



**BENJAMIN  
FRANKLIN**  
INSTITUTE OF TECHNOLOGY  
YOUR PATHWAY TO SUCCESS

**2021-2022**

**COURSE  
CATALOG**

# 2021-2022

## Course Catalog

*Information, Policies, Programs,  
Courses, and Faculty of the  
Benjamin Franklin Institute of Technology*

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Boston, Massachusetts 02116  
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The BENJAMIN FRANKLIN INSTITUTE OF TECHNOLOGY reserves the right, in its sole judgment, to make changes of any nature in its programs, calendar, or academic schedule whenever it is deemed necessary or desirable, including changes in course content, the rescheduling of classes with or without extending the academic term, canceling of scheduled classes and other academic activities, in any such case giving such notice thereof as is reasonably practicable under the circumstances. This catalog contains current information regarding the calendar, admission, degree requirements, fees, regulations, and course offerings. The policy of BFIT is to give advance notice of change, whenever possible, to permit adjustment. However, BFIT reserves the right to make changes at anytime when it is deemed advisable. Requests for the college's audited financial statements should be directed to the President's Office at 617-588-1369.

***Equal Opportunity Policy***

Benjamin Franklin Institute of Technology policy prohibits discrimination on the basis of race, creed, color, religion, national origin, ancestry, sex, age, marital status, veteran status, political belief or affiliation, criminal record (applications only), CORI check results, mental or physical disability, pregnancy, retaliation, sexual harassment, sexual orientation, gender identity or expression and genetic information and any other class of individuals protected from discrimination under state and federal law. This policy extends to all rights, privileges, programs, and activities including admission, employment, financial assistance, and educational programs.

Inquiries concerning the application of these laws to BENJAMIN FRANKLIN INSTITUTE OF TECHNOLOGY should be addressed to the Equal Employment Opportunity/Affirmative Action Officer, who is the Human Resources Director, 41 Berkeley Street, Boston, MA 02116.

***Family Educational Rights and Privacy Policy***

BFIT complies with the Family Educational Rights and Privacy Act, also known as the Buckley Amendment. This act protects the rights of the student in matters of access to and release of information contained in the student's records. Questions regarding this policy should be referred to the Registrar's Office.

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# Profile

Type of School: Private College

Founded: 1908 under the provisions of the will of Benjamin Franklin

Enrollment: Approx. 500 day and evening students

President: Dr. Aisha Francis

Accreditation: New England Commission of Higher Education (NECHE)  
ASE Education Foundation  
Commission on Opticianry Accreditation (COA)

Degrees: Bachelor of Science  
Associate of Science  
Certificate of Proficiency

Programs: Automotive Technology, A.S.  
Automotive Technology, Certificate  
Automotive Management, B.S.  
Computer Technology: Certificates  
Software Development  
Networking and Support Systems  
Web Design  
Cybersecurity  
Construction Management, A.S.  
Electrical Engineering, B.S.  
Electronics Technology, Certificate  
Engineering Technology *with concentrations in:*  
• Advanced Manufacturing and Automation  
• Mechatronics Technology  
• Renewable Energy Technology  
Health Information Technology, A.S. *with concentrations in:*  
• General  
• Public Health  
• Data Analytics  
Health Information Technology, B.S.  
Heating, Ventilation, Air Conditioning & Refrigeration, Certificate  
CAD/SolidWorks, Certificate  
CNC Machining, Certificate  
Mechanical Engineering Technology, B.S.  
Opticianry, A.S.

Student Profile: Ethnic Origin                      Percentage

Asian	6%
Black, Non-Hispanic	37%
Hispanic/Latino	28%
Multi-Ethnic	2%
Native American	1%
Other/Non-Disclosed	10%
Pacific Islander	0.3%
White, Non-Hispanic	17%

Gender Identity: Male                                      86%  
Female    14%

Tuition: Associate Degree Programs  
\$16,950 per year  
Certificate Programs \$16,950 per year  
Bachelor's Programs \$18,190 per year

Financial Aid: Federal, State and institutional aid available  
Students receiving Pell Grants 61%

Location: Boston's South End neighborhood

## Accreditation

### *New England Commission of Higher Education (NECHE — formerly NEASC)*

Benjamin Franklin Institute of Technology is accredited by the New England Commission of Higher Education, a non-governmental, nationally recognized organization that accredits institutions of higher education.

Accreditation of an institution by the New England Commission of Higher Education indicates that it meets or exceeds criteria for the assessment of institutional quality, periodically applied through a rigorous review process. An accredited school or college is one that has the resources necessary to achieve its stated purposes through appropriate educational programs, is substantially doing so, and gives reasonable evidence that it will continue to do so in the foreseeable future.

Accreditation by the New England Commission is not partial, but applies to the institution as a whole. As such, it is not a guarantee of the quality of every course or program offered, or the competence of individual graduates. Rather, it provides reasonable assurance about the quality of opportunities available to students who attend the institution.

Inquiries regarding the status of an institution's accreditation by the New England Commission of Higher Education should be directed to: New England Commission of Higher Education 3 Burlington Woods Drive, Suite 100, Burlington, MA 01803-4514; 781-425-7700; <https://www.neche.org/>

### *ASE Education Foundation*

The Automotive Technology program at Benjamin Franklin Institute of Technology is accredited by the ASE Education Foundation, an independent, non-profit organization with a single mission:

To evaluate technician training programs against standards developed by the automotive industry and recommend qualifying programs for ASE Education Foundation accreditation.

ASE Education Foundation; 101 Blue Seal Drive, SE, Suite 101; Leesburg, VA 20175; (703) 669-6650; Fax: (703) 669-6125; <http://www.aseeducationfoundation.org>

### *Commission on Opticianry Accreditation (COA)*

The Opticianry program at Benjamin Franklin Institute of Technology is accredited by the Commission on Opticianry Accreditation.

The Commission on Opticianry Accreditation (COA), a not-for-profit agency, accredits Opticianry education in the United States.

The mission of the Commission on Opticianry Accreditation is to foster excellence in opticianry education by setting standards, assessing educational effectiveness, and identifying those academic programs that meet the standards, in order to aid programs to produce competent graduates who will provide professional services to the public.

Scope of accreditation: COA accredits two-year Opticianry degree programs and one-year ophthalmic laboratory technology certificate programs in the United States and Canada that are sponsored by post-secondary institutions accredited by agencies recognized by the Department of Education or CHEA.

Recognition: The COA is recognized by the Council on Higher Education Accreditation (CHEA, <http://www.chea.org/>). Commission on Opticianry Accreditation; PO Box 592; Canton, NY, 13617; (703) 468-0566; <http://www.coaccreditation.com>

### *ABET: Engineering Accreditation Commission*

The Bachelor of Science in Electrical Engineering is accredited by the Engineering Accreditation Commission of ABET. ABET accreditation assures confidence that a collegiate program has met standards essential to prepare graduates to enter critical STEM fields in the global workforce. Graduates from an ABET-accredited program have a solid educational foundation and are capable of leading the way in innovation, emerging technologies, and in anticipating the welfare and safety needs of the public.

[www.abet.org](http://www.abet.org)

### *Student Complaints*

The State of Massachusetts allows students the right to make a formal complaint to The Massachusetts Board of Higher Education and they attempt to provide an avenue for informal resolution of matters concerning institutions. They cannot require an institution to take any specific action in a matter and cannot provide legal advice. However, once filed the college will be asked to follow the complaint process.

### *Complaint Process*

The Board of Higher Education receives and refers complaints/inquiries to the specific college for clarification and response. The college's Board of Trustees has responsibility for establishing and enforcing policies necessary for the management of the institution under its authority. The management will review the complaint and investigate each matter and will meet with the student.

Before contacting the DHE, you must first exhaust the institution's internal grievance or complaint procedures. These policies are usually published in the institution's catalog, student handbook, and/or on the institution's website. After you have pursued your concerns using the institution's dispute resolution procedures, and have not reached a mutually agreeable resolution, you may proceed with filing a formal complaint with the DHE.

### *Public Record*

Under most circumstances, the text of the complaint/inquiry will be considered a public record, a copy of which is available to any member of the public upon request. However, identifying information (e.g., name, address, phone number, etc.) will not be disclosed. Furthermore, no part of the complaint/inquiry will be discussed in response to a request that asks specifically for a complaint/inquiry submitted by an individual.

To submit a complaint, visit <https://www.mass.edu/forstufam/complaints/complaints.asp>

## A Message from the President and CEO

Benjamin Franklin Institute of Technology is pleased to provide you with the 2021-2022 Course Catalog to help further your college-to-career journey. This catalog articulates the academic policies of the college and provides detailed information regarding our programs of study. In addition to course listings and program offerings, you will find important information regarding your responsibilities as a student.

Please take time to familiarize yourself with the contents of this publication and use it to guide you as you pursue your education. On behalf of the entire BFIT community, I want to say how excited we are that you are sharing your learning journey with us.

Whether you are a first-time college student or returning to college, BFIT offers a wide variety of courses that can be applied toward an associate degree, bachelor's degree, or a workforce certificate. As a technical college focused on community impact, we attract a spectrum of students, from high schoolers who enroll in dual-credit courses to 60-plus-year-olds who take classes as part of our Division of Professional and Continuing Studies. Our faculty and staff go the extra mile to provide the support and resources every student needs to fulfill their goals. We are happy to be your college of choice!

As one of the most affordable private colleges in the Commonwealth, BFIT helps students earn a degree (via small classes) at a fraction of the cost of a typical university. BFIT also has a robust array of workforce certificates — including Practical Electricity, HVAC&R, and more — that afford students the opportunity to earn key credentials in a year or less and then join the workforce. We are doing all of this with a student-centered perspective while remaining focused on our vision of: *being a best-in-class college that provides a supportive learning environment and offers an innovative, practical, and entrepreneurial education resulting in career-ready, productive, and civically-engaged citizens.*

I invite you to take advantage of all the opportunities that await you at Benjamin Franklin Institute of Technology.

Sincerely,



Dr. Aisha Francis  
President and CEO





# 2021-2022 Academic Calendar

## Fall Semester 2021

Labor Day ..... Monday, September 6, 2021  
Check In Day, SYE, and FYE  
Classes Begin ..... Tuesday, September 7, 2021  
Add/Drop Deadline ..... Monday, September 21, 2020  
Incomplete Deadline ..... Monday, September 21, 2020  
Withdrawal Deadline - 7 Week..... Friday, October 8, 2021  
Columbus Day..... Monday, October 11, 2021  
Monday Schedule..... Tuesday, October 12, 2021  
Wednesday Schedule  
Mid Term Ends..... Saturday, October 16, 2021  
Fall 1: 7 Week Courses End ..... Tuesday, October 26, 2021  
Fall 2: 7 Week Courses Start ..... Wednesday, October 27, 2021  
Thursday Schedule..... Monday, November 8, 2021  
Friday Schedule  
Veteran's Day Observed..... Thursday, November 11, 2021  
Withdrawal Deadline -  
14 Week Courses ..... Friday, November 12, 2021  
Thanksgiving..... November 24-26, 2020  
Registration Begins ..... Monday, November 8, 2021  
Withdrawal Deadline - 7 Week..... Friday, December 3, 2021  
Classes End..... Monday, December 20, 2021  
Winter Recess..... December 21-January 18, 2022

## Spring Semester 2022

*Returning HVAC Student -  
Classes Begin*..... Monday, January 3, 2022  
M.L. King Day..... Monday, January 17, 2022  
*Returning HVAC Students - No Class*  
Check In Day, SYE, and FYE..... Tuesday, January 18, 2022  
Classes Begin ..... Tuesday, January 18, 2022  
Add/Drop Deadline ..... Monday, January 31, 2022  
Incomplete Deadline ..... Monday, January 31, 2022  
President's Day..... Monday, February 21, 2022  
Monday Schedule..... Tuesday, February 22, 2022  
Withdrawal Deadline - 7 Week..... Friday, February 18, 2022  
*HVAC Spring Start Students - Classes in Session*  
Mid Term Ends ..... Tuesday, March 8, 2022  
Spring 1 Courses End ..... Tuesday, March 8, 2022  
Spring Break..... March 9-15, 2022  
Spring 2 Courses Start ..... Wednesday, March 16, 2022  
Withdrawal Deadline -  
14 Week Courses ..... Thursday, March 31, 2022  
Summer Registration Begins ..... Monday, April 4, 2022  
Fall Registration Begins ..... Monday, April 4, 2022  
Patriots Day..... Monday, April 18, 2022  
Withdrawal Deadline - 7 Week..... Tuesday, April 19, 2022  
Monday Schedule..... Wednesday, April 20, 2022  
*HVAC Spring Start Students - Classes in Session*  
Classes End..... Wednesday, May 4, 2022  
*HVAC Spring Start Students - Classes in Session*  
Graduation..... Saturday, May 14, 2022

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## Summer Semester 2022

**Summer Session I:** 7 week session ..... May 11-June 29, 2022  
Classes Begin ..... Wednesday, May 11, 2022  
Add/Drop Deadline ..... Tuesday, May 17, 2022  
Incomplete Deadline ..... Tuesday, May 17, 2022  
Memorial Day ..... Monday, May 30, 2022  
Monday Schedule..... Wednesday, June 1, 2022  
*HVAC Classes in Session*  
Withdrawal Deadline..... Tuesday, June 14, 2022  
*No HVAC Classes*  
Summer Break..... June 30-July 10, 2022  
Independence Day..... Monday, July 4, 2022

**Summer Session II:** 7 week session .... July 11 -August 26, 2022  
*HVAC Classes Resume*  
Classes Begin ..... Monday, July 11, 2022  
Add/Drop Deadline ..... Friday, July 15, 2022  
Incomplete Deadline ..... Friday, July 15, 2022  
Withdrawal Deadline..... Thursday, August 11, 2022  
Classes End..... Friday, August 26, 2022  
*HVAC Classes End*

## Policies and Disclaimers

### *Equal Opportunity Policy*

Benjamin Franklin Institute of Technology policy prohibits discrimination on the basis of race, creed, color, religion, national origin, ancestry, sex, age, marital status, veteran status, political belief or affiliation, criminal record (applications only), CORI check results, mental or physical disability, pregnancy, retaliation, sexual harassment, sexual orientation, gender identity or expression and genetic information and any other class of individuals protected from discrimination under state and federal law.

This policy extends to all rights, privileges, programs, and activities, including admission, employment, financial assistance, and educational programs, and is required by federal law including Title IX of the Educational Amendments of 1972, and section 504 of the Rehabilitation Act of 1973, and the regulations thereunder. Inquiries concerning the application of these laws to Benjamin Franklin Institute of Technology should be addressed to the Equal Employment Opportunities/Affirmative Action Officer, who is the Human Resources Director at 41 Berkeley Street, Boston, MA 02116.

### *Family Educational Rights and Privacy Policy*

Benjamin Franklin Institute of Technology complies with the federal Family Educational Rights and Privacy Act. This law protects the rights of the student in matters of access to, and release of, information contained in the student's educational records. For more information refer to the full policy in this catalog.

### *Changes to this Catalog*

The information in this catalog was current as of July 1, 2019. Benjamin Franklin Institute of Technology reserves the right to update, modify, and change calendars, degree requirements, course offerings, course descriptions, regulations, tuition and fees, and other information as necessary. The college will endeavor to provide timely notice of these changes to the persons affected. An updated version of this catalog can be found online at [www.bfit.edu](http://www.bfit.edu).

## History and Mission

### *History*

Benjamin Franklin Institute of Technology is a two-year college with a rich history built on tradition and innovation. One of the oldest technical colleges in New England, BFIT owes its existence to Benjamin Franklin, who in the 1789 codicil to his will bequeathed a gift to help educate "the inhabitants of the Town of Boston." His desire was to equip young people with quality technical skills, believing that "good apprentices are most likely to make good citizens."

In 1906, aided by an additional gift from the industrialist Andrew Carnegie and land donated by the city of Boston, the managers of the Franklin Fund decided that a technical college would best accomplish Franklin's original purpose.

Benjamin Franklin Institute of Technology opened its doors to students in 1908. Since then, BFIT has graduated more than 85,000 students, all of whom have benefited from its unique approach to technical education. BFIT remains Dr. Franklin's living legacy to Boston.

A more extensive history of BFIT can be found on our website at [www.bfit.edu](http://www.bfit.edu).

### *Mission Statement*

Benjamin Franklin Institute of Technology is an affordable, urban college serving the Boston region and committed to student success and career readiness in technology fields. Through personalized support, hands-on learning, and industry-informed curricula, BFIT prepares graduates for work, life-long learning, and citizenship.

### *Institutional Values*

- We value our diverse community and the fostering of a supportive learning environment. We are committed to creating opportunity by working closely with industry and community partners to prepare our students for lifelong learning in an increasingly interdependent world. Our academic programs and co-curricular efforts reflect our commitment to the fundamental principles of an educated person. We value the following skills and attributes and actively promote their development through college-wide initiatives, so that each student:
- Possesses the technical skills to enter the workforce or go on to further education
- Demonstrates professionalism through leadership, a strong work ethic, and teamwork
- Communicates effectively both professionally and personally
- Utilizes critical thinking and various approaches to problem solving
- Possesses the lifelong skills to locate, evaluate and use information effectively
- Understands the impact of sustainable development
- Is globally and ethically responsible and civically engaged

## Governance

Benjamin Franklin Institute of Technology is governed by an independent Board of Trustees reflective of the Boston area citizenry, as desired by Benjamin Franklin in his original bequest to the City of Boston. The Board presently has 18 members in addition to its ex-officio members, the Mayor of Boston, and the President of the college.

As well, the Board is aided by the continued service of its Trustees Emeriti, distinguished former members of the Board who continue their participation in many aspects of the college governance.

The Board of Trustees meets on a quarterly basis at the college. In between the Trustee meetings of the full Board, an elected Executive Committee serves in the Board's stead for needed decision-making and guidance.

Each Trustee is asked to serve on at least two Board committees. These committees convene and engage with the college during their own committee meetings, taking advantage of the specific skills possessed by the individual Trustees. Committees include Executive Committee, Governance and Strategy, Finance and Audit, Development, Real Estate and Capital, and Academic Affairs.

Four members of the Trustees are elected as officers of the Board during the Annual Meeting. These are the Chair, Vice Chair, Treasurer and Clerk. Membership of the Executive Committee and other committees is also determined at the June meeting.

The President of the college is a voting member of the Board and is responsible for the management and implementation of the policies and directives of the Board. He has a strong consultative relationship with the Chair, the Executive Committee and other Trustees. The President also manages the daily operation of the college along with an Administrative Council that consists of his management team, comprising the college's Dean of Academic Affairs, the Dean of Student Affairs, the Dean of Recruitment, the Dean of IT, the Chief Financial Officer, the Chief of Staff, the Chief Advancement Officer, the Director of Career Services & Industry Partnerships, and the Director of Human Resources.

### *Shared Governance*

The academic department chairs meet regularly with the Dean of Academic Affairs. The faculty is involved in curriculum matters, personnel matters, and faculty development through four standing committees:

- A faculty academic advisory committee (FAAC) advises on academic and curriculum matters.
- A faculty development committee (FDC) promotes professional development and in-service training.
- A faculty promotion committee (FPC) reviews faculty portfolios for academic promotion.

## Facilities

The college includes laboratory, classroom, student, and office space on its three-acre campus in the South End neighborhood of Boston. The campus centers on the Franklin Union building, an historic 1908 structure designed specifically for technical education.

For its approximately 550 students, BFIT provides 12 general classrooms, 30 specialized laboratories, an Academic Success Center, an 800 seat auditorium, a student lounge, a veteran resource center, and a college store.

The central place on campus is the historic, high-ceilinged lobby where students study, talk, and meet with their teachers.

### *Laboratories*

Since effective technical education focuses on experimentation and hands-on work, BFIT's facilities center on these 30 labs:

- Alternative Energy Lab
- Alternative Fuels Vehicles Lab
- Automotive Brakes Lab
- Automotive Engines Lab
- Automotive Repair Lab
- Automotive Transmissions Lab
- Automotive Electric Lab
- Automotive Diagnostics Lab
- Automotive Chassis Lab
- Building Technology Design Lab
- Computer Networking Lab
- Computer Programming Labs (3)
- Computer Diagnostics Lab
- Computer Aided Design (CAD) Labs (2)
- Electrical Electro-Mechanical Lab
- Electrical Photovoltaic & Renewable Energy Lab
- Electrical Wiring Methods Lab
- Electrical Engineering and Electronics Labs (2)
- HVAC&R Labs (3)
- Mechanical Engineering Technology Lab
- Opticianry Labs (3)
- Physics Lab

# Admissions Procedure and Criteria

## *Application Deadlines*

Applications are reviewed on a rolling basis. The priority deadline for the Fall semester is May 1 and for the Spring semester is December 1.

## *Admission Requirements*

Because the intensity of the studies at the Benjamin Franklin Institute of Technology varies from program to program, the level of high school preparation for admission varies accordingly.

- Applicants to the associate degree programs in electrical technology and engineering technologies (electronic, biomedical, computer, and mechanical) should have completed in high school: four full-year courses in English, at least four years in mathematics through Algebra II and/or up to pre-calculus, and at least one course in science.
- Applicants to the associate degree programs in automotive, computer technology, construction management, health information technology, opticianry, and technology business and management, should have completed in high school: four full-year courses in English, at least three years in mathematics, and at least one course in science.
- Applicants to the certificate programs in automotive, HVAC&R and practical electricity should have undertaken high school courses that reflect satisfactory development of basic English, mathematics, and science or technical skills.
- Applicants to the automotive technology program must have correctable vision and hearing, an ability to stand for long periods, the ability to lift 30 pounds, and, for continuation into the second year of the program, a valid driver's license. These requirements stem from the machinery, repair equipment, and running engines encountered in the automotive laboratories and shops.
- Applicants to the Bachelor of Science degree programs who have already earned a qualifying Associate of Science degree from BFIT or another accredited college must have a minimum average of "C" in each English Composition course. Applicants should be aware of the terms of articulation agreements with other two-year colleges. Failure to meet all of the terms as outlined in the articulation agreement may result in additional coursework prior to matriculation in the Bachelor of Science programs.
- Applicants to the Bachelor of Science degree in Electrical Engineering (BSEE) must have completed in high school: four full-year courses in English, four years in mathematics through pre-calculus or statistics, three years in science, and meet all standards to complete high school requirements. Students should have a minimum of 2.5 average GPA in math to gain admission directly into the BSEE program

## *How to Apply for Admission*

All applicants must complete the Application for Admission, available in paper or online at [www.bfit.edu](http://www.bfit.edu). Students may also submit the Common Application which can be obtained online at [www.commonapp.org](http://www.commonapp.org). Students who complete the common application must submit a \$25 processing fee along with the common application. Official high school or secondary school records or transcripts, or official GED/HiSET scores, must be submitted before the application can be processed. High school guidance counselors or records offices may send official copies of transcripts to BFIT. Students may be asked to schedule a formal interview as part of the admissions process.\*

In addition, students may need to submit one letter of recommendation from a teacher, high school guidance counselor, or an employer based on the transcripts submitted. This request will be from the assigned admissions counselor. Upon enrollment, students must submit a final high school or secondary school transcript that states their graduation date and immunization records as mandated by the Commonwealth of Massachusetts.

*\*Interviews are not required of all students but are strongly encouraged. Students that do not possess a history of academic strength as demonstrated through their academic records may be required to have an interview with an admissions staff member prior to an admissions decision being rendered.*

Applications are processed on a rolling basis, with applicants notified of their admission status shortly after all required documents have been received. All offers of conditional admission require the applicant's successful completion of the items listed in his or her acceptance letter. Official final secondary school transcripts are required in order to complete an applicant's file and initiate the registration process.

### *Standardized Testing*

BFIT is test optional; however, applicants are strongly encouraged to take the Scholastic Aptitude Test (SAT) of the College Board or the American College Testing (ACT) Assessment.

Our CEEB code is 3394. Official test scores should be submitted to the Admissions Office if available to help support the strength of a student's application materials.

Once students are accepted to the college, they will be asked to take BFIT's placement assessment to determine their level of proficiency in English and mathematics so that they are appropriately scheduled for classes during their first semester of enrollment.

Applicants who are native speakers of other languages must demonstrate English proficiency for entrance to all programs.

### *Tuition Deposit*

All students who are offered admission to BFIT will be required to submit a \$100 tuition deposit to secure their spot in the entering class. Tuition deposits are non-refundable after May 1st.

### *September Admission*

Applications for all programs are accepted for September enrollment.

### *January Admission*

Applicants for January enrollment are considered for admission on a program-by-program basis as not all programs may be available for students to start during the January semester.

### *Transfer Students and Advanced Standing Credit*

Students who have completed studies at another accredited college or university and wish to enroll at BFIT must meet all entrance requirements. They must also submit an official transcript of their academic record from all colleges previously attended. Official final secondary school transcripts or equivalent are required in order to complete an applicant's file and initiate the registration process. Prospective students that have earned an associate degree from a regionally accredited college or university will only need to supply college transcripts with their application for admission. The college also awards advanced standing credit to students from select high schools where articulation agreements exist. For a complete listing of the high school advanced standing articulation agreements, visit the college's Admissions webpage.

Credit will be awarded for work completed at other accredited colleges that is equivalent in content and credit hours to BFIT courses and in which at least a grade of "C" was earned. The Dean of Academic Affairs must approve all requests for advanced standing credit on recommendation of the appropriate Department Chair. Transfer students must complete at least 51% of their program's courses at BFIT.

### *Advanced Placement Credit*

Students who have taken Advanced Placement classes and have taken the AP Exam offered through the college Board may be eligible for advanced standing credit.

For a complete list of AP Exams and scores eligible for college-level credit, please visit the college's Registrar webpage.

## Placement Policy

Students admitted to BFIT must be assessed to determine their skill level in English and mathematics so they can be placed into the most appropriate entry-level courses. For the Fall 2020 term, BFIT will make assessments based on the English and math grade point averages in a student's high school transcript or HiSET/GED transcript.

The Admissions Committee will closely review transcripts to ensure that each student is placed into the appropriate level courses and is set up for academic success. Academic Success advisors will meet with students to discuss where they were placed and what classes they will be taking, from their first semester to their last.

BFIT had traditionally used the Accuplacer tool to assess students. But the college determined that too many students faced major technological barriers when the Accuplacer assessment was moved online in response to the COVID-19 epidemic.

Students who have Advanced Placement (AP) credit or have earned college credits in English and/or mathematics may be exempt from taking the placement assessment. (Please see the AP policy, college credit transfer policy, and speak with an admissions counselor for more details.)

## Readmission Policy

Students who have voluntarily left or been dismissed from Benjamin Franklin Institute of Technology for at least one semester and desire to reenter the program must complete the reentry form and receive the approval of the Dean of Students. The reentry form is available online, from the Admissions Office, or from the Registrar's Office. Reentry will be granted on a space-available basis and is not guaranteed. Any prior balance owed to the college must be paid in full before reentry will be considered.

If the student has been away from the college for at least three semesters, the student must apply for readmission with the admissions office and be subject to the admission and programmatic requirements of the current catalog.

### PROCEDURE

Benjamin Franklin Institute of Technology will employ two different enrollment statuses to students who are readmitted to the college, depending upon the length of absence.

**Reentered** – This status will be employed if a student misses at least one or two complete semesters of classes. Students who withdraw mid-term and register for classes the following term will remain classified as Continuing Students.

Students who desire to reenter Benjamin Franklin Institute of Technology should be directed to the Registrar's Office to complete the readmission form which can be found on the college's Registrar webpage. The Registrar's Office will review the student's academic standing and will then register the student for courses where appropriate. If a student is not in good academic standing, the Registrar's Office will refer the student to the appropriate offices before registering the student for courses. The registrar will assign this student with the enrollment status of "reentered."

**Reenrolled** – This status will be employed for a student who has missed three or more complete semesters of classes.

Students seeking to reenroll after missing three or more complete semesters should be directed to the admissions department. Admissions will direct the student through the admissions process. During this process, the admissions counselor, in consultation with the Registrar's Office, will review the academic standing of the student before rendering an admissions decision. Upon acceptance and subsequent enrollment, the Registrar will update the student's status to Reenrolled.

Students reentering the program will continue to be counted in the cohort to which they initially entered.

In the event of a question, the Registrar shall be the final determiner as to whether a student is classified as a reentered or reenrolled status.

### *Part-Time Students*

Part-time students may enroll in courses for which they meet all prerequisites and should follow the same procedures as students seeking regular admission. Students taking fewer than 12 semester hours are considered part-time and pay tuition according to the semester hour rate. Part-time students may be eligible for federal and state financial aid programs and should apply for financial aid each year to determine eligibility.

### *Summer Session*

For students needing additional instruction in algebra, language skills development, or ESL (based on the results of the placement assessment), BFIT provides academic skills-building summer courses. Selected technical courses are also available in the summer. Inquiries concerning summer study should be directed to the Office of Admissions.

### *International Applicant Information*

#### FALL SEMESTER (SEPTEMBER)

Priority Deadline: May 1

#### SPRING SEMESTER (JANUARY)

Priority Deadline: October 1

#### REQUIREMENTS FOR ADMISSION

International applicants must submit to the Office of Admissions: secondary-school educational records or transcripts, accompanied by certified English translations as necessary. Documents should include year of secondary school graduation, courses undertaken, and grades earned in each course, as well as exam results. Applicants who have taken external examinations, such as the GCE "O" and "A" levels, or the International Baccalaureate, should submit the results in support of their application.

The agency listed below provides evaluations of educational credentials and course-by-course reports for students educated at foreign secondary schools, colleges, or universities.

Center for Educational Documentation

P.O. Box 170116

Boston, MA 02117

Telephone: (617) 338-7171

Fax: (617) 338-7101

Web: <http://www.cedevaluations.com>

BFIT, not the agency, determines the final decision for the acceptance of transfer credit. If accepted, students must pay the required \$100 USD tuition deposit before the Certificate of Eligibility for Non-immigrant Student Status, form I-20 can be issued.



## APPLICATION PROCEDURE

- Complete the BFIT Application for Admission.
- Pay \$50 USD application fee. Students may also pay by credit card online at our website [www.bfit.edu](http://www.bfit.edu). This fee is non-refundable.
- Submit a transcript (with certified English translation, if needed) of secondary school records and relevant examination scores. Transfer students should also submit university transcripts and course descriptions.
- Submit evidence of English proficiency through the Test of English as a Foreign Language (TOEFL), , The International English Language Testing System (IELTS) exam, or completion of English language proficiency from one of the college's certified language partner organizations. An updated list of English language partner organizations can be found on the college's Admissions webpage.
- Submit a completed Financial Declaration Form and a current bank statement (within 6 months) and letter of support from sponsor that demonstrates available funding that is greater than or equivalent to one-year of tuition and housing costs.
- International students seeking to bring dependents (defined as a spouse or child under the age of 21) must demonstrate additional funding for each dependent.

## ENGLISH LANGUAGE PROFICIENCY

All applicants must demonstrate fluency in English. Completing at least one of the following may do this:

- Submitting official test scores of the Test of English as a Foreign Language (TOEFL) administered by the College Entrance Examination Board.
- Submitting official test scores of the International English Language Testing System (IELTS).
- Certificate of completion of English as a Second Language program from a recognized language institute.

## FINANCIAL DOCUMENTATION

All international students are expected to have sufficient funds available to cover all academic and living expenses for the duration of their stay in the U.S. International applicants are required to provide BFIT with a financial statement showing proof of ability to pay these costs for the first year of study. BFIT has estimated that \$37,400 USD should be sufficient to cover first-year expenses, including tuition, room and board, books, and fees.

## WHEN TO APPLY

Applications and all supporting material should be submitted no later than three months prior to the intended date of enrollment to allow an appropriate amount of time for the student to obtain their visa to study in the U.S.

## FORM I-20

BFIT issues the Form I-20 only after payment of the \$100 (U.S.) tuition deposit. All fees and deposits are non-refundable.

## *Financial Aid Policy for International Students*

BFIT does not offer financial assistance to international students. Students are advised to investigate sources of financial aid in their own countries such as family funds, government agencies, civic organizations, industry, or lending institutions.

## INTERNATIONAL STUDENT ADVISING

Once enrolled, all international students are required to meet with the International Student Advisor at the beginning of each semester. Additional meetings may need to be scheduled to review new federal regulations or if the student is having academic difficulties.

# Tuition Costs and Financial Aid

## Tuition and Fees Schedule, Academic Year 2021-2022

### TUITION

Full Time (12-21 credits)	All Certificate and Associate Degree Programs	\$8,475 per semester
	All Bachelor Programs	\$9,095 per semester
Part Time (1-11 credits)/ Overload (22+ Credits)	All Certificate and Associate Degree Programs	\$707 per credit
	All Bachelor Programs	\$758 per credit
Audit	All Courses	\$250 per credit

### FEES

Technology Fee	All Associate/Bachelor Degree Seeking Students	\$300 per semester (max 2 times per year)
Health Insurance	Fall Starts (9+ credits)	\$2,167 per year
	Spring Starts (9+ credits)	\$1,356 per year
Tool Charges	Automotive Freshman	\$2,575 one time
	Automotive Sophomore	\$2,250 one time
	Computer Technology/Health Information Technology Freshman	\$65 one time
	Electrical Tech./Practical Electricity	\$550 one time
	HVAC&R Freshman	\$710 one time
Technical Textbook Charge	Electrical Freshman (students will be responsible for Sophomore year textbooks)	\$550 one time
	Practical Electricity (students will be responsible for 2nd and 3rd semester textbooks)	\$450 one time
Technical Course Textbook	Automotive Technology	\$260 one time
Membership Fee	Electrical Engineering (BS)	\$50 per year
Course Charge	Textbook Fee (MA265, MA270)	\$70 per course
	Textbook Fee (MA090, 095, 105, 115, 120, 130, 240, 250, 260, PH212, 213, 222, 223)	\$95 per course
	Textbook Fee (BS120)	\$80 per course
	Textbook Fee (BS284)	\$95 per course
	English Composition 1 (EN130)	\$25 per course
	Textbook Fee (BS101)	\$110 per course
	Solidworks Fee (ME105, 106, 240)	\$50 per course
	MasterCAM Course Fee (ME220, 225, 226)	\$85 per course
	Robotics Course Fee (ME310, 315)	\$150 per course

## *Tuition Costs and Financial Aid*

The cost for all textbooks required for each course will be available at the time of registration and will be purchased individually by the student. Benjamin Franklin Institute of Technology estimates that a student will average about \$450 per semester for books.

Payment of Tuition and Fees are due approximately one month prior to the start of the semester. You may pay your balance in full, each semester, directly to Benjamin Franklin Institute of Technology or you may choose to use a payment plan available through the College. For additional information about the terms of the plan or how to enroll, contact Student Accounts at 617-588-1298.

Health Insurance can be waived for students who are already covered under a health insurance plan.

Tools and Code Books charges can only be waived by the Chair of the academic department and written approval is submitted to the student accounts office.

Through its financial aid programs, BFIT has made it possible for thousands of students to afford the cost of their education. The Financial Aid section of this catalog describes the process of applying for aid.

Tuition and other fees are due before each semester begins. For the fall semester, tuition and fees are payable by August 1; for the spring semester, they are payable by December 1, May 1; for the summer semester. Payment plans are available. Please contact the Student Accounts Office for information.

### *Tuition Deposit*

A tuition deposit of \$100 is suggested to secure your spot in the incoming class. This tuition deposit is not refundable after May 1 and is applied toward the first semester tuition bill. For applicants offered admission, the deposit is payable by May 1 or within 14 days of notification of acceptance after May 1. Requests for tuition deposit refunds before May 1 should be made in writing to the Dean of Recruitment.

### *Application Fee (Non-refundable Fee)*

An application fee of \$25 must accompany each application for admission to BFIT for students who apply using the common application. For International Students the application fee is \$50.

### *Health Insurance Plan (Non-refundable Fee)*

Under the provisions of Chapter 23, Section 22, of the 1988 Massachusetts Health Security Act, effective September 1, 1989, each institution of higher education must require all full- and part-time students to participate in the student health insurance program or provide evidence of participation in a health insurance program with comparable coverage. For this purpose, part-time students are defined as those participating in at least 75% of the academic requirements for full-time students. The charge for the school's health insurance for 2020-2021 is \$2,167. This fee will be charged to all students and will be removed only if a waiver form, showing comparable coverage, is submitted.

The waiver deadline for Fall 2020 is September 20, 2020 and for Spring 2021 enrollees the deadline is February 14, 2021. This fee covers a full year and cannot be refunded due to withdrawal. For students who already have comparable medical coverage, a waiver form is available on our website that must be completed in order to be excluded from the college's insurance plan.

### *Books, Supplies, and Equipment*

Students supply their own textbooks and other course materials. Most of the academic courses offer digital access to textbooks via RedShelf. In addition special tool kits are also required for the Automotive Technology, Electrical Technology, Computer Technology, Health Information Technology and HVAC&R programs. See the tuition cost and financial aid section of this catalog for more detailed information on prices.

### *Withdrawals and Refunds*

All students who wish to withdraw from the college are required to notify the college Registrar in writing of their intent to do so. The college has two recognized categories of withdrawn students, Official Withdrawals and Unofficial Withdrawals. Absence from class does not reduce a student's financial obligation nor guarantee that a final grade will not be recorded.

**OFFICIAL WITHDRAWALS**

Students who find it necessary to withdraw from Benjamin Franklin Institute of Technology must file an Official Withdrawal Form with the Registrar within a few days of withdrawal. The official form can be found on the web site at [www.bfit.edu/academics/registrar/forms](http://www.bfit.edu/academics/registrar/forms)

Upon receipt of the Official Withdrawal Form the Registrar’s Office will notify the Office of Financial Aid and Student Accounts office that a student has withdrawn and is subject to a return to Title IV calculation and the institutions refund policy. The date on which such notice is received from the student will be considered the effective date of withdrawal. Students will be asked to complete Student Loan Exit counseling if they borrowed any student loans during enrollment and a final bill will be sent to the student’s home address. If a student has a remaining balance it is expected that balance be paid in full within 30 days of the final bill

**UNOFFICIAL WITHDRAWALS**

Students who fail to provide official notice will be monitored and withdrawn from the college after 14 days of non-attendance. BFIT will make a determination on the on the 15th day after 14 consecutive days of non-attendance if a student intends to continue in classes or be withdrawn from the college as an unofficial withdrawal. The college identifies the last date of attendance as the last date of academic activity at the college.

Upon receipt of the Unofficial Withdrawal Form the Registrar’s Office will notify the Office of Financial Aid and Student Accounts Office that a student has been withdrawn and is subject to a return to Title IV calculation and the institutions refund policy.

All students are refunded according to the following schedule:

WITHDRAWAL NOTICE FILED\*:AMOUNT OF REFUND

During the first week of classes	100%
During the second week of classes	80%
During the third week of classes	70%
During the fourth week of classes	70%
During the fifth week of classes	60%
During the sixth week of classes	50%
During the seventh week of classes	50%
During the eighth week of classes	40%
During the ninth week of classes	30%
After the ninth week of classes	0%

For summer sessions the following schedule applies:

WITHDRAWAL NOTICE FILED\*: AMOUNT OF REFUND

During the first week of classes	100%
During the second week of classes	70%
During the third week of classes	50%
During the fourth week of classes	30%
After the fourth week of classes	0%

### *Tool Refund Policy*

Students that had to purchase their tools in the beginning of the semester through the college and wish to return tools may qualify for partial tool fee refund based on the following guidelines:

The tools need to be returned in perfect condition, including keys to the tool box, within 20 days from their date of withdrawal recorded in the student's file.

Tools need to be inspected by the department chair for approval of a partial refund, including condition and/or missing tools.

The refund amount for the tools will follow the federal title IV refund policy which will calculate starting at the date when the semester begins and the official date of withdrawal recorded in the student's record.

All tools need to be picked up by the students within one business week (5 days) of the time of withdrawal or graduation. If the student does not pick up their tools within this timeframe, students will forfeit their tools, which will become property of the college and will not be refunded

### *Return of Institutional Aid Policy*

Institutional Aid includes all grants and scholarships awarded by BFIT will be refunded under the following policy. Students that officially withdraw from the college at any point during an enrollment term will follow the federal title IV refund calculation. BFIT will attempt to bring students' balance to zero or as close to zero as possible. No refund will be issued to the student if institutional aid created a credit balance on a student account. Upon receipt of the Official Withdrawal Form, BFIT's Office of Financial Aid will make the required adjustments and a final bill will be mailed to the student. Payment, in full, is expected within 30 days of official date of withdrawal.

### *Return of Title IV Federal Student Aid Policy*

The law specifies how Benjamin Franklin Institute of Technology must determine the amount of Title IV program assistance that you earn if you withdraw from school. The Title IV programs that are covered by this law are: Federal Pell Grants, Iraq and Afghanistan Service Grants, Direct Loans, Direct PLUS Loans, and Federal Supplemental Educational Opportunity Grants (FSEOGs).

Though your aid is posted to your account at the start of each period, you earn the funds as you complete the period. If you withdraw during your payment period, the amount of Title IV program assistance that you have earned up to that point is determined by a specific formula. If you received (or your school or parent received on your behalf) less assistance than the amount that you earned, you may be able to receive those additional funds. If you received more assistance than you earned, the excess funds must be returned by the school and/or you. Funds are returned in the following order: Unsubsidized Direct Loan, Subsidized Direct Loan, Direct PLUS Loan, Pell Grant, and FSEOG under federal guidelines. The college will return the excess funds to the department of education within 45 days as set by federal guidelines.

The amount of assistance that you have earned is determined on a pro-rated basis. For example, if you completed 30% of your payment period, you earn 30% of the assistance you were originally scheduled to receive. Once you have completed more than 60% of the payment period, you earn all the assistance that you were scheduled to receive for that period. If you did not receive all of the funds that you earned, you may be due a post-withdrawal disbursement. If your post-withdrawal disbursement includes loan funds, your school must get your permission before it can disburse them. You may choose to decline some or all of the loan funds so that you don't incur additional debt. Your school may automatically use all or a portion of your post-withdrawal disbursement of grant funds for tuition, fees, and room and board charges (as contracted with the school). The school needs your permission to use the post-withdrawal grant disbursement for all other school charges. Students and Parents will be notified in writing of their eligibility and must respond with 45 days in order to have the post withdrawal disbursement credited to the student account. If you do not give your permission the college will not disburse any additional funding. However, it may be in your best interest to allow the school to disburse the funds to reduce your unpaid balances at the school.

There are some Title IV funds that you were scheduled to receive that cannot be disbursed to you once you withdraw because of other eligibility requirements. For example, if you are a first-time, first-year undergraduate student and you have not completed the first 30 days of your program before you withdraw, you will not receive any Direct Loan funds that you would have received had you remained enrolled past the 30th day.

If you receive (or your school or parent receive on your behalf) excess Title IV program funds that must be returned, your school must return a portion of the excess equal to the lesser of:

- 1 Your institutional charges multiplied by the unearned percentage of your funds, or
- 2 The entire amount of excess funds.

The school must return this amount even if it didn't keep this amount of your Title IV program funds. If your school is not required to return all of the excess funds, you must return the remaining amount.

Any loan funds that you must return, you (or your parent for a Direct PLUS Loan) repay in accordance with the terms of the promissory note. That is, you make scheduled payments to the holder of the loan over a period of time.

Any amount of unearned grant funds that you must return is called an overpayment. The maximum amount of a grant overpayment that you must repay is half of the grant funds you received or were scheduled to receive. You do not have to repay a grant overpayment if the original amount of the overpayment is \$50 or less. You must make arrangements with your school or the Department of Education to return the unearned grant funds.

The requirements for Title IV program funds when you withdraw are separate from any refund policy that your school may have. Therefore, you may still owe funds to the school to cover unpaid institutional charges. Your school may also charge you for any Title IV program funds that the school was required to return. If you don't already know your school's refund policy, you should ask your school for a copy. Your school can also provide you with the requirements and procedures for officially withdrawing from school.

If you have questions about your Title IV program funds, you can call the Office of Financial Aid at 617-588-1368. TTY users may call 1-800-730-8913. Information is also available on Student Financial Services on the web at [www.bfit.edu/admissions---aid/student-financial-services](http://www.bfit.edu/admissions---aid/student-financial-services).

### *Payment of Fees*

Students with delinquent accounts will be prohibited from attending class until the matter is cleared through the Student Accounts Office.

Graduation regalia will be withheld from any student with a balance exceeding \$200. Diplomas, transcripts, and grade reports will not be accessible until the entire balance has been paid.

### *Payment Plans*

Various payment plan options are available. Students should contact the Student Accounts Office for information by calling 617-588-1298.

### *Address Change*

Students are required to report all address changes to the Registrar's Office. Failure to do this will prevent important material, such as grade reports, registration forms, or important tax documentation from reaching the students.

# Financial Aid

A BFIT education is one of the most important investments you will ever make. We realize that financing this investment is a primary concern for you and your family. Here we show you how the BFIT experience can be affordable for any family.

BFIT offers financial aid to eligible students to assist with financing your education. In order to be considered for need-based financial aid, a Free Application for Federal Student Aid (FAFSA) must be submitted each academic year. Award amounts vary and depend on your demonstrated financial need. Financial Need is determined by subtracting the Expected Family Contribution (EFC), from the Institution's Cost of Attendance (COA), as determined by the Financial Aid Office.

The estimated cost of attendance for an associate's degree for the 2020/2021 academic year is:

	STUDENT CHARGES (DIRECT COSTS)	NOT CHARGED (INDIRECT COSTS)
Tuition	\$16,950*	
Living Expenses		\$13,500
Health Insurance	\$2,167	
Books & Supplies		\$1,600
Technology Fee	\$600	
Transportation & Miscellaneous		\$2,400
<b>Total</b>	<b>\$19,717**</b>	<b>\$17,500</b>

\* For Bachelor's degree programs please increase your tuition cost to \$18,190.

\*\* Certain majors have to purchase additional tools or supplies. For a full breakdown of Tools and Technical Textbook Charges please reference page seventeen (17) of this catalogue. Please note that tool pricing is subject to change based upon the pricing that the college receives from our tool vendors.

Textbooks included above are for selected major courses only. Students will be responsible for purchasing any additional textbooks or other materials required for courses.

Students who currently have the required tools needed for their major must obtain authorization from the department chair to use those tools for course work. To waive the tool fee from their student account statement, waivers must be completed by the end of the first week of the semester. The department chair will evaluate the tools' quality, appropriate safety guidelines, and in class use, during the first week of the semester. Other programs at the college may require tools and/or materials that will not be included on student account statements.

Beyond tuition, health insurance, and tools, students should account for additional expenses including books and supplies, off-campus housing expenses, transportation and any additional personal items that will aid them in their studies as they plan for their enrollment at the college. These are considered indirect costs, they are listed above. Estimates of these expenses are calculated by the financial aid office to determine a student's cost of attendance when establishing a student's financial need and, subsequently, said student's financial aid package.

About 90% of our students receive some type of financial assistance. At BFIT, we combine federal, state and institutional aid programs to compile a financial aid package that is designed to help every family be able to financially afford a BFIT education.

*Note: BFIT cannot guarantee that we will meet your need in full. Financial aid is contingent on the timeliness of your application, federal regulations, and the availability of funds.*

Full-time students will be considered for all of the financial aid programs that BFIT administers, after receipt of a valid FAFSA. Student financial aid packages may be a combination of federal and state grants, and student loans. These awards will be contingent upon demonstrated financial need and the availability of funds.

Less than full time students will be considered for financial aid based on the credits she/he is enrolled in. In order for a student to maintain federal loan eligibility a student must be enrolled at least half-time (2 academic courses).

### *Application Procedure*

In order to apply for Federal and State financial aid, the FAFSA (Free Application for Federal Student Aid) needs to be completed. Financial aid awards are not renewed automatically. The FAFSA must be completed every academic year.

#### STEP 1

Create an FSA ID and Password: [www.fafsa.ed.gov](http://www.fafsa.ed.gov)

Parent/s and students must create individual FSA ID's and passwords to electronically sign the FAFSA. The FSA ID is a separate application that needs to be completed before a FAFSA is completed. Follow the instructions on the website.

#### STEP 2

Go to FAFSA on the Web at: [www.fafsa.ed.gov](http://www.fafsa.ed.gov)

Complete the application and answer all of the questions on the FAFSA List BFIT as one of the schools to receive your FAFSA by including our school code, **002151**.

Sign the FAFSA electronically by using a Federal FSA ID and password, or by mailing the signed signature page to the federal processors(The signature page is available for printing at the end of the FAFSA application.)

#### STEP 3

Applicants should receive a Federal Student Aid Report (SAR) from the federal processors 3-4 days after the FAFSA has been filed. The SAR indicates the Expected Family Contribution (EFC), which is used to determine eligibility for federal and state financial aid. It also lists the information recorded on the FAFSA. We will receive your information electronically from the federal processor. If BFIT is not listed, please call the federal processor at 1-800-433-3243, or use your FSA ID to make a correction at [www.fafsa.ed.gov](http://www.fafsa.ed.gov).

#### STEP 4

Follow up with our office. We may need to request further documentation from you and/or your family.

If further information is needed, a written notification will go out to you in the mail. It is the student's responsibility to respond promptly to this document request within 30 business days. We are not able to continue the processing of your financial aid application if the requested documents are not provided. Failure to meet this deadline could jeopardize your ability to retain the awards listed.

#### STEP 5

An Award Package will arrive in the mail once we have completed reviewing your application. Students who are missing documents will not receive a award letter from the Office of Financial Aid.

In order to decline any portion of the award, a signed copy of the award letter indicating what is being declined should be returned to the Office of Financial Aid. For more information, please contact us at [financialaid@bfit.edu](mailto:financialaid@bfit.edu) or 617-588-1368.



## Types of Financial Aid

### INSTITUTIONAL AID\*

We understand that scholarships play an important role in making a college education affordable. Committed to our mission that finances should not keep a student from an education, we recognize students for the potential that each brings to Benjamin Franklin Institute of Technology. However, Institutional funding does not cover student refunds and solely covers the cost of tuition, books, and tools. We offer various scholarships including:

- The Franklin Assistance Grant ranges up to \$5,000 per academic year and is awarded to students that demonstrate financial need.
- The Women in Technology Scholarship ranges up to \$5,000 per academic year and is awarded to female students that demonstrate academic achievement and leadership potential.

\*Institutional aid will be adjusted if third party funding is received that covers students tuition costs

### THIRD SEMESTER GRANT

A reality of American higher education is that not all students are prepared for college-level courses when they begin their postsecondary careers. In order to help prepare students for college-level coursework, Benjamin Franklin Institute of Technology offers students the opportunity to take developmental courses during their first semester of study. In order to compensate for tuition expended to take developmental courses, the college offers a special tuition grant for students that successfully complete their developmental courses and continue to make satisfactory academic progress through their first semester in college-level courses.

The tuition-free Third Semester allows students to become college-ready without losing valuable time and incurring additional tuition costs. BFIT sees it as a reward for remaining committed to success as a student, and it is a helpful tool for students to persist to graduation.

To qualify for the Third Semester Grants students must:

- Apply for financial aid by completing the Free Application for Federal Student Aid (FAFSA)
- Maintain satisfactory academic progress (as defined in the College Catalog)
- Successfully complete developmental course(s) in a one-semester period and enroll in their major courses during the next two semesters
- Successfully complete their first semester in college-level courses and be eligible to enroll for second semester courses on-time as outlined in the charts below

The charts outline how students proceed through their developmental courses and into their college-level courses.

