALCULUS II – 3 credits

MAT 220 is a continuation of MAT 120. This second calculus course will cover topics in integration, including techniques of integration, applications to areas and volumes. Parametric equations will be introduced. Prerequisite MAT120.

MAT225 – CALCULUS II FOR ENGINEERS – 3 credits

MAT225 is a continuation of MAT125. Topics covered will include techniques of integration, improper integrals, infinite series, applications to physics and engineering. Prerequisite: MAT125 or MAT120 with permission of department chair.

MAT325 – DIFFERENTIAL EQUATIONS FOR ENGINEERS – 3 credits

This course will cover techniques used to solve ordinary differential equations. Topics will include solving first and second order homogeneous and nonhomogeneous differential equations with constant coefficients using separation of variables, finding eigenvalues, Laplace Transforms and Fourier series. The course will include applications to science and engineering and end with an introduction to partial differential equations. Prerequisite MAT 225.

MAT330 – CALCULUS III FOR ENGINEERS – 3 credits

MAT330 is a continuation of MAT225. Topics will include parametric equations, polar coordinates, operations with vectors, partial derivatives and multiple integrals. Applications to engineering and physics will be included. Prerequisite: MAT225 or MAT220 with permission from department chair.

MAT340 - APPLIED NUMERICAL METHOD - 3 credits, 3 lecture hours

Topics covered are numerical analysis, finite difference approximation, matrix inversion methods and implicit and explicit procedures. This course will feature numerical solution to the differential equations, roots determination with application to the physical problems, developing forward, backward, and centered difference numerical form of first and higher derivatives using Taylor series, estimating first and higher derivatives using Taylor series expansion, finite difference numerical solution to the governing equation of a physical problem, numerical integration, and solution to the systems of linear algebraic equations with application to the engineering problems. This course will feature the utilization of MATLAB. Prerequisites: MAT 225

MAT358 - INTRO TO DISCRETE MATHEMATICS - 3 credits

Course Description: This course offers an introduction to discrete mathematics. Students will learn mathematical concepts and structures including proofs, sets, relations and maps, Boolean algebra (propositional calculus and circuits), mathematical reasoning, recursion and deduction, trees and graphs and flows and matchings. Other mathematical concepts studied are the number theory, logic, truth tables, counting, permutations and combinations, and discrete probability, algorithms and pseudocodes. Prerequisites: MAT356

MAT356 – PROBABILITY AND STATISTICS– 3 credits

This course is an introduction to probability and statistics. Topics include elementary probability, descriptive statistics, elementary distributions such as the binomial distribution, hypergeometric distribution, normal and geometric distributions. Sampling theory and statistical testing will also be covered. Prerequisite: MAT220 or MAT225.

MAT410 – LINEAR ALGEBRA– 3 credits

Topics in this elective course include spatial visualization of linear problems, solving systems of linear equations, determinants, matrices and characteristic equations. Applications to engineering and numerical solutions will also be covered. Prerequisite: MAT120 or MAT125

MAT445 – DIFFERENTIAL EQUATIONS – 3 credits

This course is a study of the differential equations and the techniques used to solve them. The importance of the relationship of differential equations to physics and dynamical systems will be emphasized.

Prerequisite: MAT220 or MAT225

MCE101 – INTRODUCTION TO ROBOTICS – 1credit

This is an introductory course on robotics. Students are expected to build and program simple robots by utilizing the VEX robotic platform hardware as a prototype and using them to conduct experiments demonstrating physics and mechanical properties. Topics covered include robotic chassis and drive chain construction, remote control and robotics system design, basic robotic programming, sensors, robotic arms and end effectors.

MCE310 – INTRODUCTION TO LINUX AND ROS – 1 credit

This course covers an introduction to Linux Operating System (specifically Debian/Ubuntu) and Robot Operating System (ROS) with applications to manipulate mobile robots, including available tools commonly used in Robotics society. The mobile robot platforms, TurtleBot, are used during laboratory sessions of the course.

Prerequisites: MCE101 and CSC316.

MCE355 – ROBOT MECHANICS AND CONTROL - 3 credits

Introduction to the mechanical and mathematical principles of robotics including forward and inverse kinematics, rigid body dynamics, practical robot control system designs, sensors and actuators, motion planning, and manipulation.

Prerequisites: ELE350, ELE350L

MCE401 – MCE PRE-CAPSTONE PROJECT – 0 credit

This course prepares senior mechatronic engineering students for their capstone degree project. In this course, students begin working on their capstone degree project by studying the engineering design process. Topics include customer needs identification, project concept generation and selection, background research, engineering

MCE355 – ROBOT MECHANICS AND CONTROL - 3 credits

Introduction to the mechanical and mathematical principles of robotics including forward and inverse kinematics, rigid body dynamics, practical robot control system designs, sensors and actuators, motion planning, and manipulation.

Prerequisites: ELE350, ELE350L

MCE401 – MCE PRE-CAPSTONE PROJECT – 0 credit

This course prepares senior mechatronic engineering students for their capstone degree project. In this course, students begin working on their capstone degree project by studying the engineering design process. Topics include customer needs identification, project concept generation and selection, background research, engineering specifications, costs and project planning. Professional topics include ethics, safety, sustainability, globalization and engineering economics. Students are evaluated on their proposal report and communication and presentation skills, as well as their ability to function as a team. Prerequisite: One semester prior to MCE409.

MCE409 – MECHATRONIC PROGRAM DEGREE PROJECT – 3 credits

This project is a capstone for students enrolled in the mechatronic engineering program. The project should demonstrate applications of the knowledge and technical skills gained through the curriculum. Students are required to submit a synopsis of the project at the beginning of the semester that must be approved by the degree project faculty advisers. At the end of the semester, students must submit a complete project report and present a seminar.

Prerequisites: Final year status, ELE326, ELE326L, ELE350, ELE350L, EGR380, MEE365, MCE401

MCE410 – MECHATRONICS I – 3 credits

This course will provide an understanding of industrial applications of control theory and programmable logic controllers (PLCs). Topics include introduction to PLCs, I/O modules, programming languages – Function Block Diagram (FBD) and Ladder (LAD), implementation of gates, timers and counters in PLCs, operating principles of sensors and motion transducers, electric and pneumatic actuators, manufacturing process, and sequence control design with application to industrial manufacturing systems. Prerequisites: ELE230, ELE230L

MCE420 – MECHATRONICS II – 3 credits

This is an introductory course to the field of *Autonomous Mobile Robotics*. Students will learn the basic concepts and algorithms required to design robotic systems that navigate independently in unknown environments. Topics include fundamentals of data structures, mobile robot modeling, environment perception, machine learning, localization, path planning, and navigation. Prerequisites: ELE350, ELE350L

