Overview

The New York City College of Technology's Department of Computer Engineering Technology (CET) offers two degree programs: the Associate in Applied Science (AAS) in Computer Engineering Technology and the Bachelor of Technology (BTech) in Computer Engineering Technology. This curriculum guide details the required courses for each degree, categorized into program-specific courses and general education (GenEd) requirements. The courses are arranged in the ideal sequence for completion, ensuring that students can progress smoothly from one semester to the next.

Degree Requirements for AAS in Computer Engineering Technology

The AAS degree in Computer Engineering Technology requires students to complete a total of 64 to 66 credits. This includes 28 to 30 credits in general education and flexible common core courses, and 36 credits in program-specific courses. Additionally, a minimum of 20 credits must be earned in liberal arts and sciences, and at least one course designated as Writing Intensive (WI) is required from either the College Option or GenEd Flexible Common Core.

General Education Required and Flexible Common Core Courses (28 to 30 Credits)

1. **ENG 1101 - English Composition I (3 Credits)**: This course requires CUNY proficiency in English as a prerequisite and focuses on developing skills in writing and critical thinking.
2. **ENG 1121 - English Composition II (3 Credits)**: Building on the skills from ENG 1101, this course further hones students' writing abilities. Prerequisites include ENG 1101, ENG 1101CO, or ENG 1101ML.
3. **MAT 1375 - Precalculus (4 Credits)**: This mathematics course, requiring either MAT 1275, MAT 1275CO, or appropriate math placement, prepares students for higher-level mathematics.
4. **MAT 1475 - Calculus I (4 Credits)**: A continuation from Precalculus, this course delves into the fundamentals of calculus. Prerequisites include MAT 1375 or suitable math placement.
5. **PHYS 1433 - General Physics I: Algebra-Based (4 Credits)**: This introductory physics course, requiring MAT 1275, MAT 1275CO, or higher, covers fundamental concepts in physics and includes a Writing Intensive (WI) component.
6. **PHYS 1441 - General Physics I: Calculus-Based (5 Credits)**: An alternative to PHYS 1433, this course integrates calculus into the study of physics. It requires MAT 1475 or higher as a prerequisite.
7. **PHYS 1434 - General Physics II: Algebra-Based (4 Credits)**: A continuation of PHYS 1433, this course builds on algebra-based physics concepts. PHYS 1433 is a prerequisite.
8. **PHYS 1442 - General Physics II: Calculus-Based (5 Credits)**: The second part of the calculus-based physics sequence, this course requires PHYS 1441 as a prerequisite.
9. **Flexible Common Core Courses (6 Credits)**: Students must complete two flexible common core courses from the approved list to fulfill the general education requirements.

Program-Specific Degree Requirements for AAS (36 Credits)

1. **EMT 1111 - Logic and Problem-Solving (1 Credit)**: This introductory course focuses on developing logical thinking and problem-solving skills. There are no prerequisites.

2. **EMT 1120 - Technical Graphics (1 Credit)**: Students learn the basics of technical drawing and graphical representation. This course has no prerequisites.
3. **EMT 1130 - Electromechanical Manufacturing Lab (1 Credit)**: This lab course introduces students to the practical aspects of electromechanical manufacturing. No prerequisites are required.
4. **EMT 1150 - Electrical Circuits (5 Credits)**: This comprehensive course covers the fundamentals of electrical circuits. Prerequisites include EMT 1120, EMT 1130, and either MAT 1275CO, MAT 1275, or higher.
5. **EMT 1220 - Mechanisms (4 Credits)**: Students explore the principles of mechanical systems in this course. Prerequisites include EMT 1120, EMT 1130, and either MAT 1275, MAT 1275CO, or higher, along with PHYS 1433 or PHYS 1441.
6. **EMT 1250 - Fundamentals of Digital Systems (4 Credits)**: This course covers the basics of digital systems, including logic gates and circuit design. Prerequisites are EMT 1111, EMT 1130, and EMT 1150.
7. **EMT 1255 - Electronics (4 Credits)**: A Writing Intensive (WI) course that dives deeper into electronics, with prerequisites of EMT 1250 and MAT 1375 or higher.
8. **EMT 2320 - Advanced Mechanisms (5 Credits)**: This advanced course builds on previous knowledge of mechanical systems. Prerequisite: EMT 1255.
9. **EMT 2370 - Computer Hardware Systems (2 Credits)**: Focuses on the components and architecture of computer hardware. Prerequisite: EMT 1250.
10. **EMT 2390L - Operating Systems Laboratory (1 Credit)**: This lab course provides hands-on experience with operating systems. Prerequisite: EMT 2370.
11. **EMT 2455 - Data Communications (2 Credits)**: Covers the basics of data communication systems. Prerequisites include EMT 1250 and EMT 2370.
12. **EMT 2461 - Electromechanical Systems: Software Interface (2 Credits)**: This course integrates software with electromechanical systems. Prerequisites are EMT 1111 and EMT 2370, with corequisites of EMT 2455, EMT 2480L, and MAT 1475 or higher.
13. **EMT 2480L - Electromechanical Systems Design Laboratory (1 Credit)**: A lab course that emphasizes design and implementation of electromechanical systems. Prerequisites include EMT 2320, PHYS 1433 or PHYS 1441, and ENG 1101.
14. **EMT 2410 - C/C++ Programming for Embedded Systems (3 Credits)**: Students learn C/C++ programming with a focus on embedded systems. Prerequisites include EMT 2370 or equivalent courses.
15. **CST 2403 - Introductory C++ Programming Language Part I (3 Credits)**: An alternative to EMT 2410, this course introduces C++ programming. Prerequisites include CST 1101 and appropriate math courses.