Students entering the College during the fall semester:

Fall 2020	Spring 2021	Summer 2021	Fall 2021
Incoming Freshmen - Department of Academic Development Course	First Semester of Courses in Student's Major	"Third Semester" Second Semester of Courses in Student's Major	Students Enter Sophomore Year
Incoming freshmen students take needed developmental math and English courses, as well as Oral Communications, a college-level public speaking course, that helps strengthen multiple literacies as students prepare for their major.	First semester of courses toward a degree in student's selected majors.	Students take a "third semester" during the year - a second semester of courses toward a degree in their selected major.  Qualified students will receive a grant to cover the cost of tuition associated with their third semester of study.	On track to graduate with their class in selected major within two years.

Students entering the College during the fall semester:

Spring 2021	Summer 2021	Fall 2021	Spring 2022
Incoming Freshmen - Department of Academic Development Course	2nd Developmental Math Course for Engineering Technology majors	First Semester of Courses in Student's Major	"Third Semester" Second Semester of Courses in Student's Major
Incoming freshmen students take needed developmental math and English courses, as well as Oral Communications, a college-level public speaking course, that helps strengthen multiple literacies as students prepare for their major.	Students that are enrolled in engineering technology programs that need to take MA105 prior to the fall semester will be expected to complete this course during the summer term to remain in sequence.	First semester of technical courses towards a degree in freshmen students' selected majors.	Freshmen students take a "third semester" during the year - a second semester of technical courses towards a degree in their selected major.  Qualified students will receive a grant to cover the cost of tuition associated with their third semester of study.

*Additional expenses including room, board, transportation, textbooks and tools are not grant funded for the third semester. Third Semester grants do not cover the cost of tuition for students to retake courses from prior semesters. Should individual circumstances arise due to course sequencing or scheduling, the Registrar and Director of Financial Aid shall determine if a student is eligible for the Third Semester grant.*

#### FRANKLIN COMPLETION GRANT

This grant is for eligible students who have no more than two courses to complete for a degree program and have not previously attempted the courses prior to registering for the course.

#### FRANKLIN RECOVERY GRANT

Students who are retaking courses previously attempted (either failed or withdrawn) are able to pay a rate of \$150 per credit. Typically this grant is used in the summer, and can be used if all other federal and state aid options have been exhausted.

#### SUMMER GRANT

Students are eligible for this grant if they had been enrolled full time in the prior Spring term and pre-registered full time in the subsequent Fall term. This will not cover courses for students that are deemed re-takes or completion courses.

#### *Federal Aid*

The Federal Pell Grant\* provides awards ranging from \$619 to \$5,775 per academic year for exceptionally needy applicants enrolled full time. The Pell Grant is funded by the Federal Government and is determined based on the information provided on the FAFSA and enrollment status provided. Students have a Pell Grant life-time eligibility limit of 12 semesters or the equivalent.

The Federal Supplemental Educational Opportunity Grant (SEOG)\* provides awards ranging from \$100-\$4000 and is awarded to students who qualify for the Federal Pell Grant. SEOG is funded by the federal government and will be awarded on a first-come, first-served basis and is subject to the availability of funds.

The Federal Work Study program is sponsored by the federal government and provides jobs for undergraduate students that demonstrate financial need. Students may also choose to work off-campus in one of our community service positions. Students are responsible for finding a qualifying job, and, as they work, they will complete time sheets and will receive a pay check for the number of hours worked. Most students work between 5 and 15 hours per week, and their earnings are intended to cover educationally related expenses. Unlike other financial aid or

## Financial Aid

scholarship awards, work study does not reduce your tuition bill; students will receive a pay check. Work study awards do not require repayment.

*\* Due to changes in Federal Regulations, the Pell Grant and/or SEOG amounts and/or eligibility criteria are subject to change.*

### State Aid

State grants are based on financial need and may be offered to eligible students. The Department of Education in each state determines a student's eligibility for these awards. Many states have application deadlines, which can be found at the FAFSA web site. The State of Massachusetts awards grants to eligible students who meet residency and financial criteria. Students must also have a valid FAFSA on file by May 1 of each year. These grants range in amounts from \$600 to \$1800. The level of funding is contingent upon fund availability and is subject to change by the State of Massachusetts. Mass Grant has a lifetime eligibility limit of 4 academic years.

BFIT also has limited part-time Mass Grant awards to students who are enrolled in majors that are not full time. The awards range from \$500 to \$1000 for the academic year. Funds are limited and awarded on a first come first serve basis.

The Massachusetts Gilbert Grant is awarded to full-time students who meet the criteria of the Massachusetts State Grant. Award amounts range from \$200 to \$2,500 per academic year. The Gilbert Grant is contingent upon fund availability.

### Loans

There are many loan options available to help finance a BFIT education.

**Direct Subsidized Loans** are available to undergraduate students with financial need. The U.S. Department of Education pays the interest on a Direct Subsidized Loan until 6 months after you leave school.

**Direct Unsubsidized Loans** are available to undergraduates; there is no requirement to demonstrate financial need. You are responsible for paying the interest on a Direct Unsubsidized Loan during all periods. If you choose not to pay the interest while you are in school and during grace periods and deferment or forbearance periods, your interest will accrue and be capitalized.

Academic Status	Dependent Student	Independent
Freshman	\$5,500	\$9,500
Sophomore	\$6,500	\$10,500
Junior	\$7,500	\$12,500
Senior	\$7,500	\$12,500

There are two types of Loans: subsidized and unsubsidized. The subsidized loan program requires that the student demonstrate financial need. The advantage of the subsidized loan is that the government pays the interest on the loan while the student is enrolled at least half-time and during the six month grace period. Interest subsidy during the six month grace period is eliminated for loans made after July 1, 2020. This means interest accrued during those six months will be payable by the student. For the 2020-2021 academic year, a new borrower, on or after July 1, 2021, becomes ineligible to receive additional Direct Subsidized loans if the period during which the student has received such loans exceeds 150% of the published length of the student's educational program. The student also becomes responsible for accruing interest during all periods as of the date the student exceeds the 150% limit.

Under the unsubsidized program, students can borrow even if they have no demonstrated need; however, the interest that accrues during enrollment is the student's responsibility. While in school, interest only payments may be made, but are not required. If interest is not paid while in school, the interest is capitalized (added to the original loan amount) once repayment begins. When a student graduates or withdraws from school, the Stafford loan goes into a six month repayment grace period. The average student loan debt for our students upon graduation is \$12,000. Students are required to complete Exit Loan Counseling upon leaving the college or dropping below half-time enrollment.

## *Parent Loans*

The parent loan program described below allows creditworthy parents to borrow up to the entire cost of attendance, less any awarded financial aid. The applicant must meet eligibility requirements outlined in the application materials. Unlike student loans, repayment on parent loans begins 60 days after the final disbursement of loan funds to the school for that academic year. Parents may request a deferment from their lender while the student is enrolled in school at least half time.

**Federal Direct PLUS Loan:** The Federal Direct Parent Loan for Undergraduate Students (PLUS) allows parents to borrow on behalf of their dependent students. Eligibility for this loan is not based on financial need but does require a credit check. Parents may borrow up to the cost of attendance minus any financial aid.

The loan has a fixed interest rate of 7.08%. There is a maximum repayment period of 10 years, with a minimum monthly payment of \$50. An origination fee not to exceed 4% is subtracted from the requested loan amount. In the case that a parent is not approved for a Plus loan, the student may be eligible for an additional Unsubsidized Stafford Loan.

## *Alternative Student Loans*

Many families supplement their college financing plan with private educational loans. Private loans are available from a variety of sources and provide additional funding when the other types of aid do not cover costs. These loans are not guaranteed by the federal government but by private financial institutions. Interest rates on these loans are typically higher than federal loans but lower than personal loans. Student borrowers will need a creditworthy co-signer to borrow an alternative loan. For more information about these loans, please contact the Office of Financial Aid at 617-588-1368 or via email [financialaid@bfit.edu](mailto:financialaid@bfit.edu).

### PRIVATE SOURCES

Applicants are urged to seek additional aid from their own community. Many towns and cities have civic organizations, businesses or religious organizations, which may offer scholarships on the basis of need or academic merit. Labor unions and corporations are often good sources of scholarship assistance to children of employees. Applicants should consult their high school guidance counselors or local libraries for additional information. An excellent source for information on financial aid is the Higher Education Information Center at the Boston Public Library at Copley Square.

### VETERANS' BENEFITS AND MASSACHUSETTS REHAB

Other sources of student aid are veterans benefits for veterans, widows of veterans, and children of deceased or disabled veterans. Students with certain physical or emotional disabilities may seek aid from the State Rehabilitation Commission in their area.

Those who qualify for benefits under any Veteran Bill or Massachusetts Rehab must contact the Registrar's Office at the beginning of the school year concerning the processing of the necessary forms. Students are asked to provide a certificate of eligibility from the VA Administration for processing. Forms should be filed as soon as possible after being accepted to BFIT.

Any student who is receiving either Ch. 31 or Ch. 33 VA benefits will not be subject to the following while waiting for VA payments: being held from registering for courses, being assessed a late penalty fee, required to obtain alternative or additional sources of funding or denied any additional information needed for certification. All students using VA benefits should speak to the on campus certifying official in the Registrar's Office, if they have any questions or need additional assistance.

### MASTER PROMISSORY NOTE

In order for students to borrow from the Direct Stafford Loan program, students must file a FAFSA form, complete a Master Promissory Note and successfully complete loan entrance counseling. To be eligible for them the student needs to be enrolled at least half time. Direct Stafford Loans have a fixed interest rate and minimal origination fee. For 2019-2020 academic year interest rates and fees please visit our website. The annual limits that a student can borrow are listed below

## ENTRANCE COUNSELING

All students taking out Direct Subsidized Loans or Direct Unsubsidized Loans are required to complete entrance counseling sessions at [www.studentloans.ed.gov](http://www.studentloans.ed.gov). A student will use the FSA ID and password to access the system. Borrowers will learn topics including what a Direct loan is, how the loan process works, about how to manage educational expenses, and other financial resources to consider to help pay for college.

## EXIT COUNSELING

Exit counseling is similar to the entrance counseling you received when you first completed your master promissory note. Students will use the FSA ID and password to access the system. This learning opportunity provides information about your rights and responsibilities as a borrower, including information about various repayment plans and deferment or forbearance options that may be available to you if you are unable to make a payment

**Deferment** You can receive a deferment for certain defined periods. A deferment is a temporary suspension of loan payments for specific situations such as re-enrollment in school, unemployment, or economic hardship. You don't have to pay interest on the loan during deferment if you have a Federal Direct Subsidized Stafford Loan. If you have a Federal Direct Unsubsidized Stafford Loan, you're responsible for the interest during deferment. If you don't pay the interest as it accrues (accumulates), it will be capitalized (added to the loan principal), and the amount you have to pay in the future will be higher. You have to apply for a deferment to your loan servicer (the organization that handles your loan), and you must continue to make payments until you've been notified your deferment has been granted.

Otherwise, you could become delinquent or go into default.

**Forbearance** Forbearance is a temporary postponement or reduction of payments for a period of time because you are experiencing financial difficulty. You can receive forbearance if you're not eligible for a deferment.

Unlike deferment, whether your loans are Subsidized or Unsubsidized, interest accrues, and you're responsible for repaying it. Your loan holder can grant forbearance in intervals of up to 12 months at a time for up to 3 years. You have to apply to your loan servicer for forbearance, and you must continue to make payments until you've been notified your forbearance has been granted. For more information about Federal Direct Student Loans, contact the U.S. Department of Education's Direct Loan Customer Service Department at 800-848-0979 or:

Direct Loan Servicing Center, Borrower Services Department  
PO Box 5609  
Greenville, TX 75403-5609

## Student Services

The Division of Student Services is led by the Dean of Students and is made up of Advising and Student Success, Campus Activities, Career Services, Commuter Services, Disability Support Services, Online Library Services, Student Conduct, Student Life, and Student Wellness and Support. The department coordinates services and activities for students outside of the classroom, including academic support, wellness and basic need resources, student organizations, campus events, and extracurricular activities. The department is dedicated to the holistic support of students through efforts that enhance academic, social and personal growth.

### *Academic Success Center*

The Academic Success Center (ASC), staffed by faculty and success coaches, coordinates academic support for students. Typically the ASC is open for free drop-in tutoring throughout the year for all BFIT students. While BFIT participates in remote learning, the ASC services will be offered online. All our tutors are BFIT faculty. The ASC houses tutoring for Math, Physics, English and Computer Technology, with tutoring for major courses available in labs.

Specialized tutoring requests can be made through the Office of Student Success. In addition, the Office of Student Learning and Academic Success can help students with academic success skills, such as organization, time management, and test preparation. The Director of Learning is available to meet with students who have additional learning needs and/or want to request accommodations.

### *Advising and Student Success*

The Office of Advising and Student Success provides general information on advising, registration, referral resources for students with documented disabilities, career services, and coordinates college wide academic success initiatives including tutoring and workshops related to time management and study skills.

Each student is assigned a success coach who serves as their advisor. Advisors maintain close contact with students to support their success and encourage several meetings between advisor and advisee each semester.

Advisors offer student support through assessment of strengths and challenges, review of academic progress, help with registration for future semesters, and suggestions for career preparation and success. Students who are struggling academically are encouraged to seek help by meeting with their advisor and asking for assistance through the various academic support services.

### *Campus Activities and Student Life*

The Student Life Office is the central location for student organizations and student events at Benjamin Franklin Institute of Technology. With a commitment to leadership and holistic student development, the office strives to engage students in a formative and social environment that complements students' academic experience while preparing them for leadership within their careers. Through a commitment to leadership, team work, and civic engagement, the college looks to foster the development of skills that our students can utilize long after graduation.

### *Online Library Services*

BFIT offers online access to collections, services and programming that meet the needs of the college's educational programs and facilitates effective use of information and acquisition of information literacy skills, for all BFIT students, faculty and staff, regardless of where they are physically located or the modality by which they take their courses. The online library collection includes access to over 100,000 eBooks, 20 online databases with access to full-text magazines, newspapers, and other resources. The online library is accessed by logging into BFIT's Canvas portal and selecting the "Digital Library" from the navigational menu or on BFIT's website at [www.bfit.edu/library](http://www.bfit.edu/library). Databases are both privately owned and available through BFIT's membership in the Massachusetts Library System, a state supported collaborative that fosters cooperation, communication, innovation and sharing among libraries of all types. Databases include: Ebsco's Academic eBook Collection and OmniFile Full-Text Select, Infobase Facts on File's Issues & Controversies, Gale's Academic Onefile, Business, Diversity Studies, Economics & Theory, Environmental Studies & Policy, General OneFile, Global Issues In Context, Health & Medicine, New York Times, Onefile Popular Magazines, Onefile Psychology, Onefile Religion & Philosophy, Onefile Vocations & Careers, Opposing Viewpoints in Context, Peterson's Career Prep, Science in Context, Proquest's Boston Globe, Taylor & Francis' Sustainable Development Online.

Ask-A-Librarian is available for students to contact and receive help from BFIT's MLS accredited librarian, and 24/7 access to accredited librarians is available via TutorMe. Through its partnership with the Boston Public Library students are provided a BPL library card during the first few weeks of classes and are eligible to use the resources and facilities at the BPL central library and its branches.

### *Career Services*

Career Services has an important mission in our work with students and employers. We provide students and recent graduates with the tools necessary to start and advance in their careers.

Coaches coordinate student internship placements, promotes employment opportunities, and helps students prepare for their post-graduation career and/or continuing education plans. Career services support is provided to students through individualized appointments as well as small workshops. Additionally, staff members run both Career Success Seminars and Workshops during students' final year at the college. These semester-based seminars and mini-workshop series cover career-readiness topics with a goal of preparing students with the tools necessary to seek, secure, and maintain employment in their field of study post-graduation.

Career Services routinely invites employers to recruit on campus. Throughout the year, many companies visit our campus, virtually or in-person, to meet with students, hosting Lunch & Learns to build awareness about opportunities within their company. The department hosts annual fall and spring recruitment events to promote awareness among students about prospective employers and help connect students to industry recruiters seeking to hire future BFIT graduates for internship and employment opportunities.

#### SK200 – CAREER SUCCESS SEMINAR: NEXT STEPS

The Career Success Seminar is designed to provide structured time to prepare for your post-graduation plans. This seminar will provide you with guidance on how to conduct a successful job search while refining the skills needed to be a successful college graduate. The seminar will include individualized guidance for personal career goals and group workshop activities. You can expect to review topics such as resume writing, job search tools and techniques, and interviewing skills.

#### SK400 – CAREER SUCCESS SEMINAR: NEXT STEPS & BEYOND

The Career Success Seminar is designed to build upon topics covered in SK200 to support for your transition from BFIT and provide structured time to prepare for your post-graduation plans. The seminar will include individualized guidance for personal career goals, group workshop activities, and occasional guest speakers. You can expect a more in depth review of similar topics such as resume writing, job search tools and techniques, networking, and interviewing skills as well as professionalism in the workplace and post-graduation finances.

### *Wellness Services*

At BFIT, we know that outside circumstances can affect students' academic performance. In an effort to support students, we provide one-on-one meetings to help identify challenges and devise a plan for success that can include referrals to on-campus and community resources. On-campus resources include our Student Emergency Fund, the food pantry, and other basic needs resources. Off-campus resources include financial literacy/credit building programs, food pantries, utility assistance programs, and more. Students experiencing challenges in their life outside of BFIT are encouraged to visit the Office of Student Wellness and Support, a Success Coach, or the Dean of Students. BFIT places high priority on students' personal and professional growth. We're here to help you succeed!

### *Success Boston*

The Success Boston Initiative was developed in 2008 by The Boston Foundation to provide additional support for Boston Public School (BPS) graduates throughout their post-secondary education with the goal of helping these students earn a college credential. The initiative, funded by the Corporation for National and Community Service, was expanded in October 2014 to increase the number of BPS students served from 300 to 1,000 annually. Success Coaches from local community based organizations, such as Boston Private Industry Council (PIC), Sociedad Latina and Hyde Square Task Force partner with BFIT to provide additional support to program participants. Support for participants includes personal support, financial aid workshops, career and life planning, and guidance on how to better use the

existing academic supports on campus. Success Boston Coaches and the Student Success Team at BFIT meet twice monthly to discuss challenges and concerns related to students in the Success Boston program and to collaborate on recruitment and retention efforts.

### *Disability Support Services*

Benjamin Franklin Institute of Technology is dedicated to extending all available services and support systems to everyone, without regard to race, color, national origin, religion, sex, age, disability, sexual orientation, veteran or disabled veteran status. Toward the goal of providing an equal and unbiased education, the college is prepared to take every possible step to allow students access to its services and to provide the broadest possible opportunity for participation at BFIT.

Students with disabilities who may want accommodations should submit documentation to the Director of Learning in the Office of Student Learning and Academic Success as early as possible prior to their first semester at the college.

All information regarding disabilities is treated confidentially.

For reasonable and timely accommodations, accepted students with documented disabilities are encouraged to follow these steps prior to enrolling at the college:

1. Submit clinical documentation that contains specific recommendations to the Office of Student Learning and Academic Success. It is most helpful if a licensed psychologist or educational specialist has completed the evaluation within the last three years. Individual Education Plans or notes from special education teachers or tutors can be helpful forms of documentation only if they include disability diagnosis and specific recommendations for accommodations.

If updated testing or evaluation is necessary, it is the student's responsibility to make those arrangements.

2. Schedule an appointment to meet with the Director of Learning to discuss challenges associated with their disabilities, the services provided at BFIT, and to determine what, if any, services the student wants or needs. If it is determined that accommodations are needed, the student, along with the Director of Learning, completes a confidential accommodation request form describing the accommodations needed.
3. Students are encouraged to contact instructors to let them know about the disability and the types of accommodations required and present the accommodation request form during the first week of classes. The Director of Learning, the student and the instructor sign the accommodation request; the student and instructor each receive an electronic copy and the original request form will be kept on file in the Office of Student Learning and Academic Success.

When requesting extended time for test taking, completing papers or take-home assignments, students should remind instructors at least two weeks prior to the due date. The instructors need sufficient time to make alternative arrangements.

### *New Student Orientation*

Your first steps at BFIT will be at New Student Orientation, where you will meet classmates, the Student Success team and other important members of the BFIT community. You will have the opportunity to attend Financial Literacy and Career Services workshops, learn about the support services available to you at BFIT and gain tips on how to be successful.

### *Student Code of Conduct*

Benjamin Franklin Institute of Technology (BFIT) has a rich tradition in which all members of the community teach and learn in an environment conducive to intellectual and moral development. All members of the BFIT community must take responsibility for their actions and be willing to accept the consequences of their conduct.

The college has a set of regulations, not meant to limit a student's freedom, but to ensure the well-being and the rights of all community members. Students are required to conduct themselves in a manner reflecting favorably on the college. Failure to comply with student regulations will lead to disciplinary action and may lead to separation from the college.



### INTERPRETATION OF REGULATIONS

The purpose of publishing the conduct policy is to give students general notice of prohibited behavior. This code is not written with the specificity of a criminal statute.

### INHERENT AUTHORITY

The college reserves the right to take necessary and appropriate action to protect the safety and well-being of the campus community. Such action may include pursuing conduct action for any violation of state or federal law, on or off-campus, or any behavior that affects the college's educational interests.

### REPORTING ACTS OF MISCONDUCT

Any student, faculty, or staff member may report actions and behaviors that affect the well-being and the rights of all community members. To ensure a safe and comfortable learning and working environment for all, the college supports a see-something, say-something philosophy, without fear of retaliation. Students, or faculty and staff should report any incidents or concerns to BFIT Security ([security@bfit.edu](mailto:security@bfit.edu)) at 617-588-1355, or to the Assistant Dean of Student Life.

An official incident report form is available on the college's student conduct website.

### DISCIPLINARY ACTION WHILE CRIMINAL CHARGES ARE PENDING

Students may be accountable both to civil authorities and to the college for acts that constitute violations of law and of this code. Disciplinary action at the college will normally proceed during the pendency of criminal proceedings, and will not be subject to challenge on the ground that criminal charges involving the same incident have been dismissed or reduced.

### INTERIM SUSPENSION

The Assistant Dean of Student Life (or designee) may suspend a student from the college for an interim period pending disciplinary or criminal proceedings, or medical evaluation.

- A. The Dean of Academic Affairs, along with the faculty of the suspended student, will be informed regarding an interim removal of a student from class during a disciplinary investigation.
- B. The interim suspension shall become immediately effective without prior notice whenever there is evidence that the continued presence of the student at the college poses a substantial and immediate threat to themselves or to others, or to the stability and continuance of normal college functions.
- C. A student suspended on an interim basis shall be given a prompt opportunity to appear personally before a conduct hearing officer in order to resolve the incident.

### STANDARDS OF CLASSROOM BEHAVIOR

The primary responsibility for managing the classroom environment rests with the faculty. Students who engage in any prohibited or unlawful acts that result in disruption of a class may be directed by the faculty member to leave the class for the remainder of the class period. Longer suspensions from a class, or dismissal on conduct behavior grounds, must be consulted with the Assistant Dean of Student Life, Dean of Students, and the Dean of Academic Affairs.

### ZERO TOLERANCE

The college supports a zero-tolerance policy against any violent action or threat of violent action toward a student, faculty, staff member, or to the institution as a whole. Students are expected to engage in appropriate conversations and use appropriate language at all times. Interpretation of language in regard to threats of violence will be at the discretion of the Assistant Dean of Student Life or designated professional staff members.

It is a student's responsibility to be familiar with the full list of prohibited conduct and the student conduct process, which are available in the Student Handbook as well as on the BFIT Student Conduct website.

# Student Rights and Responsibilities

## *Alcohol and Drug Policy*

The college supports a zero-tolerance policy for the use, possession or intent to distribute alcohol or drugs on the BFIT campus. These offenses are serious in nature and will result in sanctions that may include suspension and/or expulsion from the college.

Regardless of age, there will be no use, possession or distribution of alcoholic beverages on campus. Persons 21 years or older will have the responsibility of conducting themselves in a professional manner at all times. While the college does not have jurisdiction outside of college property, any student that appears intoxicated upon entering campus will be in violation and subject to sanctions.

Knowingly being in the presence of someone using, possessing or having the intent to distribute alcohol or drugs is prohibited. Although Massachusetts state law permits the use of medical marijuana, i.e., use by persons possessing lawfully issued medical marijuana cards; and recreational marijuana for those 21 years or older, universities are still subject to the Drug-Free Workplace Act of 1988 and the Drug-Free Schools and Communities Act Amendment of 1989 which prohibits marijuana use, possession, and/or cultivation at educational institutions and on the premises of other recipients of federal funds.

Please refer to the Student Code of Conduct for specific violations of the Alcohol and Drug policies. For information regarding support with alcohol or drug use please visit the college website.

## *Bias-related Violence, Harassment, or Intimidation Policy*

It is the goal of Benjamin Franklin Institute of Technology to maintain an environment free of violence, intimidation and harassment. Bias-related behavior based on race, religion, gender, age, ethnicity, national origin, physical appearance, disability or sexual orientation assaults the dignity and worth of the individual and will not be tolerated. Indeed, victimization will be actively opposed.

We expect that all members of this community will treat each other with dignity and respect, and that all members of the community will assume the responsibility of appropriately confronting acts of bias-related violence, intimidation and harassment which may occur. This policy statement identifies a non-exhaustive list of examples of behavior that are unacceptable and outlines the procedures for handling violations.

### DEFINITION

Bias-related violence, intimidation and harassment is defined as verbal, written or physical conduct which is based on race, religion, gender, age, ethnicity, national origin, physical appearance, disability or sexual orientation. In addition, such conduct inevitably has the effect of unreasonably interfering with an individual's academic, co-curricular, social or work-related participation in the college community. Bias-related violence, intimidation and harassment exists, for example, when:

1. Behavior is intended to intimidate, insult or stigmatize an individual or group;
2. Use is made of provocative words or nonverbal symbols which, by virtue of their form, are commonly understood to convey direct and visceral hatred or contempt for human beings; or
3. An act of violence is committed in connection with a bias.

Nothing in this definition should be construed as an abrogation of freedom of expression. However, protected freedom of expression ends when prohibited bias-related violence, intimidation or harassment begins.

## Campus Tobacco and Smoking Policy

Benjamin Franklin Institute of Technology supports findings from the Surgeon General that tobacco use in any form, active or passive, is a significant health hazard. As a result, BFIT institutes a Campus Tobacco and Smoking Policy to support a safe and healthy learning and working environment.

For the purpose of this policy, the college defines 'tobacco' to include any lighted cigarette (tobacco, clove), cigars, pipes, hookah, or any other smoking products including e-cigarettes and vapor cigarette devices, and any smokeless, spit or spitless, dissolvable, or inhaled tobacco products, including but not limited to dip, chew, or snuff, in any form.

The policy applies to all students, employees, and visitors, with no exceptions. Smoking is allowed only in the designated area at BFIT (picnic area on the corner of Appleton and Tremont Street), where signage is posted, and never inside the facility. In addition, to lessen the effects of second-hand smoke, individuals smoking outside of college buildings are prohibited from smoking within 25 feet from exterior entrances, the plaza, operable windows or outdoor air-intakes, regardless if the smoking is on or off the college campus.

## Fire Safety Policy

In case of fire in the building, the nearest college fire alarm box will be sounded immediately and Campus Safety will be notified as to the location of the fire.

Fire alarm boxes are located throughout the college campus. Upon hearing the alarm, faculty, staff, and students are required to immediately exit the building. Once outside the building, students, faculty, and staff should move as far away from the building as possible, safely crossing Berkeley, Appleton, or Tremont streets, until given the all-clear to return to the building.

Unauthorized re-entry into a building during an evacuation is not permitted. Violators of this policy are subject to disciplinary action.

**Alarm Systems:** Smoke detectors and sprinkler systems must not be covered or blocked. Tampering with any component of the smoke detection system or sprinkler system is prohibited. Nothing may be attached to wiring, smoke detectors, and/or sprinkler system components. Violators will be charged for repair and/or replacement of any detection device with possible disciplinary action.

**Evacuation:** College officials reserve the right to evacuate any building or facility for emergency reasons. Noncompliance or failure to cooperate with faculty and staff during an emergency, real or drill, will result in disciplinary action.

**Fire Doors:** Fire doors must not be propped open or disabled.

## Hazing Policy

### THE HAZING ACT, MASSACHUSETTS GENERAL LAWS, CHAPTER 269, SECTIONS 17 THROUGH 19

This is a true copy of sections 17, 18, and 19 of the Hazing Act to be provided to each BFIT student in accordance with the law.

**Section 17.** Whoever is a principal organizer or participant in the crime of hazing, as defined herein, shall be punished by a fine of not more than three thousand dollars or by imprisonment in a house of correction for not more than one year, or both such fine and imprisonment.

The term "hazing" as used in this section and in sections eighteen and nineteen, shall mean any conduct or method of initiation into any student organization, whether on public or private property, which wilfully or recklessly endangers the physical or mental health of any student or other person. Such conduct shall include whipping, beating, branding, forced calisthenics, exposure to the weather, forced consumption of any food, liquor, beverage, drug or other substance, or any other brutal treatment or forced physical activity which is likely to adversely affect the physical health or safety of any such student or other person, or which subjects such student or other person to extreme mental stress, including extended deprivation of sleep or rest or extended isolation.

Notwithstanding any other provisions of this section to the contrary, consent shall not be available as a defense to any prosecution under this action.

**Section 18.** Whoever knows that another person is the victim of hazing as defined in section seventeen and is at the scene of such crime shall, to the extent that such person can do so without danger or peril to himself or others, report such crime to an appropriate law enforcement official as soon as reasonably practicable. Whoever fails to report such crime shall be punished by a fine of not more than one thousand dollars.

**Section 19.** Each institution of secondary education and each public and private institution of post secondary education shall issue to every student group, student team or student organization which is part of such institution or is recognized by the institution or permitted by the institution to use its name or facilities or is known by the institution to exist as an unaffiliated student group, student team or student organization, a copy of this section and sections seventeen and eighteen; provided, however, that an institution's compliance with this section's requirements that an institution issue copies of this section and sections seventeen and eighteen to unaffiliated student groups, teams or organizations shall not constitute evidence of the institution's recognition or endorsement of said unaffiliated student groups, teams or organizations.

Each such group, team or organization shall distribute a copy of this section and sections seventeen and eighteen to each of its members, plebes, pledges or applicants for membership. It shall be the duty of each such group, team or organization, acting through its designated officer, to deliver annually, to the institution an attested acknowledgement stating that such group, team or organization has received a copy of this section and said sections seventeen and eighteen, that each of its members, plebes, pledges, or applicants has received a copy of sections seventeen and eighteen, and that such group, team or organization understands and agrees to comply with the provisions of this section and sections seventeen and eighteen.

Each institution of secondary education and each public or private institution of post secondary education shall, at least annually, before or at the start of enrollment, deliver to each person who enrolls as a full time student in such institution a copy of this section and sections seventeen and eighteen.

Each institution of secondary education and each public or private institution of post secondary education shall file, at least annually, a report with the board of higher education and in the case of secondary institutions, the board of education, certifying that such institution has complied with its responsibility to inform student groups, teams or organizations and to notify each full time student enrolled by it of the provisions of this section and sections seventeen and eighteen and also certifying that said institution has adopted a disciplinary policy with regard to the organizers and participants of hazing, and that such policy has been set forth with appropriate emphasis in the student handbook or similar means of communicating the institution's policies to its students. The board of higher education and, in the case of secondary institutions, the board of education shall promulgate regulations governing the content and frequency of such reports, and shall forthwith report to the attorney general any such institution which fails to make such report.

#### DISCIPLINARY POLICY WITH REGARD TO THE ORGANIZERS AND PARTICIPANTS OF HAZING

The Hazing Act requires the college to have a disciplinary policy for the organizers and participants of hazing, and to set it forth with appropriate emphasis in the student handbook or similar means of communicating the institution's policies to its students.

The college procedures concerning the initiation of conduct proceedings are contained within the Student Code of Conduct and available on the college website.

Organizing or participating in hazing shall be deemed misconduct and charges will be filed in writing to the Assistant Dean of Student Life or Dean of Students. Such charges will be considered "extraordinary circumstances" and the student(s) concerned may be placed on interim suspension, effective immediately, pending further investigation of the case.

When it is determined in accordance with the Student Code of Conduct that a charged party was an organizer or participant in hazing under the meaning of the law, the sanctions recommended by the hearing board shall be limited to restitution, suspension or expulsion.

## *Information Technology and Computer Use Policy*

This policy governs computer and network usage for faculty, staff and students at BFIT. As a user of these resources, you are responsible for reading and understanding the following documented information. This documented information protects the consumers of computing resources, computing hardware and networks, and system administrators. (Contact the IT Services office if you have any questions.)

### **RIGHTS AND RESPONSIBILITIES**

Computers and networks can provide access to resources on and off campus as well as the ability to communicate with others worldwide. Such open access is a privilege and requires that individual users act responsibly. Users must respect the rights of other users, respect the integrity of the systems and related physical resources, and observe all relevant laws, regulations, and contractual obligations. Since electronic information is volatile and easily reproduced, users must exercise care in acknowledging and respecting the work of others through strict adherence to software licensing agreements and copyright laws.

Misuse of computing, networking or information resources may result in the loss of computing and/or networking access. Additionally, misuse can be prosecuted under applicable BFIT or campus policies, procedures, or collective bargaining agreements.

Illegal production of software and other intellectual property protected by U.S. copyright law is subject to civil damages and criminal punishment including fines and imprisonment.

The Benjamin Franklin Institute of Technology supports the policy of EDUCOM on Software and Intellectual Rights, which states, "Respect for intellectual labor and creativity is vital to academic discourse and enterprise. This principle applies to works of authors and publishers in all media. It encompasses respect for the right to acknowledgement, right to privacy, and the right to determine the form, manner, and terms of publication and distribution. Because electronic information is volatile and easily reproduced, respect for the work and personal expression of others is especially critical in computer environments. Violations of authorial integrity, including plagiarism, invasion of privacy, unauthorized access, and trade secrets and copyright violations may be grounds for sanctions against members of the academic community."

Other organizations operating computing and network facilities that are reachable via the Institute may have their own policies governing the use of those resources. When accessing remote resources, users are responsible for obeying both the policies set forth in this documented information and the policies of the other organizations.

### **NO EXPECTATION OF PRIVACY**

Students have access to computers and the Internet to assist them in the educational process. Students should have no expectation of privacy in anything they create, store, send or receive using BFIT's computer equipment.

The computer network is the property of BFIT and may be used only for educational purposes.

### **WAIVER OF PRIVACY RIGHTS**

Students expressly waive any right of privacy in anything they create, store, send and receive, when using BFIT computer equipment or Internet access. Students consent to allow BFIT personnel access to and review of all materials created, stored, sent or received by students through any BFIT network or Internet connection.

### **MONITORING OF COMPUTER AND INTERNET USAGE**

BFIT has the right to monitor and log any and all aspects of its computer system including, but not limited to, monitoring Internet sites visited by students, monitoring chats and newsgroups, monitoring file downloads and all communications sent and received by students.

### **BLOCKING SITES WITH INAPPROPRIATE CONTENT**

BFIT has the right to utilize software that makes it possible to identify and block access to Internet sites containing sexually explicit or other material deemed inappropriate in this setting.

## FRIVOLOUS USE

Computer resources are not unlimited. Network bandwidth and storage capacity have finite limits, and all students connected to the network have a responsibility to conserve these resources. As such, students must not deliberately perform acts that waste computer resources. These acts include, but are not limited to, sending mass mailing or chain letters, spending excessive amounts of time on the Internet, playing games, engaging in on-line chat groups, uploading or downloading large files, accessing streaming audio and/or video files, or otherwise creating unnecessary loads on network traffic associated with non-education-related uses of the Internet.

## EXISTING LEGAL CONTEXT

All existing laws (federal and state) and college regulations and policies apply, including not only those laws and regulations that are specific to computers and networks, but also those that may apply generally to personal conduct and harassment.

Users do not own accounts on BFIT computers, but are granted the privilege of exclusive use. Under the Electronic Communications Privacy Act of 1986 (Title 18 USC, section 2510 et seq.), users are entitled to privacy regarding information contained on these accounts. This act, however, allows system administrators or other college employees to access user files in the normal course of their employment, when necessary to protect the integrity of computer systems or the rights or property of the college. For example, system administrators may examine or make copies of files that are suspected of misuse or that have been corrupted or damaged. User files may be subject to search by law enforcement, which may be used as evidence in a court of law. In addition, student files on college computer facilities are considered "educational records" under the Family Educational Rights and Privacy Act of 1974 (Title 20 U.S.C. section 1232[g]).

## VIOLATIONS

Please see the Student Code of Conduct, Prohibited Conduct section #22, a-q for a listing of all Information Technology and Computer Use violations.

## ENFORCEMENT

Minor infractions of this policy, when accidental, such as consuming excessive resources or overloading computer systems, are generally resolved informally by the unit administering the accounts or network.

This may be done through electronic mail or in-person discussion and education.

Repeated minor infractions or misconduct that is more serious may result in referral to the Student Conduct system, in which the student may face temporary or permanent loss of computer access privileges or the modification of those privileges. More serious violations include, but are not limited to, the unauthorized use of computer resources, attempts to steal passwords or data, unauthorized use or copying of licensed software, repeated harassment, or threatening behavior.

In addition, offenders may be referred to their sponsoring advisor, department, employer, or other appropriate college office for further disciplinary action

*Adapted with permission from the University of California, Davis, Computer and Network Use Policy.*

## *Missing Student Policy*

The Benjamin Franklin Institute of Technology takes student health and safety seriously and considers it with utmost importance. The staff of BFIT will make all efforts to communicate with appropriate persons in a timely manner regarding a student's health and safety. The following policy and procedure has been placed into effect to support any BFIT student, who based on facts and circumstances known to the college, are determined to be missing.

The enacted policy is in accordance with Section 485 of the Higher Education Act (HEA), which states that every institution of higher education that provides on-campus housing must provide a missing student notification policy for those students residing in on-campus housing.

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### REPORTING A SUSPECTED MISSING STUDENT

Anyone who suspects a student to be missing should report their concern to any Student Affairs professional. All reports made to the college will be followed up with an immediate investigation once a student has been missing for 24 hours. Depending on the circumstances presented to college officials, parents of a missing student will be notified. In the event that parental notification is necessary, the Dean of Students or designee will place the call.

A suspected missing person should be reported to any of the following staff members by calling the college's main line during standard business hours at 617-423-4630 and using the automated directory to reach:

- Dean of Students
- Assistant Dean of Student Life
- Director/Assistant Director of Student Wellness and Support
- BFIT Security

The following information will be collected and documented when it is reported to a staff member:

- Name and directory information of suspected missing person
- Name and relationship of person reporting the suspected missing person
- Contact information (cell phone, email, address) of the person reporting
- Date, time, location the suspected missing person was last seen
- Any known extracurricular, off-campus visits (friends, family) or work commitments of the suspected missing person
- Cell phone number of the suspected missing person

### DETERMINING A MISSING STUDENT

Once a student has been reported as missing, staff members may participate in any or all of the following procedures to make contact with the suspected missing student:

- Call and text the student's cell phone (or other numbers posted in CAMS)
- Check other possible public locations (library, off-campus gym, etc)
- Contact student's faculty members
- Contact student's emergency contact
- Contact any off-campus friends
- Check any social media websites (Facebook, MySpace, Twitter, etc)

### INVOLVING LOCAL LAW ENFORCEMENT AGENCIES

Once all information has been collected regarding the suspected missing student and a timely and appropriate investigation has taken place by college officials, the Dean of Students and/or designee will make contact with the Boston Police Department. Once the information is reported to the Boston Police Department, the Dean of Students

will continue to act as the spokesperson to the family and concerned reporter regarding the missing student.

Student Affairs staff, and Security will assist any local law enforcement agencies with the investigation upon request by providing all necessary and appropriate information on the student and by using any of the procedures and the resources listed above to assist in the investigation that are legally permissible.

### *BFIT Sexual Misconduct Policy*

For a complete version of the Policies & Procedures relating to Sexual Misconduct please visit <https://www.bfit.edu/student-life/student-conduct/title-ix/>

#### SCOPE OF THE POLICY AND PROCEDURES

This Policy is intended to provide the BFIT community with a clearly articulated set of behavioral standards, and definitions of prohibited conduct and key concepts. The Policy applies to all community members, including students, faculty, staff, affiliates, vendors, visitors, applicants for admission or employment, and independent contractors. The Policy applies regardless of a person's gender, gender identity, gender expression, sexual orientation, age, race, nationality, class status, religion, or other protected status.

This Policy applies both to on-campus and off-campus conduct if (i) the conduct was in connection with a College or College-recognized program or activity, or (ii) the conduct may have the effect of creating a hostile environment for a member of the BFIT community. Section X includes a list of on-campus resources available to those affected by sexual misconduct and the extent to which such resources have reporting obligations or may maintain the confidentiality of a report of sexual misconduct. The accompanying Procedures for Addressing Student Sexual Misconduct, describe the investigation and disciplinary process that applies when a current student at the Benjamin Franklin Institute of Technology is accused of sexual misconduct.

If a BFIT faculty or staff member, or other person doing business with BFIT is accused of sexual misconduct, the investigation and disciplinary processes described in The Benjamin Franklin Institute of Technology's Procedures for Addressing Sexual Misconduct Complaints against Faculty, Staff, Affiliates, and Non-Affiliates apply.

Benjamin Franklin Institute of Technology encourages any member of the BFIT community who has experienced sexual assault, domestic violence, dating violence, or stalking, or knows of another member of the community who has experienced sexual assault, domestic violence, dating violence, or stalking to report the incident to the college.

Students who are uncertain of their options or simply need help should contact Student Wellness and Support at (617) 588-1302. Faculty and staff may contact the Director of Human Resources (Kendall, 2nd floor) at (617) 588-1376 for assistance.

Nothing in this Policy or any of BFIT's procedures for the resolution of sexual misconduct complaints shall be construed to abridge academic freedom, principles of free speech, or BFIT's educational mission.

#### I. NOTICE OF NON-DISCRIMINATION.

The Benjamin Franklin Institute of Technology policy prohibits discrimination on the basis of race, creed, color, religion, national origin, ancestry, sex, age, marital status, veteran status, political belief or affiliation, criminal record (applications only), CORI check results, mental or physical disability, pregnancy, retaliation, sexual harassment, sexual orientation, gender identity or expression and genetic information and any other class of individuals protected from discrimination under state and federal law. This policy extends to all rights, privileges, programs, and activities, including admission, employment, financial assistance, and educational programs.

BFIT does not discriminate on the basis of sex in its educational, extracurricular, athletic, or other programs, or in the context of employment. Sexual misconduct, including sexual harassment as defined in this Policy, is a form of sex discrimination prohibited by Title IX of the Education Amendments of 1972, a federal law that provides that:

No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance.

Sex discrimination is also prohibited under Title VII of the Civil Rights Act of 1964, Massachusetts General Laws Chapter 151B, and other applicable statutes.



### COORDINATION WITH BENJAMIN FRANKLIN INSTITUTE OF TECHNOLOGY'S NON-DISCRIMINATION POLICY.

The Benjamin Franklin Institute of Technology recognizes that discrimination and harassment related to a person's sex can occur in connection with misconduct related to a person's sexual orientation, gender identity, or gender expression, race, color, ethnicity, national origin, religion, age, disability, or other protected class. Targeting a person on the basis of these characteristics is also a violation of state and federal law and College policy. Under these circumstances, the College will endeavor to coordinate the investigation and resolution efforts of sexual misconduct complaints with the investigation and resolution of complaints of discrimination or harassment based on other protected classes.

### II. IMPORTANT CONCEPTS AND DEFINITIONS.

#### A Reporting Roles

Reporting Party: The person making the allegations of sexual misconduct.

Responding Party: The person against whom a complaint of sexual misconduct has been made.

Reporting Third Party: A person who has information that sexual misconduct may have been committed by a BFIT Community Member or a participant in a BFIT Program and who initiates a complaint.

#### B Consent.

To be effective, consent must be an informed, deliberate and voluntary decision to engage in mutually acceptable sexual activity. Consent is an affirmative process. It is the responsibility of the person who wants to engage in sexual activity to make sure that they have received consent from any other person(s) involved. If an individual initiating sexual activity is not sure if they have received consent, they have an obligation to seek additional clarification. Failure to do so could violate this policy and lead to disciplinary action. Consent cannot be based on assumptions. BFIT policy always requires that individuals obtain consent before engaging in sexual activity.

Consent is active not passive. Signals of consent must be part of a mutual and ongoing process, offered freely and knowingly. Consent can be given by words or actions as long as those words or actions create clear, mutually understandable permission regarding the conditions of sexual activity. Relying solely on non-verbal communication can lead to misunderstandings and harmful consequences for all of the parties involved because this form of communication may be unclear. Individuals should be able to clearly articulate why and how they knew that they had received consent and what they considered to be indications of consent before they engaged in sexual activity

Silence or absence of resistance does not imply consent. Past consent to sexual activity with another person does not imply ongoing future consent with that person or consent to that same sexual activity with another person.

Consent can be withdrawn at any time before or during sexual activity by either party

If a person is mentally or physically incapacitated or impaired so that they cannot understand the fact, nature, or extent of the sexual situation, there is no consent; this includes impairment or incapacitation due to alcohol or drug consumption that meets this standard, or being asleep or unconscious.

Effect of drugs and alcohol on consent:

Individuals should be aware of, and carefully consider, the potential consequences of the use of alcohol or drugs. Alcohol and other drugs can lower inhibitions and create an atmosphere of confusion over whether consent is freely and affirmatively given. If there is a question about whether someone consented to sexual activity after consuming drugs or alcohol, the College will examine the issue from the perspective of a reasonable person. Specifically, the College will consider whether the responding party reasonably should have known about the impact of alcohol and other drugs on the reporting party's ability to give consent.

#### C Incapacitation.

Incapacitation is the inability, temporarily or permanently, to give consent, because the person is mentally and/or physically helpless due to drug or alcohol consumption, either voluntarily or involuntarily, or the person is unconscious, asleep, or otherwise unaware that the sexual activity is occurring. Some signs of incapacitation may include, but are not limited to, lack of control over physical movements (e.g., stumbling, falling down), lack of awareness of circumstances or surroundings, the inability to speak or communicate orally, or the inability to communicate for any reason.

It is a violation of this Policy and Massachusetts law to engage in sexual activity with a person who is incapacitated, regardless of whether the person appeared to be a willing participant. It is especially important, therefore, that anyone engaging in sexual activity be aware of the other person's level of intoxication.

**D Force.**

The use of force to cause someone to engage in sexual activity is, by definition, non-consensual contact, and is prohibited. Force may include words, conduct, or appearance. Force includes causing another's intoxication or impairment through the use of drugs or alcohol. Under this Policy, force includes the use of any of the following:

**1 Physical Force, Violence, or a Weapon.**

Physical force is the use of power, violence or strength upon another person's body. An individual's use of physical force or, violence, or threat of physical force or violence to make another person participate in or perform a sexual activity they might not have otherwise agreed to, or did not want to engage in, is a violation of this Sexual Misconduct Policy

**2 Threats.**

A threat often occurs when someone says or implies that there will be negative consequences from failing to consent to comply with sexual activity. It is a violation of this policy if an individual uses threats to make another person participate in or perform a sexual activity that they might not have agreed to engage otherwise.

This behavior can include (but is not limited to) threats to:

Inflict harm or injury;

The presence or suggestion of a weapon;

Hurt or kill themselves or someone else;

Expose some secret or embarrassing information;

Hurt someone's reputation;

Inflict negative social consequences;

Commit another hostile action in retribution for something done or not done Threats can be implied, veiled and/or non-verbal.

**3 Intimidation and Implied Threats.**

Intimidation or abuse of power/authority occurs when individuals use their real or perceived authority to influence other people to submit to sexual activity. Intimidation happens through a real or perceived display of superior wealth, status or power that someone uses to make another do what they want them to do. Real or perceived power can come from things such as class, social status, a teaching position, a mentorship, membership in a team or group and/or an individual's status within a team or group. It implies a power imbalance between the parties. When an individual uses this power/authority/control to influence another to participate in or perform a sexual activity that they might not have agreed to engage in otherwise, they have used force.

**4 Coercion.**

Coercion is to force one to act based on fear of harm to self or others. Means of coercion may include, but are not limited to, pressure, threats, or emotional intimidation.

**E Hostile Environment.**

A hostile environment exists when sexual or sex-based harassment is sufficiently serious to deny or limit a student's ability to participate in or benefit from the College's programs or activities or has the effect of unreasonably interfering with an employee's work performance or altering the terms and conditions of the employee's employment. A hostile environment can be created by anyone involved in a College program or activity (e.g., administrators, faculty members, students, and campus visitors).

In determining whether sex-based harassment has created a hostile environment, the College considers the conduct in question from both a subjective and objective perspective. It will be necessary, but not enough, that the

conduct was unwelcome to the student or employee who was harassed. But the College will also need to find that a reasonable person in the student or employee's position would have perceived the conduct as undesirable or offensive in order for that conduct to create or contribute to a hostile environment.

To determine whether a hostile environment exists for a student or employee, the College will consider a variety of factors related to the severity, persistence, or pervasiveness of the sex-based harassment, including: (1) the type, frequency, and duration of the conduct; (2) the identity and relationships of persons involved; (3) the number of individuals involved; (4) the location of the conduct and the context in which it occurred; and, (5) the degree to which the conduct affected the student's education or the employee's employment.

The more severe the sex-based harassment, the less need there is to show a repetitive series of incidents to find a hostile environment. Indeed, a single instance of sexual assault may be sufficient to create a hostile environment. Likewise, a series of incidents may be sufficient even if the sex-based harassment is not particularly severe.

### III PROHIBITED CONDUCT: DEFINITIONS & EXAMPLES.

"Sexual misconduct" is a broad, non-legal term that encompasses a wide range of behaviors, including but not limited to, sexual harassment, sex/gender discrimination, sexual assault, rape, acquaintance rape, stalking, and relationship violence (including dating and domestic violence). It is a violation of BFIT policy as well as applicable law to commit or to attempt to commit these acts.

Sexual misconduct can occur between strangers or acquaintances, or people who know each other well, including between people who are or have been involved in an intimate or sexual relationship. It can be committed by anyone, regardless of gender or gender identity, and can occur between people of the same or different sex or gender. This Policy prohibits all forms of sexual misconduct.

#### A Sex and/or Gender Based Discrimination

Sexual misconduct is, in many instances, a form of sex and/or gender discrimination and sex and/or gender based harassment. However, sex and gender discrimination and harassment that is not sexual in nature is also prohibited by BFIT. For instance, BFIT's Non-Discrimination Policy prohibits the unequal treatment of an individual (or group) based on sex or gender or sex/gender based harassment — even when the conduct is not sexual in nature. The Non-Discrimination Policy also prohibits sex or gender discrimination resulting from the application of a neutral policy or procedures.

For more information on sex and gender discrimination, please see BFIT's Equal Opportunity Policy. Allegations of sex or gender based discrimination that are not of a sexual nature and do not arise under the Sexual Misconduct Policy are covered by the College's Non-Discrimination Policy, and associated procedures.