MEE115 – ENGINEERING MECHANICS I – 3 credits

This course covers the concepts necessary to apply the laws of mechanics to rigid body equilibrium. Topics include vectors, equilibrium of particles and rigid bodies. The study will concentrate on equivalent systems and how they apply to frames, trusses and beams. This course will also cover topics on centroids, moment of inertia and friction. Prerequisites: MAT125, PHY125, PHY125L

MEE210 – THERMODYNAMICS – 3 credits

This course discusses the fundamentals of thermodynamics, which include system concepts, state of equilibrium, processes' properties, zeroth, first, second laws of thermodynamics, flow and non-flow processes. Carnot cycle and efficiencies of reversible conversions, irreversibility, entropy concepts, ideal gases and mixtures involving ideal gases are also covered. Prerequisites: MAT225, PHY225, PHY225L

MEE215 – ENGINEERING MECHANICS II – 3 credits

Course content includes rectilinear, curvilinear and dynamic motion, kinetics of rigid bodies, plane motion of rigid bodies and an introduction to mechanical vibration. This course will cover topics on linear motion, projectile motion, conservation of energy, impact and momentum, free and forced vibration of a single degree freedom system. Prerequisites: MAT225, MEE115, PHY225, PHY225L

MEE220 – MECHANICS OF MATERIALS – 4 credits

This course covers the concepts of stress, strain, stress-strain diagrams, elasticity, thermal stress, torsion, beam and frame analysis and design. This course will also cover topics on transformation of stress and strain, principal stresses, beam deflection analysis, statically indeterminate beam analysis, strain energy and Castigliano's theorems. Prerequisites: MAT225 and MEE115

MEE235 – MATERIAL SCIENCE AND FAILURE ANALYSIS – 3 credits

This course deals with materials classification and their characteristic properties, atomic structure, the concept of the unit cell of a crystalline solid and study of the phase diagram. Material characteristics related to mechanical properties are emphasized. Material failures and failure due to stress concentration, fatigue and impact are discussed. Brief study of composite material and criteria for material selection based on maximization of strength with respect to both minimum mass and minimum cost will be studied. Prerequisites: MAT125, PHY125, PHY125L

MEE260 – AERODYNAMICS – 3 credits

In this course, students will be able to use their knowledge in fluid mechanics and thermodynamics for applied aerodynamic designs. The course will cover the fundamental theories such as airfoil theories, finite wings and swept wings, as well as design components involving compressible flow, normal shock wave, and oblique shock wave. In this course the students will also be able to apply their knowledge to design projects using modern computer fluid dynamics software. Prerequisites: PHY225, PHY225L, MEE345

MEE340 – COMPUTATIONAL METHODS WITH MATLAB – 3 credits

Topics covered are numerical analysis, finite difference approximation, matrix inversion methods and implicit and explicit procedures. This course will feature analytical and numerical solutions to the differential equation of a physical problem, roots determination and application to the engineering systems problems, estimating first and higher derivatives, using the Taylor series expansion. These solutions, together with finite difference techniques, finite difference numerical solution to the governing equation of an engineering system, numerical integration, and solution to the systems of linear algebraic equations, will be applied with application to the engineering problems. This course will feature the utilization of MATLAB. Prerequisites: MAT225, MEE220

MEE345 – FLUID MECHANICS – 3 credits

The concepts and principles of fluid mechanics will be applied to various fluid systems. Topics covered include the properties of the velocity field, thermodynamics properties of fluids, integral relations for a control volume as applied to the conservation of mass, linear and angular momentum. Prerequisite: MEE210

MEE350 – MECHANICAL VIBRATION – 3 credits

Equation of motion by Newton's law, energy methods and Raleigh Principle, Free vibration of damped and undamped single-degree of freedom systems, Transient and forced vibrations, Two-degree of freedom systems. Matrix method for vibration of multi-degrees of freedom systems; and model analysis. Prerequisites: MAT325, MEE215

MEE355 – ENGINEERING RELIABILITY – 3 credits

In this course, students will be introduced to the concepts of the theory of structural reliability and the reliability-based design formulas. The tools needed in this course are probability, statistics and basic mechanics courses. Upon completion of this course, students will be expected to perform structural load and strength analysis, as well as to solve structural reliability problems, including design and safety checking under quasi-static loads. Prerequisites: MEE220

MEE360 – PROPULSION POWER FOR AIRCRAFT AND ROCKET ENGINES – 3 CREDITS

Students will be able to analyze flow properties and thermodynamic cycles and processes for air-breathing and rocket engines. Design inlets, diffusers, fans, compressors, turbines and nozzles in terms of their thermodynamics characterization. Examine subsonic and supersonic flow for several propulsion applications such as Scramjets, ramjets, turbojets, turbofans and turboprops. Prerequisite: MEE345

MEE365 – ELEMENTS OF MACHINE DESIGN – 3 credits

This introductory course in machine design utilizes the principles of statics, dynamics and strength of materials in design of machine parts, such as shafts, keys, couplings, gears, springs, and bolts that work safely, reliably and well. Topics covered include principal stresses, theory of failure, fatigue and dynamic loading. Prerequisites: MEE215, MEE220, MAT325

MEE370 – FINITE ELEMENT ANALYSIS – 3 credits

This course deals with finite element modeling and analysis of engineering systems and analytical solution based on strain energy method. Topics covered include calculus of variation, derivation of Euler equations for the bar, heat transfer and beam-type problems. In this introductory course, students will be introduced to the one-dimensional finite element modeling and analysis of rod, truss and heat transfer-type problems. Students will also learn to apply calculus of variation in developing finite element formulation for the beam-type problems. This course will feature the utilization of MATLAB in modeling and solving engineering problems. Prerequisites: MEE220, MEE340

MEE390 – INTRODUCTION TO COMPOSITE MATERIALS – 3 credits

This course deals with design and application of composite materials in mechanical and aeronautical engineering fields. The foundations for the mechanics of composite materials are presented with special emphasis on long-fiber lamina i.e. a single layer of unidirectional fibers within a matrix. The elastic behavior and strength of these laminas are studied on both the macro-mechanics and micro-mechanics levels. On the macro-mechanics level, composite laminates (two or more laminae stacked together) is also studied with respect to elastic behavior, hydrothermal effects, stress and failure analysis. Prerequisites: MEE220, MEE235, MEE340

MEE401 – ME PRE-CAPSTONE – 0 credits

This course prepares senior mechanical engineering students for their capstone degree project. In this course, students begin working on their capstone degree project by studying the engineering design process and learning about professional topics related to the engineering industry. Topics in the engineering design process include customer needs identification, project concept generation and selection, engineering specifications, costs and project planning. Professional topics include communication, teamwork, ethics, safety, sustainability, globalization and engineering economics. Students work in a team to develop a project topic, specifications and a project plan, perform background research necessary to fully understand the project and the problem solving approach. Students are evaluated on their proposal report and presentation skills, as well as their ability to function as a team. Prerequisite: One semester prior to MEE409