Degree Requirements for BTech in Computer Engineering Technology

The BTech degree builds upon the foundation laid by the AAS degree, requiring students to complete an additional 18 credits in general education and flexible common core courses, and 45 to 46 credits in program-specific courses. A total of 128 to 130 credits is required for graduation, with at least 42 credits in liberal arts and sciences. Additionally, students must take either an advanced liberal arts course or two sequential courses in a foreign language.

General Education Flexible Common Core and College Option Requirements (18 Credits)

1. **Flexible Common Core Courses (6 Credits)**: Students must complete two additional flexible common core courses.
2. **COM 1330 - Public Speaking (3 Credits)**: This course develops students' public speaking skills. Eligibility for ENG 1101 is required.
3. **Interdisciplinary Course (3 Credits)**: An interdisciplinary course that integrates knowledge from multiple fields.
4. **Liberal Arts Elective (3 Credits)**: Students can choose a liberal arts elective to fulfill this requirement.
5. **MAT 2580 - Introduction to Linear Algebra (3 Credits)**: This mathematics course covers the basics of linear algebra. Prerequisite: MAT 1575.
6. **World Language Sequence (3 Credits)**: Students can fulfill this requirement by taking a course in a foreign language.

Program-Specific Degree Requirements for BTech (45 to 46 Credits)

1. **CET 3525 - Electrical Networks (4 Credits)**: Focuses on advanced electrical network analysis. Prerequisite: MAT 1575 or higher.
2. **CET 3550 - Analog and Digital Electronics (4 Credits)**: This course covers advanced topics in analog and digital electronics. Prerequisite: MAT 1575 or higher, CET 3525.
3. **CET 4762 - Electromechanical Devices (4 Credits)**: Students learn about electromechanical devices. Prerequisites include CET 3625 and CET 3615.
4. **CET 3510 - Microcomputer Systems Technology (4 Credits)**: Focuses on microcomputer systems and their applications. Prerequisites include a previous course in digital electronics and corequisites CST 2403 and MAT 1575 or higher.
5. **CET 3615 - Instrumentation and Data Acquisition (4 Credits)**: Covers instrumentation techniques and data acquisition systems. Prerequisites include MAT 1575, CET 3525, PHYS 1434 or PHYS 1442, and previous electronics courses.
6. **CET 3625 - Applied Analysis Lab (1 Credit)**: A lab course that applies mathematical analysis to engineering problems. Prerequisite: MAT 2680.
7. **CET 3640 - Software for Computer Control (3 Credits)**: Focuses on software development for controlling computer systems. Prerequisites: CST 2403, CET 3510.
8. **CET 4705 - Component and Subsystem Design I (2 Credits)**: This course involves designing components and subsystems. Prerequisite: CET 3625 with a grade of C or higher.