#### B Sexual Harassment.

##### 1 Definition of Sexual Harassment

Sexual Harassment is unwelcome conduct of a sexual nature that has the effect of creating a hostile or stressful living, learning, or working environment, or whenever toleration of such conduct or rejection of it is the basis for an academic or employment decision affecting an individual. Conduct is considered "unwelcome" if the person did not request or invite it and considered the conduct to be undesirable or offensive.

Sexual harassment includes any conduct or incident that is sufficiently serious that it is likely to limit or deny a student's ability to participate in or benefit from the College's educational programs or a faculty or staff member's ability to work, which may include a single incident of sexual assault or other serious sexual misconduct.

#### C Sexual Assault (including Rape).

Sexual assault is actual or attempted sexual contact with another person without that person's consent. Sexual assault includes, but is not limited to:

- a Intentional touching of another person's intimate parts without that person's consent; or
- b Other intentional sexual contact with another person without that person's consent; or

- c Coercing, forcing, or attempting to coerce or force a person to touch another person's intimate parts without that person's consent; or Rape, which is penetration, no matter how slight, of (1) the vagina or anus of a person by any body part of another person or by an object, or (2) the mouth of a person by a sex organ of another person, without that person's consent.

**D Sexual Exploitation.**

Sexual exploitation occurs when a person takes sexual advantage of another person for the benefit of anyone other than that person without that person's consent.

Examples of behavior that could rise to the level of sexual exploitation include:

- a Recording images (e.g., video, photograph) or audio of another person's sexual activity, intimate body parts, or nakedness without that person's consent;
- b Distributing images (e.g., video, photograph) or audio of another person's sexual activity, intimate body parts, or nakedness, if the individual distributing the images or audio knows or should have known that the person depicted in the images or audio did not consent to such disclosure and objects to such disclosure; and,
- c Viewing another person's sexual activity, intimate body parts, or nakedness in a place where that person would have a reasonable expectation of privacy, without that person's consent, and for the purpose of arousing or gratifying sexual desire.
- d Prostituting another person.

**E Stalking.**

Stalking is prohibited under this policy when the conduct involves a BFIT student, staff, faculty and/or other community member regardless of sex or gender.

Under this policy, stalking is defined as persistent, unwanted or unwelcome and repeated course of conduct that would cause a reasonable person to become fearful for the person's safety or the safety of another, or suffer substantial emotional distress.

Stalking includes the concept of "cyber stalking," a particular form of stalking that may be over an electronic medium such as the internet, social networks, blogs, cell phones, texts or other similar devices. Such modes of contact may be used to pursue or harass someone when it is unsolicited, unwelcome and/or unwanted conduct from the stalker.

**F Relationship (Dating and Domestic) Violence.**

Under this policy, relationship violence is intentionally violent and/or controlling behavior by a person who is currently or was previously in a dating, sexual, romantic, domestic or other intimate relationship with the reporting party. This conduct is prohibited by BFIT policy regardless of the sex/gender of the individuals involved. Relationship violence can also involve domestic violence committed by a person with whom the reporting party/victim/survivor shares a child and/or domicile in common.

Relationship violence is used to gain or maintain power and control over another person. Relationship violence includes actual or threatened physical injury, sexual assault or other sexual violence, economic control and psychological and emotional abuse. Relationship violence includes behaviors that intimidate, manipulate, humiliate, isolate, frighten, terrorize, coerce, threaten, blame, hurt, injure or wound someone. Relationship violence can occur in all types of romantic, intimate and/or sexual relationships (e.g. those in same sex/gender or different sex/gender relationships). Relationship violence can occur at any stage in a relationship, including after its termination.

**G Retaliation.**

**1 Definition of Retaliation.**

Retaliation is an adverse action or attempt to seek retribution against the reporting party, or any person or group of persons involved in the investigation and/or resolution of a sexual misconduct complaint. Retaliation can be committed by any person or group of persons, not just a responding party. Retaliation may include continued abuse or violence, other forms of harassment, and slander and libel.

It is a violation of Massachusetts and federal law and a violation of this Policy to retaliate against a person for filing a complaint of sexual misconduct or for cooperating in a sexual misconduct investigation. Any person who retaliates against a person who has reported sexual misconduct, filed a sexual misconduct complaint, or participated in a sexual misconduct investigation is subject to disciplinary action up to and including expulsion or termination by the College.

#### **IV CAMPUS AND COMMUNITY RESOURCES.**

As outlined here and in the “Resources and Support” section at the end of this Policy, a variety of support and counseling resources are available to members of the BFIT Community affected by sexual misconduct. Contact information for the resources described here is available in Section X.

##### **A Emergency / Immediate Assistance.**

BFIT encourages all community members affected by sexual misconduct to seek immediate assistance. Doing so promptly may be important to ensure the person’s physical safety or to obtain medical care or other support. It may also be necessary to preserve evidence, which can assist the College and/or law enforcement in responding effectively.

In case of an emergency or ongoing threat, please immediately contact BFIT Security. The BFIT Security Desk is located in the Lobby of the Union Building or you can call Security at (617) 588-1355. If security is not available, please go to a safe location and call 911. Calling 911 will put you in touch with local police.

##### **B Privacy & Confidentiality.**

The Benjamin Franklin Institute of Technology values the privacy of its students, faculty, staff, and other community members. BFIT wants all community members to seek the assistance they need without fear that the information they provide will be shared more broadly than they would like. Federal and state laws, however, impose reporting obligations on certain College employees that require them to disclose information from a report of sexual misconduct with those employees responsible for responding to such a report. However, there are individuals at BFIT who are not subject to these reporting requirements, with whom students can speak in complete confidence. Even when BFIT employees have an obligation to report to others, which means their office is described as “non-confidential” under this Policy, they will protect and respect an individual’s privacy to the greatest extent possible and share information only on a need-to-know basis.

While discretion remains important and is critical to preserving the integrity of the investigative process and the privacy of the individuals involved, the parties are not restricted from discussing or sharing information related to their complaint with others who may support them or their case (such as legal counsel and/or support persons).

##### **C Confidential Campus Resources and Support.**

BFIT encourages all members of the community to report any incident of sexual misconduct. The college recognizes, however, that not every person will choose to make a formal report with BFIT or with local law enforcement. For those who are not prepared to make a report or pursue a complaint, the College provides confidential services to students through our Office of Student Wellness and Support, located on the first floor of the Union Building.

Student Wellness and Support staff can explain options for obtaining additional support from BFIT and off-campus resources. Reporting parties may use this resource to talk to someone about an incident of sexual misconduct in a confidential manner whether or not they decide to make an official report or to participate in the BFIT informal resolution process or the criminal justice system. Conferring with this resource will not trigger an investigation by the College or law enforcement. However, this office is familiar with BFIT’s complaint resolution processes, can explain what to expect, and can provide support while BFIT or criminal processes are pending.

##### **D Non-Confidential Campus Resources.**

In addition to the confidential resources discussed above, all members of the BFIT community have access to a variety of individuals who are trained to support those affected by sexual misconduct and to coordinate with the Title IX Coordinator. While not bound by confidentiality, these resources will nevertheless maintain the privacy of a person’s information within the limited circle of those involved in the Title IX investigation and resolution process.

1 Title IX Coordinators.

The Title IX Coordinator is responsible for overseeing BFIT's response to Title IX reports and complaints, and identifying and addressing any patterns or systemic problems revealed by such reports and complaints. The Title IX Coordinator's contact information is in Section X.

The Deputy Title IX Coordinators are individuals who are trained to assist students and employees with complaints or concerns about sexual misconduct, and direct them to the resources they need. They report all complaints and concerns to the Title IX Coordinator, and work closely with the Title IX Coordinator in promptly responding to a person's concerns. The Deputy Coordinators can help with interim measures that a reporting party may need during the investigation of a complaint. Contact information for the Deputy Title IX Coordinators is in Section X.

E Off-Campus Resources.

Students, faculty, and staff may also access resources located in the local community. The organizations and agencies listed in Section X can provide crisis intervention services, counseling, medical attention, and legal assistance. All members of the BFIT community are encouraged to utilize the resources that are the best suited to their needs, whether on or off campus. In general, off-campus resources can provide assistance to those who wish to make a report to the College, but will not notify the College without the consent of the reporting party.

V REPORTING SEXUAL MISCONDUCT.

BFIT encourages all community members to report incidents of sexual misconduct as promptly as possible so that the College can respond effectively. Students may report sexual misconduct to the Assistant Dean of Student Life, the Title IX Coordinator, or a Deputy Title IX Coordinator, or to any non-confidential BFIT staff or faculty member.

Faculty and staff may report incidents to the Deputy Title IX Coordinator in Human Resources, the Dean of Academic Affairs, or their department head. In general, when one of these offices receives a report, the College must commence an investigation. All reports of such incidents will be disclosed to the Title IX Coordinator.

BFIT recognizes that students may be most comfortable disclosing sexual misconduct to a College employee they know well, such as a faculty member, staff member, or advisor. Students are welcome to speak with them, but should understand that these individuals are considered "responsible employees" of the College (other than the confidential resources identified in the Section X), and if they receive a report of sexual misconduct are required to inform the Title IX Coordinator about the incident. All college employees, including faculty, staff, and administrators, student employees who have a responsibility for student welfare, and student volunteers who have a responsibility for student welfare, are required to share with the Title IX coordinator any report of sexual misconduct they receive or of which they become aware.

A Reports to a Non-Confidential Resource: Requests for Confidentiality.

When the college has received a report of sexual misconduct, but the reporting party requests that their identity remain confidential or that the college not pursue an investigation, the college will balance this request with its responsibility to provide a safe and non-discriminatory environment for all college community members. The college will take all reasonable steps to investigate and respond to the complaint consistent with the request for confidentiality or request not to pursue an investigation. The college will seek to respect the request of the reporting party, and where it cannot do so, the college will consult with the reporting party and keep them informed about the chosen course of action.

B Interim Measures and Support.

BFIT provides a range of support services for reporting parties, including interim measures. Interim measures are available to provide for the safety of the reporting party and the campus community while the College is investigating an allegation of sexual misconduct. Requests for interim measures can be made by or on behalf of the reporting party to the BFIT Title IX Coordinator or a Deputy Title IX Coordinators. Students may also seek assistance from the Dean of Students Office. The Title IX Coordinator will work with the appropriate office(s) to ensure that any necessary interim measures are promptly provided.

Upon the receipt of a report of sexual misconduct, and until any investigation into the report has been completed, the College will provide reasonable protective measures and interim support to provide a safe educational and

work environment and to prevent additional acts of sexual misconduct, even when there is no specific request for protective action.

The College may impose any measures that can be tailored to the parties involved to achieve the goals of this Policy.

An individual's failure to comply with restrictions imposed by interim measures is a violation of this Policy and a basis for disciplinary action.

Outside BFIT, a reporting party may also be entitled to obtain remedies under applicable law, such as a judicial restraining order. The College can assist in contacting law enforcement or legal service organizations to learn about these remedies.

Examples of Interim Measures Include (but are not limited to):

- 1 Issuing a No Contact Order
- 2 Academic, Employment or Residence Modifications
- 3 Emotional Support
- 4 Interim Suspension
- 5 Administrative Leave (for employees)

### C Amnesty for Students Who Report Sexual Misconduct.

BFIT encourages the reporting of all concerns regarding sexual misconduct. In some instances, students may be hesitant to report sexual misconduct because they fear potential consequences for their own conduct. An individual who reports sexual misconduct, either as a student reporting party or a student third party witness, will not be subject to disciplinary action by the college for their own personal consumption of alcohol or drugs at or near the time of the incident, provided that any such violations did not and do not place the health or safety of any other person at risk.

However, the use of alcohol or drugs does not excuse sexual misconduct and a person who has been incapacitated through the use of alcohol and drugs (or by any other means) cannot give effective consent to sexual activity. The college may initiate an educational discussion or pursue other educational remedies regarding alcohol or other drugs.

## VI OTHER INFORMATION RELATED TO REPORTING SEXUAL MISCONDUCT

### A Time for Reporting.

Although all members of the BFIT community are encouraged to report sexual misconduct immediately in order to maximize the College's ability to respond promptly and equitably, BFIT does not limit the time frame for reporting. However, the College's ability to investigate and respond effectively may be reduced with the passage of time.

### B Anonymous Reports and Reports from Third Parties.

Any person may make an anonymous report concerning an act of sexual misconduct. A person may report the incident without disclosing their name, identifying the responding party, or requesting any action. Depending on the level of information available about the incident and the people involved, however, the College's ability to respond to an anonymous report may be limited. Anonymous reports may be made by submitting an Incident Report Form to Assistant Dean of Student Life, the Title IX Coordinator or one of the Deputy Title IX Coordinators.

In cases in which the report was made anonymously or by a third party (such as a friend, roommate, adviser, or faculty member), this Policy will apply in the same manner as if the reporting party had made the initial report. A Title IX Coordinator or Deputy Title IX Coordinator will make every effort to meet with the reporting party to discuss available options and on-campus and off-campus resources.

### C Reporting of Crime and Disciplinary Statistics.

The Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act ("Clery Act") is a federal law that requires the College to record and report certain information about campus safety, including the number of incidents of certain crimes on or near campus, some of which constitute sexual misconduct under this Policy.

The Clery Act also requires the College to issue a “timely warning” when it receives a report of certain crimes that pose a serious or continuing threat to the College community. This warning will not contain any biographical or other identifying information regarding the victim of the crime. Immediately threatening circumstances include, but are not limited to, recently reported incidents of sexual misconduct that include the use of force, a weapon, or other circumstances that represent a serious and ongoing threat to students, faculty, administrators, staff, or visitors.

**D Public Awareness Events.**

The College supports public awareness events that further campus-wide education and prevention efforts.

A community member’s public disclosure of incidents of sexual misconduct at these events will not be considered a report to the College for the purpose of triggering an investigation of a particular incident.

In addition, the college may, from time-to-time, conduct climate surveys to gauge attitudes about sexual misconduct and awareness of campus resources. These voluntary surveys will contribute to the College’s understanding of the campus climate and student safety. The disclosure of incidents of sexual misconduct in responses to survey questions will not be considered a report to the College for the purpose of triggering an investigation of a particular incident.

**E Prohibition Against Retaliation.**

BFIT and Title IX strictly prohibit retaliation against and intimidation of any person because they reported an incident of sexual misconduct or are involved in the College’s response. BFIT will take strong disciplinary action in response to any retaliation or intimidation, and will pursue such discipline through the applicable student conduct policy or other disciplinary process and follow the applicable time frames within such policies or processes.

**F Filing a Criminal Complaint and Coordination with Law Enforcement.**

BFIT encourages reporting parties to pursue criminal action for incidents of sexual misconduct that may also be crimes under Massachusetts law. If necessary, the College may notify the Boston Police Department of allegations of sexual violence. The College can also assist a reporting parties in making a criminal report and will cooperate with law enforcement agencies if a reporting party decides to pursue the criminal process to the extent permitted by law.

However, a reporting party may also choose not to pursue criminal action, and under most circumstances, the Boston Police Department will not force a reporting party to pursue criminal charges if they are not willing to do so.

**VII TITLE IX REVIEW.**

**A Role of the Title IX Coordinator.**

Jackie Cornog, Title IX Coordinator | (617) 588-1358 | [jcornog@bfit.edu](mailto:jcornog@bfit.edu)

Brett Wellman, Deputy Title IX Coordinator, Assistant Dean of Student Life | (617) 588-1336 | [bwellman@bfit.edu](mailto:bwellman@bfit.edu)

Deputy Title IX Coordinator, Assistant Dean of Academic Affairs | (617) 588-1312

Deputy Title IX Coordinator, Director of Human Resources | (617) 588-1376

The Title IX and/or Deputy Title IX Coordinators can be contacted by telephone, e-mail, or in person. They can provide information related to campus and community resources and describe the options available to address concerns related to sexual misconduct.

**B Procedures for Responding to Sexual Misconduct.**

The Title IX Coordinator oversees the initial response and assessment of reports of sexual misconduct through the College’s sexual misconduct resolution procedures. The procedure used will be determined by the status of the responding party:

Complaints against student respondents will be resolved by the Procedures for Addressing Student Sexual Misconduct

Complaints against student responding parties will be resolved by the Procedures for Addressing Student Sexual Misconduct



## *Student Rights and Responsibilities*

Complaints against faculty and staff responding parties, as well as non-affiliates, will be resolved by the Procedures for Addressing Sexual Misconduct Complaints against Faculty, Staff, Affiliates, and Non-Affiliates.

Each process is guided by the same principles of fairness and respect for all parties. Resources are available for both students and employees, whether as reporting parties or responding parties, to provide guidance throughout the investigation and resolution of a sexual misconduct complaint.

### VIII PREVENTION AND EDUCATION

BFIT expects all community members to take reasonable actions to prevent or stop an act of sexual misconduct. Taking action may include direct intervention, calling law enforcement, or seeking assistance from a person in authority. Members of the BFIT community who intervene to prevent or stop sexual misconduct will be supported by the College and protected from retaliation.

### IX TRAINING

In connection with its obligations under Title IX, BFIT is committed to ensuring appropriate training for its Title IX Coordinator, Deputy Title IX Coordinator, “responsible employees,” and others involved in responding to, investigating, or adjudicating sexual misconduct. In addition, the college conducts yearly training on Title IX issues for Students, Faculty and Staff.

### X RESOURCES AND SUPPORT.

The contact information for the resources listed here was confirmed at the time of the Policy’s initial publication in June 2019. Up-to-date contact information can always be found on the College’s website at <https://www.bfit.edu/student-life/student-conduct/title-ix/>.

### CONFIDENTIAL ON-CAMPUS SUPPORT, ADVOCACY AND HEALTH RESOURCES

Student Wellness & Support First Floor, Union Building (617) 588-1302

### OFF-CAMPUS COUNSELING AND ADVOCACY RESOURCES

Boston Area Rape Crisis Center (“BARCC”) [www.barcc.org](http://www.barcc.org)  
617-492-RAPE (7273)  
800-841-8371

Victim Rights Law Center (“VRLC”)  
[www.victimrights.org/](http://www.victimrights.org/)  
115 Broad St., 3rd Floor (NO WALK-INS)  
Boston, MA 02110 617-399-6720, x19  
For legal assistance by email: [legalhelp@victimrights.org](mailto:legalhelp@victimrights.org)

Fenway Health Violence Recovery Program  
[www.fenwayhealth.org/](http://www.fenwayhealth.org/)  
617-267-0900 24/7

### OFF-CAMPUS LAW ENFORCEMENT RESOURCES

Boston Police Department Emergency: 911  
Sexual Assault Unit: (617) 343-4400

## OFF-CAMPUS MEDICAL / HEALTH CARE RESOURCES

A medical provider can provide emergency and/or follow-up medical services as appropriate, and a person can discuss any related health care concerns in a confidential medical setting. The medical examination has two primary goals: (i) to diagnose and treat the full extent of any injury or physical effect (sexually transmitted infection or pregnancy) and (ii) to properly collect and preserve evidence. There is a limited window of time within which to preserve physical and other forms of evidence (usually within 96 hours of the sexual assault). Taking the step to gather evidence immediately does not commit a person to any course of action.

Boston Medical Center  
725 Albany St, Boston, MA 02118  
617-414-4075 Emergency Room

Note: Boston Medical Center and Beth Israel Deaconess Medical Center, along with Brigham & Women's Hospital are SANE designated hospitals that have specially trained Sexual Assault Nurse Examiners ("SANE") on call.

## GOVERNMENT RESOURCES

The resources listed here may provide additional assistance for those who would like to file an external complaint of sexual misconduct or students with inquiries regarding the application of Title IX and its implementing regulations.

U.S. Department of Education, Office for Civil Rights  
<http://www.ed.gov/ocr>  
Region I – Boston Office  
5 Post Office Square, 8th Floor Boston, MA 02109-3921  
617-289-0111  
By Email: [OCR.Boston@ed.gov](mailto:OCR.Boston@ed.gov)

U.S. Department of Justice, Office on Violence Against Women  
<https://www.justice.gov/ovw/protecting-students-sexual-assault>  
145 N Street, NE, Suite 10W.121 Washington, DC 20530  
202-307-6026

U.S. Citizenship and Immigration Services  
[www.uscis.gov/about-us/find-uscis-office/field-offices/massachusetts-boston-field-office](http://www.uscis.gov/about-us/find-uscis-office/field-offices/massachusetts-boston-field-office)  
Boston Field Office  
John F. Kennedy Federal Building  
15 New Sudbury Street  
Room E-160  
Boston, MA 02203  
800-375-5283

Massachusetts Commission Against Discrimination ("MCAD")  
<http://mass.gov/mcad>  
1 Ashburton Place, Sixth Floor  
Boston, MA 02108  
617-994-6000

### *Social Networking and Online Responsibility*

Benjamin Franklin Institute of Technology understands the popularity and usefulness of social networking sites and supports their use by students provided that:

- No offensive or inappropriate pictures are posted;
- No offensive or inappropriate comments are posted;
- Any information placed on the website(s) does not violate college, student athlete, or the student code of conduct;
- Inappropriate photos and/or comments posted on these sites do not depict team-related or college-identifiable activities (including wearing/using team uniforms or gear inappropriately).

Students must remember that they are representatives of Benjamin Franklin Institute of Technology. Please keep the following in mind as you participate on social networking websites:

- Before participating in any online community, understand that anything posted online may be available to anyone in the world. Any text or photo placed online may become the property of the site(s) and may be completely out of your control the moment it is placed online - even if you limit access to your site.
- You should not post any information, photos or other items online that could embarrass you, your family, your student club or organization, your team, or athletics at Benjamin Franklin Institute of Technology. This includes information that may be posted by others on your page.
- Never post your home address, local address, phone number(s), birth date or other personal information. You could be a target of predators.
- Student-athletes could face discipline and even dismissal for violations of team, department, college and/or NJCAA policies.

Law enforcement agencies may monitor these websites regularly as may potential employers and internship supervisors as a way of screening applicants. In addition, many college programs and scholarship committees also search these sites to screen candidates. BFIT student athletes and student leaders should be very careful when using online social networking sites and keep in mind that sanctions may be imposed, including the loss of your eligibility to participate on teams or in organizations, if these sites are used improperly or depict inappropriate, embarrassing or dangerous behaviors.

# Academic Affairs

The Benjamin Franklin Institute of Technology offers a range of technical programs that lead to a variety of careers and further educational opportunities. They range from one-year certificates in automotive technology, Network and Systems Support, Software Development, and Web Design, practical electricity, and HVAC&R to two-year academic degrees in computer technology, health information technology, industrial, and engineering technologies, to four-year degree programs in health information technology, mechanical engineering technology and electrical engineering, with a focus on the electric power industry.

All of our programs provide hands-on laboratory work combined with classroom technical concepts and a strong general education component. In the online format, hands-on work is enabled through simulation software.

## Academic Departments

**Automotive Technology** offers an associate in automotive technology, through an array of courses in engines, electricity, emissions, alternative fuels, brakes, steering, suspension, air conditioning, transmissions diagnosis, and repair. The department also offers a certificate program, and a Bachelor of Science program focused on Automotive Management.

**Construction Management** offers an associate degree with a background of technical and organizational skills that apply to construction projects from conception to completion. Students will study the skills necessary to manage resources for vertical and horizontal construction projects. Skills are acquired through hands on graphics, introduction to AutoCad, construction management, heavy construction, building materials and building systems, sustainable construction, environmental systems, construction scheduling and surveying. Laboratory classes prepare students to understand, use and implement construction contract documents. Emphasis is placed on team building and implementation of best management practices including cost, schedule, quality and safety standards. Current building standards, regulations and safety training, including OSHA 10 certification, are incorporated throughout all course work. Projects and site visits are used for practical applications of course work.

**Computer Information Technology** offers an associate degree in computer technology that prepares students for work in a variety of roles as IT support specialists, and three certificates focusing on Network and Systems Support, Software Development, Web Design.

**Health Information Technology** offers an associate degree in health information technology, and a bachelor degree in health information technology that prepare students for a variety of opportunities in the healthcare industry focusing on electronic health record systems, Within the Bachelor of Science in Health Information Technology program, two tracks are offered that prepare students for work in the Public Health and Data Analytics domains.

**HVAC&R** is a nine-month, 800-hour, full-time day or evening certificate program, designed to provide students with the knowledge and hands-on skills to become successful HVAC&R technicians. HVAC&R technicians work for heating and cooling contractors, refrigeration and air conditioning service and repair shops, schools, hospitals, office buildings, a variety of food industries, and local, state or federal government facilities.

**Electrical Engineering** offers a bachelor of science degree in electrical engineering, with a special emphasis on the electric power industry.

**Practical Electricity** offers an associate degree in electrical technology and a certificate in practical electricity, both of which provide classroom hours and hands-on training in electrical design and layout and instruction in the National Electrical Code. Successful completion of these programs fulfill the Massachusetts Board of State Examiners of Electricians academic requirements towards Journeyman Electrician licensure by providing 600 hours of classroom instruction.

**Engineering Technology** offers an associate degree program in electronic engineering technology, which prepares students for work in industry, as well as for transfer to bachelor degree programs in electronics, business, computers, or engineering. The Automation/Robotics option within the department allows students to choose courses that teach motors, sensors, controls, automation, and ladder logic instead of Calculus and University Physics. This track prepares students to work with automated systems or in the field of robotics. The department also offers an associate degree program in biomedical engineering technology (also known as medical electronics or health engineering technology), which prepares students to work as Biomedical Technicians in a hospital or industry setting. Opportunities to pursue advanced degrees in electrical engineering or Health IT after completing a program in the department are available.

**Opticianry** provides an associate degree offering a wide range of technical courses such as Ophthalmic Design and Contact Lens theory to prepare individuals for a career as an optician.

**General Education** provides a range of courses in composition, communication, and the social sciences that provide general education to enable and complement the technical courses. The **Mathematics and Science** teaches the concepts that underlie all of the technical specialties of the college, offering mathematics courses that emphasize theory and applications, as well as classroom and laboratory physics.

**Division of Professional and Continuing Studies (DPCS)** at Benjamin Franklin Institute of Technology specializes in hands-on education and the learning needs of adult learners. We are committed to helping our alumni achieve their next step in educational and career goals. Our flexible class schedules in evening, weekend, and online are designed to accommodate their busy lifestyles. We work closely with our industry partners to develop specific educational programs to meet the needs of our professional students.

### Academic Policies

#### GRADING SYSTEM

The grading system employs the five letters and corresponding values defined below:

GRADE	GRADE WEIGHT	
A	Superior	4.00
A-	3.67	
B+	3.33	
B	Above Average	3.00
B-	2.67	
C+	2.33	
C	Average	2.00
C-	1.67	
D+	1.33	
D	Below Average	1.00
F	Failure	0.00
I	Incomplete	0.00
W	Withdraw	0.00
WF	Withdraw-Failed	0.00

Developmental courses will be graded on the following scale:

AA	Superior	4.00
BB	Above Average	3.00
CC	Average	2.00
FF	Failure	0.00

These courses will not be factored into a Student's Cumulative GPA or count toward maximum time frame. Students may not receive financial aid for more than thirty attempted developmental credits.

#### CALCULATING GRADE POINT AVERAGE (GPA)

The GPA demonstrates the level of success in college studies. It is based on the earned grade (the weight of each is shown above) and the number of credit hours (see individual course descriptions for credit hour details) for each course. To calculate the GPA, multiply the earned grade weight of each course by its assigned credit hour(s). The sum of these is then divided by the sum of the total semester credit hours for the courses included in the calculation. The result is the GPA.

## DISTRIBUTION OF GRADES

All midterm and final grade reports are accessed through the Canvas learning management system unless other arrangements are made.

### *Dean's List*

The Dean's List comprises those students who have a term GPA of 3.5 or higher, have no current grade below C, and have successfully completed a minimum of 12 credit hours during the semester.

### *Attendance Policy*

Students of the Benjamin Franklin Institute of Technology are expected to attend all classes. Attendance is taken at each class meeting and absences become a part of students' records. The college recognizes that occasions may arise that prevent students from attending class.

If this occurs, a student should talk to the instructor as soon as possible to determine any missed work. It is important for students to understand that they are responsible for any work missed and that missed classes and/or work can seriously harm grades.

As a guide for students who wish to avoid failing grades, the college has established a fixed number of hours a student might be able to miss in a class before falling into the danger of failing for lack of attendance. These fixed hours are determined by multiplying the total credit hours for the course by two. Once a student has exceeded this maximum in any class, that student may be strongly advised to withdraw from the course. BFIT will make a determination on the 15th day after 14 consecutive days of non attendance whether a student intends to continue in classes or should be withdrawn from the college. Some courses and programs may have additional consequences for missing class time. Look closely at course syllabi and other documents that will spell out these policies. For additional information regarding the college's official/unofficial withdrawal policy please refer to pages 16-17.

### *Add/Drop Period*

After a student is pre-registered, course changes can be made through the Add/Drop period. For 15-week courses, this period lasts through the second week of classes and for 7-week courses, the Add/Drop period ends after the first week of classes. A student must attend at least one class session of each course before the end of the add/drop period to remain on the course roster. Please refer to the Academic Calendar for specific dates. All course changes must be made through the Registrar's Office. No change will be made after this period except through the written consent of the appropriate instructor.

### *Incomplete Grades*

The incomplete (I) grade is appropriate in cases where students have made a good faith effort to finish a course on time but have not done so due to factors out of their control. This grade is reserved for cases where the unfinished work can be clearly identified and completed within a short period of time. This agreement must be made between both the student and instructor before grades are submitted at the end of the semester. To assign the incomplete grade the instructor must send an e-mail to the Dean of Academic Affairs with a copy to the Registrar's office stating the student's name, the course name, the student's current grade in the course, and the reason for the request. Attach to the message a completion plan that meets the following semesters add/drop deadline, approved by the instructor and the student, that includes a list of work still required with a brief description of when and how it will be completed. The incomplete must be made up before the add/drop deadline of the following semester or it will be changed to an F (failure). Any request for extension beyond the add/drop period must be made in writing to the Instructor and the Dean of Academic Affairs before the end of the deadline and the Registrar should be notified if an extension is granted.

### *Course Withdrawal*

A student may withdraw from a course through the tenth (10th) week of class and receive a grade of "W" (withdrawal)

recorded on the official transcript. After the tenth (10th) week, a grade of WF will be applied.

In seven (7) week sessions, a withdrawal after the fourth (4th) week will result in a grade of WF.

### *Co-requisites and Pre-requisites*

There are courses that provide foundational information required for successful continuation of a program.

Co-requisites are courses that must be taken at the same time as another required course. Pre-requisites are courses that must be taken before continuing on to further course work.

### *Transcript Policy*

For each official transcript requested, the fee will be \$8 (regular service up to 5 business days). Same day service will be available for \$15 (student must come into office to pick up transcript). Express delivery service will be available via USPS for \$40.

### *Satisfactory Academic Progress Policy*

BFIT monitors Satisfactory Academic Progress (SAP) to ensure the successful and timely completion of students' academic careers. SAP is measured through evaluating the credits attempted and completed as well as the term and cumulative Grade Point Average (CGPA) of each student. The U.S. Department of Education requires all students that receive financial aid make progress toward their program of study. The Registrar's Office will evaluate students at the conclusion of each semester to determine if Satisfactory Academic Progress is being made. Students who leave the college and subsequently return will be evaluated for SAP before financial aid is offered, regardless of the term in which they return to BFIT.

## Satisfactory Academic Progress

SAP Standards are based on both qualitative and quantitative measurements.

- Cumulative Grade Point Average (CGPA) is the qualitative measurement for SAP. Students must maintain a minimum CGPA based on the number of credits attempted as noted below.
- If a student repeats a course, the lower grade is replaced by the higher grade when calculating the CGPA. The lower grade will remain on the transcript and continue to be reflected in the term GPA. Once a credit is earned for a course, financial aid will only be available for a student to retake said course one time. Students retaking courses where credit has not been earned may be eligible for financial aid. Instances when students may need to retake a course in which they have already earned credits include the need to improve their CGPA for graduation eligibility or if there is a requisite minimum passing grade before the student can progress to the next level of course sequence in his/her program. For students who have changed major, only courses applying to the new program will be calculated in the CGPA.
- Completion Rate is one part of the quantitative measurements for SAP. Degree-seeking students with less than 40 credits attempted are required to successfully complete 50% of all attempted course work in their current degree program each semester. Degree-seeking students with 40 or more credits attempted are required to successfully complete 67% of all attempted course work in their current degree program each semester. Any course in which a student is enrolled after the regular add/drop period is considered an attempted course. A passing grade is considered to be successful completion of a course. Failure, withdrawal after the drop deadline, or an Incomplete (I) grade in a class constitutes an attempted course which is not successfully completed. Each repeated course work attempt counts towards the credits attempted. Developmental credit and transfer credit will count towards both credits attempted and credits earned. For students who have changed major, only credits attempted and earned which are applied to the new program count towards the completion rate.
- Maximum Time Frame is the second part of the quantitative measurement for SAP. Students must complete their program within 150% of the program length. This is measured in terms of credits attempted and earned. For example, a 60 credit hour degree must be completed without attempting more than 90 credits. Students exceeding the maximum time frame will be ineligible for additional financial aid. Transfer credits are counted in the total number of credits attempted. Developmental courses are excluded. Students reaching Maximum Time Frame lose all access to Financial Aid.

	Credits Attempted	Minimum CGPA	Minimum Completion Rate
Associate/Bachelor Degree	1 to 19	1.7	50%
	20 to 39	1.9	50%
	40 or more	2.0	67%
Certificate Programs	1 to 14	2.0	50%
	15 or more	2.0	67%

*NOTE: Students attempting at least 9 credits in a semester who fail to earn a Term GPA of at least 1.0 will be considered as not making Satisfactory Academic Progress*

### SAP REVIEW

At the end of each semester, the Registrar's Office will review each student's academic record to ensure that the student is meeting Satisfactory Academic Progress.

All students are categorized in three SAP groups:

Good Standing, Academic Warning, and Academic Suspension.

If an Associate or Bachelor seeking student fails to meet satisfactory academic progress for one semester, he or she will be placed on Academic Warning and notified by letter to their permanent address. Certificate students will be placed on Academic Suspension. A student on Academic Warning retains their financial aid for an additional semester. Academic Warning means that students are no longer meeting the college's academic progress requirements.



These students are required to attend a student success workshop and meet with their advisor within the first week of the semester to create an academic success plan.

It is required that these students meet regularly with their academic advisor to assess the academic success plan and regularly utilize tutoring services. Students on warning may elect to participate in a semester long seminar that focuses on improving their academic performance.

A student who fails to make Satisfactory Academic Progress for two consecutive semesters or whose CGPA falls below 1.0 will be placed on Academic Suspension and notified by letter to their permanent address.

A student placed on Academic Suspension will lose financial aid eligibility and if he or she is registered for classes in the next semester, those classes will be dropped. A student placed on Academic Suspension has the right to appeal the suspension. If a student's appeal is accepted, that student's academic status will be changed to Probation. In addition, a student must also appeal to the Financial Aid Office to restore financial aid eligibility.

### SUSPENSION APPEAL:

Appeal requests should be emailed as soon as possible after notification is received to the Dean of Student Affairs. Appeals submitted once the semester has begun might not be considered. Grounds for appeal include the student's documented illness, the death or serious illness of an immediate family member, or other unusual circumstances.

Documentation may be requested, depending on the nature of the appeal.

Once the appeal is filed, it will be preliminarily reviewed by the Dean of Student Affairs who may schedule an appointment with the appealing student. The Dean will then convene the SAP Appeal Committee to consider the request and render a decision about the student's ability to subsequently enroll. A member of the SAP Appeal Committee will contact the student with the committee's decision and any necessary actions that the student will need to take prior to matriculating. If a student's appeal is accepted, that student's academic status will be changed to Probation. Students on probation should promptly appeal to the Director of Financial Aid for financial aid eligibility.

### DISMISSAL:

If a student fails to make Satisfactory Academic Progress at the end of the probationary semester or if he or she fails to maintain the conditions and benchmarks agreed upon in the academic plan, that student will be Dismissed from the college. Students who have been dismissed from the college shall be able to appeal their dismissal to the Dean of Student Affairs after the period of time designated by the Satisfactory Academic Progress Appeal Committee (not including summer terms).

## *Family Educational Rights and Privacy Act*

BFIT maintains the confidentiality of student educational records and protects the student's right of access to those records in accordance with the Family Educational Rights and Privacy Act (FERPA) of 1974 (P.L. 93-380) as amended (P.L. 93-568) (also known as the Buckley/Pell Amendment).

FERPA affords students certain rights with respect to their educational records. They are:

- The Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. § 1232g; 34 CFR Part 99) is a Federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education.
- FERPA gives parents certain rights with respect to their children's education records. These rights transfer to the student when he or she reaches the age of 18 or attends a school beyond the high school level. Students to whom the rights have transferred are "eligible students."
- Students have the right to inspect and review the student's education records maintained by the school. Schools are not required to provide copies of records unless, for reasons such as great distance, it is impossible for parents or eligible students to review the records. Schools may charge a fee for copies.
- Students have the right to request that a school correct records which they believe to be inaccurate or misleading. If the school decides not to amend the record, the student then has the right to a formal hearing. After the hearing, if the school still decides not to amend the record, the student has the right to place a statement with the record, setting forth his or her view about the contested information.

- Generally, schools must have written permission from the student in order to release any information from a student's education record. However, FERPA allows schools to disclose those records, without consent, to the following parties or under the following conditions (34 CFR § 99.31):
  - School officials with legitimate educational interest;
  - Other schools to which a student is transferring;
  - Specified officials for audit or evaluation purposes;
  - Appropriate parties in connection with financial aid to a student;
  - Organizations conducting certain studies for or on behalf of the school;
  - Accrediting organizations;
  - To comply with a judicial order or lawfully issued subpoena;
  - Appropriate officials in cases of health and safety emergencies; and
  - State and local authorities, within a juvenile justice system, pursuant to specific State law.

BFIT may disclose, without consent, "directory" information such as a student's name, address, telephone number, e-mail, date and place of birth, honors and awards, and dates of attendance. However, schools must tell students about directory information and allow students a reasonable amount of time to request that the school not disclose directory information about them. Students should contact the Registrar if they do not want their directory information released. Schools must notify students annually of their rights under FERPA. The actual means of notification (special letter, student handbook, or newspaper article) is left to the discretion of each school.

For additional information or technical assistance, you may call (202) 260-3887 (voice). Individuals who use TDD may call the Federal Information Relay Service at 1-800-877-8339.

Or you may contact us at the following address:

Family Policy Compliance Office  
U.S. Department of Education  
400 Maryland Avenue, SW  
Washington, D.C. 20202-5920  
<http://www.ed.gov/policy/gen/guid/fpc/index.html>

## *Academic Honesty*

Academic dishonesty is a serious issue. Honesty in all academic work is expected of every student at all times. This means each individual does his or her own work without assistance from other sources on any assignment or exam unless otherwise directed by the instructor. You are unable to learn what you need to know if you do not do your own work.

A violation of academic honesty can include but not be limited to:

- Plagiarism
- Falsifying documents
- Submitting the same assignment in multiple classes
- Copying or sharing work from another student
- Aiding and abetting cheating
- Using any form of technology, i.e. cell phones, laptops, student S: drive, etc, as a tool for academic dishonesty

It is the responsibility of each student to understand BFIT's expectations for academic honesty and to seek help in understanding the policy if necessary.

BFIT instructors are obligated to investigate concerns regarding plagiarism when a student's in-class work differs significantly from his/her outside work. For example, an investigation may occur when one paper is noticeably different in fluency, style or syntax from others by the student; and/or, a paper obviously uses sources which are not cited or which are improperly acknowledged; and/or, work (papers, labs, exams) is submitted at a level of understanding and

insight beyond that which a student has typically exhibited in his/her work.

To preserve the college's reputation and integrity, cases of academic dishonesty will be reported and students may face disciplinary action. Documentation of alleged violations, proceedings, and any resulting sanctions will be kept on file in the office of the Assistant Dean of Student Affairs until a student has graduated from the college. This file may be utilized in the event of any further infraction of institutional rules or policies.

With any suspected act of dishonesty, the instructor will provide documentation of the incident and any supporting evidence to the Assistant Dean of Student Affairs. Students will be contacted by the Assistant Dean of Student Affairs to discuss the incident and methods of prevention for the future. Based on the student's conduct history, the Assistant Dean of Student Affairs may refer the case to the Student Conduct Board.

The range of sanctions and the procedures followed are outlined below; however, implementation of sanctions will lie with the Hearing Officer or Student Conduct Board and may be adjusted. Faculty may be solicited for further information as well as appearing before the Student Conduct Board.

## PROCEDURES AND SANCTIONING

A first violation of academic honesty will result in a meeting with the Assistant Dean of Student Affairs and may result in a failing grade for the assignment as well as an educational component to allow the student to learn from the process.

Educational sanctions may include online modules, research or reflection essays, meeting with the Director of Student Success, or other means to educate oneself or others on academic honesty.

A second violation of the academic honesty policy, whether this be in the same or a different course, will result in a meeting with the Assistant Dean of Student Affairs or the Student Conduct Board, and may result in a grade of F for the final course grade. Due to the repeat nature of the incident, the student may be subject to increased sanctioning including academic probation for a minimum of one semester and increased educational sanctions.

A third violation of the academic honesty policy will result in an automatic F for the course in which the infraction occurred and may include further disciplinary action including suspension or expulsion from the college. All documentation and evidence will be placed in the student's file and, in this case, may become a permanent record regardless of the student's graduation status at the college. A mandatory meeting will take place with the Dean of Academic Affairs and the student will have the opportunity to bring one member of the college's faculty or staff to serve as a support person. The support person will have the opportunity to speak on the student's behalf at the student's request.

*\*Note: If suspension is part of the sanction for a 3rd offense and a student is found responsible for another incident of Academic Honesty upon returning to the college, this may be grounds for automatic expulsion.*

Students will receive written notification within one week after meeting with a Hearing Officer or the Student Conduct Board.

## *Appeal Process*

To initiate the appeal process, students will submit their appeal, electronically, in writing to the Dean of Student Affairs (or designee). Appeals must be received within five (5) class days of the date of the outcome of the conduct meeting.

A student should submit a formal and well written appeal:

- To appeal a "responsible" decision for one or all violations from the original verdict
- To appeal the level sanctioning from the original hearing body

It is up to the student(s) appealing to be persuasive and professional in their appeal letter. Appeal arguments should detail any information that was not available at the time of the original conduct meeting, as well as any additional information that is provided by witnesses or character references.

The decision to proceed with the appeal submitted is up to the discretion of the Dean of Student Affairs and/or designee. If the decision is to proceed, then every effort will be made to schedule an appeal meeting within five (5) class days.

Within 48 hours of submission, students will be notified if their appeal meets the above criteria and will be scheduled for an appeal meeting or if their appeal does not meet the criteria and is denied.

Since the appeal officer is never an eyewitness, he/she may never have absolute proof of what really happened. The best the appeal officer/panel can do is to be persuaded of what probably happened. The preponderance of evidence is used to base a decision during the conduct system and can be defined as – the lowest level of proof which typically means more likely than not.

Since the original Conduct Officer has ruled on responsibility based on a preponderance of the evidence, the appeal is not a re-hearing of the original case. Instead, the student has the opportunity to present any new information which supports the reason for the appeal, including new information that was not previously available, information regarding excessive or inappropriate sanctions, information to prove the finding was not supported by the evidence, and/or information regarding procedural errors. The appeal officer will then render a decision based on the information provided.

The decision by the appeal officer will be based on any of the following criteria:

- Procedural error
- Finding not supported by the evidence
- Excessive or inappropriate sanction
- New evidence not previously available

The Appeal Officer may make the following decisions:

- Uphold previous decision/sanctioning
- Revise previous decision/sanctioning
- Overturn previous decision/sanctioning
- Refer the case back to the original Hearing Officer for a rehearing (in case of procedural errors)

The appeal may never increase any sanctions or add charges. Students should be aware that any outcome of the appeal is final.

Students will be notified of the outcome of their appeal in writing within 48 hours of their appeal meeting. Students should be aware that during the appeal process, all sanctions and limitations are in effect unless otherwise noted.

*\*Note: if multiple violations of academic honesty occur within a timeframe prior to required meetings taking place, the violations will be still be treated as individual occurrences and subject to disciplinary action as outlined above.*

### *Change of Major*

All changes of major are handled during the registration process by the Advisor, Registrar's Office, and student. If the advisor and student come to an agreement, the Registrar will be notified and will process the official change.

### *Transfer of Credit*

Students who wish to take courses at other colleges to satisfy requirements in their programs at BFIT must:

- Obtain course descriptions from the prospective school.
- Receive endorsement from the appropriate Department Chair or Registrar at BFIT.
- If approval is given, the student must earn a grade of C or better in the course and provide an official transcript of this grade to the Registrar. Please note: The grade you receive will not be reflected in your grade point average at BFIT.

## *Graduation Requirements*

Students in good standing who satisfy the following minimum requirements will be recommended by the faculty for graduation:

- A student must obtain a minimum GPA of 2.00 in all the credit bearing courses in a student's major as defined by the course catalog as reflected on the Student's Degree Audit.
- Earn a cumulative grade point average of 2.00 or better

Degree seeking students who have no more than two requirements left to graduate may participate in the annual graduation ceremony provided they meet the requirements for graduation listed above. Students with three requirements left may appeal to the Registrar's Office. Students in certificate programs who complete all of their requirements by the end of the summer semester will be allowed to participate in the graduation ceremony.

Students earning a grade point average of 3.5 or higher qualify for honors distinctions. Such honors are determined by a student's cumulative grade point average once all required coursework is complete and is awarded in the following categories:

- Cum Laude: 3.50-3.74 cumulative grade point average
- Magna cum Laude: 3.75-3.89 cumulative grade point average
- Summa cum Laude: 3.90-4.00 cumulative grade point average

## *Petition to Graduate*

Students who plan to graduate must inform the Registrar of their intention by filing a petition to graduate form at least four weeks before the commencement date. This form can be obtained from the Registrar's Office and requires various signatures. Potential graduates will need to complete Financial Aid exit counseling and clear any college balance.

The Registrar's Office then verifies that all individual program requirements have been met and that the student is qualified to graduate.

# Automotive Management (BS)

Graduates of this program can establish mid and upper level management careers throughout the automotive and related industries. BFIT enhances employment opportunities through close association with Boston area dealerships, as well as national manufacturers such as Audi, BMW, Chrysler, Ford, General Motors, Honda, Nissan, Subaru, Toyota, Volkswagen and Volvo.

The Automotive Department endorses ASE Certification. All members of the Automotive Faculty are ASE Certified Automobile Technicians.

## *Curriculum*

The objectives of the Bachelor program, which build upon those of the Associate Degree, are to provide advanced-level education for management employment by combining practical, technical and academic experience for career progression.

This Bachelor Degree program devotes over one-third of the courses to technical or technically related studies, approximately one-quarter to business and management studies, one-fifth to mathematics and science, and one-fifth to communications/social sciences and the humanities.

Humanities, social science and English courses comprise part of the curriculum to ensure that graduates possess broader social visions and effective communication skills.

All BFIT students are required to successfully complete a Career Success Seminar course prior to graduation. Typically, students are enrolled in this course for the semester prior to graduation. Please note this course may be added to a student's course load after the registration process, and thus may not be visible on a student's schedule.

## *Special Admission Requirements for the Bachelor of Science Program*

In order to qualify for this program, students must have either graduated from the BFIT Automotive Technology Associate Degree program or another accredited automotive associate degree program, and achieved an average grade of "C" in English composition courses.

## *Facilities*

The Automotive Department maintains up-to-date laboratories for support of its theory-based courses. Students utilize modern computer laboratories, as well as receive hands-on automotive experience in a well equipped twelve-bay working laboratory, and a Drivability Clinic outfitted with the industry's latest diagnostic tools.

## *Outcomes*

Upon completion of the Bachelor of Science degree in Automotive Technology, students will have expanded on associate degree outcomes and should have competency in the following:

- Demonstrate a mastery of electronic principles, as applicable to engine management and emissions systems; demonstrate logical diagnostic strategies, and effectively repair these systems in accordance with manufacturer's procedures.
- Present written and verbal reports, as well as electronic presentations commensurate with management level standards.
- Demonstrate an understanding of the synergies among accounting, human relations, organization, finance, marketing and sales as related to managing a profit center or business section.
- Demonstrate an understanding of the laws and regulations relating to safety and the environments within the automotive industry.
- Demonstrate an understanding of the dynamic nature of the automotive industry with national and international economies by participating in a Capstone Project.

# Program of Study

## Faculty

Russell Matson JD., Interim Director

Donald L. Tuff, Bachelor Program Coordinator

Instructor Staff: Sharon Bonk, Richard E. Cadotte, James Dellot, Joseph Golden, Ed Mackness, Andrew Wong

## Degree Requirements: Automotive Management (BS) 134 Credits

### ASSOCIATE DEGREE 72 CREDITS

#### TECHNICAL COURSES: 22 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
AT373	Advanced Engine Performance	3	2	2
AT474	Enhanced Emissions and Drivability	3	3	0
AT481	Automotive Marketing	3	3	0
AT482	Vehicle Appraisal	3	3	0
AT483	Computers in Auto Industry	3	2	2
AT485	Senior Seminar I	1	0	2
AT494	Service Management	3	3	0
AT495	Senior Seminar II	3	3	0

#### GENERAL EDUCATION COURSES: 40 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
BS311	Microeconomics	3	3	0
BS312	Advanced Concepts in Information Literacy	3	3	0
BS324	Managing Organizations	3	3	0
BS332	Financial Accounting	3	3	0
BS334	Business Law & Legislation	3	3	0
BS431	Management Accounting	3	3	0
BS432	Human Resources Management	3	3	0
EN320	Technical Communications	3	3	0
HU/SS	Elective	3	3	0
HU/SS	Elective	3	3	0
MA265	Finite Mathematics	3	3	0
MA270	Statistics	3	3	0
SK400	Career Success Seminar	0	1	0
TS310	General Chemistry	4	3	3

*Typical Course Sequence for Automotive Management (BS)*

JUNIOR YEAR SEMESTER 1		JUNIOR YEAR SEMESTER 2		SENIOR YEAR SEMESTER 1		SENIOR YEAR SEMESTER 2	
AT373	Advanced Engine Performance	BS324	Managing Organizations	AT483	Computers in Auto Industry	AT474	Enhanced Emissions and Drivability
BS311	Microeconomics	BS332	Financial Accounting	AT485	Senior Seminar I	AT481	Automotive Marketing
BS312	Advanced Concepts in Information Literacy	BS334	Business Law & Legislation	AT494	Service Management	AT482	Vehicle Appraisal
MA265	Finite Mathematics	EN320	Technical Communications	BS431	Management Accounting	AT495	Senior Seminar II
TS310	General Chemistry	MA270	Statistics	BS432	Human Resources Management	HU/SS	Elective
				HU/SS	Elective	SK400	Career Success Seminar



# Automotive Technology (AS)

The automotive industry offers exciting and rewarding careers for people who have an interest in diagnosing and repairing mechanical components and computer/electrical circuitry.

Additionally, these careers contribute significantly to a cleaner environment and the safety of the general public.

This industry is not limited to automobiles, as it covers a broad spectrum that includes marine, heavy-duty trucks, off-road equipment, recreational vehicles and stationary power plants.