MEE409 – ME CAPSTONE DEGREE PROJECT – 3 credits

This project is a capstone for students enrolled in the mechanical engineering program. The project should demonstrate applications of the knowledge and technical skills gained through the curriculum. Students are required to submit a synopsis of the project at the beginning of the semester that must be approved by the degree project faculty advisers. At the end of the semester, students must submit a complete project report and present a seminar. Prerequisites: Final year status, MEE401, MEE365, MEE370, MEE440, EGR380

MEE440 – HEAT TRANSFER – 3 credits

The principles of heat transfer for analysis as applied to heat conduction, heat convection, heat radiation and heat exchangers are studied. Topics covered include one- and two-dimensional heat transfer analysis, conduction heat transfer by finite difference technique, radiation heat transfer, unsteady-state heat transfer, convection heat transfer and heat exchangers. Prerequisites: MEE210, MAT325

MEE445 – HEATING, VENTILATION AND AIR CONDITIONING – HVAC – 3 credits

This course is designed to use the thermodynamics properties for air and water vapor mix, study the psychrometric processes of cooling, heating, humidification and dehumidification. Students will be able to use the psychrometric charts, tables and modern computer tools. In addition to learning to determine the cooling and heating loads based on practical existing data. The course will involve a practical design case for students to apply their knowledge. Students also will be introduced to modern practices in the industry to design systems that comply with industry codes and standards. Prerequisites: MEE210, MEE440

MEE455 – AIRCRAFT STRUCTURAL ANALYSIS – 3 credits

In this course an attempt is made to emphasize basic structural theory related to the aircraft design. Heavy emphasis is placed on the application of the elementary principles of mechanics to the analysis of aircraft structures. This course will cover topics on shear and bending stresses, spanwise air-load distribution, external load on the airplane, joints and fittings, design of members in tension, bending and torsion, design of webs in shear and deflections of structures. Prerequisites: MEE220, MEE340

MET409 – METCAPSTONE DEGREE PROJECT – 3 credits

This project is a capstone for students enrolled in mechatronic engineering technology program. The project should demonstrate applications of the knowledge and technical skills gained through the curriculum. Students are required to submit a synopsis of the project at the beginning of the semester that must be approved by the degree project faculty advisers. At the end of the semester, students must submit a complete project report and present a seminar. Prerequisites: Final semester status, EGR350, EGR365, EGR380, EGR440

MGT110 – INTRODUCTION TO MANAGEMENT – 3 credits

This course introduces theories of effective management through the use of practical situations. Coursework develops skills necessary for supervision, such as effective use of labor and motivation techniques.

MGT120 – PRINCIPLES OF ACCOUNTING – 3 credits

This course includes an examination of primary accounting principles, techniques and tools required for understanding accounting. Topics include the accounting cycle, receivables and payables, journals, reports, measurements and interpretation. Prerequisite: MAT115

MGT200 - BUSINESS PROCESS MANAGEMENT– 3 credits

The course provides an understanding of how businesses work in practice and how to effect process-based improvements and transformations in any and all areas of business activity. Prerequisites: None

MGT210 – ORGANIZATIONAL BEHAVIOR– 3 credits

An examination of human behavior theories and practices as they apply to individuals in the workplace. Topics include motivation, morale, leadership effectiveness, interpersonal dynamics and communication. Prerequisite: MGT110

MGT215 – MANAGEMENT AND BUSINESS – 3 credits

This course follows MGT110 with additional basic concepts of the art and science of management. It is designed to integrate the accepted theories of this body of knowledge with real world applications that will provide students with basic knowledge and skills needed for managing others and for transacting effectively with those to whom they report. Building on the first part of an introduction to management, the course begins with a discussion of managerial leadership and motivation, and then proceeds to cover the various aspects of control systems. The course concludes with a brief overview of entrepreneurship and small business operations. Lecture and class assignments given in the course are intended to help students understand the needs of modern public and private organizations, including emerging national and international trends. Prerequisite: MGT110

MGT220 – CORPORATE ACCOUNTING– 3 credits

This builds upon the MGT120 Principles of Accounting course. The topics covered include analysis of bad debts, partnerships, financial instruments and the disposition of assets. Prerequisite: MGT120; *spring offering only*

MGT230 – FINANCIAL MANAGEMENT– 3 credits

Topics covered include financial statements, the environment and institutions. Students learn about the time value of money, interest rates, discounting and compounding. Other issues addressed are financial assets and their valuation, financial decision making over the long and short terms, and international financial markets.

Prerequisites: MAT120, MGT120

MGT240 – PRINCIPLES OF MICROECONOMICS /MANAGERIAL ECONOMICS– 3 credits

This course provides the student with an understanding of the fundamentals of microeconomics. Topics include cost behavior, perfect competition, monopoly, imperfect competition and oligopoly. Prerequisites: ENG110, MAT115; Recommended: ECO255

MGT250 – ENTREPRENEURSHIP: HOW TO START A BUSINESS – 3 credits

This course provides students with comprehensive, practical knowledge and management skills to help them launch a new business venture. Students will work in teams to research, write and present plans for starting a new business. The coursework and class discussions will serve to enable this effort.

MGT260 – INFORMATION TECHNOLOGY – 3 credits

This course explains why business managers must understand the critical principles of information technology (IT) systems and applications development. By providing leadership in driving IT strategy and implementation, business managers will work more effectively with IT professionals to ensure that IT does in fact support business processes as effectively as possible. The course will include use of Microsoft Office, Microsoft Project and Office 365 document management systems. Business managers with the IT knowledge required to drive information systems development and implementation are among the most sought-after people in the job market.

MGT300 - PROJECT MANAGEMENT – 3 credits

Students will be introduced to the role of the Project Manager and the fundamental concepts and competencies necessary to participate in and to lead projects.

A high-level overview of project management processes and knowledge areas include planning, scheduling, resource allocation and budgeting, implementation and dynamic adjustments, and evaluation of project success. Prerequisites: None

MGT360 – BUSINESS COMMUNICATIONS– 3 credits

This course analyzes elements in the communication process with business and management applications, including safety management systems. Emphasis is placed on a variety of communication methods including letters, reports, memoranda, oral presentations, and technology.

MGT372 – MARKETING MANAGEMENT AND PUBLIC RELATIONS – 3 credits

This course introduces the student to national and international strategies of marketing, touching on sales, advertising, marketing research. This course provides the student with an understanding of the means by which reciprocal goodwill between a person, firm or institution and the public can be achieved. Elements of community service, public safety, advertising and marketing are incorporated in this course. Prerequisite: MGT110

MGT384 – MANAGEMENT OF AVIATIONENVIRONMENTAL ISSUES – 3 credits

This course introduces students to methods of managing environmental effects of aviation. It presents an overview of environmental issues tackled by airlines, airports and the Federal Aviation Administration (FAA). Course topics include: pertinent aviation and environmental laws; studies necessitated by the National Environmental Policy Act; noise and air pollution impacts; water pollution and deicing chemicals. Uses case studies to describe environmental studies of major airspace and airport expansions.