Graduates of the Automotive Technology program are prepared for employment in the automotive industry as technicians, machinists, unit specialists, emission and performance diagnosticians, department managers, and manufacturer's representatives.

The college enhances opportunities for employment through close association with dealerships and independent repair facilities throughout Massachusetts. Successful completion of this program provides the student with an Associate of Science degree and the opportunity to continue in the Bachelor of Science program in Automotive Management.

The Automotive Department strongly endorses Automotive Service Excellence (ASE) Certification. All of the Automotive Faculty are ASE Certified, and we encourage our students to take these tests for national certification, as they are ready.

## Curriculum

In keeping with the college's mission, the objectives of this Associate of Science program are to provide a theory-based automotive education, supported by practical experience that meets the college's history of high academic standards. Additionally, these standards allow graduates to improve themselves personally, economically and socially, and to provide a foundation for lifelong learning. Degree requirements are further supported by general education components, including proficiency in oral and written communication, math, and physics.

The majority of this two-year program is devoted to automotive technical specialties, including actual work on live vehicles in the student Automotive Training Center.

In addition to the mechanical technologies, the program is complemented by the study of mathematics, physics, humanities, and social sciences. Humanities, social sciences, and English courses comprise part of the curriculum to ensure that the graduates possess broader social visions and effective communication skills.

All BFIT students are required to successfully complete a Career Success Seminar course prior to graduation. Typically, students are enrolled in this course for the semester prior to graduation. Please note this course may be added to a student's course load after the registration process, and thus may not be visible on a student's schedule until a few weeks prior to their final semester.

## Special Admission Requirements for Automotive Technology Program

Due to the unique environment of automotive laboratories and repair facilities with regard to the safe operation of machinery, repair equipment, running engines, etc., the following is required of applicants to the Automotive Program:

- Correctable vision and hearing
- Ability to stand on one's feet for long periods
- Ability to lift 30 pounds
- For continuation into the second year of the program involving the Automotive Training Center, students are required to have a valid driver's license
- Students are required to purchase first-year and second-year tool sets

### *Facilities*

The Automotive Department maintains laboratories for the study of automotive electricity, internal combustion engines, automatic and manual transmissions, chassis and brakes, hybrid and alternate fuels, engine performance as well as a Twelve-bay working laboratory and a Drivability Clinic equipped with state-of-the-art equipment.

### *Outcomes*

Upon successful completion of the Associate Degree in Automotive Technology, the graduate will be able to:

- Demonstrate diagnostic strategies, using electronic/mechanical principles, to effectively repair vehicle management systems in accordance with manufacturers, State and Federal guidelines.
- Demonstrate, through practical example, written and verbal presentation, an understanding of automotive industry safety, emerging technologies, economics, government regulations and business models.
- Demonstrate an understanding of the internal combustion engine by utilizing diagnostic strategies that effectively repair an internal combustion engine.
- Understand DC electricity and demonstrate diagnostic repair strategies for automotive electrical components and systems that effectively repair electrical components.
- Utilize mathematical calculations, principles, and formulae to perform a variety of tasks related to automotive system repair.
- Effectively diagnose, repair, and adjust various subsystems, including: suspensions, brakes, transmissions, heating and air conditioning, and lighting systems.
- Identify and repair safety-related issues relative to automotive vehicles that concern the operator, passengers and general public.
- Demonstrate the proficient use of scan tools and other diagnostics test equipment that will aid in repairing the customers complaint with precision accuracy.
- Demonstrate specific techniques to determine the different failures between gasoline, diesel, hybrid and electric vehicles and understanding necessary repairs.

### *Faculty*

Russell Matson JD., Interim Director

Instructor Staff: James Dellot, Joseph Golden, Anthony Oliveri, Joseph O'Neil, Jose Ortiz, Frank Tuminelli, Donald Tuff and William Hans

# Program of Study

## Degree Requirements: Automotive Technology (AS) 72 Credits

### TECHNOLOGY COURSES: 51 CREDITS

Course #	Course	Credits	Lecture	Lab
AT134	Automotive Brake Systems	4	3	3
AT150	Automotive Engines	4	3	3
AT170	Electricity & Electronics	4	3	3
AT173	Automotive Electrical Systems	4	3	3
AT234	Automotive Chassis and Suspension	3	2	3
AT241	Manual Transmissions	2	1	2
AT244	Automatic Transmissions	2	1	2
AT 252	Air Conditioning	3	2	2
AT253	Automotive Lab I	4	0	8
AT254	Automotive Lab II	4	0	8
AT255	Alternative Fuels	3	2	2
AT 259	Introduction to Automotive Safety and Technology	3	2	2
AT271	Engine Performance I	4	4	0
AT274	Engine Performance II	4	4	0
AT282	Service Advising	3	3	0

### GENERAL EDUCATION COURSES: 21 CREDITS

EN129/130	College Composition I	3	3	0
EN140	College Composition II	3	3	0
HU/SS	Elective	3	3	0
HU/SS	Elective	3	3	0
MA105	Technical Math I	3	3	1
MA106	Technical Math II	3	3	0
PH102	Physics	3	3	0
SK200	Career Success Seminar	0	1	0

\* Students transferring in a higher level math may substitute an HU/SS elective for a lower level math.

### Typical Course Sequence for Automotive Technology (AS)

SEMESTER 1		SEMESTER 2		SEMESTER 3		SEMESTER 4	
AT150	Automotive Engines	AT134	Automotive Brake Systems	AT234	Automotive Chassis and Suspension	AT244	Automatic Transmissions
AT170	Electricity & Electronics	AT173	Automotive Electrical Systems	AT241	Manual Transmissions	AT252	Air Conditioning
AT259	Intro to Automotive Safety and Technology	EN140	College Composition II	AT253	Automotive Lab I	AT254	Automotive Lab II
EN129/130	College Composition I	MA106	Technical Math II	AT255	Alternative Fuels	AT274	Engine Performance II
MA105	Technical Math I	PH102	Physics	AT271	Engine Performance I	AT282	Service Advising
				HU/SS	Elective	HU/SS	Elective
						SK200	Career Success Seminar

# Automotive Technology (Certificate)

The Automotive Technology Department also offers a certificate program in automotive technology. The certificate program prepares students for entry level positions in the Automotive Technology field and contains 8 essential courses. Normally, the program can be completed in 1 year. This program follows all federal regulations regarding gainful employment. Credits from this certificate program may be applied toward an associate degree in the Automotive Technology at BFIT.

- Demonstrate diagnostic strategies, using electronic/mechanical principles, to effectively repair vehicle management systems in accordance with manufacturers, State and Federal guidelines.
- Demonstrate through practical examples and written and verbal presentation, an understanding of automotive industry safety, emerging technologies, economics, government regulations and business models.
- Demonstrate an understanding of the internal combustion engine by utilizing diagnostic strategies that effectively repair an internal combustion engine.
- Understand DC electricity and demonstrate diagnostic repair strategies for automotive electrical components and systems that effectively repair electrical components.
- Utilize mathematical calculations, principles, and formulae to perform a variety of tasks related to automotive system repair.
- Identify and repair safety-related issues, relative to automotive vehicles, that concern the operator, passengers and general public.

## Faculty

Russell Matson JD., Interim Director

Instructor Staff: Mark Campbell, James Dellot, Joseph Golden, Joe O'Neil, Tim Ornellas, Jose Ortiz

## Degree Requirements: Automotive Technology (Certificate) 29 Credits

TECHNOLOGY COURSES: 29 CREDITS

Course #	Course	Credits	Lecture	Lab
AT134	Automotive Brake Systems	4	3	3
AT150	Automotive Engines	4	3	3
AT170	Electricity & Electronics	4	3	3
AT173	Automotive Electrical Systems	4	3	3
AT234	Automotive Chassis and Suspension	3	2	3
AT252	Air Conditioning	3	2	2
AT256	Automotive Lab-Certificate	3	0	6
AT271	Engine Performance I	4	4	0

## Typical Course Sequence for Automotive Technology Certificate

SEMESTER 1		SEMESTER 2		SEMESTER 3	
AT134	Automotive Brake Systems	AT173	Automotive Electrical Systems	AT256	Automotive Lab-Certificate
AT150	Automotive Engines	AT234	Automotive Chassis and Suspension		
AT170	Automotive Electricity and Electronics	AT252	Air Conditioning		
		AT271	Engine Performance I		

# Biomedical Engineering Technology (AS)

*Please Note: courses in Biomedical Engineering Technology are only open to currently enrolled students. There are no open spots for new enrollees.*

Biomedical Engineering Technology appeals to students desiring to be technical, and at the same time, devote their careers to saving lives by helping doctors, nurses and hospital patients. Graduates become biomedical technicians or healthcare technicians or field service engineers, by learning to install, maintain, repair, and calibrate the mechanical and electronic medical instruments used in healthcare. To advance in these careers, it is also important to develop skills in communicating problems, ideas and solutions to other employees. To learn more, interested persons are encouraged to visit the website for the Association of Advancement of Medical Instrumentation (AAMI) at [www.aami.org](http://www.aami.org).

In this program students will develop troubleshooting skills in analog and digital systems. In addition, students will study networking, physiology, medical terminology and the operation of medical equipment such as EKG instruments, defibrillators, and incubators among many others.

Upon graduation, graduates are typically employed by a hospital or a healthcare service provider for a hospital. Some graduates are employed by manufacturers of medical instruments or medical devices, or as field support technicians, after earning experience in the field. Although this program's primary objective is to train students for the workforce, some graduates choose to continue their education and are accepted into Electronics bachelor degree programs.

Others pursue a degree in business, or continue their education in clinical programs. However, students intending to continue full-time education toward a bachelor's degree in engineering technology are encouraged to consider the Electronic Engineering Technology Transfer Program.

## Curriculum

The curriculum is structured to provide a broad education, with students taking courses in each of the recognized areas of analog circuits, digital circuits, processor programming, writing skills, presentation skills, algebra and trigonometry. Typically, the electronics courses are three hours of lecture and two hours of laboratory work, reinforcing concepts and principles taught in the classroom and providing extensive hands-on education.

The freshman year is identical to the Electronic Engineering Technology program and transfer between the two programs is easy during the first year. In the sophomore year, students learn about physiology, networking and medical instrumentation.

All BFIT students are required to successfully complete a Career Success Seminar course prior to graduation. Typically, students in the Biomedical program are enrolled in this course for the 3rd semester prior to graduation. Please note this course may be added to a student's course load after the registration process, and thus may not be visible on a student's schedule until a few weeks prior to the semester.

## Facilities

The electronics laboratory is equipped to provide students ample and meaningful hands-on experience in breadboarding, testing, and schematic capture. Students will typically spend six hours a week or more in the laboratory, confirming that the lecture material works in real life and is not unproven theory. Second year students will be trained on the theory and operation of the medical instruments in late afternoon and evening courses at a local hospital, and will also have an internship at a medical facility during their last Semester.

### Outcomes

By the time of graduation, the Biomedical Engineering Technology graduate will be able to:

- Perform periodic maintenance or troubleshoot medical electronic instruments and devices.
- Recognize and apply fundamental knowledge of mathematics.
- Conduct experiments in teams, building or breadboarding, using basic test equipment and tools to measure performance, and to critically analyze and interpret data.
- Effectively communicate either technical observations, results, issues, and successes or negotiate a change in design or procedure.
- Apply computer skills for preparing technical documents or analyzing data, using applications for word processing, spreadsheets, simple programming, schematic capture, and simulation.
- Calculate costs.
- Read manuals and schematics and identify components in systems.

### Faculty

Instructors: Mozghan Hosseinpour, Dr. Nikhil Satyala, Patricia Volpe

### Degree Requirements: Biomedical Engineering Technology (AS) 69 Credits

TECHNICAL COURSES: 43 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
CT142	Fundamentals and Applications of C++ OR			
CT143	Introduction to Programming Logic and C++	4	3	2
EE101	Intro to Electro-Mechanical Systems	3	2	2
EE110	DC Circuits	4	3	2
EE113	AC Circuits	4	3	2
EE122	Electronics I	4	3	2
EE131	Digital Principles	4	3	2
EE223	Electronics II	4	3	2
EE254	Networking for End Users	4	3	2
MD223	Medical Instrumentation I	4	2	4
MD225	Medical Instrumentation II	4	2	4
MD242	Internship	4	0	8

## Program of Study

### GENERAL EDUCATION COURSES: 26 CREDITS

EN129/130	College Composition I	3	3	0
EN140	College Composition II	3	3	0
EN320	Technical Communications	3	3	0
HU/SS	Elective	3	3	0
MA120	College Algebra	3	3	0
MA130	Pre-Calculus	3	3	0
PH213	Physics I	3	3	0
PH225	Physics Lab I	1	0	2
SK135	Success in Electronics	0	1	0
SK200	Career Success Seminar	0	1	0
TS240	Human Anatomy and Physiology	3	2	2

### Typical Course Sequence for Biomedical Engineering Technology (AS)

SEMESTER 1	SEMESTER 2	SEMESTER 3	SEMESTER 4
EE101 Intro to Electro-Mechanical Systems	CT142 or CT143	EE223 Electronics II	EN320 Technical Communications
EE110 DC Circuits	EE113 AC Circuits	EE254 Networking for End Users	MD225 Medical Instrumentation II
EE131 Digital Principles	EE122 Electronics I	HU/SS Elective	MD242 Internship
EN129/130 College Composition I	EN140 College Composition II	MD223 Medical Instrumentation I	PH212 Physics I
MA120 College Algebra and Trigonometry	MA130 Pre-Calculus	SK200 Career Seminar	PH215 Physics Lab I
SK135 Success Seminar		TS240 Human Anatomy and Physiology	

# CAD with SolidWorks (Certificate)

The Engineering Technology department offers a short-term (8 months) Certificate in Mechanical Computer Aided Design (CAD). This program prepares students for entry level positions in the Mechanical drafting and designing field and consists of 5 core courses. The curriculum prepares the students to attain competencies that are most applicable to manufacturing processes, drafting, and utilizing software tools to assist machinists, mechanical designers, engineering research technicians, mechanical engineers, industrial automation technicians etc.

## Outcomes

Upon successful completion of the certificate program in CAD with Solidworks, the graduate will be able to:

- Utilize SolidWorks to produce engineering part models, drawings, assemblies and to analyze interference fits and tolerances.
- Understand manufacturing processes and their uses in industry.
- Design and build products and equipment for a changing technical environment.
- Demonstrate a knowledge of mathematics and the ability to apply this knowledge as practiced in materials science, engineering mechanics (statics) and thermodynamics.
- Effectively communicate technical observations, results, issues and successes in both oral and written form.
- Demonstrate the fundamental skills necessary for continuing their education towards an associates or bachelors degree in mechanical engineering technology or related fields.

## Faculty

Dr. Kamyar Pashayi

## Degree Requirements for CAD with Solidworks (Certificate) 16 Credits

TECHNICAL COURSES: 13 CREDITS

Course #	Course	Credits	Lecture	Lab
ME 105	CAD with SolidWorks	3	2	2
ME 106	Advanced CAD with Solidworks	3	2	2
ME241	SolidWorks Certification Prep	3	1	0
ME240	Machine Design	4	3	2

GENERAL EDUCATION: 3 CREDITS

MA120	Algebra and Trigonometry	3	3	0
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## Typical Course Sequence for CAD with Solidworks (Certificate) Track

### SEMESTER 1

Weeks 1 – 7

ME 105 CAD with SolidWorks

Weeks 7 – 14

ME 106 Advanced CAD with Solidworks

Weeks 1 – 14

MA120 Algebra and Trigonometry

### SEMESTER 2

Weeks 1 – 14

ME240 Machine Design with SolidWorks

ME241 SolidWorks Certification Prep



## CNC Machining (Certificate)

The Engineering Technology department offers a short-term (8 months) Certificate in CNC Machining. The objective of the certificate program is to prepare its graduates for immediate employment as machining technicians. This curriculum prepares and trains students with industry aligned competencies for entry level positions that can support machinists, Mechanical Designers and Mechanical Engineers. The program includes fundamental courses in industry relevant topics such manufacturing processes, mechanical computer aided design and drafting, CNC machine programming and manufacturing & prototyping processes. All credits earned in this certificate program are eligible for transfer towards the Associates in Science in Advanced Manufacturing and Automation degree track at BFIT.

### *Facilities*

The Advanced Manufacturing and Automation Department maintains the following facilities to provide a hands-on learning environment to the students.

- CAD classroom with access to various CAD software packages such as SolidWorks, AutoDesk Fusion 360, OnShape, etc.
- Machine Shop with CNC Lathes, CNC Mills and an assortment of hand tools and measuring equipment
- Advanced Manufacturing Lab with CNC Plasma cutter, CNC Laser cutter and 3D printers
- Industrial Automation Lab with FANUC industrial and training robots

### *Outcomes*

Upon successful completion of the Associate Degree in Advanced Manufacturing and Automation, the graduate will be able to:

- Utilize SolidWorks to produce engineering part models, drawings, assemblies and to analyze interference fits and tolerances.
- Program and operate CNC equipment in an industrial environment.
- Understand manufacturing processes and their uses in industry.
- Effectively communicate technical observations, results, issues and successes in both oral and written form.
- Demonstrate the fundamental skills necessary for continuing their education towards a bachelor's degree in mechanical engineering technology or related fields.
- Understand professional, ethical and social responsibilities.

### *Faculty*

Roy Garber, John Mulligan

*Degree Requirements CNC Machining (Certificate) 29 Credits*

TECHNICAL COURSES: 29 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
ME 105	CAD with SolidWorks	3	2	2
ME 150	Introduction to Manufacturing	4	2	4
ME 106	Advanced CAD with Solidworks	3	2	2
ME151	Manufacturing Processes and CNC Machining	4	2	4
ME220	MasterCam Milling I	4	2	4
ME225	MasterCam Milling II	4	2	4
ME250	Advanced Manufacturing and CNC Processing	4	2	4
ME241	SolidWorks Certification Prep	3	1	0

*Typical Course Sequence for CNC Machining (Certificate) Track*

SEMESTER 1

Weeks 1 – 7

ME 105 CAD with SolidWorks

ME 150 Introduction to Manufacturing

Weeks 7 – 14

ME 106 Advanced CAD with Solidworks

ME151 Manufacturing Processes and CNC Machining

SEMESTER 2

Weeks 1 – 7

ME220 MasterCam Milling I

Weeks 7 – 14

ME225 MasterCam Milling II

Weeks 1 - 14

ME250 Advanced Manufacturing and CNC Processing

ME241 SolidWorks Certification Prep

# Computer Information Technology (AS)

The Associate of Science (AS) in Computer Information Technology (CT) is a two-year program that provides students with the knowledge and training for a range of positions in the areas of computer system operations and support, maintenance, database management, networking, computer programming and system administration. All graduates leave the program prepared for positions as computer support specialists, junior network technicians and entry-level database administrators. Students wishing to complete their IT credentials in a shorter period of time, like in two semesters, can start with one of the three new certificate programs currently offered by the College, in response to the COVID-19 pandemic. They are Network and Systems Support, Software Development, Web Design. Their curricula are discussed below.

## *Outcomes*

Upon successful completion of the Associate of Science Degree in Computer Information Technology, all graduates will be able to:

- Design and develop entry-level database application systems.
- Provide beginner-level computer programming and web design.
- Employ hardware/software knowledge to configure, install, support, and maintain computer and network systems.
- Manage and maintain enterprise database application systems.
- Administer computer and network services and security.
- Install, maintain, upgrade and manage Windows-based computer and related server and network systems.
- Understand and apply the fundamental knowledge of mathematics to solving of computer related problems.
- Effectively communicate technical observations, results, issues, and successes, in both oral and written form.
- Continue education toward a BS degree in four-year computer technology and related programs.
- Explain why continuing education and professional organizations, such as: IEEE, ACM, CompTIA, the Linux Foundation and others are viewed as vehicles for lifelong learning for accessing learning, networking, and certification opportunities.
- Understand professional, ethical, and social responsibilities.

## *Faculty*

Program Chair: Fathima James

Instructor staff: Fathima James, Richard Azzi, Margaret Goodwyn, Tim Collins, Ndidi Akuta, Peng Li, Temitayo Banjo, Larry J. Rivarde Jr., and Khari Alexander

*Degree Requirements: Computer Information Technology (AS) 62 Credits*

## TECHNOLOGY ELECTIVE OPTIONS (37 CREDITS)

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
CT140	Google IT support Certificate Program	6	4	4
CT121	Web Design I	3	2	2
CT122	Web Design II	3	2	2
CT143	Introduction to Programming Logic and C++	4	3	2
CT144	Intermediate C++ Programming	4	3	2
CT146	Intro JavaScript	4	3	2
CT147	Introduction to React JavaScript	4	3	2
CT211	Website Management	4	3	2
CT212	PC Maintenance and Management I	3	1	4
CT213	PC Maintenance and Management II	3	1	4
CT221	Enterprise Database Management	3	2	2
CT231	Linux System Administration	3	2	2
CT233	Windows System Administration	3	2	2
CT247	Intermediate React JavaScript	4	3	2
CT249	Survey of Contemporary Programming Languages	4	3	2
CT250	Fundamentals in Python	4	3	2
CT267	Networking II	4	3	2
CT365	Network Security	4	3	2
SK120	Success in Computer Technology	0	0	2

## NETWORKING REQUIREMENTS (4 CREDITS)

CT265	NETWORKING I	4	3	2
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## CORE GENERAL EDUCATION COURSES (12 CREDITS)

EN129/130	COLLEGE COMPOSITION I	3	3	0
EN140	COLLEGE COMPOSITION II	3	3	0
EN320	TECHNICAL COMMUNICATION	3	3	0
HU/SS	HUMANITIES/SOCIAL SCIENCE REQUIREMENT	3	3	0
SK200	CAREER SUCCESS SEMINAR	0	1	0

## MATH ELECTIVE OPTIONS (6 CREDITS)

MA105	TECHNICAL MATHEMATICS	3	3	0
MA120	COLLEGE ALGEBRA AND TRIGONOMETRY	3	3	0
MA130	PRE-CALCULUS	3	3	0
MA240	CALCULUS I	4	4	0
MA250	CALCULUS II	4	4	0
MA270	ELEMENTARY STATISTICS	3	3	0

## Program of Study

### GENERAL ELECTIVE OPTION (3 CREDITS)

HU/SS	SOCIAL SCIENCE ELECTIVE	3	3	0
MA130	PRE-CALCULUS	3	3	0
MA240	CALCULUS I	4	4	0
MA250	CALCULUS II	4	4	0
MA270	STATISTICS	3	3	0

### Typical Course Sequence for the Associate of Science in Computer Information Technology (62 Credits)

SEMESTER 1		SEMESTER 2		SEMESTER 3		SEMESTER 4	
CT140	GOOGLE IT SUPPORT CERTIFICATE PROGRAM	CT250	FUNDAMENTALS IN PYTHON	CT212	PC MAINTENANCE AND MANAGEMENT I	CT269	CLOUD COMPUTING AND VIRTUALIZATION
CT143 OR 146	INTRODUCTION TO C++ OR JAVASCRIPT	CT221	ENTERPRISE DATABASE MANAGEMENT	CT231	LINUX SYSTEM ADMINISTRATION	CT365	NETWORK SECURITY
EN129/130	COLLEGE COMPOSITION I	CT233	WINDOWS SYSTEM ADMINISTRATION	CT265	NETWORKING I	CT121	WEB DESIGN I
EN129/130	COLLEGE COMPOSITION I	EN140	COLLEGE COMPOSITION II	EN320	TECHNICAL COMMUNICATION	HU/SS	GENERAL EDUCATION ELECTIVE
MAE1	MA105 OR HIGHER	MAE2	MA120 OR HIGHER	MA/SS	MATH/SS ELECTIVE		
SK120	SUCCESS IN CT			SK200	CAREER SEMINAR		

As mentioned above, in response to the COVID-19 crisis, the College also offers three short-term certificate programs that prepare students for entry-level positions in the area of: 1) Network and Systems Support, 2) Software Development, and 3) Web Design. Each comprises 8 - 9 fundamental courses, totaling 29 credits. These courses leverage the expertise of CT faculty who also teach in the above AS in CT program. The certificate programs are designed to be completed in two semesters or one year. Upon completion of selected certificate program, graduates will earn a BFIT-issued certificate of completion, in addition to industry certification(s) they have gained in program courses. Moreover, the credits gained from the certificate program completion can be stacked and applied toward the above Associate of Science degree in Computer Information Technology program. The curriculum for the Networking & Systems Support certificate program is discussed below.

## Certificate Programs

### CYBERSECURITY

This full-time, certificate program will prepare you for a cybersecurity career in just two semesters. The curriculum is divided into two semesters that include focused instruction on a specific cybersecurity skillset followed by hands-on labs, reinforcement, and preparation for the relevant exams.

The program combines vocational lab-driven exercises delivered by ethical hackers and industry experts with a competency-based model. You will gain hands-on knowledge, tools, and certifications. The content was developed using the National Institute of Standards and Technology (NIST) framework and is mapped to the National Initiative for Cybersecurity Education (NICE).

### WHY CYBERSECURITY?

Cybersecurity is a career that offers not just large financial rewards but also variety in the work, the challenge of learning something new almost daily, and a chance to be creative while addressing a core business and societal need.

If you're curious, detail-oriented, analytical, and love to learn new things, a career in cybersecurity might be a good fit for you.

You will learn how to oversee technologies like firewalls and antivirus software, direct advanced threat detection efforts, monitor security, and educate users about strong passwords and how to respond when something bad happens.

### PROFESSIONAL CERTIFICATIONS

The Cybersecurity certificate program will prepare you for four industry-recognized certifications in addition to CyberWarrior Academy's proprietary modules:

- CompTIA A+
- CompTIA Network+
- CompTIA Security+
- EC-Council Certified Ethical Hacker (CEH)
- Firewalls and IDPS
- Vulnerability Management
- Package Analysis
- Security Monitoring
- Malware Analysis
- Incident Response
- Security Automation

The Career Hacks module delivers soft skills training and is weaved throughout the program, including presentations from visiting executives sharing their career experiences and tips on how to grow professionally.

## Course Requirements for the Cybersecurity Certificate Program (24 Credits)

### TECHNOLOGY ELECTIVE OPTIONS (37 CREDITS)

<b>Course #</b>	<b>Course</b>	<b>Credits</b>
CS101	Technology Fundamentals	4
CS201	Network Defender	5
CS210	Firewalls and Intrusion Detection and Prevention	2
CS220	Vulnerability Management	2
CS225	Malware Analysis and Incident Response	2
CS230	Security Monitoring	2
CS240	Packet Analysis	3
CS250	Security Automation	4

### NETWORK SYSTEMS AND SUPPORT

The Networking & Systems Support certificate program focuses on installing, configuring, and supporting IT infrastructure and the various operating systems, while incorporating the principles, and protocols in networked systems, and the different networking technologies.

#### Outcomes

Upon successful completion of the Networking & Systems Support certificate program, all graduates will be able to:

- Install, maintain, upgrade and manage Linux-based computer and related server and network systems.
- Install, maintain, and administer Windows operating systems, including Office 365
- Employ hardware/software knowledge to configure, install, support, and maintain computer and network systems.
- Perform IT support tasks typically conducted on a daily basis, including computer assembly, wireless networking, network Infrastructure and troubleshooting, installing programs, and customer service
- Provide end-to-end customer support, ranging from identifying problems to troubleshooting and debugging
- Install, configure and troubleshoot PC hardware and software, also involving virtualization, cloud computing, and printers

## Typical Course Sequence for the Networking & Systems Support Certificate Program (29 Credits)

### SEMESTER 1

CT140	Google IT support Certificate Program	6
CT212	PC Maintenance & Management I	3
CT265	Networking I	4
CT231	Linux System Administration	3
SK120	Success in CT	0

### SEMESTER 2

CT121	Web Design I	3
CT233	Windows System Administration	3
CT213	PC Maintenance & Management II	3
CT267	Networking II	4

In order to earn the Associate of Science in Computer Information Technology, the Network & Systems Support certificate graduates just need to complete the below courses.

SEMESTER 3

EN129/130	College Composition I	3
EN320	Technical Communication	3
SK200	Career Seminar	
MA	MA105 or MA120 or MA240	3
HU/SS	Social Science Elective	3
CT277	Topics in Network and System Support Employment Readiness	3

SEMESTER 4

CT365	Network Security	4
EN140	College Composition II	3
CT269	Cloud Computing and Virtualization Fundamentals	4
MA	MA120 or MA130 or MA250	3
MA/SS	Math/Social Science Elective	3

SOFTWARE DEVELOPMENT

The Software Development program places an emphasis on developing students’ coding and programming skills as well as the soft skills they need to creatively solve business problems.

*Outcomes*

Upon successful completion of the Software Development certificate program, all graduates will be able to:

- Develop coding and programming skills as well as the soft skills needed to creatively solve business problems
- Use modern programming tools, such as git (including github), as well methodologies like agile for software engineering.
- Develop computer programming in C++, JavaScript, Python, as well as data structures or algorithms and the incorporation of relational databases for back-end related tasks
- Use using React JavaScript to conduct front end (or client-side) software development to build user interfaces
- Use programming skills to identify problems to troubleshooting and debugging

*Typical Course Sequence for the Software Development Certificate Program (29 Credits)*

SEMESTER 1 (14 CREDITS)

CT140	Google IT Support Certificate Program	6
CT146	Intro to JavaScript	4
CT143	Intro to C++	4
SK120	Success in CT	0



## Program of Study

### SEMESTER 2 (15 CREDITS)

CT221 . . . . .	Enterprise Database Management System. . . . .	3
CT147 . . . . .	Introduction to React JavaScript . . . . .	4
CT144 . . . . .	Intermediate C++ . . . . .	4
CT250 . . . . .	Fundamentals in Python . . . . .	4

In order to earn the Associate of Science in Computer Information Technology, the Software Development certificate graduates just need to complete the below courses.

### SEMESTER 3

EN129/130 . . . . .	College Composition I . . . . .	3
EN320 . . . . .	Technical Communication. . . . .	3
CT265 . . . . .	Networking I . . . . .	4
SK200 . . . . .	Career Seminar	
HU/SS. . . . .	Social Science Elective. . . . .	3
MA . . . . .	MA105 or MA120 or MA240 . . . . .	3

### SEMESTER 4

EN140 . . . . .	College Composition II. . . . .	3
CT247 . . . . .	Intermediate React JavaScript . . . . .	4
CT275 . . . . .	Agile Project Management. . . . .	4
MA/SS . . . . .	Math/Social Science Elective . . . . .	3
MA . . . . .	MA120 or MA130 or MA250 . . . . .	3

### WEB DESIGN

The Web Design certificate program focuses on designing and developing websites using contemporary web design software, such as using HyperText Markup Language 5 (HTML 5), Extensible HyperText Markup Language (XHTML), Cascading Style Sheets 3 (CSS3), animation, and client scripting, as well as Hypertext Preprocessor (PHP) to interact with MySQL database system on a local machine as well as hosted servers.

### Outcomes

Upon successful completion of the Web Design certificate program, all graduates will be able to:

- Design and develop websites using HyperText Markup Language 5 (HTML 5), Extensible HyperText Markup Language (XHTML), Cascading Style Sheets 3 (CSS3), animation, and client scripting
- Design and develop websites using contemporary web design software, such as JavaScript programming language.
- Develop and manage websites using Hypertext Preprocessor (PHP) to interact with MySQL database system on a local machine as well as hosted servers
- Use troubleshooting and debugging skills to identify and fix problems with websites

*Typical Course Sequence for the Web Design Certificate Program (29 Credits)*

SEMESTER 1 (16 CREDITS)

CT140	Google IT Support Certificate Program	6
CT121	Web Design I	3
CT231	Linux System Administration	3
CT146	Intro to JavaScript	4
SK120	Success in CT	0

SEMESTER 2 (13 CREDITS)

CT221	Enterprise Database Management System	3
CT122	Web Design II	3
CT211	Web Site Management	3
CT147	Introduction to React JavaScript	4

In order to earn the Associate of Science in Computer Technology, the Web Design certificate graduates just need to complete the below courses.

SEMESTER 3

EN129/130	College Composition I	3
EN320	Technical Communication	3
CT265	Networking I	4
SK200	Career Seminar	
HU/SS	Social Science Elective	3
MA	MA105 or MA120 or MA240	3

SEMESTER 4

MA	MA120 or MA130 or MA250	3
MA/SS	Math/Social Science Elective	3
EN140	College Composition II	3
CT249	Contemporary Programming Languages	4
CT278	Topics in Web Design Employment Readiness	3

PROFESSIONAL CERTIFICATIONS STUDENTS CAN EARN TAKING CT COURSES

- CompTIA Linux+
- CompTIA Network +
- Exam MS-900: Microsoft 365 Fundamentals
- CompTIA A+
- AWS Certified Cloud Practitioner
- Certified JavaScript Developer by JavaScript Institute
- CIW Site Development Associate
- C++ Certified Associate Programmer(CPA)
- Python Institute Certified Entry-Level Python Programmer(PCEP)

# Construction Management (AS)

An associate degree in Construction Management provides graduates with a background of technical and organizational skills that apply to construction projects from conception to completion. Construction Management students study the skills necessary to manage resources, time, cost and quality with emphasis on team building. Students will also refine their ability to communicate, establish a foundation in math and science, and develop analytical and informational skills. Experiential components will be included to enhance the job-readiness of graduates and to build student engagement with the program.

The program includes technical courses in building technology, heavy construction, construction management and a general education core. The construction management courses provide familiarity with the vocabulary of construction management and a thorough introduction to the techniques of the building industry. These courses provide familiarity with the vocabulary of building and a thorough introduction to the techniques of the building industry. The courses establish a foundation in construction graphics, construction methods and material technologies, statics and strength of materials, sustainable building technologies, surveying and environmental systems.

The construction management courses develop the variety of skill areas that support a successful construction firm. These are taught by BFIT full time faculty and selected adjuncts.

All BFIT students are required to successfully complete two Career Success Seminar courses prior to graduation. Typically, students are enrolled in this course for the first and third semesters prior to graduation. Please note this course may be added to a student's course load after the registration process, and thus may not be visible on a student's schedule until a few weeks prior to their final semester.

## *Outcomes*

Upon successful completion of the associate degree in CM, the graduate will be able to:

- Apply knowledge in planning, budgeting, and scheduling of labor, materials and equipment.
- Apply quality standards in construction.
- Communicate in speech and in writing.
- Estimate job costs and requirements for construction projects.
- Identify construction project objectives and assist in their execution.
- Identify elements of sustainability in buildings and construction and explain their costs and benefits.
- Oversee project safety.
- Read and revise construction documents as a communication tool, including CAD files.
- Select contractors, sub-contractors and set project performance goals.
- Use knowledge of construction and management principles and practices to support continued learning.
- Work ethically and responsibly in the construction industry.
- Work on teams to solve management and technical problems.

## *Faculty*

Leslie Tuplin, Program Chair

Instructor Staff: David Polson, Lillia Sakher

*Degree Requirements: Construction Management (AS) 66 Credits*

TECHNOLOGY COURSES: 40 CREDIT HOURS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
CM100	Building Construction Graphics	3	2	2
CM110	Construction Management I	3	3	0
CM120	Introduction to CAD	3	1	4
CM130	Construction Estimating	3	3	0
CM145	Heavy Construction	3	3	0
CM160	Building Materials and Applications	4	3	2
CM210	Construction Management II	3	3	0
CM220	Sustainable Building Technologies	3	3	0
CM240	Environmental Systems	4	3	2
CM250	Construction Surveying	4	4	1
CM260	Project Scheduling	3	3	0
CM280	Statics & Strength of Materials	4	4	1

GENERAL EDUCATION COURSES: 26 CREDIT HOURS

EN129/130	College Composition I	3	3	0
EN140	College Composition II	3	3	0
HU/SS	Elective	3	3	0
HU/SS	Elective	3	3	0
MA105	Technical Mathematics I	3	3	0
MA115	Plane and Solid Geometry	4	4	0
MA120	College Algebra and Trigonometry	3	3	0
PH212	Physics I	3	3	0
PH215	Physics Lab I	1	0	2
SK200	Career Success Seminar	0	1	0

\* Students transferring in a higher level math may substitute an HU/SS elective for a lower level math.

*Typical Course Sequence for Construction Management*

SEMESTER 1	SEMESTER 2	SEMESTER 3	SEMESTER 4
CM100 Building Construction Graphics	CM130 Construction Estimating	CM220 Sustainable Building Technologies	CM210 Construction Management II
CM110 Construction Management I	CM145 Heavy Construction	CM260 Project Scheduling	CM240 Environmental Systems
CM160 Building Materials and Applications	CM120 Introduction to CAD	HU/SS Elective	CM250 Construction Surveying
EN129/130 College Composition I	EN140 College Composition II	MA115 Plane and Solid Geometry	CM280 Statics & Strength of Materials
MA105 Technical Math I	MA120 College Algebra and Trigonometry	PH212 Physics I PH215 Physics Lab I	HU/SS Elective
		SK200 Career Success Seminar	

## Electrical Engineering (BS)

The bachelor's degree program in Electrical Engineering provides the needed knowledge and skills for graduates to enter careers in the field of electrical engineering or to enroll in a graduate program in electrical engineering. In addition, graduates will be able to make contributions to industry and to the field of electrical engineering.

The program places special emphasis on electric power due to the unique opportunities for those entering the power industry today, and the huge changes in the industry arising from green technologies. The emergence of a smart grid that detects and responds quickly to local power usage will afford opportunities for electrical engineering graduates with knowledge of electric power fundamentals.

All BFIT students are required to successfully complete a Career Success Seminar course prior to graduation. Typically, students are enrolled in this course for the semester prior to graduation. Please note this course may be added to a student's course load after the registration process, and thus may not be visible on a student's schedule.

### *Outcomes*

Upon successful completion of the Bachelor's Degree in Electrical Engineering, all graduates will have:

- Ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- 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
- Ability to communicate effectively with a range of audiences
- 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
- 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
- Ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- Ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

### *Faculty*

Chair: Dr. Lisa Shatz

Instructor staff: Dr. Craig Christensen, Dr. Greg Sonek, Dr. Mostapha Ziad (part time)

Degree Requirements: Electrical Engineering (BS) 120 Credits

TECHNICAL COURSES: 62 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
ECE307	Power Systems I	4	4	0
ECE308	Power Systems II	4	3	3
ECE311	Embedded Systems	4	3	3
ECE335	Control Systems	4	3	3
ECE403	Electromagnetic Theory	4	3	3
ECE410	Communication Systems	4	3	3
ECE414	Engineering Senior Project I	1	1	0
ECE415	Engineering Senior Project	4	3	3
ECE430	Digital Signal Processing	4	3	3
ENS103	Intro to Engineering	4	3	3
ENS202	Engineering Technical Communications	4	3	3

ECE ELECTIVE OPTIONS: 4 CREDITS

ECE306	Solid State Devices and Circuits II	4	3	3
ECE309	Labview and Electric Circuits and Machines	4	3	3
ECE390	Data & Computer Communications	4	3	3

GENERAL EDUCATION COURSES: 51 CREDITS

CT143	Intro to C++ Programming	4	3	2
MA240	Calculus I	4	3	0
MA250	Calculus II	4	4	0
MA260	Multivariable Calculus	4	4	0
MA270	Statistics	3	3	0
PH222	University Physics I	3	3	0
PH215	Physics Lab I	1	0	2
PH223	University Physics II	3	3	0
PH225	Physics Lab II	1	0	2
TS310	Chemistry or Environmental Science	3/4	3	2
BS311	Microeconomics	3	3	0
	OR			
BS325	Project Management	3	3	0
EN129/130	College Composition I	3	3	0
EN140	College Composition II	3	3	0
HU/SS	HU/SS Elective	3	3	0
HU/SS	HU/SS Elective	3	3	0
SK400	Career Success Seminar	0	1	0
SS265	Exploring Ethical Issues	3	3	0

# Program of Study

## GENERAL ELECTIVE OPTIONS (3 CREDITS)

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
MA130	Pre-Calculus	3	3	0
ECE01	General Elective	4	3	3

## Typical Course Sequence for Electrical Engineering (BS)

YEAR 1 SEMESTER 1	YEAR 2 SEMESTER 3	YEAR 3 SEMESTER 5	YEAR 4 SEMESTER 7
EN129/130 College Composition I	HU/SS HU/SS Elective	MA260 Multivariable Calculus	CM120 Intro to AutoCAD
MA130 Pre-Calculus	ECE205 Circuit Theory II	ECE308 Power Systems II	ECE270 Statistics for Engineers Lab
ENS103 Intro to Engineering	MA250 Calculus II	ECE 311 Embedded Systems	ECE430 Digital Signal Processing
ECE101 Digital Electronics	PH222 University Physics I	ENS202 Engineering Technical Communications	ECE414 Engineering Senior Project I
YEAR 1 SEMESTER 2	YEAR 2 SEMESTER 4	YEAR 3 SEMESTER 6	YEAR 4 SEMESTER 8
EN140 College Composition II	ECE206 Solid State Devices	ECE225 Linear Systems with Differential Equations	ECE415 Engineering Senior Project
MA240 Calculus I	ECE307 Power Systems I	ECE403 Electromagnetic Theory	ECE410 Communication Systems
ECE105 Circuit Theory I	HU/SS HU/SS Elective	ECE414 Engineering Senior Project I	ECEE02 ECE elective
CT143 Intro to C++	PH223 University Physics II	BS325 Project Management	SS Ethics
	PH225 University Physics Lab II	MA270 Statistics	SK400 Career Success Seminar

# Electronics Technology (Certificate)

The Engineering Technology department offers a short-term (8 months) Certificate in Electronics Technology program that focuses on teaching skills required for entry-level positions such as Electronics Technician, Electronics Assembler, Field/Maintenance Technician, Solder Technician among other positions. The curriculum is designed to train students in core competencies aligned with the industry requirements which include circuit analysis, circuit simulation/troubleshooting, device-level assembly, testing, soldering, data collection/analysis, diagnostics, calibration, maintenance, and basic programming. All credits earned in this certificate track are transferrable to the Associate of Science in Mechatronics Engineering Technology with further pathway towards Electrical Engineering bachelors degree program.

## *Facilities*

The students in this track will primarily build their competencies using equipment in engineering technology laboratories. The labs are equipped to provide the students a hands-on learning experience in various aspects of electronics technology workforce related competencies such as breadboarding, testing, schematic capture, and simulation of analog and digital circuits. Students will typically spend six hours a week or more in the laboratory to procure industry specific hands-on competencies. Students follow the laboratory experiments with a report where the results are analyzed and discussed.

## *Outcomes*

By the time of graduation, the Electronics Technology certificate graduate will be able to:

- Analyze or troubleshoot in three major electronic engineering areas: analog circuits, digital circuits, and processors.
- Recognize and apply fundamental knowledge of mathematics, especially algebra and trigonometry.
- Conduct experiments in teams, building or breadboarding, using basic test equipment and tools to measure performance, and to critically analyze and interpret data.
- Effectively communicate either technical observations, results, issues, and successes or negotiate a change in design or procedure.
- Apply computer skills for preparing technical documents or analyzing data: using applications for word processing, spreadsheets, simple programming, schematic capture, and simulation.
- Read manuals and schematics and identify components on a printed wiring board.

## *Faculty*

Program Chair: Dr. Nikhil Satyala

Instructor staff: Prof. Mozhgan Hosseinpour



Degree Requirements for Electronics Technology certificate - 27 Credits

TECHNICAL COURSES: 24 CREDITS

Course #	Course	Credits	Lecture	Lab
EE110	DC Circuits	4	3	2
EE131	Digital Principles	4	3	2
EE113	AC Circuits	4	3	2
EE122	Electronics I	4	3	2
EE223	Electronics II	4	3	2
CT142	Foundations in Programming	4	3	2

GENERAL EDUCATION COURSES: 25 CREDITS

MA120	Algebra and Trigonometry	3	3	0
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Typical Course Sequence for Mechatronics Technology (AS) Concentration

SEMESTER 1

**Weeks 1-7** **Credits**

EE110	DC Circuits	4
EE131	Digital Principles	4

**Weeks 8-14**

EE113	AC Circuits	4
EE122	Electronics I	4

**Weeks 1-14**

MA120	College Algebra and Trigonometry	3
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SEMESTER 2

EE223	Electronics II	4
CT142	Fundamentals and Application of C++	4

# Engineering Technology

The Department of Engineering Technology offers three short-term stackable certificate programs (Electronics Technology Certificate, CAD with Solidworks Certificate and CNC Machining Certificate) and three Associate of Science degree programs (Mechatronics Technology, Renewable Energy Technology and Advanced Manufacturing and Automation Technology). The department offers two flexible and stackable pathways from Certificate to Associate of Science Degree Programs (Electronics Cert. to A. S. in Mechatronics Engineering Technology; CNC Machining Cert. to A. S. in Advanced Manufacturing and Automation). The Renewable Energy Technology concentration prepares the students for careers in the solar energy, wind energy and energy storage industries. The Mechatronics Technology and Advanced Manufacturing Technology pathways will prepare students to be employed in the areas of Electronics engineering, Mechanical design engineering and Robotics/Automation engineering technology.

Apart from offering a career-focused training curriculums in each of the concentrations, the Engineering Technology program prepares the students to build a profile that is suitable for a wide range of advanced career pathways leading to various engineering technician positions, project management positions, and technologist positions.

# Advanced Manufacturing and Automation Technology (AS)

The objective of the Advanced Manufacturing and Automation program is to prepare its graduates both for immediate employment as technicians and for further study at the bachelors level in related fields such as Mechanical Engineering Technology, Industrial Engineering, Engineering Design Technology.

This program maintains a close connection with industry. Its Industry Advisory Committee, consisting of professionals from the fields of manufacturing, industrial automation and mechanical engineering technology in Greater Boston and New England meets periodically to evaluate the objectives, curriculum and course content to keep the program updated and practical.

With a strong foundation in manufacturing processes, CAD and automation, graduates of the Advanced Manufacturing and Automation program are prepared for employment as Machinists, Assistant Mechanical Designers, Engineering Research Technicians, Assistant Mechanical Engineers, Industrial Automation Technicians, Engineering Representatives, etc.

## *Curriculum*

The Advanced Manufacturing and Automation Program includes fundamental and advanced courses in industry relevant topics such as Mechanical CAD, Machine design using CAD, Manufacturing processes, CNC machine programming, Rapid Manufacturing & Prototyping processes and Industrial Automation using Robotics and PLCs. The program also includes foundational courses in mathematics, statics and materials.

Humanities, social sciences, and English courses comprise part of the curriculum to ensure the graduates possess broader social visions and proficient and effective communication skills.

All BFIT students are required to successfully complete a Career Success Seminar course prior to graduation. Typically, students are enrolled in this course for the semester prior to graduation. Please note this course may be added to a student's course load after the registration process, and thus may not be visible on a student's schedule until a few weeks prior to their final semester.

## *Facilities*

The Advanced Manufacturing and Automation Department maintains the following facilities to provide a hands-on learning environment to the students.

- CAD classroom with access to various CAD software packages such as SolidWorks, AutoDesk Fusion 360, OnShape, etc.
- Machine Shop with CNC Lathes, CNC Mills and an assortment of hand tools and measuring equipment
- Advanced Manufacturing Lab with CNC Plasma cutter, CNC Laser cutter and 3D printers
- Industrial Automation Lab with FANUC industrial and training robots

### Outcomes

Upon successful completion of the Associate Degree in Advanced Manufacturing and Automation, the graduate will be able to:

- Utilize SolidWorks to produce engineering part models, drawings, assemblies and to analyze interference fits and tolerances.
- Program and operate CNC equipment in an industrial environment.
- Program and maintain Industrial Automation equipment.
- Manage and run rapid manufacturing machines such as 3D printers, Laser cutters and CNC Plasma cutters.
- Understand manufacturing processes and their uses in industry.
- Design and build products and equipment for a changing technical environment.
- Demonstrate a knowledge of mathematics and the ability to apply this knowledge as practiced in materials science, engineering mechanics (statics) and thermodynamics.
- Effectively communicate technical observations, results, issues and successes in both oral and written form.
- Demonstrate the fundamental skills necessary for continuing their education towards a bachelor's degree in mechanical engineering technology or related fields.
- Understand professional, ethical and social responsibilities.
- Work effectively in a team-oriented/project-focused work environment.

### Faculty

Program Chair: Dr. Nikhil Satyala

Instructor staff: Roy Garber, John Mulligan, Dr. Kamyar Pashayi

### Degree Requirements for Advanced Manufacturing and Automation Technology (AS) 77 Credits

TECHNICAL COURSES: 56 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
ME 105	CAD with SolidWorks	3	2	2
ME 150	Introduction to Manufacturing	4	2	4
ME 106	Advanced CAD with Solidworks	3	2	2
ME151	Manufacturing Processes and CNC Machining	4	2	4
ME220	MasterCam Milling I	4	2	4
ME225	MasterCam Milling II	4	2	4
ME250	Advanced Manufacturing and CNC Processing	4	2	4
ME241	SolidWorks Certification Prep	3	1	0
EE210	Robotics I	4	3	2
ME141	Materials	3	3	0
ME240	Machine Design	4	3	2
ME310	Robotics II	4	3	2
EE320	Automation/Introduction to PLCs	4	3	2
ME110	Statics	4	4	0
ME350	Rapid Manufacturing and Prototyping Processes	4	3	2

## Program of Study

### GENERAL EDUCATION AND BUSINESS COURSES: 21 CREDITS

MA120 . . . . .	Algebra and Trigonometry . . . . .	3 . . . . .	3 . . . . .	0
MA130 . . . . .	Pre-Calculus . . . . .	3 . . . . .	3 . . . . .	0
EN129/130 . . . . .	College Composition I . . . . .	3 . . . . .	3 . . . . .	0
EN140 . . . . .	College Composition II . . . . .	3 . . . . .	3 . . . . .	0
HU/SS . . . . .	Social Science Electives . . . . .	3 . . . . .	3 . . . . .	0
EN320 . . . . .	Technical Communication . . . . .	3 . . . . .	3 . . . . .	0
BS . . . . .	Business Elective . . . . .	3 . . . . .	3 . . . . .	0

### *Typical Course Sequence for Advanced Manufacturing and Automation Technology (AS)*

#### SEMESTER 1

Weeks 1 – 7

ME 105 CAD with SolidWorks

ME 150 Introduction to Manufacturing

Weeks 7 – 14

ME 106 Advanced CAD with Solidworks

ME151 Manufacturing Processes and CNC Machining

Weeks 1 – 14

MA120 Algebra and Trigonometry

#### SEMESTER 2

Weeks 1 – 7

ME220 MasterCam Milling I

Weeks 7 – 14

ME225 MasterCam Milling II

Weeks 1 - 14

ME250 Advanced Manufacturing and CNC Processing

ME241 SolidWorks Certification Prep

MA130 Pre-Calculus

#### SEMESTER 3

EN129/130

College Composition I

EN140 College Composition II

HU/SS Social Science Electives

#### SEMESTER 4

EE210 Robotics I

ME141 Materials

ME240 Machine Design

EN320 Technical Communication

#### SEMESTER 5

ME310 Robotics II

EE320 Automation/Introduction to PLCs

BS Business Elective

ME110 Statics

ME350 Rapid Manufacturing and Prototyping Processes

# Mechatronics Technology (AS)

The Mechatronics Technology concentration is a hybrid combination of Electronics/Robotics Engineering Technology and Mechanical Engineering Technology that is primarily focused on developing hardware and software level competencies aligned with the current industry needs in the areas of electronics, mechanical and robotics systems. This hands-on learning-based program aims at workforce development through training in the design, installation, maintenance, and repair of high-tech electronics, automation, and manufacturing systems. This program maintains a close connection with the industry. Its Industry Advisory Committee, consisting of electronics, mechanical engineering and robotics engineering technology professionals in Greater Boston and New England, meets periodically to evaluate the objectives, curriculum, and course content, to keep the program updated and practical.