MGT385 – INTRODUCTION TO AVIATIONINSURANCE – 3 credits

This elective course introduces the basic principles of insurance and risk management with a special application to the aviation industry. An in-depth review of the aviation insurance industry in the United States and abroad, including the various underwriting companies and insurance brokerage specialists is provided. Subject matter will include underwriting, selection and rating for single-engine aircraft, Business and Pleasure Flying; Corporate Fleets Part 91; Airlines PT 121; Airports; Fixed Based Operators (FBOs) and product liability/component manufacturers. The class will also discuss loss and risk mitigation from an aviation perspective, including loss ratio analysis.

MGT403 – INTERNSHIP DEGREE MANAGEMENT PROJECT – 3 credits

Students in the BS programs in airport, airline and general management apply their classroom learning to management internship for credit by participating in an internship in a business related to their major. In addition to the internship, students are required to complete written assignments and an oral presentation in consultation with a faculty adviser. A research project is required for all management students who take MGT403.

MGT470 – INDUSTRY AND LABOR RELATIONS – 3 credits

This course outlines the behavioral aspects of the management and collective bargaining agency interface. Emphasis is on arbitration, mediation, conciliation and fact finding.

MGT471 – MARKETING STRATEGIES – 3 credits

National and international strategies of marketing, particularly, the potential of various media will be examined. Practical examples of how to create and use marketing strategies are explained. How to conduct market research, find a target audience and assess effectiveness of marketing strategies will be demonstrated in the course.

Prerequisite: MGT372 or MGT371.

MGT472 – PUBLIC RELATIONS STRATEGIES – 3 credits

This course builds upon concepts discussed in MGT372 and provides the student with an in-depth understanding of communications systems between a person, firm or institution and the public. Practical applications of public relations strategies and examples of how they are used in today's world will be examined. An overview of successful public relations campaigns, past and present, will be studied. Prerequisite: MGT372 or MG365.

MGT480 – CAPSTONE: STRATEGIC MANAGEMENT – 3 credits

Students in bachelor of science programs in airport management, airline management and general management take this course in their final semester. The capstone course includes computer-based simulations to integrate ideas from different functional areas of management. Individually and in teams, students learn to address situations and issues that can arise in a business. In addition, a comprehensive team report and oral presentation describing the results of the simulation, what was learned and how the team could have done better are required. A computer simulation fee is required.

MGT481 – ADVANCED AIRPORT MANAGEMENT – 3 credits

Students in airport management programs study advanced airport management topics. Included in this course is preparation for the American Association of Airport Executives' (AAAE) Certified Member C.M. professional exam. In addition, the course provides an overview of materials learned throughout the airport management program and integrates ideas from different functional areas of airport management. Exam fees and membership in AAAE are not included. Prerequisites: APM241, APM485

PHY120 – PHYSICS I – 3 credits lecture, 1 credit lab

A first physics course for freshmen in both the bachelor and associate programs. This course is an introduction to classical mechanics and covers statics, kinematics, Newton's three laws of motion, vectors and rotational motion, including Newton's law of gravitation and conservation laws. Laboratory experiments enhance lecture topics. Prerequisite: MAT 109, MAT109L or equivalent, corequisite: PHY120L and MAT 115

PHY125 – ENGINEERING PHYSICS – 4 credits

A calculus-based physics course. Topics include vectors, kinematics, particle dynamics, friction, work, energy, power, momentum, dynamics and statics of rigid bodies, oscillations, gravitation and fluids. A grade of "C" or higher is required before progressing to PHY220. Prerequisite: permission of the department chair; corequisite: MAT125 Calculus I for Engineers, PHY125 for lab course.

PHY220 – COLLEGE PHYSICS II – 3 credits lecture, 1 credit lab

A continuation of PHY120, topics include the laws of thermodynamics, harmonic motion, fluid motion, wave motion and electromagnetism. Laboratory experiments enhance lecture topics. Prerequisite: PHY120, PHY120L, MAT115; co-requisite PHY 220L

PHY225 – PHYSICS II FOR ENGINEERS – 4 credits

This second semester calculus based physics course is a continuation of PHY 125. The course will begin with a study of the first and second laws of thermodynamics. Students will continue with a survey of topics from electricity and magnetism including electric fields, electric potential, magnetic fields and finally the connection between the two fields using Maxwell's equations. Prerequisite PHY125, PHY125L

PHY330 – COLLEGE PHYSICS III – 3 credits

A historical introduction to the physics of the 20th century. Topics include the discovery of radioactivity, development of quantum theory, introduction to special relativity and kinetic theory. Prerequisite: PHY220

PHY335 – PHYSICS III FOR ENGINEERS: MODERN PHYSICS – 3 credits

This third physics course will be a continuation of PHY 225, and will cover topics in physics from 1900 to 1945. Topics will include, special relativity, quantization of energy, photoelectric effect, models of the atom and Bohr's postulates. Important experiments will be discussed. Students may take this in place of PHY 330. Prerequisite: PHY 225, PHY225L.

POL254–AMERICANGOVERNMENT– 3 credits

An analysis of the processes of the American form of government under the Constitution will be undertaken. The course also covers the nature and structure of government, its characteristics and functions, and the intimate relationship of government to other interests. Prerequisite: ENG110

PSY150 – GENERAL PSYCHOLOGY– 3 credits

This course acquaints the student with such movements as behaviorism, mechanism, experimentalism and psychoanalysis. They are surveyed with particular emphasis on behavioral problems. Prerequisite: ENG110

SCM100 - SOURCING AND PROCURMENT MANAGEMENT – 3 credits

The course provides an understanding of how sourcing and procurement management works, and how it can serve as a capability that provides strategic competitive advantage to a business organization. Prerequisites: None

SCM200 – CARGO DISTRIBUTION SYSTEMS: DESIGN AND OPERATIONS – 3 credits

The course provides an understanding of how cargo distribution networks are designed and operated. Prerequisites: None

SCM100 - SOURCING AND PROCURMENT MANAGEMENT – 3 credits

The course provides an understanding of how sourcing and procurement management works, and how it can serve as a capability that provides strategic competitive advantage to a business organization. Prerequisites: None

SCM200 – CARGO DISTRIBUTION SYSTEMS: DESIGN AND OPERATIONS – 3 credits

The course provides an understanding of how cargo distribution networks are designed and operated. Prerequisites: None

SPA160 – SPANISH I – 3 credits

This introductory course emphasizes conversation, writing and reading skills, and provides a foundation in Spanish grammar, pronunciation and vocabulary. This course may not be taken by Spanish-speaking students.

SPA261 – SPANISH II – 3 credits

This course is a continuation of SPA160 Spanish I. It will develop additional conversation, writing and reading skills, and will aid in furthering the study of Spanish grammar, pronunciation and vocabulary. This course may not be taken by Spanish-speaking students. Prerequisite: SPA160

UAS200 – INTRODUCTION TO UNCREWED AERIAL SYSTEMS: APPLICATIONS AND REGULATIONS – 3 credits

The course introduces developments in the field of uncrewed aerospace vehicles for military, meteorological and cartographic purposes, among others. Alternate sources of electrical power for Uncrewed Aerospace Systems (UAS), potential applications in other industrial areas and modifications by aerial responses to a ground monitoring station are examined. Basic training in the operation of small UAS will be provided.

UAS210 – BUSINESS OPERATIONS FOR DRONES

What are the business advantages to UAS? This course provides discussion pertaining to the advantages of UAS versus manned aircraft in the areas of scalability, acquisition costs, operating costs, technology applications and business market segment penetration. This course also provides the fundamental aspects of business operations such as marketing, organizational structure and production operations decisions such as make or buy. The overall objective of the course is to prepare the students with a flight/technical background to enter the UAS operations field with fundamental business training and thinking.

UAS220 – DRONE LAWS AND REMOTE PILOT CERTIFICATION – 3 credits

The introduction of UAS or drones into the national civil airspace system presents numerous commercial and humanitarian opportunities. There are also risks inherent to the introduction of what is likely to become a widespread and accessible use of UAS by the general public. The laws, regulations and policies that are in place today and those proposed for the future and that will best promote the benefits of UAS while offering reasonable protections are discussed. In addition, the course will prepare students to become an FAA-certified drone pilot by teaching the requirements of FAA Part 107 for commercially piloting uncrewed aircraft or drones. The course will cover all the legal and aeronautical training requirements designated by the FAA to obtain a remote (drone) pilot certificate. Basic training in the operation of small UAS will be provided.

UAS230 – STRATEGIC IMPLICATIONS OF UASs – 3 credits

The introduction of the UAS into the civilian market on a global scale will have a major impact on all of the civilian market segments. This course is designed as a survey course that explores the strategic implications of UAS on the civilian aviation sector. UAS has the potential to fundamentally change the civilian aviation sector's mission. How that change could occur is explored through guided discussions and creative research.

UAS 231 - INTRODUCTION TO DRONES AERONAUTICS - 3 credits, 2 lecture hour, 3 lab hours

This course covers classical and modern aerodynamics design concepts for both fixed wing and Multi-rotor UAVs. In this course, students are introduced to aerodynamics design fundamentals such as lift, drag, thrust and basic flight control elements. The course will cover classical dynamic analysis of Uncrewed Aerial Vehicles using structure and fluid mechanics principles. This is in addition to providing an introduction to modern aerodynamics design tools using CAE (Computer Aided Engineering) software. **Prerequisites: None**

UAS 241 - DRONE APPLICATIONS SERIES- INTRO TO LAND SURVEYING - 2 credits, 1 lecture hour, 3 lab hours

Land surveying is currently one of the most important applications of drones. In this course students will learn the basic knowledge of photogrammetry, image capturing using uncrewed aerial vehicles (UAV), and GPS based mission planning. In addition, students will gain knowledge in post processing and reconstruction techniques.

Prerequisites: None

UAS251 - DRONES RAPID PROTOTYPING AND SYSTEM INTEGRATION - 3 credits, 2 lecture hour, 3 lab

In this hands-on course, students will have the chance to design, build, and fly UAV models to serve specific civilian and commercial applications. In this process, students will be able to build and construct UAV using CAD software (SolidWorks) and 3D printing technology in addition to CNC technology. In the second phase, students will be assisted in equipping the UAV with basic control units such as IMU and in finally testing and flying the UAVs.

Prerequisites: None

UAS300 – DRONE ENGINEERING DESIGN PRINCIPLES – 3 credits

This course provides comprehensive engineering principles considered in developing UAS, particularly quadcopter UAS. This includes basic power calculation for thrust motion and directional control, overview of latest on-board sensors description and functionality such as IMUs and GPS sensors, providing basic training using commercially available programming platforms and tools to develop autonomous flight. The course also introduces design strategies to provide efficient maintenance process and to improve the vehicle operation reliability.

UAS350 – DRONE OPERATIONS AND MAINTENANCE – 3 credits

This course builds upon the introductory concepts and applications discussed in UAS200 Introduction to Uncrewed Aircraft Systems. The course is divided into three distinct phases covering the requirements necessary for the design, operations, and maintenance of UAS systems as a whole. The course specifically covers UAS airframe configurations, payload types, communications, ground based command and control systems, and launch and recovery systems. In addition, instruction covering the full lifecycle operational requirements will be provided with special emphasis placed on maintenance requirements and systems sustainability. At the conclusion of this course, the student will have an understanding of the entire lifecycle of a UAS product from preliminary design to development and manufacturing to operating trials and certification.

ELECTIVES

Electives offered each semester are selected by the department chairs and announced prior to registration. Students should inquire with the Student Advisement Center (SAC), registrar's office and/or their department chairs.

Liberal arts, management and aviation electives must be selected from upper division courses, except for ATC220, which counts as a math/science elective. Consult your adviser or chair of the arts and sciences department. Management or airport management courses (codes MGT, APM and ATM) may not be used as liberal arts electives.

Students in the associate in applied science programs (with the exception of the maintenance program) must select at least one liberal arts and one technical elective.

Some of the Air Traffic-Collegiate Training Initiative (AT-CTI) courses may be taken as electives (see ATC200, ATC220, ATC240 and ATC300 course descriptions for more information).

Students enrolled in the associate in applied science and bachelor of science degree programs in electronic engineering technology in avionics must select a technical elective from the curriculum course description in this catalog.

BASIC SKILLS COURSES

The Division of Special Studies offers an array of basic skills courses to aid students in their educational pursuit of studies at Vaughn College. Each student enrolled at the College is required to take a standardized placement test. If a student's placement test scores indicate that additional preparation in the areas of mathematics and/or English is required to ensure academic success at the College, that student will be required to take courses in the Division of Special Studies. A combination of 12 credit hours and equivalent hours is the maximum credit load a student who is enrolled in this division will be allowed to take.

ENG108 – BASIC SKILLS IN READING AND WRITING – 3 credits and required lab hour

Reading and writing have a connection developing skills in one area will naturally enhance skills in the other. Basic Skills in Reading and Writing is a fundamental course designed to help refine students' basic reading comprehension and basic writing skills. Students are taught to become effective readers and thinkers by developing literal and more advanced levels of reading comprehension, as well as by establishing clear, logical thinking. Students are also given a strong foundation for writing and will study grammar usage, including correct sentence structure and punctuation.

ENG109 – INTRODUCTION TO COLLEGE WRITING – 3 credits and required lab hour

This course is designed to introduce students to writing as a process and to develop their critical reading abilities. Students will learn to think critically by analyzing diverse readings, and will practice various phases of the writing process by composing paragraphs. In addition, students are introduced to writing the research paper.