Graduates are mechatronics or electromechanical technicians that may perform a broad range of tasks for high tech companies in the electronics components, robotics, automation, industrial control, instrumentation, and defense sectors. A mechatronics technician generally works under the supervision of engineers and may support design engineers developing a new product by assembling prototypes and testing them to verify their operation. Or the technician may be in the manufacturing department where he/she builds, tests and repairs high tech products. They also may repair customer products, provide technical support to customers, or assist the sales organization with technical support. Technicians are hands-on practitioners who know how to apply algebra and trigonometry to real-life problems or run computer simulations to analyze circuits.

To advance in these careers, it is also important to develop skills in communicating the problems, ideas and solutions to others in the company. Those graduates in departments that interface with customers must also develop people skills. Many graduates choose to continue their education and are accepted into Electronic Engineering Technology, Mechanical Engineering Technology or Electrical Engineering programs leading to the Bachelor of Science degree. Alternatively, a graduate could choose to pursue a degree in business, acquiring both technical and business skills. BFIT also offers a direct pathway with a transferrable credit option from the Associate degree track in Mechatronics Engineering Technology to the Bachelors degree program in Electrical engineering.

## *Curriculum*

The curriculum is structured to provide a broad education, with students taking courses in each of the recognized areas of AC/DC circuits, mechanical CAD, manufacturing systems, programmable logic controllers, articulated robot programming, writing skills, presentation skills, algebra, trigonometry, elementary calculus, computer application, computer programming, and problem-solving skills. Typically, the introductory courses in electronics and mechanical engineering technology consist of three hours of lecture and two hours of laboratory work, reinforcing concepts and principles taught in the classroom and providing extensive hands-on education. All BFIT students are required to successfully complete a Career Success Seminar course prior to graduation. Typically, Mechatronics students are enrolled in this course for the semester prior to graduation. Please note this course, may be added to a student's course load after the registration process, and thus may not be visible on a student's schedule until a few weeks prior to their final semester.

## *Facilities*

The students in this track will primarily build their competencies using equipment in three laboratories: electronics laboratory, mechanical CAD laboratory and robotics laboratory. The labs are equipped to provide students ample and meaningful hands-on experience in breadboarding, testing, schematic capture, and simulation of analog and digital circuits. The students will make use of the CAD lab and manufacturing systems equipment for the courses in mechanical CAD and manufacturing. The robotics and automation laboratory is equipped with state-of-art articulated robots and programmable logic controllers. Students will typically spend six hours a week or more in the laboratory to procure industry specific hands-on competencies. Students follow the laboratory experiments with a report where the results are analyzed and discussed.

## Outcomes

By the time of graduation, the Mechatronics Technology graduate will be able to:

- Operate, analyze, or troubleshoot in three major technology areas: electronic circuits, mechanical equipment, and robotics/automation systems.
- Recognize and apply fundamental knowledge of mathematics, especially algebra and trigonometry.
- Conduct experiments in teams, building or breadboarding, using basic test equipment and tools to measure performance, and to critically analyze and interpret data.
- Read manuals and schematics and identify components on a printed wiring board.
- Effectively communicate either technical observations, results, issues, and successes or negotiate a change in design or procedure.
- Utilize computer aided design software to produce engineering drawings and to analyze interference fits and tolerances.
- Understand manufacturing processes and their uses in industry.

## Faculty

Dr. Nikhil Satyala, Prof. Mozhgan Hosseinpour

## Degree Requirements for Mechatronics Technology (AS) 78 Credits

TECHNICAL COURSES: 53 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
EE110	DC Circuits	4	3	2
EE131	Digital Principles	4	3	2
EE113	AC Circuits	4	3	2
EE122	Electronics I	4	3	2
EE223	Electronics II	4	3	2
CT142	Foundations in Programming	4	3	2
EE101	Introduction to Motors and Controls	3	3	2
EE210	Robotics I	4	3	2
ME105	CAD with SolidWorks	3	2	2
EE254	Networking for End Users	4	3	2
ME150	Introduction to Manufacturing	4	2	4
EE220	Robotics II	4	4	2
EE320	Automation/Introduction to PLCs	4	4	2

GENERAL EDUCATION COURSES: 25 CREDITS

MA120 . . . . .	Algebra and Trigonometry . . . . .	3 . . . . .	3 . . . . .	0
MA130 . . . . .	Pre-Calculus . . . . .	3 . . . . .	3 . . . . .	0
EN129/130 . . . . .	College Composition I . . . . .	3 . . . . .	3 . . . . .	0
EN140 . . . . .	College Composition II . . . . .	3 . . . . .	3 . . . . .	0
HU/SS . . . . .	Social Science Elective . . . . .	3 . . . . .	3 . . . . .	0
EN320 . . . . .	Technical Communications . . . . .	3 . . . . .	3 . . . . .	0
BS . . . . .	Business Elective . . . . .	3 . . . . .	3 . . . . .	0
PH212/215 . . . . .	Physics i with Lab . . . . .	4 . . . . .	3 . . . . .	2

*Typical Course Sequence for Mechatronics Technology (AS) Track*

SEMESTER 1

- EE110 DC Circuits
- EE131 Digital Principles
- EE113 AC Circuits
- EE122 Electronics I
- MA120 Algebra and Trigonometry

SEMESTER 2

- EE223 Electronics II
- CT142 Foundations in Programming
- EE101 Intro to Motors and Controls
- MA130 Pre-Calculus

SEMESTER 3

- EN129/130  
College Comp I
- EN140 College Comp II
- HU/SS Social Science Elective

SEMESTER 4

- EE210 Robotics I
- ME105 CAD with SolidWorks
- EE254 Networking for End Users
- ME150 Intro to Manufacturing
- EN320 Technical Communications

SEMESTER 5

- ME315 Robotics II
- EE320 Automation/Intro to PLCs
- BS Business Elective
- PH212/215 Physics I w/Lab
- ME330 Industry Experience/Project



## Renewable Energy Technology (AS)

The Green/Renewable Engineering Technology program aims to prepare and train students in a range of skills required for the pertinent career options including but not limited to Solar Photovoltaic Installer/Technician, Wind Turbine Technician, and Renewable Energy Engineering Technician. An Associates degree in this field provides the necessary skill set for students to pursue a typical entry-level technician position focused on operation, assembly, installation, troubleshooting and maintenance of energy harvesting systems and equipment. This program aims at workforce development through hands-on training to develop industry specific competencies. Its Industry Advisory Committee, consisting of renewable energy engineering, environmental engineering, electronics engineering and mechanical engineering technology professionals in Greater Boston and New England, meets periodically to evaluate the objectives, curriculum, and course content, to keep the program updated and practical.

### *Curriculum*

The Green/Renewable Energy Engineering Technology track addresses the key job requirements by providing courses that cover both theoretical knowledge and laboratory-based experience in various aspects of energy harvesting systems. Through this curriculum students will learn about the importance of performance analytics and technical know-how necessary for supporting the cost-effective energy production methods in the industry. Gaining knowledge of power generation techniques and sustainable building technologies will be a plus for students to make them marketable for a wide range of jobs and multiple career paths. The curriculum is designed to teach and train the students in the technical, analytical, and general education areas necessary to procure such entry-level technician position. Students will not only learn about the importance of mechanisms and technical methodologies but also develop the hands-on skills necessary to support the cost-effective energy production methods as future technicians in the power generation industry.

### *Facilities*

The students in this track will primarily build their competencies using equipment in the renewable energy laboratory, electronics laboratory, and robotics laboratory (automation). The labs are equipped with state-of-art training instruments to provide industry specific hands-on experience in integration, assembly, installation, maintenance and troubleshooting of small-scale solar/photovoltaic and wind turbine systems. The students will make use of the electronics laboratory to learn fundamentals of AC/DC circuits and concepts of electricity. The robotics and automation laboratory will be utilized to teach programmable logic controller-based skills. Students will typically spend six hours a week or more in the laboratory to procure industry specific hands-on competencies. Students follow the laboratory experiments with a report where the results are analyzed and discussed.

### Outcomes

By the time of graduation, the Renewable Energy Technology graduate will be able to:

- Be able to understand the benefits, strengths, limitations and environmental impacts of renewable energy and sustainable energy resources
- Procure basic knowledge in fundamentals of electricity, power, circuit level schematics and control systems
- Acquire basic knowledge of integration, assembly, installation, maintenance and troubleshooting of small-scale solar/photovoltaic and wind turbine systems
- Develop the necessary theoretical and practical technical competencies to efficiently perform energy harvesting, energy storage and maintenance related operations
- Develop an understanding of basic mechanisms and dynamics of clean energy harvesting, power generation, energy conversion, and sustainable building technologies
- Be able to evaluate and analyze performance metrics of various small-scale photovoltaic systems and wind turbine systems.
- Acquire fundamental knowledge in project management methods and ethical issues in technical industries
- Be able to understand the environmental and economic impacts of renewable energy systems
- Posses the skills to generate technical reports and perform basic data analysis

### Faculty

Dr. Nikhil Satyala, Prof. Mozghan Hosseinpour

### Degree Requirements for Renewable Energy Technology (AS) 78 Credits

TECHNICAL COURSES: 43 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
EE105	Introduction to Electricity	4	3	2
EE131	Digital Principles	4	3	2
ME210	Introduction to Alternative Energy Systems	3	3	0
ME205	Solar Energy and Photovoltaics	4	3	2
EE101	Motors and Controls	4	3	2
ME252	Thermodynamics	4	3	2
TS301	Environmental Science	3	3	0
ME210	Energy Efficiency and Auditing	3	3	0
CM220	Sustainable Building Technologies	3	3	0
ME215	Wind Turbine Technology	4	3	2
EE225	Automation/Introduction to PLCs	4	3	2
ME260	Modeling Renewable Energy	3	3	0

## Program of Study

### GENERAL EDUCATION AND BUSINESS COURSES: 27 CREDITS

MA120	Algebra and Trigonometry	3	3	0
MA130	Pre-Calculus	3	3	0
BS	Business Elective	3	3	0
SK135	Success in Engineering Technology	1	1	0
EN129/130	College Composition I	3	3	0
EN140	College Composition II	3	3	0
PH212/215	Physics I with Lab	4	2	3
PH213/225	Physics II with Lab	4	3	2
EN320	Technical Communications	3	3	0

### Typical Course Sequence for Renewable Energy Technology (AS) Concentration

SEMESTER 1	SEMESTER 2	SEMESTER 3	SEMESTER 4
EE105 Intro to Electricity	ME205 Solar Energy and Photovoltaics	ME252 Thermodynamics	ME215 Wind Turbine Technology
EE131 Digital Principles	EE101 Motors and Controls	TS301 Environmental Science	EE225 Automation/Intro to PLCs
SK135 Success in Engineering Technology	MA130 Pre-Calculus	ME210 Energy Efficiency and Auditing	PH213/225 Physics II w/ Lab
EN129/130 College Comp I	EN140 College Comp II	PH212/215 Physics I w/Lab	EN320 Technical Communications
MA120 Algebra and Trigonometry	BS Business Elective	CM220 Sustainable Bldg Technologies	ME260 Modeling Renewable Energy
ME130 Intro to Alternative Energy Systems			

# Humanities and Social Sciences

The Department of Humanities and Social Sciences dedicates itself to the growth and support of the educated student, emphasizing written and verbal communication skills to complement and enhance technical skills. It provides a core curriculum that promotes effective critical thinking, teamwork, information literacy, professionalism, and ethical decision-making. Through study in these courses, students gain historical, cultural, social and global awareness, thereby challenging their intellect and instilling a basis for lifelong learning.

## *Curriculum*

The Humanities and Social Sciences curriculum provides 12 to 15 credits of courses for each technical degree program. All Humanities and Social Science courses require students to write, read, research, and to participate in discussions, group projects, and presentations. These skills are necessary ingredients for the successful student in any technical program, higher education in general, or in the workforce at large.

BFIT requires all degree candidates to take EN 129 College Composition I, an embedded support course with a skills practicum component, or EN129/130 College Composition I; students' English placement test scores determine their College Composition I designation (129 or 130). Degree candidates must also take EN140 College Composition II. EN 129, 130, and 140 are standard, three-credit English courses. Students usually complete these courses in their first two semesters.

The goal of these writing courses is to develop cognitive, as well as effective written and oral communication skills, which are supported and advanced by the technical programs. Students are expected to become independent writers, thinkers, and researchers by evaluating and assessing their own approaches and processes.

Depending on placement and performance, a student may need one or more additional semesters of course work in order to complete the requirements for an Associate degree. In order to continue the student's major course of study, the following criteria must be met: passing grades in all courses, grades of C or better in all mathematics and language courses and satisfactory completion of course requirements.

Students needing extensive work on their language skills will successfully complete EN091: Reading and Writing for Academic Success doubled with EN099: Introduction to Oral Communication, which will lay down the foundation for effective communication skills.

The department also offers many elective courses to satisfy the remaining 6 to 9 credits required by each technical program. While the electives are designed to promote lifelong learning, these courses also build on the critical thinking, reading, and writing practiced in College Composition I and II.

Throughout all courses, the department aims to instill a sense of professionalism, as well as socio-cultural and ethical awareness.

# Program of Study

## Samples of Typical Course Schedules

### STUDENTS NEEDING DEVELOPMENTAL MATH AND DEVELOPMENTAL LANGUAGE:

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
EN091	Reading & Writing for Academic Success	4	4	0
EN099	Introduction to Oral Communication	3*	3	0
MA090	Fundamental Mathematics	6	6	0
	or			
MA 095	Fundamentals of Technical Mathematics	7	8	0

### STUDENTS NEEDING DEVELOPMENTAL MATH ONLY:

EN129/130	College Composition I	3*	3	0
	and			
HU/SS	Elective	3*	3	0
	or			
EN129	College Composition I and Skills Practicum	3	3	0
MA090	Fundamental Mathematics	6	6	0
	or			
MA 095	Fundamentals of Technical Mathematics	7	8	0

### STUDENTS NEEDING DEVELOPMENTAL LANGUAGE ONLY PLACED IN EN090

EN091	Reading and Writing for Academic Success	4	4	0
EN099	Introduction to Oral Communication	3	3	0
MA105/120	Tech. Math/College Algebra and Trigonometry	3*	3	0
	Tech Course	3+*	3	0
	Tech Course	3+*		
	Tech Course	3+*		

### SAME SCHEDULE FOR STUDENTS PLACED IN THEIR TECHNICAL MAJOR:

EN129/130	College Composition I	3	3	0
	or			
EN129	College Composition I: Embedded Support and Skills Practicum	3	3	0
MA105/120	Tech. Math/College Algebra and Trigonometry	3*	3	0
	Tech Course	3+*	3	0
	Tech Course	3+*		
	Tech Course	3+*		

## *Outcomes*

Upon successful completion of the courses in the Department of Humanities and Social Sciences, the student will be able to:

- Employ effective communications skills in a variety of academic and professional settings, while working in teams and individually.
- Employ efficient study skills, note-taking, and critical thinking.
- Analyze and adjust their own communication behavior dependent upon audience, purpose, and occasion to demonstrate clarity and effectiveness in academic and professional contexts.
- Demonstrate an understanding of writing as a process which includes pre-writing, composing, editing, and proofreading to produce documents with clear purpose, workable organization, and minimal errors in usage or convention.
- Demonstrate an awareness of global, social, and ethical issues in their historical and cultural contexts through written work and discussion.
- Demonstrate information literacy by accessing, interpreting, and ethically using information.
- Acquire the skills to engage in lifelong learning in their professional fields and beyond.
- Contribute effectively to a team with strong communication and sound negotiation skills.

## *Faculty*

Director: Michael Grigelevich

Instructor Staff: Sharon Bonk, Dan DiPaolo, Steve Lawrence, James Lawton

## Mathematics and Sciences

Mathematics and Sciences are the foundation for any technical discipline. Being successful in technology requires understanding mathematical theory and the ability to apply the concepts to familiar situations and newly encountered problems. Physics introduces the fundamental laws and principles that govern virtually everything around us.

Studying math and physics promotes critical reasoning, creative thinking, and logical analysis, which are central skills in the classroom and in life. The Mathematics and Physics Department at BFIT places an emphasis on problem solving, using practical everyday problems related to the Industrial and Engineering Technologies. A variety of strategies are used to present the material effectively to a highly diverse body of students.

### *Curriculum*

The mathematics curriculum at BFIT is designed to provide a solid foundation in mathematics through a range of course offerings relevant to the technical degree programs. Each BFIT degree program requires at least two semesters of college math that emphasize building a strong foundation of mathematics knowledge. Many programs require additional math courses, where students expand on their foundational knowledge and explore additional technical applications. Many engineering technology programs require students to complete the math sequence through Calculus II, courses which can typically be used for transfer if a student in the engineering technology programs wants to continue his or her studies upon completing an Associate's Degree at the college. Different entry points into the math sequence are available depending on the student's skill level. Refer to the section dedicated to the degree program of interest for specific degree requirements.

Depending on placement and performance, a student may need one or more additional semesters of course work in order to complete the requirements for an Associate degree. In order to continue the student's major course of study, the following criteria must be met: passing grades in all courses, grades of C or better in all mathematics and language courses and satisfactory completion of course requirements.

BFIT's physics curriculum is designed to provide an additional technical foundation in the student's major as well as practical applications for mathematics. Each physics lab contains hands-on instruction that reinforces topics covered in the lecture and demonstrates that the governing laws of physics exist beyond the pages of the text.

Physics course requirements vary by BFIT major. However, most students take at least one semester of physics. Refer to the section dedicated to the degree program of interest for specific degree requirements.

*Samples of Typical Course Schedules*

STUDENTS NEEDING DEVELOPMENTAL MATH AND DEVELOPMENTAL LANGUAGE

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
EN091	Reading & Writing for Academic Success	4	4	0
EN 099	Oral Communication	3*	3	0
MA090	Fundamental Mathematics	6	6	0
	or			
MA 095	Fundamentals of Technical Mathematics	7	8	0

STUDENTS NEEDING DEVELOPMENTAL MATH ONLY

EN129/130	College Composition I	3*	3	0
	with			
HU/SS	Elective	3*	3	0
	or			
EN129	College Composition I and Skills Practicum	3*	3	0
MA090	Fundamental Mathematics	6	6	0
	or			
MA 095	Fundamentals of Technical Mathematics	7	8	0

STUDENTS NEEDING DEVELOPMENTAL LANGUAGE ONLY

EN091	Reading & Writing for Academic Success	4	4	0
EN099	Oral Communication	3	3	0
MA105/120	Tech. Math/College Algebra and Trigonometry	3*	3	0

STUDENTS NEEDING NO DEVELOPMENTAL COURSES

EN129/130	College Composition I	3*	3	0
	or			
EN129	College Composition I and Skills Practicum	3*	3	0
MA105/120	Tech. Math/College Algebra and Trigonometry	3*	3	0
	Tech Course	3+*	3	0
	Tech Course	3+*		
	Tech Course	3+*		



### *Outcomes*

Upon successful completion of the courses in the Department of Mathematics and Physics, the student will be able to:

- Use mathematical reasoning to solve problems, demonstrating the ability to use symbolic, graphical, numerical, and written representations of mathematical ideas.
- Demonstrate proficiency in the basic concepts of algebra.
- Effectively apply mathematics and physics concepts and critical reasoning skills to solve application problems.
- Effectively communicate quantitative information.
- Demonstrate an understanding of the mathematics and physics required for their major by showing proficiency in the skills and concepts embedded in their technical courses.
- Demonstrate capability to access and utilize resources that will facilitate further learning in mathematics, physics, technical courses, and future careers.
- Demonstrate an understanding of physics concepts through laboratory experiments.

### *Faculty*

Program Chair: Peter Kang

Instructor Staff: James Johanson, David Kamin

# Health Information Technology (AS)

Health Information Technology (Health IT) is improving patient outcomes and reducing costs in 21st century medicine. Health IT the hardware and software, policies, and procedures that enable the digitization, storage, and the secure exchange of health information among various clinicians across networks and web services within hospitals and other healthcare settings, including the public health agencies, to achieve better healthcare outcomes.

The old fashioned paper chart has been replaced by the electronic health records (EHR); however, usability and interoperability challenges remain. The Health IT program prepares graduates to build, implement, and maintain computerized health information systems, insure the reliability and security of patient records, clinicians need to work with to improve the quality of patient care and reduce costs. Health IT grads know the guidelines and practices for these systems and have the ability to operate within industry-wide regulations and standards for healthcare information. Individuals with the right combination of IT skills and knowledge of healthcare language and clinical practices are in high demand in medical and public health settings. The program is based on an interdisciplinary curriculum that is aligned with the multiple skillsets hiring organizations are looking for. With this in mind, students are taught not only technology skills, but also critical thinking skills, communication (oral and written), facilitation, teamwork skills, as well as a solid knowledge of the medical language, regulations, and practices. Because of these features, the program will appeal not only to first-time college students, but also to adults with credits or experience in related fields.

## *Curriculum*

The Associate of Science (AS) degree in Health Information Technology (Health IT) provides graduates with healthcare-related knowledge and skills grounded in knowledge from computer technology. Students will also refine their ability to communicate, establish a foundation in math and science, and develop civic and ethical awareness. The program includes three groups of coursework: healthcare, computer technology, and general education. The coursework is all drawn from BFIT's bachelor's program in Health Information Technology.

The healthcare group of courses provides a foundation in healthcare systems and vocabulary, health information technology, and information security. The computer technology courses provide sufficient exposure and training to give graduates a strong foundation in the information technology that supports healthcare systems. These courses include instruction in the fundamentals of operating systems, computer programming, database management and networking. General education courses provide a foundation in communications, critical thinking, mathematics, and science for learning and practice in health information technology and will also provide substantial development of the institutional values we expect in all BFIT graduates. The Associate of Science in Health Information Technology prepares graduates for immediate employment in technical support for healthcare providers and others who rely on Health IT systems. For students interested in additional training and education, the AS in Health IT can serve as excellent preparation for transfer to a Bachelor of Science program in Health Information Technology or Health Information Management. In addition to the Associate of Science in Health Information Technology, the College offers a Bachelor of Science in Health Information Technology, and two tracks within it: Public health and Data Analytics Tracks. Their curricula are discussed below.

## *Facilities*

For in-person courses, the College has more than 72 computer workstations in four classroom laboratory settings, virtual and "sandboxed" environments equipped with servers, workstations and networking equipment for hands-on server administration and data communications courses, and a computer diagnostics laboratory.

All computer rooms are equipped with up-to-date software and multi-boot capability, where necessary, to provide all students with hands-on computer programming, installation, server administration and networking capabilities for their learning. The computer diagnostics laboratory provides the students with the necessary equipment to perform hardware and software troubleshooting.

For online courses, the College provides the Canvas Learning Management System as the main platform to ensure all course materials such as syllabi, assignments, discussions, quizzes, projects are posted online and easily accessible to students. In addition, with the COVID-19 crisis, the teachers use the Zoon videoconference platform to deliver their lectures to explain the concepts and contextualize them to create community.

## Outcomes

Upon successful completion of the Associate Degree in Health IT, the graduate will be able to:

- Design and develop entry-level database application systems.
- Employ hardware/software knowledge to configure, install, support, and maintain computer and network systems.
- Install, maintain, and administer various operating systems, including Office 365.
- Design and develop websites using contemporary web design software.
- Apply knowledge of healthcare concepts and terminology to assist users of computerized information storage and retrieval systems.
- Effectively communicate technical observations, results, issues, and successes, in both speaking and writing.
- Explain the importance of Health IT concepts such as meaningful use, health information exchange, and clinical decision support.
- Observe administrative, legal, and medical constraints and rules in the implementation and use of HIT systems.
- Provide entry-level computer programming and scripting to maintain and improve HIT systems.
- Recognize the need for and develop the ability to engage in lifelong learning.
- Understand mathematics at the level of college algebra and pre-calculus and apply this knowledge to solve Health IT related problems.
- Understand professional, ethical, and social responsibilities.
- Use scientific knowledge, including basic principles of physiology, to guide work in Health IT.

## Faculty

Program Chair: Dr. Gerald Elysee

Instructor staff: Gerald Elysee, Karen Newkirk, Afshan Kirmani, Tammy Chu, Cheryl Dorsey

## Degree Requirements for Health Information Technology (AS) 66 Credits

## CORE TECHNICAL COURSES: 27 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
CT221	Enterprise Database Management	3	2	2
CT265	Networking I	4	3	2
CT365	Network Security	4	3	2
HI130	Introduction to Health Information Technology	4	3	2
HI210	Health IS Implementation and Workflow Analysis	4	3	2
HI310	Medical Coding, Classification and Communication	4	3	2
HI330	Introduction to Healthcare Databases	4	3	2

## TECHNICAL ELECTIVES: 12 CREDITS

CT140	Google IT support Certificate Program	6	4	4
CT121	Web Design I	3	2	2
CT122	Web Design II	3	2	2
CT143	Intro to C++ Programming	4	3	2
CT144	Intermediate C++	4	3	2
CT146	Intro to JavaScript	4	3	2
CT211	Web Site Management	3	3	2
CT212	PC Maintenance and Repair I	3	1	4
CT213	PC Maintenance and Repair II	3	1	4
CT231	Linux System Administration	3	2	2
CT249	Contemporary Programming Languages	4	3	2
CT269	Cloud Computing and Virtualization Fundamentals	4	3	2
CT365	Network Security	4	3	2

## NETWORKING ELECTIVE: 4 CREDITS

CT269	Cloud Computing and Virtualization Fundamentals	4	3	2
CT267	Networking II	4	3	2

## CORE GENERAL EDUCATION COURSES: 21 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
EN129/130	College Composition I	3	3	0
EN140	College Composition II	3	3	0
HU/SS	Humanities/Social Science Requirement	3	3	0
SK100	Success in HT	0	1	0
SK200	Career Success Seminar	0	0	0
SS110	Intro to US Healthcare	3	3	0
TS120	Medical Terminology	3	3	0
TS240	Human Anatomy and Physiology	3	2	2
TS242	Pathophysiology and Pharmacology	3	2	2

## Program of Study

### MATH REQUIREMENT OPTIONS: 6 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
MA105	Technical Mathematics	3	3	0
MA120	College Algebra and Trigonometry	3	3	0
MA130	Pre-Calculus	3	3	0
MA240	Calculus I	4	4	0
MA250	Calculus II	4	4	0
MA270	Statistics	3	3	0

### Typical Course Sequence for Health Information Technology (AS)

SEMESTER 1		SEMESTER 2		SEMESTER 3		SEMESTER 4	
CT140	Google IT support Certificate Program	CT221	Enterprise Database Management	CT	CT Elective	CT269	Cloud Computing and Virtualization
EN129/130	College Composition I	EN140	College Composition II	CT265	Networking I	CT	CT Elective
SS110	Intro to US Healthcare	MA130	Pre-calculus	HI330	Healthcare Databases	HI210	Health IS Implementation
MA120	College Algebra and Trigonometry	TS120	Medical Terminology	HU/SS	Social Science Elective	HI310	Medical Coding, Classification and Communication
SK125	Success in Health IT	HI130	Intro to Health IT	TS240	Human Anatomy & Physiology	TS242	Pathophysiology & Pharmacology
				SK200	Career Success Seminar		

# Health Information Technology (BS)

Information Technology (Health IT) is the hardware and software, policies, and procedures that make possible the storage, retrieval, availability, and security of information essential to the success of healthcare organizations. Health IT is improving outcomes and reducing costs in 21st century medicine. Doctors have more information available sooner when making critical decisions about treatment, and patients are better able to understand and participate in those decisions. The Bachelor of Science in Health Information Technology program prepares graduates to work in entry-level positions ranging from clinical applications coordinator to health information systems professional at physicians' practices, healthcare agencies, hospitals, and public health agencies, or at the companies that create health information systems and keep them running. Within the program, the College now offers two tracks, Public Health and Data Analytics, which provide students with the knowledge and training for technical positions in state and local public health organizations, hospitals and other healthcare providers.

The old fashioned paper chart has been replaced by the electronic health record (EHR); however, usability and interoperability challenges remain. The program is based on an interdisciplinary curriculum that is aligned with the multiple skillsets hiring organizations are looking for. With this in mind, students are taught not only technology skills, but also critical thinking skills, communication (oral and written), management (people and projects), facilitation, teamwork skills, as well as a solid knowledge of the medical language, regulations, and practices. Because of these features, this program will appeal not only to first-time college students, but also to adults with credits or experience in related fields. Transfer students are welcome from the associate degree programs at BFIT and other colleges.

## *Curriculum*

Students in the program receive in-depth instruction in both healthcare and the latest information technology to support the healthcare industries. Courses in healthcare include introduction to healthcare systems, medical terminology, medical coding and classification, healthcare compliance and contemporary ethical and legal issues. Courses in computer technology focus on hands-on training enabled through simulation software in use of health databases, networking and information security. As part of the senior year, students will complete a workplace internship at a local medical facility, and a capstone project where they will engage in problem-based learning to tackle a challenge drawn from industry. Within the program, the College now offers two tracks: Public Health, and Data Analytics. Their curricula are discussed below.

## *Facilities*

For in-person courses, the College has more than 72 computer workstations available to students in four classroom laboratory settings, virtual and "sandboxed" environments equipped with servers, workstations and networking equipment for hands-on server administration and data communications courses, and a computer diagnostics laboratory.

All computer rooms are equipped with up-to-date software and multi-boot capability, where necessary, to provide all students with hands-on computer programming, installation, server administration and networking capabilities for their learning. The computer diagnostics laboratory provides the students with the necessary equipment to perform hardware and software troubleshooting.

For online courses, the College provides the Canvas Learning Management System as the main platform to ensure all course materials such as syllabi, assignments, discussions, quizzes, projects are posted online and easily accessible to students. In addition, with the COVID-19 crisis, the teachers use the Zoon videoconference platform to deliver their lectures to explain the concepts and contextualize them to create community.

### Outcomes

Upon successful completion of the Bachelor's Degree in Health IT, the graduate will be able to:

- Design and develop entry-level database application systems.
- Employ hardware/software knowledge to configure, install, support, and maintain computer and network systems.
- Install, maintain, and administer various operating systems, including Office 365.
- Design and develop websites using contemporary web design software.
- Administer computer, network and web services and security.
- Apply knowledge of healthcare concepts and terminology to the creation and maintenance of computerized information storage and retrieval systems.
- Apply Health IT communication standards, such as the HL7 messaging standard, to improve and maintain the interoperability of health information systems.
- Effectively communicate technical observations, results, issues, and successes, in both speaking and writing.
- Explain the importance of Health IT concepts such as meaningful use, health information exchange, and clinical decision support.
- Observe administrative, legal, and medical constraints and rules in the implementation and use of Health IT systems.
- Provide entry-level computer programming and scripting to maintain and improve Health IT systems.
- Recognize the need for and develop the ability to engage in lifelong learning.
- Understand mathematics, including statistics, and apply this knowledge to solve Health IT related problems.
- Evaluate different Health IT solutions, and as part of a capstone project, recommend the best one(s) that can effectively address identified problems facing the healthcare industry.
- Understand professional, ethical, and social responsibilities.
- Use scientific knowledge, including basic principles of physiology, to guide work in Health IT.
- Understand the duties and responsibilities assigned to Health IT specialists in a real-world healthcare setting.

### Faculty

Program Chair: Dr. Gerald Elysee

Instructor staff: Gerald Elysee, Karen Newkirk, Afshan Kirmani, Tammy Chu, Cheryl Dorsey

HI, SS, and TS designated courses are taught by faculty identified above, while CT designated courses are taught by faculty identified in the Computer Technology program description

*Typical Degree Requirements for Health Information Technology (BS) 128 Credits*

CORE TECHNICAL COURSES: 48 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
BS324	Managing Organizations	3	3	0
BS432	Human Resource Management	3	3	0
CT221	Enterprise Database Management	3	2	2
CT265	Networking I	4	3	2
CT365	Network Security	4	3	2
HI130	Introduction to Health Information Technology	4	3	2
HI210	Health IS Implementation and Workflow Analysis	4	3	2
HI310	Medical Coding, Classification and Communication	4	3	2
HI330	Introduction to Healthcare Databases	4	3	2
HI410	Health Information Systems Integration	4	3	2
HI430	Healthcare Compliance	3	3	0
HI445	Professional Experience (Practicum)	4	3	2
HI490	Capstone Project	4	3	2

NETWORKING ELECTIVES: 4 CREDITS

CT269	Cloud Computing and Virtualization Fundamentals	4	3	2
CT267	Networking II	4	3	2

TECHNICAL ELECTIVES: 30 CREDITS

CT140	Google IT support Certificate Program	6	4	4
CT121	Web Design I	3	2	2
CT122	Web Design II	3	2	2
CT143	Intro to C++ Programming	4	3	2
CT144	Intermediate C++	4	3	2
CT146	Intro to Java Programming	4	3	2
CT211	Web Site Management	3	3	2
CT212	PC Maintenance and Repair I	3	1	4
CT213	PC Maintenance and Repair II	3	1	4
CT221	Enterprise Database Management	3	2	2
CT231	Linux System Administration	3	2	2
CT233	Windows System Administration	3	2	2
CT245	Intro to Mobile Development with Android	4	3	2
CT249	Contemporary Programming Languages	4	3	2
CT269	Cloud Computing and Virtualization Fundamentals	4	3	2
CT365	Network Security	4	3	2



## Program of Study

### CORE GENERAL EDUCATION COURSES: 31 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
EN129/130	College Composition I	3	3	0
EN140	College Composition II	3	3	0
EN320	Technical Communication	3	3	0
MA270	Elementary Statistics	3	3	0
MA290	Topics in Healthcare Statistics	1	0	2
SK135	Success in HIT	0	1	0
SK400	Career Success Seminar	0	1	0
SS110	Intro to US Healthcare	3	3	0
SS330	Legal and Ethical Issues in HIT	3	3	0
SS335	Current Issues in Healthcare	3	3	0
TS120	Medical Terminology	3	3	0
TS240	Human Anatomy and Physiology	3	2	2
TS242	Pathophysiology and Pharmacology	3	2	2

### MATH REQUIREMENT: 6 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
MA105	Technical Mathematics	3	3	0
MA120	College Algebra and Trigonometry	3	3	0
MA130	Pre-Calculus	3	3	0
MA240	Calculus I	4	4	0
MA250	Calculus II	4	4	0

### GENERAL EDUCATION ELECTIVES: 9 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
MA130	Pre-Calculus	3	3	0
MA240	Calculus I	4	4	0
MA250	Calculus II	4	4	0
SS	Social Science Elective 1	3	3	0
SS	Social Science Elective 2	3	3	0
SS	Social Science Elective 3	3	3	0

*Typical Course Sequence for Health Information Technology (BS): 4 Year Option*

YEAR 1 SEMESTER 1		YEAR 2 SEMESTER 3		YEAR 3 SEMESTER 5		YEAR 4 SEMESTER 7	
CT140	Google IT Support Certificate Program	CT/AV	CT/AV Elective	CT	CT122 or CT146	BS432	Personnel Management
SS110	Intro to US Healthcare	HI130	Intro to Health IT	CT	CT212 or CT231	CT	CT231 or CT212
EN/130	College Composition I	HI330	Intro to Healthcare Databases	EN320	Technical Communication	HI430	Healthcare Compliance
MA120	College Algebra and Trigonometry	CT265	Networking I	HU/SS/MA	General Education Elective	HU/SS/MA	General Education Elective
SK125	Success in Health IT	TS240	Human Anatomy & Physiology	SS335	Current Issues in Healthcare	MA270/290	Elementary Statistics/Health Statistics
YEAR 1 SEMESTER 2		YEAR 2 SEMESTER 4		YEAR 3 SEMESTER 6		YEAR 4 SEMESTER 8	
CT221	Enterprise Database Management	CT	CT Elective	BS324	Managing Organizations	SK400	Career Success Seminar
EN140	College Composition II	CT269	Cloud Computing and Virtualization Fundamentals	CT	CT144 or CT249	CT	CT Elective
HU/SS	Social Science Elective	HI210	Health IS Implementation and Workflow Analysis	CT	CT211 or CT213	CT365	Network Security
TS120	Medical Terminology	HI310	Medical Coding, Classification and Communication	CT233	Windows System Administration	HI410	Health Information Systems Integration
MA130	Pre-Calculus	TS242	Pathophysiology & Pharmacology	SS330	Legal and Ethical Issues in Health IT	HI445	Professional Experience
						HI490	Capstone Project

In collaboration with the Lower Cost Models Consortium (LCMC) partners, a coalition of private colleges and universities, the College offers two tracks within the existing Health Information Technology Bachelor of Science program. They are the Public Health and Data Analytics tracks. Transfer students are welcome from the associate degree programs at BFIT and other colleges.

### Data Analytics

The Data Analytics track within the Health IT program at BFIT equips students with the ability to scrape, clean, interpret, and present data within the context of healthcare. The large quantities of raw electronic data collected from various systems need to be validated, prepared, and analyzed to identify trends and patterns and draw actionable insights to inform decision making that can lead to the success of healthcare organizations. This continued growth in data generation creates significant demand for data analytics professionals with Health IT knowledge, techniques, and skills to use data to impact healthcare quality and costs. According to the US Bureau of Labor Statistics, Data Analytics-related jobs are among top 20 fastest growing occupations, and expected to grow by more than 25% from 2019 to 2029 (<https://www.bls.gov/ooh/fastest-growing.htm>). Graduates with a background in Data Analytics and Health IT have the ability to work in a variety of organizations that leverage data to better patient outcomes. Examples are hospitals, pharmaceutical and medical devices companies, private and public research institutions, and state & local public health departments. Transfer students are welcome from the associate degree programs at BFIT and other colleges.

### Outcomes

Upon successful completion of the Bachelor of Science in Health IT - Data Analytics track, all graduates will be able to:

- Design and develop entry-level database application systems.
- Design and develop websites using contemporary web design software.
- Apply knowledge of healthcare concepts and terminology to the creation and maintenance of computerized information storage and retrieval systems.
- Apply Health IT communication standards, such as the HL7 messaging standard, to improve and maintain the interoperability of health information systems.
- Observe administrative, legal, and medical constraints and rules in the implementation and use of Health IT systems.
- Provide entry-level computer programming and scripting to maintain and improve Health IT systems.
- Recognize the need for and develop the ability to engage in lifelong learning.
- Evaluate different healthcare solutions using Data Analytics, and as part of Data Analytics Practicum course recommend the best actions that can effectively address identified problems facing the Public Health domain.
- Evaluate and apply fundamental statistical concepts in the context of a broad range of data problems, including Bayes Theorem, common statistical tests and biases, inference and causal inference and hypothesis testing.
- Perform in-depth exploratory analysis to form hypotheses and use visualization techniques to communicate insights.
- Design experiments to answer causal questions and evaluate the results of the experiments.
- Apply and evaluate machine learning algorithms in a business problem context, with an emphasis on selecting predictive modelling only when appropriate.
- Perform feature engineering and data preprocessing in order to improve the accuracy and efficacy of predictive models.

*Typical Course Sequence for the Data Analytics Concentration in the Bachelor of Science (BS) in Health Information Technology Program (128 Credits)*

YEAR 1 SEMESTER 1	YEAR 2 SEMESTER 3	YEAR 3 SEMESTER 5	YEAR 4 SEMESTER 7
SS110 Intro to US Healthcare	CT108 Internet History Technology & Security*	CT300 Data Structures*	BS432 Personnel Management
CT114 Programming for Everyone I Using Python*	HI330 Intro to Healthcare Databases	EN320 Technical Communications	CT400 Algorithms*
CT121 Web Design I	MA270 & 290 Topics in Healthcare Statistics	DA301 Principles and Techniques of Data Analytics I*	HI430 Healthcare Compliance
EN129/130 College Composition I	TS240 Human Anatomy & Physiology	SS265 Exploring Ethical Issues	BS312 Advanced Concepts in Information Literacy
MAE2 MA120 or higher	DA105 Foundations of Data Analytics I Using Python*	SS335 Current Issues in Healthcare	BS311 Microeconomics
YEAR 1 SEMESTER 2	YEAR 2 SEMESTER 4	YEAR 3 SEMESTER 6	YEAR 4 SEMESTER 8
HI130 Introduction to Health Information Technology	DA110 Foundations of Data Analytics II*	BS324 Managing Organizations	DA420 Data Analytics Practicum*
CT221 Enterprise Database Management	MA240 Calculus I	DA305 Principles and Techniques of Data Analytics II*	HI410 Health Information Systems Integration
EN140 College Composition II	HI210 Health IS Implementation and Workflow Analysis	CT269 Cloud Computing and Virtualization Fundamentals	SS405 Contemporary Social Issues
MAE3 MA 130 or higher	HI310 Medical Coding, Classification, and Communication	SS330 Legal and Ethical Issues in Health IT	HI445 Professional Experience (Internship)
CT118 Programming for Everyone II*	TS242 Pathophysiology and Pharmacology	BS325 Project Management	SS Elective

\*10 Courses from Online LCMC - Lower Cost Models Consortium

### Public Health

The Public Health concentration integrates Health IT skills with those of public health, emphasizing the implementation, and maintenance of a computerized infrastructure that advances the electronic reporting, exchange, and use of health information to improve public health and prepare for future pandemics. There's high demand for public health professionals trained in Health Information Technology, as the US government increases its investment to build a computerized public health infrastructure to improve electronic health information exchange between healthcare organizations and public health, as well as its policies, practices, standards, and services.

### Outcomes

Upon successful completion of the Bachelor of Science in Health IT - Public Health track, all graduates will be able to:

- Design and develop entry-level database application systems.
- Design and develop websites using contemporary web design software.
- Apply knowledge of healthcare concepts and terminology to the creation and maintenance of computerized information storage and retrieval systems.
- Apply Health IT communication standards, such as the HL7 messaging standard, to improve and maintain the interoperability of health information systems.
- Observe administrative, legal, and medical constraints and rules in the implementation and use of Health IT systems.
- Provide entry-level computer programming and scripting to maintain and improve Health IT systems.
- Recognize the need for and develop the ability to engage in lifelong learning.
- Evaluate different Public Health IT solutions, and as part of a capstone project, recommend the best one(s) that can effectively address identified problems facing the Public Health domain.
- Assess the historical context of public health policies and use historical data to inform their positions.
- Source, analyze and explain epidemiological data to inform policy design.
- Assess the strengths and weaknesses of any given healthcare system.
- Evaluate the failures and successes of modern public health policies in the context of health trends, including epidemics and the COVID-19 pandemic, and their relevance for future policy decisions.
- Implement modern qualitative and quantitative research methods and evaluate the importance of those methods for a given problem.
- Understand the duties and responsibilities assigned to Health IT, Public Health, and Public Health IT or Informatics specialists in a real-world Public Health organization.

*Typical Course Sequence for the Public Health Track in the Bachelor of Science (BS) Health Information Technology Program (129 Credits)*

YEAR 1 SEMESTER 1	YEAR 2 SEMESTER 3	YEAR 3 SEMESTER 5	YEAR 4 SEMESTER 7
SS110 Introduction to US Healthcare	PS110 The History of Public Health*	MA300 Biostatistics Fundamentals with Python Programming	BS432 Personnel Management
SS101 American Politics	MA270 & 290 Topics in Healthcare Statistics	EN320 Technical Communications	PS401 Public Health Studies I*
CT121 Web Design I	SS135 Introduction to Anthropology	PS301 Health Services*	HI430 Healthcare Compliance
EN129/130 College Composition I	TS240 Human Anatomy and Physiology	HI330 Introduction to Healthcare Databases	BS312 Advanced Concepts in Information Literacy
MAE1 MA105 or 120 or 130 or 240	DA105 Foundations of Data Analytics I Using Python*	SS335 Current Issues in Healthcare	BS311 Microeconomics
YEAR 1 SEMESTER 2	YEAR 2 SEMESTER 4	YEAR 3 SEMESTER 6	YEAR 4 SEMESTER 8
HI130 Introduction to Health Information Technology	DA110 Foundations of Data Analytics II*	BS324 Managing Organizations	PS405 Public Health Studies II*
CT221 Enterprise Database Management	SS265 Exploring Ethical Issues	PS320 Epidemiology*	HI410 Health Information Systems Integration
EN140 College Composition II	HI210 Health IS Implementation and Workflow Analysis	CT269 Cloud Computing and Virtualization Fundamentals	SS405 Contemporary Social Issues
MAE2 MA120 or 130 or 240 or 250	HI310 Medical Coding Classification and Communication	SS330 Legal and Ethical Issues in Health IT	SS490 Capstone Project
TS120 Medical Terminology	TS242 Pathophysiology and Pharmacology	BS325 Project Management	HI445 Professional Experience or Internship

\*7 Courses from Online LCMC - Lower Cost Models Consortium

# Heating, Ventilation, Air Conditioning, and Refrigeration (Certificate)

Heating, Ventilation, Air Conditioning, and Refrigeration (HVAC&R) is rated by the U.S. Department of Labor as one of the fastest growing job areas in the country.

There are excellent employment opportunities available, both locally and nationally, for graduates of certificate programs.

This nine-month, 800-hour, full-time day or evening certificate program is designed to provide students with the knowledge and hands-on skills to become successful HVAC&R technicians. HVAC&R technicians work for heating and cooling contractors, refrigeration and air conditioning service and repair shops, schools, hospitals, office buildings, a variety of food industries, and local, state or federal government facilities.

Upon successful completion of the program, students are credited with 2000 hours towards the requirement to sit for the Massachusetts Refrigeration Technician License exam. Under the supervision of an instructor, the students will learn installation, maintenance, diagnosis and repair of heating, cooling, and refrigeration equipment. The

HVAC&R program also provides preparation and proctored testing for the EPA 608 Universal Technician certification. In addition, we also offer an R-410A high-pressure refrigerant certification, OSHA 10-hour Safety certificate, NORA bronze oil certification, 609 MVAC (motor vehicle air conditioning) certification, and the Preventative Maintenance Technician Certification.

This program offers 150 hours of electrical code training and a minimum of 150 hours of refrigeration theory needed for Massachusetts state licensure and follows all federal regulations regarding gainful employment.

## *Curriculum*

The course curriculum is structured to provide a basic knowledge of the refrigeration, air conditioning, and heating fields with no prior experience needed. Core courses in the first semester cover topics such as: refrigeration and heating principles, basic electricity and controls for HVAC&R, safety in the HVAC&R field, and use of HVAC&R tools and equipment. An EPA course covering the recovery, reclamation and recycling of refrigerant completes the first semester. In the second semester of the program, students concentrate on commercial refrigeration, air conditioning, psychometrics, and heat pumps. This semester also covers the electrical and mechanical components of heating systems including oil and gas-fired units, forced hot air, and hydronic boiler systems in a lab environment. Credits from this certificate program may be applied as technical electives for students who wish to pursue an associate degree in the Technology Business and Management program at BFIT.

## *Facilities*

Benjamin Franklin Institute of Technology maintains a HVAC&R laboratory with a wide variety of tools and equipment used in the heating, air conditioning, refrigeration, and ventilation industry. The HVAC&R Lab contains 20 refrigeration trainers, multiple high efficiency furnaces, air conditioners, ductless systems, and gas and oil fired boilers. HVAC&R Lab equipment gives students the real-world hands-on training needed to be successful in the HVAC&R field.

### Outcomes

Upon successful completion of the HVAC&R Certificate, the graduate will be able to:

- Demonstrate the principles of refrigeration and air conditioning.
- Identify principles of different refrigerants and their temperature pressure relationships.
- Demonstrate a knowledge of refrigeration and air conditioning components, including compressors, evaporators, metering devices and condensers.
- Implement proper charging of refrigeration and air conditioning systems and proper leak detection methods.
- Solder, braze and Zoomlock™ pipes and fittings.
- Pressurize and detect leaks in a refrigeration system.
- Recover refrigerant from systems in accordance with EPA and Mass. Dept. of Public Safety guidelines.
- Flare and swage tubing.
- Troubleshoot electrical and mechanical malfunctions of commercial and domestic units.
- Use HVAC&R tools and measuring devices effectively.
- Proper installation maintenance procedures of heating, refrigeration, air conditioning and ventilation equipment.

The HVAC&R program is also offered during the evening for students who are unable to study during the day. Students in the HVAC&R evening program study Monday through Thursday. The program normally begins in January and concludes the following August. Information about the course schedule for the HVAC&R evening program is available through the BFIT Admissions Office.

### Faculty

John Terasconi, Program Chair

Instructor Staff: Anthony Carmignani, Mark MacCormack, Alan Metzler, Thomas Pagliarulo, Jeremias Reyes, Anthony Joseph Silva, Laura Venterosa

### Certificate Requirements for HVAC&R Technology 28 Credits

TECHNOLOGY COURSES: 28 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>
HV100 . . . . .	HVAC&R 1st Semester . . . . . Fundamentals of Electricity as applied to HVAC-R Refrigeration Fundamentals Electrical and Mechanical for Refrigeration	13
HV150 . . . . .	HVAC&R Intersession . . . . . EPA—Refrigerant Recovery, Recycle, and Reclaim	2
HV200 . . . . .	HVAC&R 2nd Semester . . . . . Commercial Refrigeration and Ice Machines Commercial Air Conditioning and Heat Pumps Gas Heating and Residential Air Conditioning Oil Furnaces and Hydronic Heating	13



# Mechanical Engineering Technology (BS)

The objective of the Mechanical Engineering Technology program is to prepare its graduates for immediate employment in advanced manufacturing careers with technical expertise in mechanical technology. The bachelor program builds on the associate degree to prepare students for a career as a mechanical engineering technologist. These professionals make sketches and rough layouts, CAD drawings, record and analyze data, make calculations and estimates, and report their findings to mechanical engineers. The bachelor's program focuses on the development of more detailed and specialized knowledge as well as more mature skills in communication, information literacy, and problem solving. The students have greater opportunity to explore the linkage between management, quality systems, and technical production.

The combination of classroom learning with the hands-on laboratory experience gives students exposure to the manufacturing and design processes and to have a competitive edge in Advanced Manufacturing Careers.

Graduates of the program will have developed communication skills, critical-thinking, managerial, problem solving and organizational skills. These employability skills are essential to the vitality of manufacturing companies and their manufacturing processes.

This program maintains a close connection with industry. Its Industry Advisory Board (IAB), consisting of mechanical engineering and mechanical engineering technology professionals in Greater Boston and New England, meets periodically to evaluate the objectives, curriculum, and course content, to keep the program updated and practical.

With a strong foundation in manufacturing processes and SolidWorks™ CAD, graduates of the Mechanical Engineering Technology program are prepared for employment as machinists, production support staff, mechanical designers, assistant mechanical engineers, engineering research assistants, mechanical engineering associates, manufacturer's representatives, and specifications and technical specialists.

## *Curriculum*

The Mechanical Engineering Technology Program includes fundamental and advanced courses in statics, materials, thermodynamics, CAD with SolidWorks™, machine design with 3-D solid modeling design, manufacturing processes, CNC machine programming, Robot Programming and Modeling, Mastercam, Lean Manufacturing Concepts and Advanced Manufacturing.