Prerequisite: ENG108 or Accuplacer placement

MAT108 – FUNDAMENTALS OF ALGEBRA – 3 equivalent hours and required lab hour

The purpose of this course is to refine students' understanding and competency in fundamental topics from arithmetic and algebra. This course is designed to prepare students for MAT109 (Fundamentals of Pre-Calculus). Students should have background knowledge of basic computational and arithmetic skills. Some of the topics from the course include mathematical computations using arithmetic, operations with polynomials, graphs of linear functions and operations with algebraic expressions.

MAT109 – FUNDAMENTALS OF PRE-CALCULUS – 3 equivalent hours and required lab hour

This course is designed to refine students' understanding of topics from algebra and to prepare them for Pre-Calculus and college-level mathematics courses. Students should have background knowledge of some of the mathematical topics, including operations with polynomials, graphs of linear functions and operations with algebraic expressions. Some of the topics from the course include operations with algebraic fractions, systems of linear equations, quadratic functions and their graphs.

AVIATION TRAINING INSTITUTE (ATI) COURSES AND CERTIFICATION UNITS

All certification units will be offered in the fall, spring and summer semesters unless noted.

AA02 – CERTIFICATE PREPARATION – AIRFRAME – 0 certification unit

This course is a comprehensive review of airframe subjects as preparation for the written Federal Aviation Administration (FAA) Airframe Examination. Students not requiring FAA Airframe or Powerplant certifications will substitute DP404 Project Seminar and DP405 Degree Project. Prerequisite: All airframe and general subjects completed satisfactorily or retake of AA02 is required.

AC32 – AIRCRAFT STRUCTURES I – 5 certification units

Modern manufacturing, service and repair techniques used in aircraft structure are studied. Laboratory work includes layout, forming, bending and fastening of sheet metal structures. Prerequisites: GD01, GM21, GM21L

AC41 – AIRCRAFT STRUCTURES II – 3 certification units

Wood, fabric and composite repair techniques used in the aircraft industry are studied. Various types of welding processes are also performed. Experiments in the laboratory complement classwork. Prerequisite: GM21, GM21L

AD10– AIRCRAFT DISPATCH CERTIFICATION – 3 certification units

This course is a comprehensive study of federal regulations applicable to the field of aircraft dispatch. It also covers topics such as air traffic control procedures, airport planning and communications, aviation weather, aircraft performance, aerodynamics, aircraft navigation and practice dispatching as applied to aircraft dispatch. Performing one of aviation's most important roles, aircraft dispatchers share with pilots the ultimate responsibility for a flight's commencement and completion. Initial training consists of a minimum of 217 hours of full-time study over six to 10 weeks. An aviation background is helpful but not a requirement for initial training.

AE20 – AIRCRAFT AND ENGINE ELECTRICAL SYSTEMS – 4.5 certification units

Course topics include AC and DC generation, distribution and control circuits and systems characteristics, construction, servicing and repair as applied to airframe installations. Laboratory experiments supplement classroom work. Prerequisite: GE10, GE10L

AH31 – HYDRAULICS AND PNEUMATICS I – 3 certification units

Hydraulic and pneumatic systems as applied to aircraft are studied. Components and operating systems such as flap control, windshield wipers and pneumatics are analyzed. Bernoulli's theorem, viscosity and laminar flow are discussed in the class and investigated in the laboratory.

AH40 – AIRCRAFT LANDING GEAR SYSTEMS – 3 certification units

A detailed study is made of aircraft landing systems, shock absorption devices, brake systems and braking devices. Laboratory projects and demonstrations complement classwork. Prerequisite: AH31, AH31L

AL32 – AIRCRAFT RIGGING AND ALIGNMENT – 2 certification units

This course provides the student with an understanding of the effects of aircraft rigging and alignment. Topics include aircraft nomenclature and assembly procedures, fixed-wing and rotary-wing theory of flight, primary and secondary flight controls, flight control systems, aircraft stability, aircraft alignment and inspections procedures. Laboratory projects supplement classroom work.

AS41 – AIRCRAFT SYSTEMS– 5 certification units

A study is made of the principles of operation of various aircraft systems, such as fire detection, flight warning, air conditioning, pressurization, heating, deicing and fueling. Lab experience includes systems tracing, inspection, service and testing.

AS42 – AIRCRAFT AVIONICS SYSTEMS – 4.5 certification units

This is an introductory avionics course for the maintenance technician. Emphasis is placed on understanding basic systems, operations, schematics and troubleshooting. Topics range from instruments, communication and navigation to autopilot, flight directors and radar.

GD01 – INTRODUCTION TO AIRCRAFT GRAPHICS – 2 certification units

An introductory course in comprehending and interpreting aircraft drawings, it includes drawing skills, methods, symbology, and types of drawings and schematics to prepare the technician for maintenance and modification applications.

GE10 – BASIC DC/AC ELECTRICITY – 5.5 certification units

An introduction to the concepts of current, voltage, resistance and power. Coordinated lecture and laboratory sessions provide the theory and practical experience in the analysis of circuits, use of electrical instruments and construction and maintenance of components, all typical of aircraft electrical systems.

GL31 – AIRCRAFT WEIGHT AND BALANCE – 1 certification unit

A detailed study is made of aircraft weight and balance. Topics include aircraft empty weight, alterations on the center of gravity, adverse loading, corrections for overweight loading, corrections for out-of-center of gravity range loading, weight shifting and aircraft loading charts. Laboratory projects supplement classroom work. An introduction to the concepts of current, voltage, resistance and power. Coordinated lecture and laboratory sessions provide the theory and practical experience in the analysis of circuits, use of electrical instruments and construction and maintenance of components, all typical of aircraft electrical systems.

GM21 – AIRCRAFT MATERIALS AND PROCESSES – 4.5 certification units

The characteristics and properties of ferrous, nonferrous and composite materials are studied. Emphasis is placed on aircraft hardware, fittings, destructive testing, hand-tool use and familiarization. Heat treating, measurement techniques, corrosion and related technologies are investigated. Corequisite: GD01

GO41 – AIRCRAFT OPERATIONS AND PUBLICATIONS – 3 certification units

A detailed study is made of various maintenance publications, maintenance forms and records, and related Federal Air Regulations (FARs). Topics include the introduction to several nondestructive inspection procedures, along with corrosion detection, inspection and cleaning, as well as restoring protective finishes. Ground operations and services are covered. The airworthiness directive log (AD log) computerized maintenance program will be explored. Prerequisites: AH31, AH31L, GM21, GM21L

GG02 – CERTIFICATION PREPARATION – GENERAL – 0 certification units

This course is a comprehensive review of general subjects as preparation for the written Federal Aviation Administration (FAA) General Examination. Students not requiring FAA Airframe or Powerplant certifications will substitute DP404 Project Seminar and DP405 Degree Project. Prerequisite: All general subjects completed satisfactorily or retake of GG02 is required.