Humanities, social sciences, and English courses comprise part of the curriculum to ensure the graduates possess broader social visions and proficient and effective communication skills.

All BFIT students are required to successfully complete a Career Success Seminar course prior to graduation. Typically, students are enrolled in this course for the semester prior to graduation. Please note this course may be added to a student's course load after the registration process, and thus may not be visible on a student's schedule.

## *Facilities*

The Mechanical Engineering Technology Department maintains a CAD (SolidWorks™) classroom, a fabrication and material testing laboratory that includes CNC machines, joining equipment and an assortment of hand tools and measuring equipment.

## *Outcomes*

Upon successful completion of the bachelor's degree in Mechanical Engineering Technology, the graduate will be able to:

- Utilize SolidWorks™ to produce engineering drawings and to analyze interference fits and tolerances.
- Program and operate CNC equipment in an industrial environment.
- Understand manufacturing processes and their uses in industry.
- Design and build products and equipment for a changing technical environment.
- Demonstrate a knowledge of mathematics and the ability to apply this knowledge as practiced in materials science, engineering mechanics (statics) and thermodynamics.
- Design common thermodynamic devices such as air conditioners, refrigerators, heat pumps and various types of heating devices.

- Calculate loading on many different structures and determine the strength of these structures.
- Effectively communicate technical observations, results, issues and successes in both oral and written form.
- Apply Lean Manufacturing Concepts.
- Understand the linkage between management, quality systems, and technical production.
- Apply entry level computer programming.
- Understand professional, ethical and social responsibilities.
- Work effectively in a team-oriented/project-focused work environment.

*Faculty*

Program Chair: Dr. Nikhil Satyala

Instructor Staff: Roy Garber, Dr. Kamyar Pashayi, and Dr. Aidin Panahi

*Degree Requirements: Mechanical Engineering Technology (BS) 130 Credits*

TECHNICAL COURSES: 84 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
BS284	Operations Management	3	3	0
BS332	Financial Accounting	3	3	0
BS431	Management Accounting	3	3	0
EE214	Electricity and Electronics	4	3	2
ME105	CAD with SolidWorks	3	2	2
ME106	Advanced CAD w/SolidWorks	3	2	2
ME110	Statics	4	4	0
ME141	Materials	3	3	0
ME150	Intro to MFG	4	2	4
ME151	MFG Process & CNC	4	2	4
ME220	Mastercam Milling I	4	2	4
ME225	Mastercam Milling II	4	2	4
ME226	Mastercam Turning	4	2	4
ME230	MFG Business Practices	3	3	0
ME240	Machine Design with SolidWorks	4	3	2
ME241	SolidWorks Certification Preparation	2	2	0
ME250	Advanced MFG and CNC I	4	2	4
ME252	Thermodynamics	4	4	0
ME260	Advanced MFG and CNC II	4	2	4
ME310	Robotics I	4	2	4
ME315	Robotics II	4	2	4
ME345	Mechanics of Materials	3	3	0
ME490	Senior Design I	3	2	2
ME491	Senior Design II	3	2	2

## Program of Study

### GENERAL EDUCATION COURSES: 46 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
EN129/130	College Comp I	3	3	0
EN140	College Comp II	3	3	0
EN320	Technical Communications	3	3	0
HU/SS	Elective	3	3	0
HU/SS	Elective	3	3	0
HU/SS	Elective	3	3	0
HU/SS	Elective	3	3	0
MA120	College Algebra & Trig.	3	3	0
MA130	Pre-Calculus	3	3	0
MA240	Calculus I	4	4	0
MA250	Calculus II	4	4	0
MA270	Statistics	3	3	0
PH212	Physics I	3	3	0
PH213	Physics II	3	3	0
PH215	Physics Lab I	1	0	2
PH225	Physics Lab II	1	0	2
SK140	Success in MET	0	1	0
SK400	Career Success Seminar	0	1	0

\* \* Students transferring in a higher level math may substitute an HU/SS elective for a lower level math.

*Typical Course Sequence for Mechanical Engineering Technology (BS)*

YEAR 1 SEMESTER 1	YEAR 2 SEMESTER 3	YEAR 3 SEMESTER 5	YEAR 4 SEMESTER 7
EN129/130 College Composition I	ME151 Manufacturing Processes & CNC Machining	MA240 Calculus I	BS431 Management Accounting
MA120 College Algebra & Trig	ME220 Mastercam Milling I	ME225 Mastercam Milling II	HU/SS Elective
ME105 CAD with SolidWorks	ME240 Machine Design with SolidWorks	ME230 Manufacturing Business Practice	MA270 Statistics
ME141 Materials	ME241 SolidWorks Certification Prep	ME252 Thermodynamics	ME310 Robotics I
SK140 Success in MET	PH212 Physics I	ME260 Advanced Manufacturing and CNC II	ME490 Senior Design I
YEAR 1 SEMESTER 2	PH215 Physics Lab I	YEAR 3 SEMESTER 6	SK400 Career Success Seminar
EN140 College Comp II	YEAR 2 SEMESTER 4	BS332 Financial Accounting	YEAR 4 SEMESTER 8
HU/SS Elective	EN320 Technical Communications	EE214 Electricity and Electronics	BS284 Operations Management
MA130 Pre-Calculus	ME110 Statics	HU/SS Elective	HU/SS Elective
ME106 Advanced CAD with SolidWorks	ME250 Advanced Manufacturing and CNC I	MA250 Calculus II	ME315 Robotics II
ME150 Intro to Manufacturing	PH213 Physics II	ME226 Mastercam Turning	ME345 Mechanics of Materials
	PH225 Physics Lab II		ME491 Senior Design II

## Opticianry (AS)

The Opticianry program is fully supported by the Opticians Association of Massachusetts. The program has full accreditation from the Commission on Opticianry Accreditation (COA, 2013). The BFIT Opticianry program is the only program of its kind in Massachusetts, and one of only a few in all of New England.

The Opticianry program serves as the educational gateway for students of all ages, including adult learners and apprentice opticians. With a vibrant optical industry and continued need for qualified eye care professionals, there exists a tremendous opportunity for technically skilled and highly knowledgeable opticians.

The optical industry is experiencing tremendous growth. With this growth comes expanded regulations and increased requirements for becoming a licensed optician in Massachusetts.

The curriculum is designed to prepare the graduate to meet both the requirements for licensing in all states, including national and local certification exams and practical tests, as well as for entry into the profession of opticianry itself. Upon graduation, the student will be well-versed and knowledgeable in all facets of opticianry, including spectacle design, fitting and dispensing, contact lens design and fitting, prescription and non-prescription fabrication and manufacturing, and special application optics.

The optical profession itself offers great diversity and versatility. Graduates will be able to work in many different environments ranging from HMO/medical offices to retail/ high fashion optical boutiques, corporate and chain optical conglomerates to independent ownership. Graduates will be well versed in all aspects of optics as it relates to opticianry. Graduates will be qualified for positions involving spectacle design and dispensing, contact lens design and dispensing, optical laboratory finishing and management, optical business management or independent ownership. Many graduates of the opticianry program seek advanced degrees and/or certification related to business, management, ophthalmic technology and health care management.

The primary objective of the program is to prepare students for a career as a licensed optician. The licensing requirements for the state of Massachusetts are certification by the American Board of Opticianry, certification by the National Contact Lens Examiners, completion of an associate degree in opticianry, and successful completion of the state licensing exam.

### *Curriculum*

The two-year curriculum is comprehensive in design and has been modeled after opticianry accredited programs from across the country. As a member of the National Federation of Opticianry Schools (NFOS), the comprehensive curriculum is reviewed each year at the annual meeting.

All BFIT students are required to successfully complete a Career Success Seminar course prior to graduation. Typically, students are enrolled in this course for the semester prior to graduation. Please note this course may be added to a student's course load after the registration process, and thus may not be visible on a student's schedule until a few weeks prior to their final semester.

### *Facilities*

The college facilities include three dedicated classrooms for the opticianry program; a spectacle finishing lab, a contact lens fitting and dispensing clinic, and a prototype optical shop. The optical shop is open regular hours during the academic year and is operated by the opticianry students under the direct supervision of a licensed optician in order to serve the eyecare needs of the college community.

The finishing lab provides students with the opportunity to learn prescription spectacle fabrication, both as individual work projects and assignments, as well as the capability for conversion to a simulated high capacity wholesale optical laboratory.

The contact lens clinic serves as a model working environment classroom.

The contact lens lab provides the student an opportunity to work with contact lens related devices and instrumentation. In addition, the dispensing and fitting aspects of the laboratory will allow opportunities for contact lens related instruction and actual patient care.

## Program Goals

The associate degree program in Opticianry will:

- Prepare students to complete successfully the American Board of Opticianry Examination, the National Contact Lens Examination, and the requirements for licensing in any state.
- Promote the highest technical and ethical standards in the practice and delivery of professional patient care.
- Provide students the opportunity to excel in all aspects of opticianry related to academic and practical knowledge, technical skill and professional level competence.
- Promote inter-disciplinary and cooperative patient care concepts in order to take advantage of the strengths of optometry and opticianry in solving patients' vision care concerns and issues.
- Practice global awareness and ethical responsibility, fostering in students a commitment to civic engagement and volunteerism, leadership, and life-long learning through community-based learning projects and involvement with professional organizations, events and associations.
- Seek to eliminate hazardous waste and to reduce non-hazardous waste to the minimum levels economically and technically practical, and to be in full-compliance with all federal and state environmental regulations.

## Outcomes

Upon successful completion of the degree, students will be able to perform the following professional responsibilities:

- Based upon a patient's prescription, vision needs and lifestyle and desires, visualize and design appropriate solutions pertaining to prescription glasses and/ or contact lenses.
- Design, fit and dispense prescription glasses and contact lenses
- Utilize and operate all forms of ophthalmic devices and instrumentation including keratometers, lenmeters, biomicroscopes, corneal topographers, pupilometers and digital image measuring devices.
- Utilize and operate all finishing lab equipment including edgers, heat treating units, safety beveling units, drop ball testing, chemical treating units, blocking and layout devices and rimless edging devices.
- Inspect and verify spectacle and contact lenses for optical precision, proper and comfortable fit, and proper aesthetics.
- Evaluate and troubleshoot patient's concerns and symptoms as they are related to the eyeglasses and contact lenses.
- Professionally and academically express optical technical skills and knowledge, both in an exam scenario, as well as in a clinical environment.

## Faculty

Blair Wong ABOM, M.Ed., NCLC, LDO, Director

Instructors: Robert Goldman, BS, ABOC, LDO; Joanne Le, OD, BS; Kevin Silva, ABOC, NCLC, BS, LDO;  
Da Ni Yan, BS, ABOC, NCLC, LDO

## Program of Study

### Degree Requirements: Opticianry (AS) 70 Credits

#### TECHNICAL COURSES: 49 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
BS201	Small Business Management	3	3	0
OP105	Anatomy and Physiology of the Eye	3	3	0
OP110	Ophthalmic Optics I	3	3	0
OP115	Principles and Practices in Opticianry I	3	3	0
OP120	Ophthalmic Optics II	3	3	0
OP122/123	Ophthalmic Design & Dispensing I / Lab	4	3	2
OP125	Principles and Practices in Opticianry II	3	3	0
OP128	Optical Business & Clinical Care Management	2	2	0
OP 230/231	Contact Lens Theory I /Lab	5	3	4
OP232/233	Ophthalmic Design & Dispensing II / Lab	4	3	2
OP235	Principles and Practices in Opticianry III	3	3	0
OP 240/241	Contact Lens Theory II /Lab	5	3	4
OP243	Principles and Practices in Opticianry IV	3	3	0
OP245	Vision Assessment	3	3	0
OP281	Opticianry Technical Skills & Service Lab I	1	0	2
OP282	Opticianry Technical Skills & Service Lab II	1	0	2

#### GENERAL EDUCATION REQUIREMENTS: 21 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
EN129/130	College Composition I	3	3	0
EN140	College Composition II	3	3	0
HU/SS	Elective	3	3	0
HU/SS	Elective	3	3	0
HU/SS	Elective	3	3	0
MA105	Technical Math	3	3	0
MA107	Optical Math	3	3	0
SK200	Career Success Seminar	0	1	0

*Typical Course Sequence for Opticianry*

SEMESTER 1	SEMESTER 2	SEMESTER 3	SEMESTER 4
EN129/130 College Composition I	EN140 College Composition II	BS201 Small Business Management	HU/SS Elective
MA105 Technical Math	HU/SS Elective	HU/SS Elective	OP128 Optical Business and Clinical Care
OP105 Anatomy and Physiology of the Eye	MA107 Optical Math	OP230/231 Contact Lens Theory I/Lab	OP240/241 Contact Lens Theory II/Lab
OP110 Ophthalmic Optics I	OP120 Ophthalmic Optics II	OP235 Principles and Practices in Opticianry III	OP243 Principles and Practices in Opticianry IV
OP115 Principles and Practices in Opticianry I	OP125 Principles and Practices in Opticianry II	OP281 Opticianry Technical Skills & Service Lab I	OP245 Vision Assessment
OP122/123 Ophthalmic Design & Dispensing I/Lab	OP232/233 Ophthalmic Design & Dispensing II/Lab		OP282 Opticianry Technical Skills & Service Lab II
			SK200 Career Success Seminar



## Practical Electricity (Certificate)

According to the U.S. Department of Labor, electrician job growth will be higher than average, growing at a rate of 23% over the next decade (Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Edition). Here in the state of Massachusetts, that growth rate is estimated to be even higher as many in the current workforce will be retiring in the next few years.

The Electrical Technology Department offers a twelve-month Certificate of Proficiency in Practical Electricity. This program fulfills the Massachusetts Board of State Examiners of Electrician's academic requirements for Journeyman Electrician licensure by providing 600 hours of classroom instruction in accordance with 237 CMR 13 and 22.

The course of study includes the theoretical application of electricity as applied to the electrical construction industry and relevant Electrical Code requirements necessary to design and install a compliant installation.

A laboratory component accompanies every course and provides practical, hands-on skills that are desired of apprentice electricians seeking employment. Through a blend of lecture and laboratory classes, the certificate program provides a deep introductory knowledge of the electrical field. Upon successful completion, graduates are well positioned to start learning on-the-job while having foundational understanding of electrical principles.

### *Curriculum*

The curriculum is aligned with the learning objectives outlined in 237 CMR 22.01, as mandated by the Massachusetts State Board of Examiners of Electricians. Courses include topics such as DC and AC circuit theory, electrical code and wiring lab, electrical machines, and low voltage systems. Laboratory projects accompany all classes. Credits from this certificate program may be applied as technical electives for students who wish to pursue an associate degree in the Technology Business and Management program at BFIT.

### *Facilities*

The Practical Electricity program utilizes two laboratories, which are equipped to provide students ample and meaningful hands-on experience in the electrical field. The two labs provide students with the opportunity to learn the basics of wiring, as well as the proper methods of application to the many theoretical principles of motors, transformers, and low voltage systems. The two labs are the Wiring Method lab and the Electro-Mechanical lab.

### *Outcomes*

Upon successful completion of the Practical Electricity Certificate program, the graduate will be able to:

- Comprehend and utilize current Electrical Industry Standards, including the National Electrical Code (NFPA 70), Massachusetts Electrical Code (527 CMR 12.00), and Standards for Electrical Safety in the Workplace (NFPA 70E).
- Identify and install electrical devices and equipment, utilizing a variety of wiring methods and practicing safe work habits.
- Design, analyze and install various electrical circuits and diagrams related to residential, commercial, and industrial applications.
- Perform electrical calculations, including Ohm's law, wire sizing, branch-circuit overcurrent protection sizing, voltage drop, and residential service entrance.
- Design, analyze, and troubleshoot motor circuits and motor controls.

### *Faculty*

Tracey Arvin, Director

Instructor Staff: Thomas DeCosta, Donald Fess, Rui Gomes, John McDonagh, Christopher Villano

*Certificate Requirements: Practical Electricity 28 Credits*

TECHNOLOGY COURSES: 28 CREDITS

<b>Course #</b>	<b>Course</b>	<b>Credits</b>	<b>Lecture</b>	<b>Lab</b>
PE101*	Electrical Code I	5	8	2
PE103*	Circuit Theory	5	6	4
PE201*	Electrical Code II	5	8	2
PE203*	Electrical Machines	5	6	4
PE211*	Electrical Code III	5	8	2
PE213*	Electrical Systems & Regulations	3	5	2

\* These courses count towards the 600 clock hours of classroom instruction required by the Massachusetts State Board of Electrical Examiners for partial fulfillment of the requirements for Journeyman Electrician licensure.

*Typical Course Sequence*

SEMESTER 1

PE101 Electrical Code I

PE103 Circuit Theory

SEMESTER 2

PE201 Electrical Code II

PE203 Electrical Machines

SEMESTER 3

PE211 Electrical Code III

PE213 Electrical Systems & Regulations

## Division of Professional and Continuing Studies (DPCS)

The Division of Professional and Continuing Studies (DPCS) at Benjamin Franklin Institute of Technology commits to lifelong learning by providing affordable, accessible, and hands-on education and training to the professional adult learners in gaining new skills, pursuing career advancement and obtaining academic credentials.

DPCS works with Corporations, Trade Unions, Industry Associations and Community-Based Organizations to create tailored programs that meet their members/employees' needs. They will be able to learn new skills, achieve specific certifications, or earn a college degree.

DPCS offers the following programs in different delivery models - Online, Hybrid and On-Site:

- A. Customized Programs for Corporations, Trade Unions, Industry Association and Community-Based Organizations
  - Accelerated Degree Programs
  - Workforce Development Training
- B. Professional Development for working adults
  - Stackable Certificates
  - Non-credit Courses/Certificates
  - Accelerated Degree Programs

### *Non-credit Courses/Certificates – Continuing Education Units (CEU's)*

#### CONSTRUCTION SUPERVISOR LICENSE PREPARATION COURSES

Become a licensed Construction Supervisor in the Commonwealth of Massachusetts. Wentworth's Construction Supervisor's License (CSL) Preparation will prepare you to take the state licensure exam for commercial and residential buildings. This license allows you to supervise construction for any single- or two-family dwelling or appurtenant structure, regardless of size, as well as any other building type up to 35,000 cubic feet of enclosed space. Course reference materials: MA Code Books; ICC Code Books; OSHA Book.

#### BUILDING INFORMATION MODELING (BIM)

Our hands-on learning will give you the skills you need to collaborate on the planning, design and construction of a building using 3D modeling. Master the principles of parametric modeling, flexing parameters, design visualization and other topics. And build competencies in Revit Architecture, the premier software application for building information modeling. Choose Revit MEP, for mechanical, electrical and plumbing modeling, or Revit Structure with an emphasis on structural design and analysis.

#### PLAN READING - LEVEL 1

This introductory course provides a basic level of knowledge required for the reading and understanding of architectural and construction plans. This course is intended for people interested in expanding their career in the construction field. Concepts and theories covered by this course will include; orthographic projection; plans, elevations, sections, details, symbols, line types, dimensioning, architectural and engineering scales associated with architectural, construction, and engineering drawings. Students will be awarded a 2.1 CEU's.

#### PLAN READING - LEVEL 2

This course is designed for individuals who have completed the Plan Reading – level 1 or work experience. This 7-week course will review in detail; site plans, foundation plans, framing and structural plans, and MEP system plans. Drawings reviewed range in complexity from basic to advanced construction drawings. Students will learn about various building construction types as well as learn to read, understand and interpret construction drawings. Students will be awarded a 2.1 CEU's.

PRACTICAL PROJECT MANAGEMENT

The course is designed for working professionals from any field, who wants to learn basic skills in project management. The program is 15-Week long, upon successful completion of the program, students earn 4.5 CEU's.

IT BUSINESS ANALYST

<b>Course #</b>	<b>Course</b>	<b>Credits</b>
CT301	Principles of ITIL 4	3
CT302	Fundamentals of SQL and Database Administration	4
BS320	Business and Project Management with Agile	4
CT305	Analytics and Visualization using Power BI	6

*Health Services Administration*

HS105	Integrated Applications (new)	3
TS 120	Medical Terminology (existing)	3
HS110	Medical Insurance & Revenue Cycle (new)	3
HS115	Medical Office Administration (new)	3

*VR Technology*

CT 310	AR & VR Fundamentals and Unity Development	3
CT 311	Project Management for VR and AR Projects in Unity	3



# Academic Course Descriptions

AT134	AUTOMOTIVE BRAKES SYSTEMS	4 CREDITS
<p>This course teaches students braking system theory, operation and repair. The students will study all brake hydraulics, such as proportioning valves, master cylinders and bleeding procedures. The students will also study power assist units, anti lock brakes, disc and drum brakes. Students will learn how to diagnose and properly repair all of these systems. (Offered in the fall, spring and summer)</p>		
AT150	AUTOMOTIVE ENGINES	4 CREDITS
<p>Lecture and laboratory covering designs, nomenclature, and operational theory of internal combustion engines. Includes valves and operating mechanism, piston and connecting rod assembly, crankshaft and bearings, lubrication system, crankcase ventilation, lubricants, and complete engine overhaul procedure. Laboratory practice and instruction in servicing engines. (Offered in the fall and spring)</p>		
AT170	ELECTRICITY AND ELECTRONICS	4 CREDITS
<p>Fundamentals of electricity and magnetism. Topics include current, voltage and resistance; Ohm's Law; series and parallel circuits; electric power; electromagnetic circuits; electrical measurement; electronic devices and circuits. (Offered in the fall and spring)</p>		
AT173	AUTOMOTIVE ELECTRICAL SYSTEMS	4 CREDITS
<p>Operation, construction, and servicing of automotive electrical equipment including lighting circuits, ignition systems, cranking motors and controls, and alternator-regulator circuits. Prerequisite: AT170 (Offered in the spring and summer)</p>		
AT234	AUTOMOTIVE CHASSIS AND SUSPENSION SYSTEMS	3 CREDITS
<p>This course is designed to teach students various automotive chassis and steering systems operation and repair. Students will learn chassis designs, alignment angles, including front and rear suspension systems. The student will also be taught steering gears, steering linkage and advanced level systems such as four wheel steering, electronic steering. Students will examine electronic suspension control systems, stability control systems and the proper diagnosis and repair of these systems. Prerequisites AT134 and AT170. (Offered in the fall, spring and summer)</p>		
AT241	MANUAL TRANSMISSIONS	2 CREDITS
<p>The theory, operation and service of manual transmissions and transaxles, including domestic and imported units. Emphasis is on the diagnosis, repair, and servicing of component parts. (Offered in the fall)</p>		
AT244	AUTOMATIC TRANSMISSIONS	2 CREDITS
<p>Continuation of AT241. Study of principles of operation, maintenance, and diagnosis of automatic transmissions. Prerequisite: AT241 and AT173 (Offered in the spring)</p>		
AT252	AIR CONDITIONING	3 CREDITS
<p>This course is a comprehensive study of automotive cooling, heating, ventilation and air conditioning systems. Studies include topics on bodily comfort, heat and pressure, and temperature relationships. The course culminates with a study of computer controlled, dual-zone climate control systems. Prerequisite: AT170 (Offered in the spring and summer)</p>		
AT253	AUTOMOTIVE LABORATORY I	4 CREDITS
<p>Practical, hands-on garage experience is acquired in the automotive laboratories, including major service work on live vehicles and the operation of test instruments and other specialty diagnostic equipment. Students will apply the theory learned in the first-year automotive classes to become more proficient in the diagnosis of engines, electrical, suspension, steering, and brake systems. This practical experience incorporates strategy-based engine performance, emission failure diagnosis, and engine rebuilding and machining. Prerequisites: A valid driver's license, AT134, AT150, and AT173 (Offered in the fall)</p>		

## Academic Course Descriptions

AT254	AUTOMOTIVE LABORATORY II	4 CREDITS
<p>Practical, hands-on garage experience is acquired in the automotive laboratories, including major service work on live vehicles and the operation of test instruments and other specialty diagnostic equipment. Prerequisite: A valid driver's license, AT253, AT234 and AT271 (Offered in the spring)</p>		
AT255	ALTERNATIVE FUELS	3 CREDITS
<p>This course will concentrate on the theory, operation, and service of all alternative fuels and electric vehicles. The topics of study will be hybrid battery service, electric motors, generators, regenerative braking Systems, hybrid transmissions and hybrid heating and air conditioning. The lab component will secure all the theory taught in lecture. Prerequisite AT173 and AT134. (Offered in the fall)</p>		
AT256	AUTOMOTIVE LAB-CERTIFICATE	3 CREDITS
<p>Practical, hands-on garage experience is acquired in the automotive laboratories, including major service work on live vehicles and the operation of test instruments and other specialty diagnostic equipment. Students will apply the theory learned in the first-year automotive classes to become more proficient in the diagnosis of engines, electrical, suspension, steering, and brake systems. This practical experience incorporates strategy-based engine performance, emission failure diagnosis, and engine rebuilding and machining. Prerequisites: A valid driver's license, AT134, AT150, and AT173. (Offered in the fall and summer)</p>		
AT259	INTRODUCTION TO AUTOMOTIVE SAFETY AND TECHNOLOGY	3 CREDITS
<p>This course looks at the present use of automotive safety in the automotive industry, along with future technology. Topics covered are SP2 training, equipment and tool identification, safety procedures and precautions that are required when repairing vehicles, batteries, high voltage batteries, hybrid vehicles and fuel cells. The lab portion focuses on safety, service, and maintenance of vehicles, electric vehicles and bio fuels vehicles. (Offered in the fall and spring)</p>		
AT271	ENGINE PERFORMANCE AND DIAGNOSIS I	? CREDITS
<p>This course applies the theory learned in AT150 Engines and AT170 Electricity to properly diagnose mechanical and electrical problems that affect drivability and emissions. Material includes current tune-up and maintenance procedures, the development of diagnostic routines, basic ignition diagnosis, on-vehicle electrical testing, volumetric efficiency theory and testing, turbocharger/supercharger theory and diagnosis, and On-Board Computer Diagnosis. Prerequisites: AT150 and AT170 (Offered in the fall, spring and summer)</p>		
AT274	ENGINE PERFORMANCE AND DIAGNOSIS II	? CREDITS
<p>This course builds on AT271, enabling students to understand the complexities of electronic engine management systems and how they affect drivability and emissions. Diagnosis topics include fuel systems theory, fuel injection systems, microprocessor theory and operation, Electronic Ignition Systems (E.I.S.), four- and five-gas analysis, emission failure, and On-Board Computer Diagnosis. Prerequisite: AT271, AT150 and AT173 (Offered in the spring)</p>		
AT282	AUTOMOTIVE SERVICE ADVISING AND CUSTOMER RELATIONS	3 CREDITS
<p>This course enables the students to understand the complexities of automotive customer service. Topics of study include the different types of automotive facilities, customer relations, and internal service facility operations. Through lectures and class discussion, the student should be aware of the different types of automotive repair facilities ownerships, the chains of command, and roles and requirements for each of the different employees. The student will be able to identify the major financial measurements that have an effect on the business's profit or loss. The student will also be exposed to the start-up cost and procedures involved in the development of a new automotive repair business. Topics of study include customer interviewing and complaint assessment, flat rate and hourly methods of payment and benefit packages. Case studies are presented and guest lecturers from industry are utilized to reinforce service-advising principles. (Offered in the spring)</p>		

AT373	ADVANCED ENGINE PERFORMANCE	3 CREDITS
<p>An advanced level course which builds upon the basic computerized engine control diagnostic skills acquired in AT271, AT274, and the drivability clinic. Special emphasis is placed on oscilloscope pattern interpretation, serial data communications, database configurations and functional testing of major computerized engine control systems and subsystems. Prerequisite: AT274 (Offered in the fall)</p>		
AT474	ENHANCED EMISSIONS AND DRIVABILITY	3 CREDITS
<p>An advanced level of enhanced emissions and drivability diagnostics using dynamometer-based transient testing covering ASM 50/15, ASM 25/25 and RG-240 drive traces. This course also includes advanced On Board Diagnostics-Generation II (OBD II) and Controller Area Network (CAN) diagnostics. Students will become proficient in 5-gas exhaust analysis and scan tool data stream information and applications. (Offered in the spring)</p>		
AT481	AUTOMOTIVE MARKETING	3 CREDITS
<p>This course exposes the student to today's marketing principles as they relate to the automotive field. Through lectures, practical exercises, and class discussion, the student will be made aware of the marketing process, understanding the marketplace and consumers. The student will also be able to design a customer-driven marketing strategy based on automotive customers needs. Distribution and sale of automotive vehicles and related parts and accessories are topics that are also covered. The student will learn policies pertaining to wholesale and retail transactions, parts inventory and turnover, service sales, dealership personnel, and warranty. (Offered in the spring)</p>		
AT482	VEHICLE APPRAISAL	3 CREDITS
<p>Instruction and practical application in the use of estimating manuals to produce reports for buying, selling and trading of vehicles, including damage appraisal. (Offered in the spring)</p>		
AT483	COMPUTERS IN THE AUTOMOTIVE INDUSTRY	3 CREDITS
<p>Microcomputer applications of database, spreadsheet, and office management in the automotive industry. Specific automotive management packages that service an entire automotive enterprise including sales, parts and inventory, and service will be covered. (Offered in the fall)</p>		
AT485	SENIOR SEMINAR I	1 CREDIT
<p>The preliminary section of a two-part course of study that will explore research tools and methods utilizing virtual and physical library resources as well as Internet Meta-search tools. Skills acquired will allow students to develop individual research topics and hypothesis statements that will lead to the formal presentation of a Senior Research Project in AT495. Prerequisites: EN320 (Offered in the fall)</p>		
AT494	SERVICE MANAGEMENT	4 CREDITS
<p>This course enables the students to understand the complexities of automotive service management. Through lectures, practical exercises, and class discussion, the student will be made aware of the different types of automotive repair facilities, ownerships, the chains of command, roles and requirements for the service manager in each of the different facilities. The student will also be exposed to the recruitment, selection, induction, development, and evaluation of employees. Also the student should be able to identify and use financial reports to be able to analyze financial data that has an effect on the business's profit or loss. Upon successful course completion, the students will have the tools needed to be able to maintain and also increase the profitability of a modern day automotive repair facility. Theory and practice of service management are explored, including OSHA laws, record keeping, productivity, efficiency, and profitability. (Offered in the fall)</p>		
AT495	SENIOR SEMINAR II	3 CREDITS
<p>This concluding course expands on the topics previously developed and approved in AT485. Students will have the opportunity to discuss, organize and refine their chosen projects. The culmination of this course will be the presentation of a formal written Senior Research Project. Prerequisite: AT485 (Offered in the spring)</p>		



## Academic Course Descriptions

<b>BS101</b>	<b>PRINCIPLES OF ACCOUNTING</b>	<b>3 CREDITS</b>
<p>Presents the theory and techniques of financial accounting. The course encompasses the basic functions of collecting, processing, and reporting accounting information for interested third parties (e.g. owners, investors, and government) and enables students to analyze, interpret, and use accounting information. (Offered in the spring and summer)</p>		
<b>BS110</b>	<b>INTRODUCTION TO BUSINESS</b>	<b>3 CREDITS</b>
<p>This course serves as an introduction to business in the U.S. and how it exists within a global marketplace. Business practices and concepts will be central to the learning process throughout the semester. Each unit during the semester will focus on the different operational functions within business, including finance, human resources, management, and marketing. In addition, the various forms of business ownership, operation, and governance will also be explored. (Offered in the fall and spring)</p>		
<b>BS120</b>	<b>INTRODUCTION TO MARKETING</b>	<b>3 CREDITS</b>
<p>This course educates students about the basic principles of marketing a business or a product and applying these principles in the workplace. Students in the course will explore multiple avenues of marketing and branding that will focus on the theories surrounding price, promotion, product, and placement in order to generate revenue and increase customer satisfaction. Students will explore consumer behavior and reactions. (Offered in the fall and spring)</p>		
<b>BS201</b>	<b>SMALL BUSINESS MANAGEMENT</b>	<b>3 CREDITS</b>
<p>This course introduces students to the fundamental practices of small business management. Topics will include basic business planning principles, inventory management, sources of funding for small businesses and marketing strategies. Content will focus on the risks and opportunities in the Opticianry Field. (Offered in the fall)</p>		
<b>BS210</b>	<b>ENTREPRENEURSHIP</b>	<b>3 CREDITS</b>
<p>This course serves as an introduction to business ownership, the steps involved in creating a business plan, and securing funding to launch the business. Students will assess a business idea and evaluate its position in the marketplace through SWOT analysis and the completion of a competitive analysis. This course will prepare students for their capstone project and presentation. (Offered in the fall)</p>		
<b>BS230</b>	<b>FINANCIAL MANAGEMENT OF TECHNICAL ENTERPRISES</b>	<b>3 CREDITS</b>
<p>This course serves as a springboard for students to understand the various financial management techniques necessary for the technology-focused business lifecycle. Students will expand their learning regarding the funding of a technical business and the tools used to maintain a financially viable enterprise. Students will gain a strong understanding of managerial decision making from a financial perspective and have a solid understanding of how decisions can impact an organizations bottom line. (Offered in the fall)</p>		
<b>BS284</b>	<b>OPERATIONS MANAGEMENT</b>	<b>3 CREDIT</b>
<p>Introduction to the concepts, principles, problems and practices of operation management. Emphasis is on managerial processes for effective operations in both products and service based organizations. Topics include operations strategy, process design, capacity planning, forecasting, production scheduling, inventory control, quality assurance, and project management. 5S Lean concepts will be introduced. (Offered in the spring)</p>		
<b>BS285</b>	<b>TECHNOLOGY BUSINESS CAPSTONE</b>	<b>1 CREDIT</b>
<p>Working in teams, students will develop a technological idea into a business plan and then pitch that plan to a panel of representatives from potential funding sources. Students will consult with each other and with technology majors to build the knowledge-base of the plan. (Offered in the spring)</p>		
<b>BS311</b>	<b>MICROECONOMICS</b>	<b>3 CREDITS</b>
<p>A broad introductory survey in which special attention is given to the role of economic principles in analyzing and understanding current economic problems. Emphasis is placed on the functioning of markets and on examining the behavior of individual economic units such as the business firm and the consumer. (Offered in the fall)</p>		

BS312	ADVANCED CONCEPTS IN INFORMATION LITERACY	3 CREDITS
<p>This project-based course covers the process of information literacy; from determining information needs through evaluating, managing and disseminating information; by integrating academic research strategies with advanced applications of desktop software. Best practices for effective communication of information in multiple formats will be examined with emphasis on integrating software programs through merging, transferring and linking files. (Offered in the fall)</p>		
BS320	PROJECT MANAGEMENT WITH AGILE	3 CREDITS
<p>BS320, formerly BS1002, is an Instructor-led training course that introduces learners to the concepts of traditional project management and those of Agile project management. The latter have become popular because they take an iterative approach to project implementation, leading to higher speed, flexibility, and responsiveness, as opposed to the traditional PM methodologies, which are linear. This course discusses the project team in today's environment and the impact that knowledge work has had on the development industry. It investigates project uncertainty and discuss specific techniques to not only mitigate risk — but to leverage it! It also provides an overall view of how to establish empowered teams quickly based on the organization of roles. This course examines the differences between Agile teams and traditional teams.</p>		
BS324	MANAGING ORGANIZATIONS	3 CREDITS
<p>Examines theory, research, and practice in the management of organizations. Students learn to make use of analytical tools for recognizing, diagnosing, and acting on managerial problems related to organizations, to the objectives, and to the development of human resources. The course emphasizes topics at the macro level, such as organizational analysis and design, and at the micro level, such as managerial behavior, motivation, and interpersonal relations. (Offered in the spring)</p>		
BS325	PROJECT MANAGEMENT	3 CREDITS
<p>This course provides an introduction to project management. It takes a holistic, integrated approach to managing projects, exploring both technical and managerial challenges multiple industries experience in several areas of project management such as scheduling, financing, marketing, distribution, and organizational structures. (Offered in the spring)</p>		
BS332	FINANCIAL ACCOUNTING	3 CREDITS
<p>Presents the theory and techniques of financial accounting. The course encompasses the basic functions of collecting, processing, and reporting accounting information for interested third parties (e.g., owners, investors, and government) and enables students to analyze, interpret, and use accounting information. (Offered in the spring)</p>		
BS334	BUSINESS LAW AND LEGISLATION	3 CREDITS
<p>This course reviews the American legal system, organizational structures, and the regulatory environment pertinent to business. Critical examination is conducted regarding: business ethics; contracts; business associations (agency, partnerships, corporations); and other legal entities. (Offered in the spring)</p>		
BS431	MANAGEMENT ACCOUNTING	3 CREDITS
<p>Presents the theory and technique of managerial accounting from the particular perspective of the manager. The course covers the identification and analysis of the behavior of costs within the organization, and illustrates how managers use such knowledge for planning and control. Major topics include responsibility accounting, comprehensive and cash budgeting, and standard job order and process cost systems. Prerequisite: BS332 (Offered in the fall)</p>		
BS432	HUMAN RESOURCES MANAGEMENT	3 CREDITS
<p>Examines the role of the human resources manager in the areas of selection and placement; training and development; performance appraisal; wage, salary, and benefit programs; and labor-management relations. (Offered in the fall)</p>		

## Academic Course Descriptions

### CM100 BUILDING CONSTRUCTION GRAPHICS 3 CREDITS

Fundamental principles of Building Construction Graphics are presented in weekly lectures and are developed in the lab through a wide variety of assignments and a semester long project. Emphasis is placed on the core competencies of graphic communication for the built environment, how design professionals communicate ideas, from inception through construction. Students will learn foundation concepts including: measurement and scale and the reading of and interpretation of architectural drawings - plans, sections, elevations. Other topics include an explanation of graphic symbols and abbreviations, dimensioning, typical US sheet sizes, proper sheet (page) layout, sheet arrangement, sheet sequence (set), and drawing relationships on a sheet. Students will begin to understand and apply construction regulations, specifications and standards such as CSI Masterformat, Project delivery, ADA accessibility, building codes, zoning regulations, and LEED. (Offered in the fall and spring)

### CM110 CONSTRUCTION MANAGEMENT I 3 CREDITS

This course offers a sampler of the entire CM program. It provides the first introduction to the principles of management, construction industry, roles and responsibilities, and an overview of common project management tools. Upon successful course completion, students will be able to understand terminology common to the construction industry, general principles of management and the roles and responsibilities of parties. Students will be familiar with selected planning and control tools and common safety concerns and protocol. This course concludes with a final CM project. (Offered in the fall and spring)

### CM120 INTRODUCTION TO CAD 3 CREDITS

Through lectures and hands-on laboratory sessions students will be introduced to the use of computers for the production of drawings. Students will learn to create architectural drawings similar to those produced in an architectural office, using industry standards such as AutoCAD and National CAD Standard v5. CAD skills will include basic drawing, modifying and editing commands, and proper techniques for final presentation drawings. Students will learn these skills through the development of a semester project from plans to a 3d modeling. At course end, students take a simulated AutoCAD assessment exam in order to demonstrate their proficiency in AutoCAD. (Offered in the fall and spring)

### CM130 CONSTRUCTION ESTIMATING 3 CREDITS

This course introduces students to the skills and tools necessary to prepare cost estimates for construction projects. The course focuses on the blueprint reading and determination of quantities (materials takeoff). Classes will include lectures, problems, examples and a term project. This course aims to increase and improve the working knowledge of students in construction estimating and to train them as professional construction managers.

Upon successful course completion, students will be able to read blueprints, and perform quantity takeoff for various work items. Students will utilize computer software to prepare required deliverables. Perform quantity take offs and pricing for a small construction project. Emphasis shall be placed on the scope of work, coordination and quantity surveys for the building components for residential and commercial projects. (Offered in the spring and summer)

### CM145 HEAVY CONSTRUCTION 3 CREDITS

This course introduces students to horizontal construction including equipment and selected construction methods. This includes economy, selection, and productivity of common construction equipment and construction procedures for industrial and heavy civil construction.

Upon successful course completion, students will be able to understand terminology and units of measurements related to equipment usage in industrial and heavy civil projects. Understand standard designations, sizes, and graduations of equipment and perform comparative cost analysis for owning and operating heavy equipment. Perform the proper selection, applications, utilization and productivity of heavy equipment and understand general processes/methods for constructing industrial and heavy civil projects. Show awareness of construction Safety (OSHA regulations for excavation, inspection and protection). (Offered in the spring and summer)

- CM160**                      **BUILDING MATERIALS AND APPLICATIONS**                      **4 CREDITS**
- Building Materials and Applications is a comprehensive study of building construction technology, which includes various building systems, the construction process and the materials used in those systems and processes. The study of the methods and techniques of material extraction, manufacturing assembly and installation are covered in depth. Students will learn about specific material's properties, characteristics, and their combinations to form composite elements. Construction regulations and standards including building codes, zoning regulations, and ADA accessibility are studied.
- The construction process is examined, including the roles of professionals such as regulatory agencies, the design team, the construction team, financing agencies, the owner, and the user. Professional industry entities dealing with building specifications such as the CSI (construction specifications institute), their composition and organizational components such as Masterformat and Project Delivery are covered as well as green rating systems such as LEED (leadership in energy and environmental design) for new construction. The course also provides an overview of building structural design.
- Students will develop several semester projects that tie directly to lectures and offer practical application of textbook material. Each project will focus on basic building materials such as wood, concrete, masonry, and steel construction. Students will design and draft simple construction documents with attention on construction details for different assemblies. (Offered in the fall and spring)
- CM210**                      **CONSTRUCTION MANAGEMENT II**                      **3 CREDITS**
- A management course in contract documents, safety, planning, scheduling, production control, and law and labor. Topics include contracts, planning, cost, production, peripheral documents, and cost and work analysis. Students implement CM practices in their final project and project presentation.
- Upon successful course completion, students will be able to explain construction contract documents, planning and scheduling, cost and production controls. Describe laws and labor issues related to construction projects. Demonstrate the ability to plan and schedule a construction project. Implement job site safety practices and procedures. Identify use of tools and equipment along with method of use in construction and perform common procedures at the job site. Describe and recognize requirements in construction documents. Describe terms and methods in techniques for planning, scheduling and supervision and identify laws and labor issues in construction. Demonstrate problem solving techniques and dexterity in planning and scheduling projects. This course concludes with a final Capstone project. (Offered in the spring)
- CM220**                      **SUSTAINABLE BUILDINGS: DESIGN & CONSTRUCTION**                      **3 CREDITS**
- Overview of the concept of sustainability (holistic living and building design that integrates solar concepts, energy efficiency, and material ecology) and its economic, political, and environmental consequences. Lecture and hands-on application focus on sustainable building practices, including design, specification, construction, lifecycle issues, LEED certification and other organizations. The historical basis for the ideology of sustainability, and its applications in today's society will be explored. (Offered in the fall)
- CM240**                      **ENVIRONMENTAL SYSTEMS**                      **4 CREDITS**
- The study of heating, ventilation, air conditioning, plumbing and electrical systems for facilities both residential and commercial is taught. Students will learn to understand the basic design and construction terminologies used to be able to read and understand HVAC, plumbing and electrical construction documents. Also included is the presentation of the basic principles found in vertical circulation, security, fire protection, noise control and room acoustics, energy sources, and green building design considerations. Field trips to area construction and building sites augment class studies. (Offered in the spring)

## Academic Course Descriptions

### CM250 CONSTRUCTION SURVEYING 4 CREDITS

The purpose of this course is to provide the student with the fundamental understanding of land surveying, including both the theory of surveying as well as the hands-on use of modern surveying instruments. Specifically, the theory portion of the course includes surveying computations of: grade, direction, traverse adjustment, area, volume, and horizontal & vertical curve geometry. The instrumentation portion of the course includes making field measurements of elevation, distance and angle using the appropriate land surveying equipment including: the tape, engineer's level, transit, theodolite, EDM, and total station. An introduction to construction layout is also included.

Upon successful course completion, students will understand the use of measuring systems and the proper mathematical calculations to produce accurate and correct true distances and the use of a level and the mathematical calculations to determine elevation differences. Understand the use of a transit to determine vertical and horizontal angles to locate reference points as applied to construction staking and surveying. Students will have an improved understanding of the role on Construction Surveying and layout in the operation of the construction industry. (Offered in the spring)

### CM260 PROJECT SCHEDULING 3 CREDITS

This course introduces students to the theory and application of the fundamentals of construction planning and scheduling to include creating, presenting, revising, and updating construction schedules. This course will help enhance students' ability to understand and apply management principles and practices including: process planning, directing, costing, resource allocation, and controlling all aspects of the construction operations and resources from pre-construction through project close out.

Upon successful course completion, students will be able to understand and apply network scheduling methods to construction projects and prepare WBS (work breakdown structures). Perform cost and budget analysis and calculate schedule and cost variance for projects. Use commercial scheduling software and perform resource allocation and leveling. Update schedules and monitor work progress using the schedule and other tools/programs in managing a construction project. (Offered in the fall)

### CM280 STATICS AND STRENGTH OF MATERIALS 4 CREDITS

Introduction to the basic fundamentals of statics and strength of materials relating to structural components of a building or structure. The principles of static equilibrium and free-body diagrams are applied to basic building structural elements and simple structural systems commonly found in buildings. The principles of stress, strain, and material properties are studied as they relate to materials commonly used in the building industry. Bending, shear, and deflections and associated stresses are investigated and used as design requirements. Prerequisite: MA120 and PH212 (Offered in the spring)

### CS101 TECHNOLOGY FUNDAMENTALS 4 CREDITS

The course delivers the baseline knowledge that someone entering the industry most have including Operating Systems (OS), troubleshooting, basic data backup/recovery methods, and problem-solving. From a networking standpoint, we cover how to install, maintain, troubleshoot, and support a network, understanding different aspects of networking technologies, including TCP/IP and the OSI model. From a security standpoint, we teach as how to install and securely configure systems, threat analysis and risk mitigation.

### CS201 NETWORK DEFENDER 5 CREDITS

Students will become Network Administrators who are trained on protecting, detecting and responding to the threats on the network. Students will acquire the fundamental understanding of the true construct of data transfer, network technologies, software technologies so that they understand how networks operate.

### CS202 ETHICAL HACKER 3 CREDITS

The Ethical Hacker course teaches students to systematically attempt to inspect network infrastructures (with the consent of its owner) to find security vulnerabilities which a malicious hacker could potentially exploit. This accredited course provides the advanced hacking tools and techniques used by hackers and information security professionals alike to break into an organization. As we put it, "To beat a hacker, you need to think like a hacker".

CS210	FIREWALLS & INTRUSION DETECTION AND PREVENTION	2 CREDITS
<p>Students will create and implement firewalls and IDPS using opensource software. They will learn Cisco ACLs using packet simulators like PacketTracer, Linux IP Tables, Opensource firewall Pfsense, implementing Snort IDPS and creating customized rules, Suricata, BRO and connecting it to SecurityOnion using an NSM tool. This module will allow them to build the confidence to feel comfortable working with any Firewall or IDPS system in the market.</p>		
CS220	VULNERABILITY MANAGEMENT	2 CREDITS
<p>Students learn to create an inventory of assets using discovery tools and domain controller queries, and how to use basic vulnerability scanning capabilities of tools like NMAP. Students will create their own NMAP scripts and learn popular industry tools like Tenable Nessus Vulnerability Management, Rapid7 InsightVM, OpenVAS, among others. To culminate the class, students learn how to make an executive report and design remediation strategies.</p>		
CS225	MALWARE ANALYSIS & INCIDENT RESPONSE	2 CREDITS
<p>This course teaches malware analysis fundamentals including reverse engineering tools to combat malware. Participants learn to break down potential malware threats and create solutions to combat them. Students will learn to identify potentially harmful events and the difference between an incident response policy and an incident response plan. Participants will learn the best practices to build an incident response plan: prepare, identify, containment, eradication, recovery, and lessons learned.</p>		
CS230	SECURITY MONITORING	2 CREDITS
<p>Students learn to implement a customized security monitoring service using opensource software from scratch. We start with implementing a Syslog server in Linux using Rsyslog and integrate it with the famous ELK Stack (Elasticsearch, Logstash, and Kibana) for quick insights of data. Students also learn popular tools Graylog, Splunk, and how to perform Threat Intelligence to enrich logs.</p>		
CS240	PACKET ANALYSIS	3 CREDITS
<p>This course teaches how to analyze packets and perform network forensic investigations effectively, using opensource software. Participants also learn how to differentiate between normal vs. abnormal protocols &amp; behaviors. We cover tools like tcpdump, Wireshark &amp; Tshark, Snort, Bro, NetworkMiner, and others. Students learn to create simple scripts using Python Scapy, and use these skills for detecting network sniffing attacks. This module will provide students with the skills to work with raw data and have a better understanding of the underlying technologies used in their networks.</p>		
CS250	SECURITY AUTOMATION	4 CREDITS
<p>Students will learn the necessary skills to automate security tasks by using the Python programming language. For analysts and other security professionals, automation is a fundamental tool that helps them keep up with the volume of threats and individual activities to defend the enterprise. They will learn automated data analysis, policy validation, and customized scanning. Participants will also be trained on how to use Python to automate offensive activities as a penetration tester and better understand modern-day attacks.</p>		
CT108	INTERNET HISTORY TECHNOLOGY AND SECURITY	
<p>The impact of technology and networks on our lives, culture, and society continues to increase. The very fact that you can take this course from anywhere in the world requires a technological infrastructure that was designed, engineered, and built over the past sixty years. To function in an information-centric world, we need to understand the workings of network technology. This course will open up the Internet and show you how it was created, who created it, and how it works. Along the way we will meet many of the innovators who developed the Internet and Web technologies that we use today. After this course you will not take the Internet and Web for granted. You will be better informed about important technological issues currently facing society. You will realize that the Internet and Web are spaces for innovation and you will get a better understanding of how you might fit into that innovation. If you get excited about the material in this course, it is a great lead-in to taking a course in Web design, Web development, programming, or even network administration. At a minimum, you will be a much wiser network citizen. (Offered in the fall)</p>		

### CT114 PROGRAMMING FOR EVERYONE I

This course aims to teach everyone the basics of programming computers using Python. We cover the basics of how one constructs a program from a series of simple instructions in Python. We will explore how we can use the Python built-in data structures such as lists, dictionaries, and tuples to perform data analysis. The course has no prerequisites and avoids all but the simplest mathematics. This course will introduce the core syntax, commands, and data structures of the Python programming language. Once a student completes this course, they will be ready to take more advanced programming courses. (Offered in the fall)

### CT118 PROGRAMMING FOR EVERYONE II

This course teaches students about the fundamentals of data access, data management, and expands upon the topics learned in CSC II. In the first half of the course, students will learn how to leverage their Python skills to treat the internet as a source of data. Students will work with HTML, XML and JSON data formats in Python. The second half of the course introduces students to the fundamentals of Structured Query Language (SQL) and database design as part of a multi-step data gathering, analysis and processing effort. As part of the course, students will build web crawlers and multi-step data gathering and visualization processes. Prerequisites: CT114 (Offered in the spring)

### CT121 WEB DESIGN I 3 CREDITS

In this course students will learn how to design and develop websites using the top web development languages in use today. Students will learn the fundamentals of HTML5 and CSS3 in tandem and apply them through the design, development and publishing of their own website as a final project. (Offered in the spring and summer)

### CT122 WEB DESIGN II 3 CREDITS

This course introduces the student to dynamic web development using the JavaScript programming language. Students will learn to implement programming logic, define and use variables, perform looping and branching, develop user interfaces, capture and validate user input, store data, and create well-structured applications. Prerequisite: CT121 (Offered in the fall)

### CT142 FUNDAMENTALS AND APPLICATIONS OF C++ 4 CREDITS

This course is an introduction to problem solving and program design using the procedural aspects of the C and C++ programming languages. The fundamentals are introduced with the student expected to apply the programming and logic design methodology in solving programming problems. The MS Visual Integrated Development Environment (IDE) is used at first and then the Arduino IDE is used to interface with sensors and program hardware. Prerequisites: complete MA105 with a GPA of at least 2.00. (Offered in the spring and summer)

### CT143 INTRO TO C++ PROGRAMMING 4 CREDITS

This course is an introduction to problem solving and program design using the procedural aspects of the C++ programming language. The fundamentals of the C++ programming language are introduced with the student expected to apply the programming and logic design methodology in solving programming problems. The MS Visual C++ Integrated Development Environment (IDE) is used as the primary development tool. (Offered in the fall and spring)

### CT144 INTERMEDIATE C++ 4 CREDITS

This course is a continuation of CT143. It picks up with user developed functions including inline functions, default arguments, function overloading and function templates. Array processing is enhanced with the introduction of parallel arrays, passing arrays to functions and sorting and searching of arrays. This is followed by the C++ string class, structures, pointers and dynamic memory allocation. The course finishes up with a shift in focus to the object-oriented paradigm with an introduction to classes. The MS Visual C++ Integrated Development Environment (IDE) is used as the primary development tool. Prerequisite: CT143. (Offered in the spring and summer)

### CT146 INTRO TO JAVASCRIPT 4 CREDITS

This course is an introduction to the JavaScript. The fundamentals of the JavaScript are introduced with the student expected to apply the programming and logic design methodology in solving programming problems. The Eclipse Integrated Development Environment (IDE) is used as the primary development tool. (Offered in the fall and spring)

CT211	WEB SITE MANAGEMENT	3 CREDITS
<p>This course provides a working understanding of two core technologies used in hosting websites on a web server. This course goes through installation of PHP and MySQL technologies on a local machine as well as hosted servers, explains basic tags, commands and constructs, and helps the student to build and work within a solid back-end database. Prerequisite: CT122 (Offered in the spring)</p>		
CT212	SYSTEM MAINTENANCE AND MANAGEMENT I	3 CREDITS
<p>This course covers the fundamental topics of PC technician training as covered by the CompTIA A+ 220-901 certification exam, including hardware, networking, laptops, printers and operational procedures. The focus of the course is split between hands-on maintenance and repair of PCs, and certification exam preparation. At the conclusion of the course students will be encouraged to attempt the 220-901 certification exam using discounted exam vouchers available through the college. (Offered in the fall)</p>		
CT213	SYSTEM MAINTENANCE AND MANAGEMENT II	3 CREDITS
<p>This course resumes study of the fundamental topics of PC technician training begun in CT212. This time the topics are those covered by the CompTIA A+ 220-902 certification exam, including operating systems, security, mobile devices and troubleshooting. The focus is again split between hands-on maintenance and repair of PCs and certification exam preparation. At the conclusion of the course students will be encouraged to attempt the 220-902 certification exam using discounted exam vouchers available through the college. Prerequisite: CT212 (Offered in the spring)</p>		
CT221	ENTERPRISE DATABASE MANAGEMENT	3 CREDITS
<p>This course provides students with an understanding of the issues in managing enterprise database systems as an essential organizational resource. Topics include the enterprise data architecture components, data storage configurations, and information retrieval methods. The course expands from the relational model to the multidimensional model, object-relational techniques, and Web-accessed data. Oracle databases serve as the primary tools for use in the course. (Offered in the spring and summer)</p>		
CT231	LINUX SYSTEM ADMINISTRATION	3 CREDITS
<p>This course introduces the Linux file system, group administration, and system hardware controls. Topics include intermediate command-line (CLI) administration, access control, file systems, software installation and management, process control, and security. Students will write shell scripts and constructs to enhance and automate system administration activities, and, upon course completion, will be able to perform basic system administration tasks including installation, configuring and attaching a new Linux workstation to an existing network. (Offered in the fall)</p>		
CT233	WINDOWS SYSTEM ADMINISTRATION	3 CREDITS
<p>This course presents an in-depth introduction to the core features of Microsoft servers, as covered by the Microsoft Technology Associate Exam 98-365. Topics include server installation, server roles, active directory, storage, server performance management, and server maintenance. At the conclusion of the course students will be encouraged to attempt the MTA-365 certification exam using discounted exam vouchers available through the college. (Offered in the spring and summer)</p>		
CT249	CONTEMPORARY PROGRAMMING LANGUAGES	4 CREDITS
<p>This course looks at two contemporary programming languages, Python and C#. After learning the new syntax, students apply programming techniques developed in previous courses to write programs and examine the situations for which each language is best suited. (Offered in the spring)</p>		
CT265	NETWORKING I	4 CREDITS
<p>Students are introduced to computer networking concepts using the TCP/IP and OSI networking models. Topics covered include the TCP/IP application, transport, Internet and network access layers, and the OSI layers and their functions. The fundamentals of LANs, including Ethernet data link protocols and basic cabling, are covered. This course uses a practical, technical introduction to computer networking and provides a thorough foundation through concept mastery and hands on activities. (Offered in the fall)</p>		



**CT267 NETWORKING II 4 CREDITS**

This course continues and builds upon the theory and hands-on laboratory work of CT265. It focuses on the design and implementation of state-of-the-art network architectures and solutions for enterprise networks. It provides an in-depth, hands-on coverage of protocols and network technologies that are essential for building corporate infrastructures and seamlessly integrating them with the Internet. Special attention is paid to essential characteristics of high-quality e-business environments, such as scalability, reliability, and security. Hands-on laboratory work will be done on industry leading Cisco routers and switches. Students will develop and build small enterprise class networks. Prerequisite: CT233 (Offered in the spring)

**CT269 CLOUD COMPUTING AND VIRTUALIZATION FUNDAMENTALS 4 CREDITS**

This course provides an overview of enterprise cloud computing, and virtualization. Students will learn practical skills on how to install and configure virtual environments. Topics include hypervisor installation, guest operating system installation, types of cloud deployments models, cloud concepts and services, and security basics, snapshot creation, virtual machine, cloning, team management, and virtual machine networking. At the conclusion of the course, students will be encouraged to attempt Amazon Web Services (AWS) cloud certification exam to gain badge(s) or certification(s).

**CT300 DATA STRUCTURES**

This course will teach students fundamental data structures using Python. Data structures allow for the storage of vast quantities of data, as well as efficient access to and modification of said data. Students will learn what a data structure is, how to perform a range of operations on them, and be introduced to the study of algorithms as it pertains to the covered data structures. Prerequisites: CT114, CT118 and MA240 (Offered in the fall)

**CT301 PRINCIPLES OF ITIL 4 3 CREDITS**

CT301, formerly CT1001, is an Instructor-led training course that provides learners with a comprehensive understanding of the Information Technology Infrastructure Library (ITIL) framework and its role on IT Service Management in the digital world. The course will discuss Service Value System (SVS) and the four dimensions of Service Management. Students will gain knowledge of the ITIL4 concepts and terminology, understand the link between ITIL4 and the latest best practices such as Agile, DevOps, and Lean, and the various ITIL management practices. Exercises, quizzes, tests and practice exam and preparation tips and strategy are also included in the course to help prepare learners for the ITIL4 Foundation Certification exam, which must be successfully completed in order for learner to be allowed to continue with the program.

**CT302 FUNDAMENTALS OF SQL DATABASE ADMINISTRATION AND EXCEL 4 CREDITS**

CT302, formerly CT1002, is an Instructor-led training course that introduces learners to the principles of database management in modern organizations, using widely adopted Relational Database Management Systems (RDMS) such as Microsoft SQL Server 2008 R2. The emphasis is on practical database experience reinforced through assignments and laboratory work. Students learn first to work with Microsoft SQL Server 2008 R2 database system. Then, they are introduced to the design of databases and their implementation in relational systems. Topics include tables, queries, forms, reports, importing and exporting data, structured query language, entity relationship models, the relational data model, and normalization of databases. Exercises, quizzes, tests and practice exam and preparation tips and strategy are also included to help prepare learners for the Microsoft Technology Associate (MTA) Database Fundamentals certification exam. Special topics in Excel will also be covered.

**CT305 ANALYTICS AND VISUALIZATION USING POWER BI 6 CREDITS**

CT305, formerly CT1004, is an Instructor-led training course that teaches learners how to use Microsoft Power BI Desktop and the Microsoft Power BI Service to connect the disparate data sources, transform and clean the data into a data model, analyze, and create visualizations of complex data as well as create and share data reports to help leaders make good decisions, which are essential to organizational success and competitive advantage. Topics include connections to data sources, data transformations and cleansing, data modeling and visualizations, dashboard

configuration, report creation, editing, and publication, and security. Exercises, quizzes, tests and practice exam and preparation tips and strategy are also included to help prepare learners for the 70-778 Analyzing and Visualizing Data with Microsoft Power BI examination.

**CT310**                      **AR & VR FUNDAMENTALS AND UNITY DEVELOPMENT**                      **3 CREDITS**

In this course, students will be able to add Unity and C# skills to their toolboxes as developers. In addition to learning how to build 2D and 3D applications and experiences within Unity, students will be exposed to Unity Services, navigating Unity documentation, preparation material for the Unity Certified Programmer Exam, VR and AR mini projects, and VR and AR Best Practices. During this time, students will also learn about what it means to be an AR/VR developer, how to understand this niche job market, and get to experiment with a few small AR and VR projects. This course is designed to set students up for part two of the class, Project Management for VR and AR Projects in Unity.

**CT311**                      **PROJECT MANAGEMENT FOR AR AND VR PROJECTS IN UNITY**                      **3 CREDITS**

In this course, in addition to continuing to learn about Unity and C#, students will practice project management skills as they work in teams to build AR and VR application prototypes for real industry partners in the community. To facilitate collaboration, they will gain practical experience using version control systems and experiment with different project management workflows in teams. Best practices for working and communicating with other developers, 3D artists, and clients will also be covered. At the very end of the course, students will start their own personal AR/VR project for their portfolio and prepare to publish it to the app store of their choice. Note: Taking Unity, C#, and VR/AR Best Practices is a prerequisite to taking this course.

**CT365**                      **NETWORK SECURITY**                      **4 CREDITS**

This course provides the skills necessary to apply and implement technical knowledge of security concepts in the security environments confronting enterprises today. Topics include systems security, access control, network infrastructure, assessments and audits, cryptography and organizational security. Students are given real world scenarios to reinforce the material covered and will learn how to apply the concepts to particular settings such as healthcare. Prerequisite: CT265 (Offered in the spring)

**CT400**                      **ALGORITHMS**

This course explores algorithms from a coding-focused perspective, using Python. Students will learn about the issues that arise in the design of algorithms for solving computational problems and will explore a number of standard algorithm design paradigms and their applicability. Students will also become familiar with concepts of runtime, recursion, implementation and evaluation. This course features a heavy emphasis on practical application of algorithms to common development and engineering challenges. Prerequisites: CT114, CT118, CT300 and MA240 (Offered in the fall)

**DA105**                      **FOUNDATIONS OF DATA ANALYTICS I USING PYTHON**

Foundations of Data Analytics I is based on UC Berkeley's Data 8 class. In an increasingly data-driven world, everyone should be able to understand the numbers that govern so much of our lives. Students will learn the core concepts of inference, data analysis and computing by working with real economic, social and geographic data. Particular attention will be paid to Bayes' Theorem - one of the most important concepts in applying statistics to the real world. Lastly, this course will cover the implications and dangers of bias in data. (Offered in the fall)

**DA110**                      **FOUNDATIONS OF DATA ANALYTICS II**

Foundations of Data Analytics II is based on UC Berkeley's Data 8 class. In an increasingly data-driven world, everyone should be able to understand the numbers that govern so much of our lives. Students will learn the core concepts of inference, data analysis and computing by working with real economic, social and geographic data. This course will also provide students with an introduction to the applications of Data Analytics in the workforce, with specific attention paid to the role of the Data Scientist or Analyst, and to the application of Big Data. Prerequisite: DA105 (Offered in the spring)

### DA301 PRINCIPLES AND TECHNIQUES OF DATA ANALYTICS I

This course is based heavily on UC Berkeley's Data 100 class. Data Analytics combines data, computation and inferential thinking to solve challenging problems and understand their intricacies. This class explores key principles and techniques of data science, and teaches students how to create informative data visualizations. It also explores particular concepts of Linear Algebra which are central to Data Science. Prerequisites: DA105, DA110, MA240, CT114, and CT118 (Offered in the fall)

### DA305 PRINCIPLES AND TECHNIQUES OF DATA ANALYTICS II

This course builds on Principles and Techniques of Data Analytics I to provide students with a more robust understanding of the tools of a Data Scientist. Data Analytics combines data, computation and inferential thinking to solve challenging problems to thereby better understand the world. This class explores key principles and techniques of data science, including quantitative critical thinking and algorithms for machine learning methods. It will also introduce students to the ways in which data analytics is deployed in healthcare, marketing, political science, criminal justice, and other fields. Prerequisites: DA301, DA105, DA110, MA240, CT114, CT118 (Offered in the spring)

### DA420 DATA ANALYTICS PRACTICUM

This course is a capstone project in which students are asked to work through a full data science workflow on a set of real data drawn from sports, politics, business or public health. This course exists to prepare students for the kind of work they will do on Data Science or Analytics teams, and as such, also features an emphasis on interviewing for jobs in the space and communicating results to stakeholders. Prerequisites: DA105, DA110, MA240, DA301, DA305, and Data Structures. (Offered in the spring)

### ECE101 DIGITAL ELECTRONICS 3 CREDITS

This course introduces the elements and tools of digital design. The course covers Boolean algebra, Karnaugh maps, Logic gates and digital circuits, analysis and design of combinational and sequential circuits, and timing issues. Adders, decoders, multiplexers, flip-flops, counters, and registers are implemented using TTL or CMOS ICs as well as VHDL-programmed FPGAs. Co-requisites: ECE101L. (Offered in the fall)

### ECE101L DIGITAL ELECTRONICS LAB 1 CREDIT

Illustrates the concepts of ECE101. Exercises in various forms of Combinational and Sequential Logic design. Use of test equipment. Design projects will include a digital security system, use of PSPICE to verify feasibility of some designs. FPGA board citing Xilinx, software development tools from Xilinx and other third parties are introduced. Co-requisites: ECE101L. (Offered in the fall)

### ECE105 CIRCUIT THEORY I 3 CREDITS

Basic elements and analysis techniques of DC circuits. Coverage includes resistors, capacitors, inductors, and sensors ; independent and dependent sources. Ohm's law, power, energy, and power transfer. Kirchoff's voltage and current laws; Nodal and Loop analyses; Thevenin and Norton equivalents; step and transient responses of first-order systems; time constants. Emphasis on functional circuits. Co-requisites: ECE105L, MA240. (Offered in the spring)

### ECE105L CIRCUIT THEORY LAB I 1 CREDIT

The Circuit Theory Lab I is designed to supplement the Circuit Theory I course. Co-requisites: ECE105. (Offered in the spring)

### ECE205 CIRCUIT THEORY II 3 CREDITS

Analysis and design of lumped networks. Resistive elements, superposition, nodal analysis, dependent sources, equivalence theorems. Energy storage in elements, dynamics of first and second order networks, transient responses, phasors, sinusoidal steady state analysis, steady state power analysis, three phase power circuits. Offered yearly. Prerequisites: ECE105 with a minimum C grade; Co-requisites: ECE205L & MA250. (Offered in the fall)

ECE205L	CIRCUIT THEORY II LAB	1 CREDIT
<p>Illustrates the concepts of ECE 205. Simulations with PSPICE, LABVIEW, NXT Robotics, INCSYS Power Simulator, Mathematica; construction and design. First order, second order transients, ideal and non-ideal transformer circuits, sinusoidal steady state circuits, power grid simulation. Offered yearly. Co-requisites: ECE205 with a minimum grade of C. (Offered in the fall)</p>		
ECE206	SOLID STATE DEVICES AND CIRCUITS	3 CREDITS
<p>Review of Thevenin and Norton Equivalent circuits. Frequency Domain analysis and Bode Plots. Representation of an active device by its Gain, Input and Output Resistance. Thorough coverage of op amps - circuits, applications, and inherent limitations. Introduction to semiconductor physics and the PN junction. Diode circuits, applications, and models. Zener diodes and power supplies. Ripple estimations. The Bipolar Junction Transistor - large and small signal analyses. Active, cutoff, and saturation region characterization. Hybrid Pi and T models. Basic transistor configurations - common collector, common base, and common emitter - along with their characteristics, applications, and tradeoffs. Estimation of bandwidth using open circuit time constants. Prerequisites: ECE205 with a minimum grade of C. Co-requisites: ECE206L. (Offered in the spring)</p>		
ECE206L	SOLID STATE DEVICES & CIRCUITS LAB	1 CREDIT
<p>The Solid State Devices &amp; Circuits Lab is designed to supplement the Solid State Devices &amp; Circuits course. Students will gain both exposure to circuits using operational amplifiers, diodes, and BJTs, and also perform design exercises using operational amplifiers and diodes. Lab concludes with a lengthier design, simulation, building, and testing of a multi-stage BJT amplifier with overall simultaneous gains of + / - 40. Prerequisites: ECE205 with a minimum grade of C. Co-requisites: ECE206. (Offered in the spring)</p>		
ECE225	LINEAR SYSTEMS WITH DIFFERENTIAL EQUATIONS	3 CREDITS
<p>Introduction to linear differential equations, linear algebra, signals and systems, time domain analysis of continuous and discrete linear systems, Laplace transform, Bode Plots, Z transform, Fourier series, Fourier transforms, and filtering. Prerequisites: MA250 and ECE205 with a minimum grade of C; Co-requisites: ECE225L. (Offered in the spring)</p>		
ECE225L	LINEAR SYSTEMS WITH DIFFERENTIAL EQUATIONS LAB	1 CREDIT
<p>The lab is designed to supplement the course. Mathematica® used to solve problems, demonstrate concepts. Labview® and hardware implementation of linear systems. (Offered in the spring)</p>		
ECE270L	STATISTICS FOR ENGINEERS LAB	2 CREDITS
<p>This lab is designed to give engineering applications of statistics and must be taken concurrently or after taking MA270. Includes six week long experiment on rat whisker resonance. Includes derivations of statistical theorems, Monte Carlo simulations, correlation, linear regression, applications of statistics in signal processing. Uses Mathematica software. Co-requisite is MA270. Prerequisite: MA250 Calculus II. (Offered in the spring)</p>		
ECE306	SOLID STATE DEVICES, POWER AND CIRCUITS	3 CREDITS
<p>This elective course is an extension of ECE 206. Advantages of feedback. Reduction of four fundamental feedback configurations to simplistic format. Loop gain and stability issues. Gain and phase margin. Frequency compensation techniques. Class A, B, and AB amplifier output stages. Power BJT applications and thermal issues. Voltage mode op amp design - small signal, gain, and frequency analysis. Current mode op amp design. A/D and D/A converters. Design of active filters, LCR resonator circuits. BiQuad filters. SAB filters. Switched capacitor filters. Tuned amplifiers and transformers. Oscillator design - Wien Bridge, phase shift, quadrature, Colpitts, Hartley, crystal, and multivibrators. Prerequisites: ECE 205 Circuit Theory II and ECE 206 Electronic Devices I with minimum grades of C; Course tightly coupled to ECE306L. (Offered upon demand)</p>		
ECE306L	SOLID STATE DEVICES, POWER AND CIRCUITS	1 CREDIT
<p>Illustrates the concepts of ECE306. Dependent sources. PSPICE confirmation of feedback circuits. Output gain stages and cross-over distortion. Oscillator design. Final project includes design, simulation, and construction (using discrete parts) of either a voltage mode or current mode op amp with an objective of maximum bandwidth with unity gain stability. Co-requisites: ECE 306</p>		



ECE335	CONTROL SYSTEMS	3 CREDITS
Introduction to feedback control systems; control system characteristics (stability, sensitivity, disturbance rejection, steady-state accuracy, transient response); stability analysis; root-locus analysis and design; frequency-response analysis and design; analysis and design of digital control systems. Prerequisites: ECE225 with a minimum grade of C. Co-requisites: ECE335L. (Offered in the fall)		
ECE335L	CONTROL SYSTEMS LAB	1 CREDIT
The Control Systems lab is designed to supplement the Control Systems course. Co-requisites: ECE335. (Offered in the fall)		
ECE390	DATA & COMPUTER COMMUNICATIONS	3 CREDITS
Basic principles and topics in data communication, local area networks, wide area networks, communication architectures and protocols. Data transmission, encoding, multiplexing, circuit switching, packet switching, frame relays, and asynchronous transfer mode are also discussed. The TCP/IP protocol suite is studied and a project involving configuring, implementing, and installing a network is carried out during the semester. Prerequisite: ECE 225 or instructor's approval. 1 term - 3 credits. Must be taken concurrently with ECE L390. (Offered in the spring)		
ECE390L	DATA & COMPUTER COMMUNICATIONS	1 CREDIT
The Data and Computer Communications lab is designed to supplement the Data and Computer Communications course. Co-requisites: ECE390. (Offered in the spring)		
ECE403	APPLIED ELECTROMAGNETICS	3 CREDITS
Electrostatics and magnetostatics, including Coulomb's law, Gauss's law, Biot-Savart law and Ampere's law, vector operations in rectangular, cylindrical, and spherical coordinates, divergence theorem and Stokes theorem, electric fields in materials, Lorentz force, magnetic torque, Faraday's law, Maxwell's equation, wave propagation, transmission lines with Smith charts, rectangular waveguides, Hertzian dipole antenna; examples related to power when applicable. Prerequisites: ECE205 and MA260 with a minimum grade of C; Co-requisites: ECE403L (Offered in the spring)		
ECE403L	APPLIED ELECTROMAGNETICS LAB	1 CREDIT
The Applied Electromagnetics Lab is designed to supplement the Applied Electromagnetics course. Co-requisites: ECE403. (Offered in the spring)		
ECE406	SOLID STATE DEVICES & CIRCUITS III	3 CREDITS
This course is an extension of ECE 206. Advantages of feedback. Reduction of four fundamental feedback configurations to simplistic format. Loop gain and stability issues. Gain and phase margin. Frequency compensation techniques. Class A, B, and AB amplifier output stages. Power BJT applications and thermal issues. Voltage mode op amp design - small signal, gain, and frequency analysis. Current mode op amp design. A/D and D/A converters. Design of active filters, LCR resonator circuits. BiQuad filters. SAB filters. Switched capacitor filters. Tuned amplifiers and transformers. Oscillator design - Wien Bridge, phase shift, quadrature, Colpitts, Hartley, crystal, and multivibrators. Prerequisites: ECE 205 Circuit Theory II and ECE 206 Electronic Devices I		
ECE406L	SOLID STATE DEVICES & CIRCUITS III LAB	1 CREDIT
Illustrates the concepts of E406. Dependent sources. PSPICE confirmation of feedback circuits. Output gain stages and cross-over distortion. Oscillator design. Final project includes design, simulation, and construction (using discrete parts) of either a voltage mode or current mode op amp with an objective of maximum bandwidth with unity gain stability. Co-requisite: ECE406		
ECE410	COMMUNICATION SYSTEMS	3 CREDITS
Coverage of a variety of basic communication systems, their theory of operation, and the analysis of their performance. Review of linear systems, Fourier and Laplace Transforms, and Frequency Domain analysis as needed. Graphical convolution of analog signals. Digital Baseband modulation techniques. Receiver design with an introduction to Stochastics. Digital Bandpass modulation and demodulation techniques. Analog communication systems including		

## Academic Course Descriptions

AM, FM, and PM approaches. Consideration of Noise and the resultant system performance. Multiplexing and information compression. Prerequisites: ECE206, ECE225 and MA260 with a minimum grade of C; Co-requisites: ECE410L. (Offered in the spring)

ECE410                      COMMUNICATIONS SYSTEMS LAB                      1 CREDIT

Illustrates the concepts of ECE410. Exercises will focus both on communication system components and in the construction of a complete communication system. Introduction to FSK, DTMF, Phase lock loops, AM and FM modulation, oscillators, A/D and D/A conversion and the Nyquist rate. Wireless transmissions. Troubleshooting of non-working systems. Students have flexibility in the design and construction a full communication system which includes digitization, rearrangement in parallel and serial formats, transmission over a distance, and reconstruction back to its original analog form. Co-requisites: ECE410. (Offered in the spring)

ECE414                      SENIOR PROJECT PROPOSAL                      1 CREDIT

The aim of this course is for students to generate a thoughtful and well-written senior project proposal. This course will provide guidelines and critiquing for that purpose. By the end of the course, students will have narrowly identified their project, performed a review of current available related technology, and selected the approach they will pursue. They will also establish a parts list, timetable, set of milestones, and basis or procedure for determining an answer to the question how good is it? At the end of the course they will formally present their project and write a comprehensive project proposal document. Once accepted, they are permitted to take ECE415 Senior Project. Note that this course is focused on the process of creating a viable proposal. The project should incorporate appropriate engineering standards and be defined sufficiently to include multiple realistic constraints. Enough flexibility exists that students may either implement the project they documented in this course when they take ENS415, or may pursue an alternative project if desired. Prerequisites: ECE101, ECE206, MA240 (Offered in the fall)

ECE415                      SENIOR PROJECT                      4 CREDITS

For the senior project the student implements, documents, and presents their completed project of the proposal generated in ECE414. Having defined their project, students gather the resources necessary and proceed to execute their designs. The project should incorporate appropriate engineering standards and respect realistic constraints (be viably achievable within the given time and be well defined in its scope). The implementation period will include the construction, testing, troubleshooting, refinement, and evaluation of their project. A formal presentation of the project is made. A professional caliber documentation of the project is also required, and may go through numerous iterations of review. The final project report must consider most of the following: environmental impact, sustainability, manufacturability, ethics, health and safety issues, and political concerns. Time management, prioritization of process, formal communication, overcoming obstacles and meeting deadlines are monitored by the project advisor. Weekly reports and meetings are expected. The advisor also serves as a resource for the student. However, full responsibility for the success of the project rests on the student. Cross disciplinary projects are encouraged. Prerequisites: ECE414. (Offered in the spring)

ECE430                      DIGITAL SIGNAL PROCESSING                      3 CREDITS

Discrete signals and systems, digital simulation of analog systems, Z transforms, recursion equations, finite-order systems, Fourier transforms, line spectra and Fourier series, discrete Fourier series and Fast Fourier Transforms (FTT), sampling and interpolation, mean-square approximations, non-recursive and recursive filters, selected topics on algorithms, design and applications of digital signal processing. There will be an end-of-semester design project that will involve students' creativity, design of open ended projects, formulation of alternative solutions, detailed system description, realistic constraints (economic factors, safety, reliability, aesthetics ethics, and social impact). Prerequisites: ECE101, ECE225 with minimum grade of C; Co-requisites: ECE430L. (Offered in the fall)

ECE430L                      DIGITAL SIGNAL PROCESSING LAB                      1 CREDIT

Illustrates the concepts of ECE430. This laboratory course uses MATLAB, Simulink, and the Texas Instruments 6713 DPS board to design, test and implement various projects. The students will also learn how to use FPGA boards to design and implement various DSP systems. There will be a design project at the end of the course designed to synthesize what the students have learned. Co-requisites: ECE430. (Offered in the fall)

EE101	MOTORS AND CONTROLS	4 CREDITS
<p>This course serves as an introduction to what motors are and how they work. The history of electric motors, the methods of operation of motors, structural features and applications of motors are covered in detail. The operational and control aspects of DC/AC motors, stepper motors, linear motors and servo motors are discussed. Additionally, real-world applications of electric motors and microcontroller-based programming of motors are systematically covered. (Offered in the fall and spring)</p>		
EE110	DC CIRCUITS	4 CREDITS
<p>Introduction to basic DC circuit theory. Topics include a study of SI units; Ohm's Law and Kirchhoff's Law; series, parallel, and series-parallel circuits, power and energy relations. Also Thevenin's, Norton's and Maximum Power Theorems. Topics reviewed and reinforced in the accompanying laboratory. Prerequisites: complete MA105 with a GPA of at least 2.00. Co-requisites: EE101, MA120 (Offered in the fall and spring)</p>		
EE113	AC CIRCUITS	4 CREDITS
<p>Continuation of topics in EE110 with emphasis on basic AC circuit concepts, such as: capacitors, inductors, generation of single-phase alternating potential; average and RMS values of sinusoidal waveforms; phasors; power in AC circuits; application of general AC circuit analysis. Topics reviewed and reinforced in accompanying laboratory. Prerequisites: EE101, EE110, MA120,; Co-requisite: MA130 (Offered in spring and summer)</p>		
EE122	ELECTRONICS I	4 CREDITS
<p>Basic electronics including energy levels and bands, semiconductor construction, electron-hole conduction characteristics and areas of application of various bipolar semiconductor devices. Application of diodes and rectifier circuits and filters. Transistor operation analysis for common emitter configurations. Topics include DC biasing arrangements, stabilization methods for DC operating point and AC gain, input impedance and output impedance. Prerequisites: EE101, EE110, MA120; Co-requisite: EE113, MA130 (Offered in the spring and summer)</p>		
EE131	DIGITAL PRINCIPLES	4 CREDITS
<p>An introductory course in digital concepts, which includes number systems, codes, Boolean algebra, Karnaugh maps, gating circuits, characteristics and properties of integrated circuit logic families, logic circuit analysis and logic circuit design. Types of flip-flops, counters, registers and their applications are explained. A weekly laboratory enables the student to apply the principles taught in the theory portion of the course. Prerequisites: complete MA105 with a GPA of at least 2.00. Co-requisites: EE101, MA120 (Offered in the fall and spring)</p>		
EE210	ROBOTICS, MOTORS, AND CONTROLS I	4 CREDITS
<p>The emphasis in this course is on the software, hardware, and fundamental concepts of automation. The first part of the course will focus on how PLC's and Ladder Logic are used to control industrial processes and manufacturing. An introduction to different types of motors and sensors is given. We will build and control entire systems including robots using microcontrollers. Prerequisites: EE131, EE122, EE113, CT143 or CT142. (Offered in the fall)</p>		
EE214	ELECTRICITY AND ELECTRONICS	4 CREDITS
<p>The study of electrical and electronic devices used in electrical measurements with basic DC and AC circuit theory. Topics include Ohm's Law; Kirchhoff's Laws; Applications of Thevenin's Theorem; reactive elements. Topics reviewed and reinforced in accompanying laboratory. Prerequisites: MA120 Co-requisites: MA130. (Offered in the spring)</p>		
EE220	ROBOTICS, MOTORS, AND CONTROLS II	4 CREDITS
<p>This course is a continuation of the work done in EE210. We will learn more advanced PLC instructions as well as work on and build more complicated systems. Prerequisites: EE210. (Offered in the spring)</p>		
EE223	ELECTRONICS II	4 CREDITS
<p>This course will analyze bipolar differential amplifiers, operational amplifiers, feedback, class A, B, and C power amplifiers, and single stage FET amplifiers. The advantages and disadvantages of each will be discussed, including costs. Prerequisites: EE122, MA130 (Offered in the fall)</p>		



## Academic Course Descriptions

### EE235                      PROGRAMMABLE LOGIC                      4 CREDITS

Students will study both the technical and business benefits of programmable integrated circuits. They will learn to simulate both combinational circuits and sequential logic circuits, and Finite State Machines. Students will perform circuit level and timing level analysis on programmable logic devices using a hardware description language. In the laboratory, CAD tool based structural and behavioral modeling will enable the student to design, program and test circuits. Prerequisites: CT142 or CT143, EE101, EE122, EE131, MA120; Co-requisite: EE223. (Offered in the fall)

### EE240                      EMBEDDED PROCESSORS                      4 CREDITS

This course focuses on micro-controller/microprocessor technology, basic hardware components of a micro-controller, programming concepts, timers, interrupts, and A/D converter operations with interfacing concepts to perform I/O operations. Students will be exposed to constructing circuits, downloading and running assembly language and "C" programs to control these components, and hardware interfacing. In addition, networked microcontroller edge devices sensing in the IoT world are connected to small network gateway microcomputers providing students experience in using Linux and the Python programming language in labs to gather and analyze real-time data. Prerequisites: CT142 or CT143, EE101, EE131. (Offered in the spring)

### EE254                      NETWORKING FOR END USERS                      4 CREDITS

This course is intended for those who need to install, configure, troubleshoot, repair computers or instrumentation to connect to the local area network in the workplace. After completing this course, you will have a working knowledge of routing, switching, network applications and protocols. Connections to wired 802.3 and wireless 802.11 networks will be discussed. This course is the first Cisco course that leads toward earning the CCENT certificate. (Offered in the fall and spring)

### EE320                      INTRODUCTION TO PLCS                      4 CREDITS

This class will introduce the concepts of fundamentals of logic and basics of programmable logic controllers. Students will practice the design, development, simulation and analysis of wiring diagrams and ladder logic programs. The course will cover various programming techniques, control instructions, digital logic level manipulations, relay operations, timers and counters. The use of industry standard PLC equipment will provide practical experience to students. Prerequisites: MA130, EE131. (Offered in spring)

### EL110                      CIRCUIT THEORY I                      4 CREDITS

Introduction to basic DC Circuit Theory. Topics include introduction to SI units and a study of Ohm's Law and Kirchoff's Voltage and Current Laws; series, parallel, and series-parallel circuit analysis, and power and energy relations and analysis. Theory and application of inductors and capacitors. National Electrical Code application of DC Theory. Topics reviewed and reinforced in the accompanying laboratory exercises. Prerequisites: complete MA105 with a GPA of at least 2.00. (Offered in the fall and spring)

### EL127                      ELECTRICAL DESIGN AND LAYOUT I/ NEC I                      5 CREDITS

An introduction to the National and Massachusetts Electrical Codes and study of the fundamentals of electrical design, based on the requirements of these codes. Topics focus on residential applications and include polarity identification of systems and circuits; safety rules for working on electrical systems; electrical symbols; factors affecting conductor size and type of insulation; application of switches; and an emphasis on circuit wiring diagrams. Application of general wiring methods, boxes, fittings and cabinets. Laboratory included. Prerequisites: complete MA105 with a GPA of at least 2.00. (Offered in the fall and spring)

### EL129                      ELECTRICAL DESIGN AND LAYOUT II/ NEC II                      5 CREDITS

A continuation of the topics covered in EL127. Continued study of the National and Massachusetts Electrical Codes and fundamentals of electrical design. Topics include requirements for calculating branch circuit sizing and loading; principles of overcurrent protection; grounding and bonding; residential special purpose outlets; and Service-Entrance equipment and calculations. Laboratory included. Prerequisite EL127. (Offered in the spring and summer)

EL213	CIRCUIT THEORY II	4 CREDITS
<p>Continuation of topics covered in EL110. Emphasis will be on basic AC circuit concepts as applied to the generation of single-phase alternating current voltages. Analysis of Peak and RMS voltages. Study of the differences between sinusoidal and non-sinusoidal waveforms. Analysis of power in AC circuits and the effects of inductive and capacitive elements on electrical systems. Study and analysis of the relationships between voltage, current, and impedance in AC circuits. National Electrical Code application of AC Theory. Topics reviewed and reinforced in the accompanying laboratory exercises. Prerequisite MA120 and EL110. (Offered in the spring and summer)</p>		
EL214	LOW VOLTAGE SYSTEMS AND CONTROLS	4 CREDITS
<p>Topics include fire warnings and security systems, fiber, data and communications wiring and systems. Study will focus on the application of the current National and Massachusetts Electrical Codes as they pertain to these systems. Prerequisite EL129 and EL213. (Offered in the fall)</p>		
EL222	ELECTRICAL DESIGN AND LAYOUT III/ NEC III	5 CREDITS
<p>Continued study of the National and Massachusetts Electrical Codes and fundamentals of electrical design as they pertain to commercial applications. An introduction to a variety of wiring methods, including EMT, RMC, IMC, PVC, and types AC and MC cable. Topics include interpreting blueprints and specifications; calculating types of luminaires and their application; electrical loads; motor and appliance circuits, and feeder sizing. Laboratory included. Prerequisite EL129. (Offered in the fall)</p>		
EL229	ELECTRICAL DESIGN AND LAYOUT IV/ NEC IV	5 CREDITS
<p>Continued study of the National and Massachusetts Electrical Codes with emphasis on advanced topics, including hazardous locations and requirements for special occupancies. Other topics include commercial branch circuits, feeders and electrical services; feeder diagram calculations; motor and motor control installations; motor load calculations; and principles of grounding systems and equipment. Laboratory included. Prerequisite EL222 (Offered in the spring)</p>		
EL240	ELECTRIC MACHINES I	4 CREDITS
<p>Study of the operating characteristics of single-phase and three-phase transformers, voltage and current transform ratio, transformer modeling. Effects of loads, voltage regulation, losses and efficiency. Study of the operating characteristics of DC generators such as shunt, compound, series and separately excited generators, voltage build-up, regulation and efficiency. Study of the operating characteristics of DC motors, counter emf, torque and starters. Study of single-phase and three-phase AC generators and motors. Laboratory included. Prerequisite EL129 and EL213. (Offered in the fall)</p>		
EL241	ELECTRIC MACHINES II	4 CREDITS
<p>Continuation and advanced coverage of topics presented in EL240. Emphasis will be on the principles and characteristics involved in the modern day commercial and industrial usage of various electrical motors, generators, control circuits, transformers, pilot devices, schematic and ladder diagrams, and the introduction to the operation, connections, and programming of PLC's for the control of electrical machinery. Laboratory exercises with operating actual electro-mechanical machinery will allow students hands-on experience with the topics presented in classroom study. Students will be presented with the areas of the National Electrical Code that are pertinent to the material covered. Prerequisite EL240 (Offered in the spring)</p>		
EL243	PHOTOVOLTAIC DESIGN AND INSTALLATION	4 CREDITS
<p>This course will introduce students to the basic principles of photovoltaics. Topics will focus on site selection, panel types, storage centers, system design, and system application. Upon course completion, students will be able to install basic system components in accordance with the National Electrical Code and OSHA. Topics focus on photovoltaics and wind energy technology. Prerequisite EL213, EL222, and EL240, TS201 (Offered in the spring)</p>		

## Academic Course Descriptions

EN091                      READING AND WRITING FOR ACADEMIC SUCCESS                      4 CREDITS

This Academic Development course integrates the growth of critical reading strategies in addition to academic writing and language skills. Students are introduced to the writing process and a deeper understanding and application of academic writing conventions. In order to enhance their participation in an academic environment, students will develop critical reading, thinking, note taking and writing skills by working through high-interest readings. (Offered in fall, spring, and summer)

EN099                      INTRODUCTION TO ORAL COMMUNICATIONS                      3 CREDITS

This course is intended to provide students with a basic understanding of the communication process and to enable them to develop their communication competence in various contexts. We will study the styles of speech used in these contexts, and will explore issues of audience, purpose, and tone. The course aim is to develop an awareness of the many ways in which we communicate with one another, and to promote confidence and overall speaking skills. The course will provide numerous and varied opportunities for students to practice communication techniques. At the conclusion of the course, all students should be knowledgeable of the elements of effective communication and capable of recognizing and participating in varied contexts. Co-requisite: EN091. (Offered in the fall and spring)

EN112                      INTRODUCTION TO PROFESSIONAL COMMUNICATIONS                      3 CREDITS

This course provides a basic understanding of the professional communication process and builds competence as workplace communicators through a review of foundational communication modes and technologies. Projects are centered around gathering, organizing, and presenting written, oral, and visual information and team-building skills are developed through collaborative learning. Group dynamics, cross-cultural communication, and conflict resolution are emphasized throughout the course.

EN129                      COLLEGE COMPOSITION I WITH SKILLS PRACTICUM                      3 CREDITS

This version of College Composition I follows the same curriculum as our traditional EN 130 course but includes a skill-building practicum component. The practicum, which meets for 1.5 hours each week, targets and strengthens specific skills needed to be successful in English courses at BFIT and beyond. During these sessions, students engage in an active learning environment designed to bolster their reading, writing, research, and presentation skills. EN 129's non-practicum sessions invite students to investigate the ways in which language and information literacy are used in various settings. By examining how language is connected to issues of identity, and how information literacy connects to both personal and professional life, students see the importance of using spoken and written communications appropriate to various situations. EN 129 focuses on three main projects: a memoir where students explore the formation of their identities, and two ethnographic studies where they look closely at two distinct communities, one informal and one professional, to see how people interact in those settings.

This course calls for frequent informal written responses that build toward larger formal texts. Students approach writing as a process through revision and metacognitive reflection. They receive feedback on all written work from their instructors and classmates to aid these processes. (Offered in the fall and spring)

EN130                      COLLEGE COMPOSITION I                      3 CREDITS

This course invites students to investigate the ways in which language is used in various settings. By examining how language is connected to issues of identity, students see the importance of using spoken and written communications appropriate to particular contexts. The course is structured around three main projects: a memoir where students explore their own experiences with language and identity, and two ethnographic studies where they look closely at two distinct communities, one informal and one professional, to see how people interact in those settings. The course calls for frequent informal written responses that build toward larger formal texts. Students are invited to become reflective of their writing processes as they are involved in a constant process of revising. They receive feedback from their instructor and classmates, and discuss many ideas and concepts in groups. (Offered in the fall, spring, and summer)

**EN140 COLLEGE COMPOSITION II 3 CREDITS**

A continuation of College Composition I, this class considers many written genres while focusing on such issues as work, social class, culture, and identity. By examining these issues through the genres of journal articles, oral history, narrative, short story, poetry, drama, and film, students will build on their abilities to work reflectively, develop their responses, and incorporate the voices of others into their own texts through the use of quotations. Students will have the opportunity to write texts similar to the ones they are reading, as well as academic essays. Through the practice of close reading and expository writing, students will develop the ability to comment on not only specific genres, but also on the world around them. They will also have the opportunity to participate in the kinds of group and presentational work that might be practiced in a professional setting. Prerequisite: EN130 (Offered in the spring and summer)

**EN320 TECHNICAL COMMUNICATION 3 CREDITS**

Principles of effective communication on both the employee and organizational levels are emphasized in this course. Students create professional written documents and there is a strong emphasis on oral communications. Through class discussions, working groups, and formal presentations, students will consider and present on various workplace scenarios. These situations will provide students the opportunity to practice negotiation, conflict management, ethical decision-making, leadership roles, and presentation skills. Professionalism in all forms of communication will be expected. (Offered in the fall and spring)

**ENS103 INTRODUCTION TO ENGINEERING 3 CREDITS**

This course provides exposure to engineering practice, with particular focus on electrical engineering components such as circuit elements and systems. It seeks to go beyond the mathematics and provide an intuitive appreciation of functional devices. Examples taken from a broad swath of technological history illustrate significant crossroads, decisions, and inventiveness. Emphasis is placed on learning to think as an engineer - assessment of problems, candidate solution tradeoffs, and implementations. Frequent exercises in creative engineering design will be used. Students will be required to design several elementary devices, such as a magnet, a capacitor, a timing device, and a motor, which they will enter in a competition for overall strength, compactness, accuracy, or speed. Sometimes assignments relate to "survival on an island" concerns, such as communication or drinking water. Students also learn about reverse engineering by selecting, building, troubleshooting, and presenting an electronic kit of their choice. A term paper determining the engineering behind a topic of their choice will also be written and presented. On occasion (see ENS103L) there will be team competitions between various smaller groups in the class. Co-requisites: ENS103L. (Offered in the fall)

**ENS103L INTRO TO ENGINEERING LAB 1 CREDIT**

The Lab is designed to provide opportunities to gain familiarity with engineering tools. Students will be introduced to parts (e.g. learn the resistor color code), test equipment (multimeters, proto-typing trainers, signal generators, and oscilloscopes), and construction techniques (wiring, soldering, troubleshooting). Strong introduction to microprocessors, basic programming, and some robotics. Currently utilizing Parallax "what is a microcontroller?" and Boebot. At least two design challenges with the robotic aspect – running a specific course pattern precisely, and following a line. Possible Maze solving exercises. Co-requisites: ENS103. (Offered in the fall)

**ENS202L ENGINEERING TECHNICAL COMMUNICATION 1 CREDIT**

Emphasis on clarity, precision, accuracy, and conciseness in scientific writing. Assignments include a team-based design-contest proposal, an oral presentation on current scientific topics, a team-based design of an experiment with a write-up and an oral presentation, a paper on engineering ethics concerning the Challenger and an instruction manual. Memo writing, summary writing, and resumes are also included. Prerequisites: EN140, PH223 & PH225 (Offered in the fall)

**ENS220 DESIGN AND DESIGN TOOLS 4 CREDITS**

This course applies design tools (AutoCAD primarily and others as necessary for specified design problems) to design problems specified by the instructor. Prerequisites: PH222

## Academic Course Descriptions

HI130 INTRODUCTION TO HEALTH INFORMATION TECHNOLOGY 4 CREDITS

This course is designed to explore the use of information systems in healthcare. Students will be introduced to the information systems and their applications in healthcare. The fundamentals of information systems, including Electronic Health Record, will be explored. Students will become familiar with information systems used for managerial and clinical support. Information security will be discussed. (Offered in the fall, spring and summer)

HI210 HEALTH IS IMPLEMENTATION AND WORKFLOW ANALYSIS 4 CREDITS

This course explores the implementation lifecycle and workflow analysis of health information systems (HIS), necessary to achieve optimal automation of clinical work processes. Topics such as HIS planning, stakeholders, change management, readiness assessment, flowcharting, functional requirements, usability, request for proposal, systems selection and acquisition, training strategies, and quality improvement will be covered in the context of the Meaningful Use, whose name was changed in 2018 to Promoting Interoperability Programs. Implementation frameworks, successes, and failures in deploying HIS will be used as examples. Prerequisites: SS110 and HI130 (Offered in the spring)

HI310 MEDICAL CODING, CLASSIFICATION AND COMMUNICATION 3 CREDITS

This course introduces students to the study and practice of procedural medical coding using ICD-9-CM and ICD-10- CM (Revisions 9 and 10 of the International Classification of Diseases), and CPT (Current Procedural Terminology). Topics include ICD and CPT coding rules, conventions, and guidelines in complex case studies. Additional topics include the investigation of government regulations and changes in healthcare reporting. Prerequisite: TS120 (Offered in the spring)

HI330 INTRODUCTION TO HEALTHCARE DATABASES 4 CREDITS

This course introduces students to the principles of data management in the context of Health Information Technology (HIT). The emphasis is on practical database experience reinforced through assignments and weekly laboratory work. Students learn first to work with Microsoft SQL Server 2008 R2 database system. Then, they are introduced to the design of databases and their implementation in relational systems.. Topics include tables, queries, forms, reports, importing and exporting data, structured query language, entity relationship models, the relational data model, and normalization of databases. Examples, assignments, and laboratory work are drawn from hospital and other HIT environments. Students will be prepared to take the MTA 98-364 exam in-house. Prerequisites: CT221 and HI210 (Offered in the fall)

HI410 HEALTH INFORMATION SYSTEMS INTEGRATION 4 CREDITS

This course focuses on teaching students Health Level 7 (HL7), which is one of the most common health care messaging and data exchange standards. Students also learn how healthcare interoperability, six categories of standards, controlled vocabularies, and message and document exchanges help with achieving greater health information availability, which will lead to the reduction of medical errors, and the enhancement of care quality. Students are given hands-on experience with learning HL7 messaging for many different scenarios, and creating their first HL7 message. Prerequisite: HI330 (Offered in the spring)

HI430 HEALTHCARE COMPLIANCE 3 CREDITS

This course will cover the fundamentals of healthcare compliance administration from an IT perspective. A major focus of the course will be a thorough understanding of the HIPAA privacy laws as related to the role of HIT professionals. Specific topics include network and email security as related to healthcare compliance under HIPAA. (Offered in the fall)

HI445 PROFESSIONAL EXPERIENCE (PRACTICUM) 4 CREDITS

Students are placed in a hospital information technology (or other suitable) department to gain experience in a professional working environment. Students are responsible for various assigned duties depending on the placement. Prerequisites: HI330, SS335, and HI430 (Offered in the spring)

**HI490**                      **CAPSTONE PROJECT**    **4 CREDITS**

In this course students work in teams to design and complete a full semester project in Health Information Technology. The course will guide students in defining a complex problem and developing a workable solution. The professor will identify an array of potential project areas for student consideration, who will then be assigned an area based on preference, skills and team size. To the degree possible, students will get their top choices of project areas. Prerequisites: HI330, SS335, and HI430 (Offered in the spring)

**HV100**                      **HVAC&R 1ST SEMESTER**    **13 CREDITS**

#### **FUNDAMENTALS OF ELECTRICITY AS APPLIED TO HVAC-R**

This course is designed to explore the sources and principles of electrical energy and magnetism, and its control. Students will learn how to apply safety procedures while working with electricity, electrical devices, and equipment. They will learn to distinguish the difference between series and parallel circuits and how to apply principles of electricity to electrical formulas as they relate to basic circuits and equipment. Students will also learn to apply automatic controls used in the HVAC&R industry. They will learn the various types and applications of electric motors and controls used in the industry. In addition students will learn to diagnosis and troubleshoot electric motors, circuits and controls. In the process they will learn to use various types of testing equipment. The OSHA 10 hour certification is administered in this course as well. Prerequisites- None. (Offered in the fall and spring)

#### **REFRIGERATION FUNDAMENTALS**

This course is designed to present the student with the principles and basic operation of refrigeration systems and the refrigeration cycle. They will learn about the laws of thermodynamics as applied to refrigeration, different refrigerants and their applications, compressors, evaporators, condensers, metering and control devices and their operation within the refrigeration system. Students will learn how to plot refrigeration pressures for refrigerants on a pressure/temperature chart. (Offered in the fall and spring)

#### **ELECTRICAL AND MECHANICAL FOR REFRIGERATION**

This course is designed to familiarize students with the electrical and mechanical aspects of a refrigeration system. Wiring schematics for refrigeration units will be studied in depth and applied to refrigeration trainers as well as the operation, installation, and functions of different mechanical components. Students will also be introduced the different types of temperature and pressure controls of a refrigeration system and their roll within the system. Students will also learn basic service procedures such as, system charging and evacuation, superheat and subcooling, leak testing procedures, tubing and piping techniques, as well as pump down systems, and domestic refrigeration.

**HV111**                      **FUNDAMENTALS OF ELECTRICITY AS APPLIED TO HVAC-R WEEK 1-2**    **?? CREDITS**

This course is designed to explore the sources and principles of electrical energy and magnetism, and its control. Students will learn how to apply safety procedures while working with electricity, electrical devices, and equipment. They will learn to distinguish the difference between series and parallel circuits and how to apply principles of electricity to electrical formulas as they relate to basic circuits and equipment. Students will also learn to apply automatic controls used in the HVAC&R industry. They will learn the various types and applications of electric motors and controls used in the industry. In addition students will learn to diagnosis and troubleshoot electric motors, circuits and controls. In the process they will learn to use various types of testing equipment. The OSHA 10 hour certification is administered in this course as well. Prerequisites- None

**HV112**                      **FUNDAMENTALS OF REFRIGERATION WEEKS 3-6**    **?? CREDITS**

This course is designed to present the student with the principles and basic operation of refrigeration systems and the refrigeration cycle. They will learn about the laws of thermodynamics as applied to refrigeration, different refrigerants and their applications, compressors, evaporators, condensers, metering and control devices and their operation within the refrigeration system. Students will learn how to plot refrigeration pressures for refrigerants on a pressure/temperature chart.