GP01 – INTRODUCTION TO AIRCRAFT PHYSICS – 3 certification units

An integrated physics and mathematics course designed as a foundation for the aviation-related physics needs of the aircraft technician. Laws of physics in mechanics, fluids, atmospheric, aerodynamics and thermodynamics as related to aviation are stressed, along with mathematical work to support the theory.

PC52 – AIRCRAFT IGNITION SYSTEMS – 3 certification units

Generation, distribution and control of engine ignition are studied. System, component and part operation, troubleshooting, servicing and repair are included. Laboratory experiments complement classwork. Prerequisites: AE20; GE10

PE30 – POWERPLANT ELECTRICAL SYSTEMS – 2.5 certification units

Engine electrical system components—AC and DC generators—and engine electrical system operations are studied. Aircraft powerplant electrical generation and operations, including troubleshooting, are also studied. Engine electrical

system solenoid and motor-operated valves are examined. Lab projects supplement classwork. Prerequisites: AE20, AE20L, GE10

PO60 – AIRCRAFT MAINTENANCE OPERATIONS – 5 certification units

A detailed study is made of the proper methods of operating, testing and evaluating the performance of the aircraft reciprocating powerplant 100-hour annual inspection, and flight line safety and operations. Included are computerized aircraft recording, record keeping, analysis of supporting systems, such as fire protection, engine instrumentation, turbocharging, system maintenance and troubleshooting, cockpit orientation and run-up of aircraft. Laboratory experience complements the classwork. Prerequisites or corequisites: PC52, PC52L, PP53, PP53L, PS51, PS51L

PP02 – CERTIFICATE PREPARATION POWERPLANT – 0 certification unit

A comprehensive examination of powerplant subjects prior to the written Federal Aviation Administration (FAA) Powerplant Examination. Students not requiring FAA certification will substitute DP404 Project Seminar and DP405 Degree Project. Prerequisites: all powerplant subjects completed satisfactorily, general certificate of completion, airframe certificate or must take AA02 and PP02 in the same semester. Failure of any PP02 prerequisite will require retake of PP02.

PP53 – POWERPLANT THEORY AND MAINTENANCE – 5 certification units

A detailed study is made of reciprocating engines and their accessories. The theory of internal combustion engines is applied to specific powerplants, operational techniques are explored, and maintenance and overhaul techniques are analyzed. Lab experience includes inspection, repair and overhaul of the powerplant.

PP61 – TURBINE ENGINE MAINTENANCE – 6 certification units

This course is a study of high-performance gas turbine engines and how their accessories are made. Operational maintenance and overhaul techniques are analyzed. Students are introduced to procedures and run-up modern turbojet and turboprop engines.

PS51 – POWERPLANT SYSTEMS I – 4 certification units

A study is made of lubricants, lubrication systems and the operating principles of various powerplant systems, such as cooling and exhaust. The theory and operation of propellers are covered. Laboratory experience complements classroom work.

PS60 – POWERPLANT SYSTEMS II – 3 certification units

A study of fuel metering systems, such as float, pressure and fuel injection systems, is discussed. Fuel system operation is explored. Component inspection and repair are also included. Laboratory experience complements classroom work.

ACADEMIC CALENDAR 2024 – 2025*

* All dates are subject to change. Check the website: www.vaughn.edu.

FALL SEMESTER 2024	
Registration	Tues., February 27, 2024 through Thu., August 29, 2024**
Labor Day Holiday	Mon., September 2
Classes Begin	Tues., September 3, 8 a.m.
Late Registration Begins (late fee will be imposed)	Tues., September 3
Tuition Payment Due	Tues., September 3
Program Adjustment Period (add/drop/change)	Fri., August 30 through Sat., September 14
Last Day to Register	Mon., September 9
Last Day to File for May 2025 Graduation	Fri., October 11
Midterm Exam Period	Wed., October 16 through Sat., October 26
Last Day to Withdraw without Academic Penalty	Wed., November 6
Veterans Day Holiday	Mon., November 11
Thanksgiving Recess	Wed., November 27 through Sun., December 1
Classes Resume	Mon., December 2, 8 a.m.
Classes End	Fri., December 13
Exam Period	Tue., December 17 through Mon., December 23
Spring/Summer 2024 Grade Change Deadline	Mon., December 23
Winter Recess	Tues., December 24, 2024 through Mon., January 20, 2025
SPRING SEMESTER 2025	
Registration	Mon., October 28, 2024 through Fri., January 10, 2025**
Classes Begin	Mon., January 13, 8 a.m.
Late Registration Begins (late fee will be imposed)	Mon., January 13
Tuition Payment Due	Mon., January 13
Program Adjustment Period (add/drop/change)	Mon., January 13 through Sat., January 25
Dr. Martin Luther King Jr. Day Holiday	Mon., January 20
Last Day to Register	Sat., January 25
Presidents Day Holiday	Mon., February 17
Monday Schedule	Tues., February 18
Midterm Exam Period	Mon., February 24 through Sat., March 1
Last Day to Withdraw without Academic Penalty	Fri., March 21
Spring Recess	Mon., March 24 through Sun., March 30
Classes Resume	Mon., March 31, 8 a.m.
Classes End	Tues., April 29
Exam Period	Wed., April 30 through Tues., May 6
Fall 2023 Grade Change Deadline	Tues., May 6
Honors Convocation	Wed., May 7
Commencement	Sat., May 17
ACADEMIC SESSION I SUMMER 2025	
Registration	Fri., March 1, 2024, 2024, through Thu., May 8, 2025**
Classes Begin (Thursday Schedule)	Fri., May 9, 8 a.m.
Late Registration Begins (late fee will be imposed)	Fri., May 9
Tuition Payment Due	Fri., May 9
Program Adjustment Period (add/drop/change)	Fri., May 9 through Tues., May 13
Last Day to Register	Tues., May 13
Memorial Day Holiday	Mon., May 26
Last Day to Withdraw without Academic Penalty	Mon., June 3
Last Day to File for December 2025 Graduation	Wed., June 11
Juneteenth Holiday	Wed., June 19
Classes End	Mon., June 23
Summer Recess	Mon., June 30 through Sun., July 6

ACADEMIC SESSION II SUMMER 2025	
Registration	Fri., March 1, 2024, through Fri., June 27, 2025**
Classes Begin	Mon., July 7, 8 a.m.
Late Registration Begins (late fee will be imposed)	Mon., July 7
Tuition Payment Due	Mon., July 7
Program Adjustment Period (add/drop/change)	Mon., July 7 through Wed., July 9
Last Day to Register	Wed., July 9
Last Day to Withdraw without Academic Penalty	Mon., July 28
Classes End	Fri., August 15
ACADEMIC SESSION III SUMMER 2025 (Entire Summer)	
Registration	Fri., March 1, 2024 through Thurs., May 8, 2025
Classes Begin	Fri., May 9, 8 a.m.
Late Registration Begins (late fee will be imposed)	Fri., May 9
Tuition Payment Due	Fri., May 9
Program Adjustment Period (add/drop/change)	Fri., May 9 through Tues., May 13
Last Day to Register	Tues., May 13
Memorial Day Holiday	Mon., May 26
Juneteenth Holiday	Wed., June 19
Summer Recess	Mon., June 30 through Sun., July 6
Classes Resume	Mon., July 7, 8 a.m.
Last Day to Withdraw without Academic Penalty	Fri., July 18
Classes End	Fri., August 15

** (Early registration and/or online registration may be available by contacting academic advisement)

AVIATION TRAINING INSTITUTE CALENDAR 2024 – 2025*	
* All dates are subject to change. Check the website: www.vaughn.edu .	
FALL SEMESTER 2024	
Registration	Wed., February 27, 2024 through Thu., August 29, 2024**
Labor Day Holiday	Mon., September 2
Classes Begin	Tues., September 3, 8 a.m.
Late Registration Begins (late fee will be imposed)	Tues., September 3
Tuition Payment Due	Tues., September 3
Program Adjustment Period (add/drop/change)	Fri., August 30 through Sat., September 14
Last Day to Register	Sat., September 14
Last Day to File for May 2025 Graduation	Fri., October 11
Midterm exam period	Mon., October 21 through Sat., October 26
Last Day to Withdraw without Academic Penalty	Tues., November 6
Veterans Day Holiday	Fri., November 11
Thanksgiving Recess	Wed., November 27 through Sun., December 1
Classes Resume	Mon., December 2, 8 a.m.
Monday Schedule	Tues., December 17
Semester Ends	Sun., December 22
Winter Recess	Sat., December 24, 2024 through Mon., January 20, 2025
SPRING SEMESTER 2025	
Registration	Mon, October 28, 2024, through Fri, January 10, 2025

Classes Begin	Mon., January 13, 8 a.m.
Late Registration Begins (late fee will be imposed)	Mon., January 13
Tuition Payment Due	Mon., January 13
Program Adjustment Period (add/drop/change)	Mon., January 13 through Sat., January 25
Dr. Martin Luther King Jr. Holiday	Mon., January 20
Last Day to Register	Sat., January 25
Presidents Day Holiday	Mon., February 17
Last Day to Withdraw without Academic Penalty	Fri., March 21
Semester Ends/Monday Schedule	Tues., May 6
Makeup Classes May Be Held	Tue., May 6 through Thu., May 8
Honors Convocation	Wed., May 7
Commencement	Sat., May 17
SESSION I SUMMER 2025	
Registration	Mon, October 30, 2024, through Thurs., May 8, 2025
Classes Begin – Thursday Schedule	Thur., May 8, 8 a.m.
Late Registration Begins (late fee will be imposed)	Thur., May 8
Tuition Payment Due	Thur., May 8
Program Adjustment Period (add/drop/change)	Thur., May 8 through Mon., May 12
Last Day to Register	Mon., May 12
Memorial Day Holiday	Mon., May 26
Last Day to Withdraw without Academic Penalty	Mon., June 3
Last Day to File for December 2025 Graduation	Wed., June 11
Juneteenth Holiday	Wed., June 19
Classes End	Fri., June 27
Summer Recess	Mon., June 30 through Sun., July 6
SESSION II SUMMER 2025	
Registration	Mon., October 30, 2024, through Fri., June 27, 2025**
Classes Begin	Mon., July 7, 8 a.m.
Late Registration Begins (late fee will be imposed)	Mon., July 7
Tuition Payment Due	Mon., July 7
Program Adjustment Period (add/drop/change)	Mon., July 7 through Wed., July 9
Last Day to Register	Wed., July 9
Last Day to Withdraw without Academic Penalty	Mon., July 29
Classes End	Fri., August 22

** (Early registration and/or online registration may be available by contacting academic advisement)

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By public transportation:

Take the E or F train to Roosevelt Avenue—Jackson Heights (express stop) or the No. 7 train to 74th Street—Broadway (local stop), then take the Q33 LaGuardia Airport bus to the College at 87th Street or the Q48 Marine Air Terminal bus from Main Street, Flushing.

The M60 bus is a local service between Morningside Heights, Manhattan and LaGuardia Airport, Queens. The bus leaves from Broadway and West 106th Street, proceeds north on Broadway and then east on 125th Street. It crosses the Robert F. Kennedy (Triborough) Bridge into Queens and stops across the street from the College on 23rd Avenue at 87th Street.

Visit these helpful websites: mta.info and hopstop.com

By automobile:

When using a GPS device, please enter Vaughn's address as:

8601 23rd Avenue

East Elmhurst, NY 11369

From Brooklyn:

Take the Brooklyn-Queens Expressway to LaGuardia Airport Exit 39. Take Astoria Boulevard East to 85th Street, then turn left one block and right onto 23rd Avenue. Proceed to 90th Street, and make a left turn into the College.

From Long Island:

Via Grand Central Parkway westbound: Take LaGuardia Airport Exit 7—94th Street. Follow the long exit ramp, and make a left turn onto 94th Street. Proceed to top of the hill, which is 23rd Avenue. Make a right on 23rd Avenue to the College at 90th Street.

From Manhattan:

Via Grand Central Parkway eastbound: Take LaGuardia Airport Exit 6—94th Street. Stay in the right lane, and make a right turn onto 94th Street. Proceed to the top of the hill, which is 23rd Avenue. Make a right on 23rd Avenue to the College at 90th Street.

From New Jersey and Points South:

Head northeast on I-95 north (partial toll road) entering New York. Take Exit 1C-3 to merge onto I-87 South/Major Deegan Expressway toward Queens. Take the exit onto I-278 toward Queens/Triborough Bridge/Manhattan (partial toll road). Continue east on Grand Central Parkway (signs for Grand Central Parkway East/LaGuardia Airport). Take Exit 6 toward 94th Street. Merge onto Ditmars Boulevard. Turn right at 94th Street. Turn right at 23rd Avenue to the College at 90th Street.

From Upstate New York and Points North:

Head south on I-87/New York State Thruway south (partial toll road). Take Exit 13S for Palisades

Parkway south toward New Jersey. Merge onto Palisades Interstate Parkway south entering New Jersey. Take the exit toward the George Washington Bridge (partial toll road). Merge onto I-95 North/US-1 North entering New York. Take Exit 1C-3 to merge onto I-87 S/Major Deegan Expressway toward Queens. Take the exit onto I-278 toward Queens/Triborough Bridge/Manhattan (partial toll road). Continue east on Grand Central Parkway (signs for Grand Central Parkway East/LaGuardia Airport). Take Exit 6 toward 94th Street. Merge onto Ditmars Boulevard. Turn right at 94th Street. Turn right at 23rd Avenue to the College at 90th Street.