## Academic Course Descriptions

HV113	EPA REFRIGERANT RECOVERY, RECYCLE, AND RECLAIM WEEKS 7-9	?? CREDITS
Recovery, Reclamation and Recycling Program: this course concentrates on Federal EPA certification test preparation, R410A certification, and the use of recovery equipment.		
HV114	GAS HEATING AND RESIDENTIAL AIR CONDITIONING WEEKS 10-12	?? CREDITS
This course is designed to provide the student with the necessary information about service and repair of gas fired warm air heating units and residential central air systems. Combustion theory, efficiency testing, combustion air and vent design, heat exchanger types, blower motors, fans and control systems including thermostats are covered. Students will study installation, operation and maintenance techniques for A/C units found in single-family homes and living facilities. Specific topics of study include mechanical repairs, air treatment, electrical repairs and home duct work.		
HV115	OIL FURNACES AND HYDRONIC HEATING WEEKS 13-16	?? CREDITS
This course covers the installation, maintenance, and operation of oil-fired hot air and hydronic heating systems; principles of combustion, and hands-on troubleshooting in residential and light commercial applications. This course will include oil efficiency testing, oil safety, and a NORA oil certification. Students will also learn the principles of steam, as well as hydronic system design and maintenance.		
HV150	HVAC&R INTERSESSION	2 CREDITS
EPA—REFRIGERANT RECOVERY, RECYCLE, AND RECLAIM		
Recovery, Reclamation and Recycling Program: this course concentrates on Federal EPA certification test preparation, R410A certification, and the use of recovery equipment. (Offered in the fall and spring)		
HV200	HVAC&R 2ND SEMESTER	13 CREDITS
COMMERCIAL REFRIGERATION AND ICE MACHINES		
Students will study commercial applications of evaporators and condensers as applied to commercial refrigerations, including ice machines and walk-in units. This course will also include different types of expansion devices for these applications, special refrigeration systems, troubleshooting and typical operating conditions. (Offered in the spring and summer)		
COMMERCIAL AIR CONDITIONING AND HEAT PUMPS		
This course is designed to provide the student with the necessary information about the various types of air conditioning systems such as package roof top systems, chillers/cooling towers, geothermal heat pumps, and their characteristics and applications. This course also explores the servicing and troubleshooting of systems and controls. Students will learn the parameters associated with psychometrics, the process involved in installing an air conditioning or heat pump system, and the conditions that affect these systems. Students will also learn factors involved in comfort and plot air conditions using a psychometric chart. (Offered in the spring and summer)		
GAS HEATING AND RESIDENTIAL AIR CONDITIONING		
This course is designed to provide the student with the necessary information about service and repair of gas fired warm air heating units and residential central air systems. Combustion theory, efficiency testing, combustion air and vent design, heat exchanger types, blower motors, fans and control systems including thermostats are covered. Students will study installation, operation and maintenance techniques for A/C units found in single-family homes and living facilities. Specific topics of study include mechanical repairs, air treatment, electrical repairs and home duct work. (Offered in the spring and summer)		





## Academic Course Descriptions

### MA120 COLLEGE ALGEBRA AND TRIGONOMETRY 3 CREDITS

This course begins with a review of units of measurement and the metric system. Students' understanding of algebra is developed through an examination of algebraic expressions, mainly polynomial and rational, and the methods of solving rational equations, systems of linear equations, quadratic equations, other types of equations, and word problems. The introduction to the basics of functions and their graphs leads into the study of composite and inverse functions. The course concludes with an introduction to angles and radian measure, followed by problem solving involving angles and right triangle trigonometry, with an introduction to circle trigonometry. Prerequisite: MA 095 (grade of C or higher) or MA105 (grade of C- or higher) or Placement. (Offered in the fall, spring, and summer)

### MA130 PRECALCULUS 3 CREDITS

The ultimate goal of this course is to help students transition from seeing functions as input-output operators to seeing functions as independent objects that can be operated upon. To that end, the course focuses on developing a library of various families of functions and their graphs. The course begins with polynomial and rational functions, with emphasis on intercepts and end-behavior, then transitions to exponential and logarithmic functions, with emphasis on function transformations, and finally trigonometric functions. The course concludes with an exploration of polar coordinates, the complex plane, and an introduction to vectors. Prerequisite: MA120. (Offered in the fall, spring, and summer)

### MA240 CALCULUS I 4 CREDITS

This course introduces the concepts of Calculus: rate of change and accumulation of quantity. Course topics include: a brief review of functions; and introduction to limits; the extension of the concept of slope to rates of change (average and instantaneous); the concept of derivative and the rules for differentiation, applications of derivatives and differentiation; and an introduction to accumulations of quantity, integration, and the Fundamental Theorem of Calculus. Prerequisite: MA130. (Offered in the fall, spring, and summer)

### MA250 CALCULUS II 4 CREDITS

This course builds and expands upon the techniques and applications covered in Calculus I, beginning with a review of basic integration: the accumulation of area and the Fundamental Theorem of Calculus. New topics include: advanced integration techniques such as integration by substitution and integration by parts; applications of integrals such as areas between curves, volumes of rotation and solving elementary differential equations; and an examination of the calculus of parametric equations and functions. Prerequisite: MA 240. (Offered in the fall, spring, and summer)

### MA260 CALCULUS III 4 CREDITS

Topics include: parametric equations and polar coordinates (curves, areas, conic sections); vectors and the geometry of space (the dot product, vector arithmetic, lines and planes in 3-space, the cross product, cylinders and quadratic surfaces); vector functions (limits, derivatives and integrals, motion in space); partial derivatives (functions of several variables, limits and continuity, tangent planes and differentials, chain rule, directional derivatives, gradient, extrema, Lagrange multipliers); multiple integrals (double integrals, applications); vector calculus (vector fields, line integrals, fundamental theorem for line integrals, Green's Theorem, curl and divergence, parametric surfaces, surface integrals). 4 lecture hours plus 1 recitation session each week. Prerequisites: MA250 with grade of C or better. (Offered in the fall)

### MA265 FINITE MATH

This course serves as a broad overview of topics in finite math and a brief introduction to topics in statistics. Topics covered include linear equations, linear systems, linear programming, mathematics of finance, matrix math, probability, and an introduction to statistics. (Offered in the fall)

### MA270 STATISTICS 3 CREDITS

This course studies the collection, analysis and presentation of data, frequency distributions, probability and probability distributions. Making inferences from statistical data and the techniques used for making business and management decisions will be discussed. Applications to various technical fields will also be included. Data analysis and presentation make use of statistical software. Prerequisite: MA 120 or MA265. (Offered in the fall, spring and summer)

MA290	TOPICS IN HEALTHCARE STATISTICS	1 CREDIT
<p>This course is an MA270 laboratory component that focuses on the healthcare sector. As such, it provides an introduction to the use of statistics in the fields of healthcare. Topics include conducting statistical analyses using the Statistical Analysis Systems (SAS) software on various publicly available health IT and healthcare datasets, employing contemporary charts such as bubble and motion to visualize data, calculating descriptive and inferential statistics, and performing quality assessment and improvement (such as process, collection tools, data analysis, reporting techniques), as well as creating PivotChart and PivotTable Report. Co-requisite: MA270 (Offered in the fall)</p>		
MD223	MEDICAL INSTRUMENTATION I	4 CREDITS
<p>Study of medical devices and transducers used in Intensive Care Units and general patient floors. Covers typical circuits, applications, safe usage of devices, and interpretation of derived data. Emphasis on troubleshooting and repair techniques as applied to medical devices. Prerequisites: A GPA of 2.0 in EE110, EE113, EE122, EE131 or a waiver from the department chair. (Offered in the fall)</p>		
MD225	MEDICAL INSTRUMENTATION II	4 CREDITS
<p>A continuation of MD223. More complex medical devices are introduced that incorporate both previously learned technologies as well as new concepts. Increased emphasis is placed on safety and equipment testing. Opportunities to use troubleshooting and repair techniques are provided. Prerequisite: MD223 (Offered in the spring)</p>		
MD242	CLINICAL INTERNSHIP	4 CREDITS
<p>Student is placed in a hospital clinical engineering department to gain experience in a professional working environment. Students will perform various assigned duties, some of which involve preventive maintenance or repair of medical equipment and will become familiar with equipment and specialty tools used in the biomedical field. Prerequisite: MD223 Co-requisite: MD225 (Offered in the spring)</p>		
ME105	CAD WITH SOLIDWORKS	3 CREDITS
<p>As an introductory course to CAD (Computer Aided Design) with SolidWorks, this course begins with creating properly dimensioned 2-D sketches and over the semester progresses towards creating fully dimensioned 3-D parts and assemblies. The students complete a series of projects that practice their ability to read sheet drawings, visualize the dimensioned object in 3 Dimensions, create a 3-D model and create a completely dimensioned sheet-drawing from the 3-D model. In addition, basics of Assembly creation within SolidWorks is also introduced. (Offered in the fall and spring)</p>		
ME106	ADVANCED CAD	3 CREDITS
<p>As continuation of the prerequisite course "ME105 Introduction to CAD using SolidWorks". This course covers intermediate tools in SolidWorks which make it possible to create complex parts and assemblies. In addition, a large emphasis is placed on clear articulation of "design intent" and creation of "professional quality" SolidWorks models. In terms of SolidWorks concepts, the course covers creating complex curves and surfaces, and using configurations, equations, loft features, sweep features and multi-body tools. Prerequisites: ME105 (Offered in the spring and summer)</p>		
ME110	STATICS	4 CREDITS
<p>Study of fundamental concepts and principles governing the equilibrium of rigid bodies under the action of forces. Resolution and addition of forces by graphic and analytical methods, moment of a force, couples, equivalent systems of forces, analysis of trusses and frames, and distributed loads. Also, centroids and centers of gravity, and friction Prerequisite: MA120 (Offered in the spring)</p>		
ME130	INTRODUCTION TO ALTERNATIVE ENERGY SYSTEMS	3 CREDITS
<p>The course serves as the introduction to a wide variety of energy resources, power generation techniques and energy needs. Power generation methods based on solar, wind, geothermal and hydro sources are discussed. The concepts of grid integration and energy management are introduced. (Offered in fall)</p>		

## Academic Course Descriptions

ME141	MATERIALS	3 CREDITS
<p>The study of metals and non-metals. Students will gain a basic understanding of crystal structures, heat treating, annealing, cold working and how they affect mechanical properties. Stress-strain diagrams, phase diagrams, time temperature transformation diagrams and failure analysis of engineering materials will also be covered. (Offered in the fall and spring)</p>		
ME150	INTRODUCTION TO MANUFACTURING	4 CREDITS
<p>Introduction to the basic processes related to machining and cutting engineering materials. Methods of joining both mechanical and welding, brazing, and soldering. The use of measuring instruments for the production of accurate parts. (Offered in the spring and summer)</p>		
ME151	MANUFACTURING PROCESSES AND CNC MACHINING	4 CREDITS
<p>The study of advanced manufacturing processes such as forging, casting, forming processes, injection molding, thermo forming and composite layups. Programming and operation of CNC equipment including an introduction to Robotics. Prerequisites: ME105, ME150 (Offered in the fall)</p>		
ME205	SOLAR ENERGY AND PHOTOVOLTAICS	4 CREDITS
<p>The course is designed to give the students an insight into the fundamentals of solar energy-based energy harvesting techniques. Structural, component-level and installation features of various types of solar cells and panels are discussed. The concepts of energy storage, energy efficiency strategies, costs and energy analysis are covered in detail. The laboratory part of the course includes hands on activities based on building small-scale solar energy harvesting system. Prerequisites: ME130. (Offered in spring)</p>		
ME210	ENERGY EFFICIENCY AND AUDITING	3 CREDITS
<p>The course will give the participants an overview of the topics focused on energy management, energy consumption and energy monitoring. Students will study the impacts of energy efficiency techniques on commercial and residential environments. Additionally, energy monitoring, measuring and calculation of energy savings will be discussed. (Offered in fall)</p>		
ME215	WIND TURBINE TECHNOLOGY	4 CREDITS
<p>The course includes a comprehensive study and analysis of basic types of wind turbines, turbine components/operation, electricity, and electric generation. The participants will learn about the grid integration concepts, electrical systems, mechanical controls and safety issues of the wind turbine systems. Additionally, the cost benefit analysis, economics of wind energy and environmental effects of wind-based energy systems will be discussed. The laboratory component of this courses covers the operational, power monitoring, power measurement and data analysis aspects of the wind turbine systems. Prerequisites: EE105, EE101. (Offered in spring)</p>		
ME220	MASTERCAM MILLING I	4 CREDITS
<p>The students will receive the basics of two-dimensional part programming including: geometry development, milling, drilling, tapping, and pocketing. Prerequisites: ME106, ME151 (Offered in the fall)</p>		
ME225	MASTERCAM MILLING II	4 CREDITS
<p>This course is a continuation of topics student in ME220. Students will work with 3D model building, tool path selection, creation and verification. This course serves as a solid foundation for Computer Numerical Control (CNC) programmers to develop sound modeling skills within the MASTERCAM CAD environment and is an essential toolset for a MASTERCAM programmer. Prerequisites: ME106, ME151, ME220 (Offered in the fall)</p>		
ME226	MASTERCAM TURNING	4 CREDITS
<p>The students will receive the basics of part programming for lathes utilizing Mastercam software. Prerequisite: ME250 (Offered in the spring)</p>		

ME230	MANUFACTURING BUSINESS PRACTICES	3 CREDITS
<p>This course serves as an introduction to manufacturing from a business-person's perspective. The course deals with issues including supply chain management, operations management, and inventory management. The linkage between strategy and tactics will be emphasized. Students will learn about the concepts and tools that will help them to manage from the "boardroom" to the "manufacturing floor." (Offered in the fall)</p>		
ME240	MACHINE DESIGN WITH SOLIDWORKS	4 CREDITS
<p>This course covers the process of designing mechanical machines using SolidWorks. In this course, several example mechanical tools and machines are disassembled, analyzed, discussed and re-assembled as a part of the course. These case studies are followed by a series of projects – where the students design the parts and assemblies of machine/tool in study. Strong emphasis is given to understanding functional requirements for the parts and features that go into the designs. As the next step to the prerequisite courses: Introduction to CAD using SolidWorks (ME105) and Advanced CAD (ME106), this course covers additional SolidWorks modules for designing Sheet Metal parts, designing Molds for molded parts, running Simulations, creating advanced Assemblies and creating standard parts using the ToolBox. Prerequisites: ME106, MA120 (Offered in the fall)</p>		
ME241	SOLIDWORKS CERTIFICATION PREPARATION CLASS	3 CREDITS
<p>This course prepares students for the Certified SolidWorks Associate (CSWA) Certification Exam. Sample tests and questions are given in a proctored, exam-like environment providing the students an opportunity to practice and improve the skills they need to pass the certification exam. Prerequisites: MA120, ME105, ME106, ME240 (Offered in the fall)</p>		
ME250	ADVANCED MANUFACTURING AND CNC	4 CREDITS
<p>Rapid prototyping is covered from concept to completed part. The use of SolidWorks models to generate CNC programs and parts. Prerequisites: ME106, ME151 (Offered in the spring)</p>		
ME252	THERMODYNAMICS	4 CREDITS
<p>This course will focus on the following: First and Second Law of Thermodynamics; thermodynamic properties of substances; reversible and irreversible processes, entropy; thermodynamic processes, power and refrigeration cycles; three modes of heat transfer, conduction, convection and radiation; heat transfer through plain surfaces and fins, in tube flow and in heat exchangers. Prerequisites: MA130, ME141. Co-requisite: ME110 (Offered in the fall)</p>		
ME260	MODELING RENEWABLE ENERGY	3 CREDITS
<p>This course introduces software tools to perform designing, simulation and analysis of green buildings and renewable energy based small scale power generation stations. The participants will study and evaluate energy performance, design optimization and data collection techniques. Prerequisites: ME130, ME210, ME205. (Offered in spring)</p>		
ME310	ROBOTICS I	4 CREDITS
<p>This is an introductory course in industrial robotic systems. It covers the basic operations of FANUC robots. Students explore powering up and jogging the robot, configurations, control systems, drive systems, robot vision systems, and programming methods. The course covers the Robot Operations outline intermixed with the tasks required to set up the Handling Tool application, test, run and refine the program and production setup. Students will introduce into the relationship of robot applications to other automated technologies. Students complete a series of projects that require them to perform the power up and jogging robot in JOINT, WORLD, and TOOL, change the robot software limits, recover from common faults, set up frames, create teach pendant program. Students practice industrial FANUC robot safety at all times. (Offered in the Fall)</p>		

## Academic Course Descriptions

ME315	ROBOTICS II	4 CREDITS
<p>This course covers the basic tasks and procedure to set up, teach, test, and modify iRVison applications on an R-30iA Robot Controller. Students learn how to power up the robot, set up communication between robot and teaching computer. This course covers TPP programing, troubleshooting, procedures for creating a 3D robot simulation program. Students practice industrial FANUC robot safety at all times. Students successfully completing the course requirements receive the Fanuc CERT Certification , an internationally recognized robotics certification. Prerequisites: ME310 (Offered in the spring)</p>		
ME330	INDUSTRY EXPERIENCE/PROJECT	
<p>A project-based course in which students will develop real project schedule, progress reports, presentations, and team meeting agendas. (Offered in spring)</p>		
ME330	RAPID MANUFACTURING AND PROTOTYPING PROCESSES	
<p>This course provides a high-level, hands-on introduction to rapid manufacturing and prototyping processes. The students design and build parts using 3D printing, Laser cutting, CNC Plasma Cutting and CNC Water-Jet Cutting. The course will cover the capabilities and limitations inherent to each of these processes, the materials that are suitable to use with each process and the geometric limitations on the parts that can be produced with process. Furthermore, the course will cover how to modify part design to minimize the impact of process limitations.</p>		
ME345	MECHANICS OF MATERIALS	3 CREDITS
<p>Material properties will be discussed as they apply to product design, manufacturing process design and control. Theories will be discussed in class and reinforced through lab problems. (Offered in the spring)</p>		
ME490	SENIOR DESIGN AND MFG PROJECT I	3 CREDITS
<p>A project-based course in which students will develop a real project schedule, progress reports, presentations, and team meeting agendas. (Offered in the fall)</p>		
ME491	SENIOR DESIGN AND MFG PROJECT II	3 CREDITS
<p>A continuation of ME490, this is a project-based course in which students will develop a real project schedule, progress reports, presentations, and team meeting agendas. This course is designed to allow students the opportunity to accomplish a project from concept to completion. Prerequisites: ME490. (Offered in the spring)</p>		
OP105	ANATOMY AND PHYSIOLOGY OF THE EYE	3 CREDITS
<p>This course is designed to give the opticianry student insight into the anatomical structure of the eye and its adnexa. The student will also learn the function of the parts of the eye as they relate to vision, eyewear, and contact lenses. The learner will be presented with common pathologies of the eye and ocular pharmacology. (Offered in the fall and spring)</p>		
OP110	OPHTHALMIC OPTICS I	3 CREDITS
<p>This course is a three-hour lecture course designed to include a brief history of glass and plastic, the various sphere, cylinder, and prism powers, review of the optical cross, flat and toric transposition, history and types of multifocals, and the lens aberrations. (Offered in the fall and spring)</p>		
OP115	PRINCIPLES AND PRACTICES IN OPTICIANRY I	3 CREDITS
<p>The lab portion of this course will introduce the student to terms, instruments, equipment, lenses and materials to be used in the surfacing and finishing of ophthalmic prescription eyewear. Special emphasis will be placed on the procedures used to surface ophthalmic lenses including calculations, layout, blocking, generating, fining, polishing and inspection. The clinical portion of this course will offer students an opportunity to gain real life exposure to the designing, fitting and dispensing of prescription eyewear in an optical business setting. The students will learn to operate an optical business, as well as the intricacy of quality patient care.</p>		



## Academic Course Descriptions

The lab portion of the course is designed to introduce the student to the handling of contact lens materials and the operation and maintenance of instruments used in the fitting and designing of contact lenses. Primary instruments that students will be operating include a keratometer, measuring loupes, lensmeter, phoptor, biomicroscope, radiuscope, and corneal topographer. (Offered in the fall)

OP232                    OPTHALMIC DESIGN & DISPENSING II                    3 CREDITS

OP233                    OPTHALMIC DESIGN & DISPENSING II LAB                    1 CREDIT

This course is a hybrid course in which a portion of the course (approximately 75%) is offered as distance learning, and another portion meets physically on campus (approximately 25%). Ideally, students will engage in weekly distance learning sessions and assignments, a weekly on-campus lab for a practical quiz and/or assignment, and a monthly regular on-campus lecture session.

The course is designed to further explore topics learned in Ophthalmic Design & Dispensing I and Ophthalmic Design & Dispensing Lab I. Students will review frame alignment and adjustments, techniques for fitting multifocals, and lens identification. The course will expand into troubleshooting of visual problems, repairing of frames, applying safety standards in the optical workplace and lifestyle dispensing. Students will become familiar with progressive lenses, lens options / coatings, and the techniques for ordering lenses, frames and optical supplies. The lab portion of the course is designed to further explore topics learned in Ophthalmic Design & Dispensing I and Ophthalmic Design & Dispensing II. Students will review frame alignment and adjustments, techniques for fitting multifocals, and lens identification. The course will expand into troubleshooting of visual problems, repairing of frames, applying safety standards in the optical workplace and lifestyle dispensing. Students will become familiar with progressive lenses, lens options / coatings, and the techniques for ordering lenses, frames and optical supplies. (Offered in the spring)

OP235                    PRINCIPLES AND PRACTICES IN OPTICIANRY III                    3 CREDITS

In this progression course, students will be able to hone and perfect the lab finishing skills in the fabrication of prescription eye wear. Students will learn the advances in spectacle finishing and manufacturing. Students will be expected to complete lab assignments which contain multiple jobs of varying levels of difficulty within a timed period. Students will also learn to work as a team as the finishing lab is turned into a wholesale production facility. The clinical portion of this course will offer students an opportunity to gain real life exposure to the designing, fitting and dispensing of prescription eyewear in an optical business setting. The students will learn to operate an optical business, as well as the intricacy of quality patient care.

The Optical Shoppe is open during the regular academic year and is operated by the students under the direct supervision of licensed opticians. The operating clinic offers students the opportunity to learn the practical aspects of opticianry through weekly presentations and assignments, as well as actual patient care. (Offered in the fall)

OP240                    CONTACT LENS THEORY II                    3 CREDITS

OP241                    CONTACT LENS THEORY II LAB                    2 CREDITS

This course is a continuation of Contact Lens Theory I, emphasizing contact lens verification, dispensing, and follow-up care. The fitting of astigmatic, presbyopic, and special needs patients will also be covered. The lab portion of the course is a continuation of Contact Lens Lab I emphasizing contact lens verification, dispensing, and follow-up care. The fitting of astigmatic, presbyopic, and special needs patients will also be covered. The lab portion of the course is designed to introduce advanced levels of clinical instrumentation and their use in determining the proper contact lens fit on the eye.

Students will also be able to refine and hone their expertise in the handling of contact lens materials and the operation and maintenance of instruments used in the fitting and designing of contact lenses. Primary instruments that students will be operating include a keratometer, measuring loupes, lensmeter, phoptor, biomicroscope, radiuscope, and corneal topographer (Offered in the spring)

OP243                      PRINCIPLES AND PRACTICES IN OPTICIANRY IV                      3 CREDITS

This course is designed to educate students in the technical skills of performing various procedures within the ophthalmic visual assessment area of a dispensary. The course will present technical equipment procedures, maintenance and use, as well as the skills needed in assisting Optometrists and patients with various procedures such as administering medicines and pharmacology identification and uses. The clinical portion of this course will offer students an opportunity to gain real life exposure to the designing, fitting and dispensing of prescription eyewear in an optical business setting. The students will learn to operate an optical business, as well as the intricacy of quality patient care.

The Optical Shoppe is open during the regular academic year and is operated by the students under the direct supervision of licensed opticians. The operating clinic offers students the opportunity to learn the practical aspects of opticianry through weekly presentations and assignments, as well as actual patient care. (Offered in the spring)

OP245                      VISION ASSESSMENT                      3 CREDITS

This course is designed to instruct the student in the theories behind the various tests given during a routine refraction. Topics include anatomy and physiology of the eye (review), mechanics of ametropias, epidemiology and etiology of refractive errors. Trends in visual acuity and accommodative / convergence relationships in the myopic, hyperopic and presbyopic eye will be discussed. Also included will be problems in binocular vision and retinoscopy. (Offered in the spring)

OP 281                      OPTICIANRY TECHNICAL SKILLS AND SERVICE LAB 1                      1 CREDIT

OP 282                      OPTICIANRY TECHNICAL SKILLS AND SERVICE LAB 2                      1 CREDIT

The topics of this course are designed to introduce the opticianry student to current and relevant issues related to public health and aspects of clinical care. Students will develop an awareness and identify areas of the community that are in need of optical care. The course presents students with the tangible opportunity to learn from community involvement and helping to engage and address areas of social, ethical, economic and policy-limiting concerns within our own environment. Students will engage in several aspects of service learning projects and professional interdisciplinary presentations.

Clinical patient care offers students an opportunity to rotate among a variety of opticianry businesses. Students will begin to gain real life exposure to the opticianry industry, which will ultimately allow them to better understand client service and management, as well as allow them to explore different career paths.

Assigned research and professional presentation projects offer students an opportunity to explore optical health issues related to eye health and their many possible developing solutions based upon advanced ocular health procedures and treatments. Assigned projects may also include collaborative research and presentation with students from optometry in order to promote interdisciplinary professional problem solving and eye care that is routinely practiced throughout the profession.

The course is designed to fully support the College mission of community service learning. Students will be evaluated on the successful completion of two projects: the first is a community based service learning project where students engage in providing clinical care to a worthwhile organization event, project or population; the second is a poster project where students educate their audience.

The poster project is an education awareness campaign designed to educate the public as to a particular segment of "Healthy Sight For Life". The project will be presented and displayed at the end of the academic year at a college wide vision health fair as a poster session. Presentations are judged in a competitive format during the Vision Health fair by optical experts representing the profession. (OP281 is offered in the fall and OP282 is offered in the spring)





PE213	ELECTRICAL SYSTEMS & REGULATIONS	3 CREDITS
<p>This course is an advanced study of electrical systems and system control circuitry. Emphasis will be on the design, operating principles, and characteristics involved in the installation, layout, protection, and control of alternating and direct current motors, generators, control circuits, transformers, and air conditioning. The student will explore schematic and ladder diagrams, and the operation, and connections. Laboratory exercises will support and enhance the student understanding of these principals. Other topics to be covered include Fire Warning and Security Systems, Power-Limited Sources and Circuits, and Data and Communications Wiring. Study will include basic theory, operation and selection of equipment, cables, and wiring methods necessary for installation, and termination of low voltage systems. Also covered will be an overview of MGL. 141.1-9, 143-3L and 237 CMR 12.00 thru 23.00 pertaining to licensing requirements. Prerequisite PE203 (Offered in the and fall and summer — evenings)</p>		
PH102	PHYSICS	3 CREDITS
<p>This course is an introduction to the physics of mechanics and basic concepts in chemistry, including the study of motion, Newton's Laws, energy, conservation laws, physics of matter, temperature, heat transfer, the atom, the periodic table, chemical bonding, the Mole, and balancing chemical equations. (Offered in the spring and summer)</p>		
PH212	PHYSICS I	3 CREDITS
<p>This course is an algebra-based introduction to the physics of mechanics that includes a math review (algebra, geometry and trigonometry), scalars and vectors, force, mass, equilibrium, torque, acceleration, gravity, Newton's Laws, work, energy, power, impulse, momentum, circular motion and rotation of rigid bodies. Prerequisite: MA115 or MA120. Co-requisite: PH215 (Offered in the fall and spring)</p>		
PH213	PHYSICS II	3 CREDITS
<p>This course is an algebra-based approach to the physics of mechanics, thermodynamics, waves, sound, electricity and optics. Topics include: SHM, Doppler Effect, sound waves, Snell's Law, Lens Law, thermal expansion, Pressure Law, First Law of Thermodynamics, heat transfer, Ohm's Law, Kirchoff's Rules, DC/AC circuits and magnetism. Pre-requisite: PH212. Co-requisite: PH225. (Offered in the spring.)</p>		
PH215	PHYSICS LAB I	1 CREDIT
<p>This hands-on laboratory course supports the topics in the physics lectures, PH212 and PH222. The lab offers the opportunity to practice laboratory techniques, data collection, and written reports. Co-requisite: PH212 or PH222. (Offered in the fall and spring)</p>		
PH222	UNIVERSITY PHYSICS I	3 CREDITS
<p>This course is a calculus-based approach to the physics of mechanics. The topics include scalars, vectors, and up to vector calculus; the kinematics of translation; force, mass and dynamics of translation; statics, equilibrium, and torque; angular quantities and dynamics of rotation; friction, work, energy and power; impulse and momentum; simple harmonic motion and oscillations; Universal Law of Gravitation; the mechanics of solids and fluids; wave motion and wave equations; sound including Doppler Effect; superposition principle. Co-requisite: PH215 (Offered in the fall)</p>		
PH223	UNIVERSITY PHYSICS II	3 CREDITS
<p>This course is a calculus-based approach to the physics of thermodynamics, waves, electricity and magnetism. The topics include the study of fluids and fluid dynamics, harmonic motion and wave phenomenon, thermodynamics and heat, and electricity and magnetism. Prerequisite: PH222, Co-requisite: PH225 (Offered in the spring)</p>		
PH225	PHYSICS LAB II	1 CREDIT
<p>This lab focuses on supporting the topics in the physics lectures for PH213 and PH223. This lab offers the opportunity to practice laboratory techniques, data collection, and written reports. Topics include: mechanics, thermodynamics, harmonic motion, electric charge, and optics. Prerequisite: PH215 (Offered in the spring)</p>		

### PS110 THE HISTORY OF PUBLIC HEALTH

From the first introduction of government-mandated quarantines to the modern movement towards universal health care, the role of public health and governance has fundamentally shaped human societies. In this course, students will learn the role of the state in ensuring favorable public health outcomes. Students will also learn the importance of public health, understand how it is provided, and learn how it is practiced. This course is intended to introduce students to the field of public health; it is intended to be broadly accessible to all students and provide a practical understanding of the field. (Offered in the fall)

### PS301 HEALTH SERVICES

Health Services - the means by which healthcare is provided - have a complex history and evolution which has fundamentally shaped their current form. Students will learn the modern history of healthcare in high, middle, and low income countries and explore the evolution of healthcare services from the era of the village doctor to the present day. Students will also learn about the structure and function of modern-day healthcare services, both domestically and abroad, and build the skills needed to evaluate the strengths and weaknesses of particular systems and policies. Lastly, students will examine their ideal version of a health service as it pertains to current world events. Prerequisite: PS110 (Offered in the fall)

### PS320 EPIDEMIOLOGY

Epidemiology is the branch of medicine which deals with the incidence, distribution, and control of a disease. In this course, students will learn and apply key concepts of epidemiology to multiple domains of public health. Students will learn how to use epidemiology to better understand, characterize, and promote health at a population level. Prerequisite: MA300 or equivalent (Offered in the spring)

### PS401 PUBLIC HEALTH STUDIES I

This course is intended to provide students with a means of evaluating the health impact of political decisions and a broad knowledge base about the practice of Public Health today. Students will explore a range of current topics in public health - including COVID-19, HIV/AIDS, and the obesity epidemic. Students will also look at the impact of US politics on global public health, especially in developing nations. Furthermore, this course will explore key topics such as the WHO's Millennium Development Goals, the disastrous circumstances that can arise when Public Health Policies fail, and the conflict between data and political will that drives so much of Public Health policy decision making. This course culminates in a project in which students must plan a Health Impact Assessment of a current or proposed federal or state policy. Prerequisite: PS110 and MA300 or equivalent (Offered in the fall)

### PS405 PUBLIC HEALTH STUDIES II

This course provides students with a variety of tools for understanding the impact that disease or other Public Health concerns may have on a population. Students will learn how to design effective surveys, analyze geographic data, and use qualitative information with the ultimate goal of gaining a better understanding of how events may affect the health of a particular population. This course will also require students to participate in a mapathon in order to help them build understanding of how geographic data is used in the practice of Public Health. Prerequisite: PS110, PS401, and MA300 or equivalent (Offered in the spring)

### SK100 ACADEMIC ACHIEVEMENT SEMINAR

0 CREDIT

The Academic Achievement Seminar is designed to support and enhance academic endeavors as students reenter courses at Benjamin Franklin Institute of Technology. This course will teach students how to claim their education. Students will learn how to utilize campus resources, academic success strategies, and lifelong learning techniques that will prepare them to achieve success in their present and future academic career. The elements of professionalism: time management, accountability, teamwork, workplace ethics, and active participation in learning, will be strongly emphasized and put into practice. This course will also provide individualized tutoring support to reestablish strong study habits. (Offered fall and spring)

- SK101**                      **INTRODUCTION TO TECHNICAL AND PROFESSIONAL SKILLS**                      **3 CREDITS**
- This course provides students with an introduction to the core competencies valued in most workplace and/or higher education settings: basic computer literacy and strong professional communication skills. As so much of today's professional communication takes place via technology platforms, students receive training in the following basic computer applications: Zoom, Microsoft Word, and, of course, Microsoft PowerPoint and Excel. Students also receive training in professional communication processes to build strong workplace communication skills. Students learn to recognize both effective and ineffective verbal communication patterns, as well as how to present written, oral, and visual information. Information literacy plays a significant role in this course, as many learning activities ask students to integrate outside research into their own work. Teaching technical and professional communication skills in the same course employs a holistic approach to prepare students for the contemporary workplace and further education.
- SK110**                      **SUCCESS IN AUTOMOTIVE TECHNOLOGY**                      **0 CREDIT**
- Success in Automotive is designed to assist students in the transition from the Department of Academic Development into their major classes and to provide additional lifelong learning skills to support success towards earning an Associate Degree. Students meet with academic coaches each week in focus groups and review sessions with their peers. Students meet to review material specific to their automotive courses and to discuss academic challenges, as well as challenges that occur outside of school that hinder their success. Academic coaches also provide support to students' academic success through one on one meetings. (Offered in the fall and spring)
- SK115**                      **SUCCESS IN CONSTRUCTION MANAGEMENT**                      **0 CREDIT**
- Success seminars serve students in a number of ways: they connect students with college resources, such as financial aid, the library, counseling services, and student life/campus activities; they help students balance their outside and academic lives by working through topics like time and stress management, academic honesty, multicultural perspectives, and ethics; and, of course, they provide students with significant support in the Construction Management program by reviewing coursework and targeting specific areas in which students may need extra help, as well as outlining the professional realities of working in the industry.
- SK120/125**                      **SUCCESS IN CT/HIT**                      **0 CREDIT**
- Success seminars serve students in a number of ways: they connect students with college resources, such as financial aid, the library, counseling services, and student life/campus activities; they help students balance their outside and academic lives by working through topics like time and stress management, academic honesty, multicultural perspectives, and ethics; and, of course, they provide students with significant support in the Computer Technology and Health Information Technology programs by reviewing coursework and targeting specific areas in which students may need extra help, as well as outlining the professional realities of working in the industry. For students who have yet to declare a concentration, this seminar will help in this process by clearly explaining the options, such as Certificates (Network and Systems Support, Software Development, Web Design); Associate Degrees (Computer Technology and Health Information Technology); and Bachelor Degree (Health Information Technology - General Track) with two tracks within it, Public Health and Data Analytics.
- SK130**                      **SUCCESS IN ELECTRICAL TECHNOLOGY SEMINAR**                      **0 CREDIT**
- The Success in Electrical Technology Seminar is designed to support the student's entry into the Electrical Technology program. Successful completion of this seminar is based on attendance, preparation, and participation. Success is also based on the successful completion of EL110 and EL127 with a GPA of 2.00. This seminar must be retaken if the student has not fulfilled the requirements of either course. (Offered fall and spring)
- SK135**                      **SUCCESS IN ELECTRONICS**                      **0 CREDIT**
- Success seminars serve students in a number of ways: they connect students with college resources, such as financial aid, the library, counseling services, and student life/campus activities; they help students balance their outside and academic lives by working through topics like time and stress management, academic honesty, multicultural perspectives, and ethics; and, of course, they provide students with significant support in the Electronics

## Academic Course Descriptions

program by reviewing coursework and targeting specific areas in which students may need extra help, as well as outlining the professional realities of working in the industry. Students will also learn more about degree tracks and career opportunities, such as Robotics and Automation and Biomedical Electronics.

**SK140**                      **SUCCESS IN MECHANICAL ENGINEERING TECHNOLOGY**                      **0 CREDIT**

Success seminars serve students in a number of ways: they connect students with college resources, such as financial aid, the library, counseling services, and student life/campus activities; they help students balance their outside and academic lives by working through topics like time and stress management, academic honesty, multicultural perspectives, and ethics; and, of course, they provide students with significant support in the Mechanical Engineering Technical program by reviewing coursework and targeting specific areas in which students may need extra help, as well as outlining the professional realities of working in the industry.

**SK150**                      **SUCCESS IN TECHNOLOGY BUSINESS MANAGEMENT**                      **0 CREDIT**

Success seminars serve students in a number of ways: they connect students with college resources, such as financial aid, the library, counseling services, and student life/campus activities; they help students balance their outside and academic lives by working through topics like time and stress management, academic honesty, multicultural perspectives, and ethics; and, of course, they provide students with significant support in the Technology Business Management program by reviewing coursework and targeting specific areas in which students may need extra help, as well as outlining the professional realities of working in the industry.

**SK155**                      **SUCCESS IN HVAC**                      **0 CREDIT**

Success seminars serve students in a number of ways: they connect students with college resources, such as financial aid, the library, counseling services, and student life/campus activities; they help students balance their outside and academic lives by working through topics like time and stress management, academic honesty, multicultural perspectives, and ethics; and, of course, they provide students with significant support in the HVAC program by reviewing coursework and targeting specific areas in which students may need extra help, as well as outlining the professional realities of working in the industry. This seminar also features in-depth discussions about the professional expectations and issues facing workers in the field of HVAC, such as safety protocols and industry ethics.

**SK200/SK400**                      **CAREER SUCCESS SEMINAR: NEXT STEPS AND BEYOND**                      **0 CREDIT**

The Career Success Seminar is designed to support your transition out of BFIT and prepare you for life after graduation. This seminar will provide you with guidance on how to conduct a successful job search and will assist you in learning how to navigate a professional environment while refining the skills needed to be a successful college graduate. The seminar will provide guest speakers, group activities, and individual guidance on personal goals. You can expect to review topics such as resume writing, job search techniques, interviewing skills, and post graduation finances. (Offered fall and spring)

**SS 101**                      **AMERICAN POLITICS**                      **3 CREDITS**

This course explores the fundamental principles of American government and politics. Students apply foundational concepts to current political topics in an environment where all voices will be heard and respected. Topics include political ideologies, the formation of the American government system, the Constitution, the role of political parties in the United States, politics in the age of information and social media, and the study of current political thought and behavior.

**SS105**                      **TWENTIETH CENTURY HISTORY**                      **3 CREDITS**

A concentration on major world events including significant social, economic and political shifts and changes viewed through various media including film, fiction, historical articles and non-fiction essays. Through discussions, written responses, presentations and creative projects, students will not only engage in historical studies, but will also use analytical and critical thinking skills to consider the ethical implications of historical events and to determine how accurately history is recorded, taught and represented in education, art, politics, the media and society.

- SS109/319**                    **TECHNOLOGY AND SOCIETY**                    **3 CREDITS**  
This course examines the role of technology in contemporary social life. An overview of technological evolution and its impact on society from the Industrial Revolution to the present is explored, with emphasis on current technologies and the debates surrounding them. Through discussion, papers, projects, and presentations, students explore the impact of particular technologies on various aspects of human life, including society's increasing reliance on technology and the consequences on human existence.
- SS110**                    **INTRODUCTION TO US HEALTHCARE**                    **3 CREDITS**  
This course provides an introduction to the multiple systems that define, describe, and shape the delivery of healthcare in the United States. Using case studies and presentations of major issues, this course will give the learner an appreciation of the dilemma confronting policy makers, providers, and patients: how to balance cost, quality, and access. We will examine specific healthcare issues such as access and disparity, healthcare professions, facilities, managed care organizations, and government healthcare programs. We will also discuss the impact of policy changes on American healthcare in the past century. (Offered in the fall and spring)
- SS115**                    **INTRODUCTION TO PSYCHOLOGY**                    **3 CREDITS**  
A basic course introducing the major content areas of psychology as a scientific study of human behavior and mental processes through an acquaintance with the fundamental process of human behavior. Topics include: the nature of psychology, biological processes, human development, individual differences, personality and mental health.
- SS216**                    **OPENING THE WINDOWS: EMOTIONAL INTELLIGENCE AND  
THE SELF IN THE WORLD**                    **3 CREDITS**  
This is a course about emotions: yours and others'. To guide your discovery, we will read, watch, write, listen, and work together, as we investigate the ways in which our feelings shape our being in the world. We will explore compassion, experience, and agency while we build relationships and create avenues for self-expression and collaboration.  
Our primary goal in this class is to build confidence in your ability to be true to yourself while being effective with others. As you build trust and develop relationships with your classmates, you embark together on the design and production of collaborative projects that involve shared creativity, decision-making, and the often inevitable emergence of dissension. Together you will practice strategies for facilitating complex relationships and resolving conflict, such as expressing needs, identifying shared values, and seeking common ground.
- SS135**                    **INTRODUCTION TO ANTHROPOLOGY**                    **3 CREDITS**  
An introductory course that studies human cultures across time and place in their various environmental and historical contexts. The majority of the course focuses on cultural anthropology, and the evolution and development of human societies. Some topics explored might be community, kinship, religion, economic structure, and political order. In addition, the ways in which culture shapes experience is discussed, and students will be called to recognize their role as both creators and byproducts of culture.
- SS205**                    **CONTEMPORARY SOCIAL ISSUES**                    **3 CREDITS**  
This course analyzes, in both empirical and theoretical terms, many of the social problems currently facing Americans. Among these are deepening inequality and poverty among working and middle-class Americans, particularly racial minorities, women, and youth; related problems of racism and sexism; growing unemployment; deterioration of the health system; crime; and war and militarism. Strategies and political options for solving these problems are considered. Through additional coursework, students enrolled in the baccalaureate level course sections learn to practice enhanced critical thinking, especially through analyzing arguments, and to produce research-driven writing and projects to help understand the importance of awareness in addressing social issues.

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SS215 WE THE PEOPLE: A CLASS ON COMMONALITIES AND DIFFERENCE 3 CREDITS

This course will provide an analysis of society based on the interrelationships between race, class and gender (including LGBTQ++ ) and their influence on our social structure and behavior. There will be special focus on the ways in which any type of minority status impacts the social experience and the definition of personal and cultural roles. Both historical and contemporary perspectives will be explored through selected articles and multimedia. Prepared and thoughtful discussions will be integral to the student's experience.

SS220 MONSTRUOS, DEMONIOS Y SUEÑOS: LATIN-AMERICAN FANTASY IN SHORT STORIES AND FILMS 3 CREDITS

This course will explore the ways in which Latin American authors and filmmakers use fantasy to comment on social and personal themes like oppression, poverty, war, religion, and family. Latin-American literature is well known for magical realism –the expansion of reality to include fantastical elements in a realistic setting. The authors and filmmakers we will discuss in this course engage with the marvelous and the real along a large gamut touching different genres from fable to horror. They sometimes suggest subtle fantastic elements within realistic settings, and other times they introduce supernatural beings like ghosts or the devil as central characters in their narratives. Often recovering figures from folktales, mixing indigenous and Christian traditions, or adapting myths from other cultures into the Latin American context, the short stories and films selected find intriguing ways to represent reality through fantasy. Throughout the course, we will discuss short stories by authors from Argentina, Colombia and Mexico, and films by Guillermo del Toro and other Mexican filmmakers set in the Mexico of the Colonial period and the Revolution, and in Civil War Spain.

SS233 FILM AND SOCIETY 3 CREDITS

Through the analysis of film and television as texts, this course explores social issues such as race, class, gender, politics, education, religion, social and historical change, considering the ways film and television can reflect the realities behind sociological behavior. Students will reflect on the connections between film and society through in-depth discussions, presentations, readings, written responses, and research.

SS235 FINANCIAL PLANNING AND PRINCIPLES 3 CREDITS

This course provides a framework for personal financial planning through the study of economic principles including emphasis on the current economy and its effects on the individual and society as a whole. Through discussions, projects, and presentations students will gain an understanding of principles such as budgeting, credit and debt, and processes such as mortgages and retirement planning.

SS245 PHOTOGRAPHY AND THE HUMAN CONDITION 3 CREDITS

This course provides students with a general introduction to photography as an art form and reflection of the human condition. In this course, students will study the history of photography, famous photographers and photographs, photographs as a record of their subject, and also the artistic value of photographs. Students will explore various photographs to consider not only their aesthetic value, but also the relationships between artist, subject, and audience, as well as the social, historical, and cultural significance of these images. Students will pay particular attention to the stories photographs tell, from their subject matter to the way they are composed. Students will consider these stories when viewing and also when taking photographs, telling stories of their own.

SS250 PSYCHOLOGY OF LEADERSHIP 3 CREDITS

Drawing on psychological research at the level of the individual, group, and organization, the class focuses on how leaders think, feel, and behave. This course provides an opportunity for students to learn and discuss leadership theories, and to develop a personal leadership philosophy. Topics include visionary leadership, leadership development, goal setting, ethics, storytelling, charisma, systems thinking, and crucible experiences.

SS255 SELECT TOPICS IN PSYCHOLOGY 3 CREDITS

An exploration of the ways in which human behavior and mental processes relate to everyday life. Basic concepts of psychology are introduced with special emphasis on their application to the students' understanding of themselves and their interactions with others.

SS260	POSITIVE PSYCHOLOGY	3 CREDITS
<p>Psychology is the study of cognitions, emotions, and behavior. This course is designed to provide a basic understanding of psychology, what we have learned about ourselves, and how psychology is applied to help improve our lives. The course focuses on the psychological aspects of a fulfilling and flourishing life. Psychology has often focused on deficits and disability. Recently, however, more focus has been placed on the more positive aspects of life. This course focuses on each person’s unique potential for positive growth and development. Topics include happiness, self-esteem, empathy, friendship, goal setting, love, achievement, creativity, mindfulness, spirituality, and humor.</p>		
SS265	EXPLORING ETHICAL ISSUES	3 CREDITS
<p>This course invites students to explore specific ethical dilemmas that arise in societal and professional settings and to consider how to approach and resolve these issues. Students have the opportunity to develop their abilities to reason and debate scenarios involving ethical questions. By developing practical models for thinking and refining techniques of approaching ethical dilemmas, students will pay particular attention to issues that arise in social and industrial settings. (Offered in the spring)</p>		
SS275	SPORTS AND SOCIETY	3 CREDITS
<p>This course will examine the meaning of sports and the role sports play in American culture and society. Various sports will be studied from historical and contemporary perspectives to consider the connection between sports and such issues as race, class, gender, ethnicity, education, nationalism, health, socialization, and the role of the media. Students will reflect on the connections between sport and society through in-depth discussions, presentations, readings, written responses, and research</p>		
SS309	SUSTAINABILITY AND THE HUMAN CONDITION	3 CREDITS
<p>Through study of films, readings, websites and political policy, students will explore principles of sustainability with emphasis on how to meet human needs and reduce hunger and poverty while maintaining the life-support systems of the planet. Focus will be placed on discovering real ways that individuals, organizations, and governments can manage resources in a responsible manner, with minimal impact on the earth and its inhabitants. Discussion of solutions will include technological innovation, government and corporate policy, community organizations and individual advocacy.</p>		
SS330	LEGAL AND ETHICAL ISSUES IN HEALTH IT	3 CREDITS
<p>This course introduces the student to the study of legal and ethical principles related to patient care and health information; legal terminology and procedures; court systems; and liability of health care providers. Legal requirements governing policies designed to safeguard and maintain health information, including how to appropriately respond to requests for patient specific information will be explored. Students will explore ethical issues and apply a decision making model to selected case studies. Prerequisites: SS110 and HI130 (Offered in spring)</p>		
SS335	CURRENT ISSUES IN HEALTH CARE	3 CREDITS
<p>The aim of this course is to explore current topics in health care with a focus on the U.S. health care system, its components, and the policy challenges created by the organization of this system. Special attention is given to health policy in the context of the current reform efforts, their impact on major health policy institutions and important issues that cut across these institutions. Prerequisite: SS110 (Offered in fall)</p>		
TS120	MEDICAL TERMINOLOGY	3 CREDITS
<p>This course is designed to introduce the student to medical terms, including roots, prefixes, and suffixes, with emphasis on spelling, definition and pronunciation. This course introduces the student to the basic rules for interpreting, constructing, and spelling medical terms. Emphasis is upon learning word roots, prefixes and suffixes and how they are combined rather than learning each individual term. (Offered in the fall and spring)</p>		
TS201	ENVIRONMENTAL SCIENCE	3 CREDITS
<p>An introduction to general science and 21st century issues. Topics include earth’s systems and resources, water and land use, the living world, population and pollution. The course focuses on energy resources and consumption as a prerequisite to the study of photovoltaics and renewable energies. (Offered in the fall)</p>		



TS240                    HUMAN ANATOMY AND PHYSIOLOGY                    3 CREDITS

This course is an introduction to the basic structure and function of the various organ systems of the human body. Topics include normal versus pathological anatomy and physiology, examination of basic properties of nerves and muscles and their relationships to the central nervous system, and study of various functions of the respiratory, cardiovascular, digestive and urinary systems. (Offered in the fall)

TS242                    PATHOPHYSIOLOGY AND PHARMACOLOGY                    3 CREDITS

This course introduces students to the principles of human pathophysiology and drug action. The basic mechanisms of organ function in disease are presented and analyzed, and strategies for designing drug-based therapeutic interventions are explored. The course is organized around seven exemplary areas of human physiology and disease mechanisms and the therapeutic strategies used to intervene in human disease pathways. (Offered in the spring)

TS310                    GENERAL CHEMISTRY                    4 CREDITS

Introduction to the fundamental principles of chemistry, including atomic structure, stoichiometry, the periodic table of the elements, chemical bonding, molecular structure, and states of matter based on kinetic theory. Laboratory work presents an introduction to methods of quantitative chemical techniques. (Offered in the fall)

## Faculty

### *Ndidi Akuta, Lecturer in Computer Technology*

Master of Science in Information Technology, concentration in Cybersecurity and Digital Forensics, Middle Georgia State University; Graduate Certification Cybersecurity, University of North Georgia; Bachelor of Science in Computer Science, Savannah State University

### *Khari Alexander, Lecturer in Computer Technology*

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