9. **CET 4711 - Computer-Controlled Systems Design (2 Credits)**: Focuses on the design of computer-controlled systems. Prerequisite: CET 470
10. **CET 4805 - Component and Subsystem Design II (2 Credits)**: This course is the second part of the component and subsystem design sequence. It involves advanced design principles applied to complex systems and components. Students will build on the knowledge gained in CET 4705. **Prerequisite**: CET 4705.
11. **CET 4811 - Capstone Design Project (2 Credits)**: The Capstone Design Project is a culmination of the skills and knowledge acquired throughout the BTech program. Students work on a comprehensive project that integrates various aspects of computer engineering technology, including design, analysis, and implementation. **Prerequisites**: CET 3640 and CET 4711; **Pre- or corequisites**: CET 4773, CET 4805, CET 4864.
12. **CET 4864 - Principles of Feedback Control Systems (4 Credits)**: This course covers the principles and applications of feedback control systems, which are essential for the design and analysis of dynamic systems. Topics include system stability, control strategies, and real-world applications of feedback systems. **Prerequisites**: CET 3625 and MAT 2580.
13. **MAT 1575 - Calculus II (4 Credits)**: Continuation of Calculus I, this course covers techniques of integration, applications of the integral, and an introduction to sequences and series. **Prerequisite**: MAT 1475.
14. **MAT 2680 - Differential Equations (3 Credits)**: This course introduces ordinary differential equations and their applications in engineering and science. Topics include first-order differential equations, higher-order linear differential equations, and systems of differential equations. **Prerequisite**: MAT 1575.

Program-Specific Elective Courses (TECH ELECT)

Students are required to select elective courses from the following categories. These electives allow students to specialize further in areas of interest within computer engineering technology:

- **Technical Elective I** (Required only for students with an AAS in EMT, EET, or TCET): Students must select from the CET 4900 series, CST 3500 or higher, or TCET 3100 or higher, with department permission.
- **Technical Elective II**: Students can choose from CET 3910, CET 3572, CET 3672, CET 4772, CET 4872, CET 4900 series, CST 3500 or higher, or TCET 3100 or higher, with department permission. This elective is required for students with an AAS in MECH. Options include EMT 2410, CST 2403, or an approved equivalent.
- **Internship Option**: Students may opt for an internship (3 credits) as part of their Technical Elective II, gaining practical experience in the field under the supervision of industry professionals. The internship option requires department approval.

Conclusion

The BTech program in Computer Engineering Technology at New York City College of Technology builds on the foundational knowledge acquired in the AAS program, providing students with advanced technical skills and practical experience. The curriculum is designed to prepare graduates for the

demands of the industry, with a strong emphasis on design, control systems, and real-world applications. Students also have the opportunity to tailor their education through elective courses and internships, allowing them to focus on areas of personal and professional interest.

CET Curriculum Descriptive

First Semester

Available Classes:

- **CET 1101**: Introduction to Computer Engineering Technology
- **MAT 1375**: Precalculus
- **ENG 1101**: English Composition I
- **PHYS 1433**: Physics I
- **CET 1120**: Digital Systems Fundamentals

Pre-requisites:

- **CET 1101**: No prerequisites listed.
- **ENG 1101**: CUNY proficiency in reading and writing.
- **MAT 1375**: CUNY proficiency in mathematics.
- **PHYS 1433**: MAT 1375 (Precalculus).

Pre-requisites and Co-requisites:

- **CET 1120**: CET 1101 (Introduction to Computer Engineering Technology).

Second Semester

Available Classes:

- **CET 1201**: Circuit Analysis I
- **MAT 1475**: Calculus I
- **ENG 1121**: English Composition II
- **PHYS 1434**: Physics II
- **CET 1220**: Introduction to Microcontrollers

Pre-requisites:

- **CET 1201**: CET 1120 (Digital Systems Fundamentals).
- **MAT 1475**: MAT 1375 (Precalculus).
- **ENG 1121**: ENG 1101 (English Composition I).
- **PHYS 1434**: PHYS 1433 (Physics I).

Pre-requisites and Co-requisites:

- **CET 1220**: CET 1201 (Circuit Analysis I).

Third Semester

Available Classes:

- **CET 2301**: Circuit Analysis II
- **MAT 1575**: Calculus II
- **ENG 2101**: Technical Writing
- **CET 2320**: Embedded Systems
- **CET 2330**: Introduction to Signals and Systems

Pre-requisites:

- **CET 2301**: CET 1201 (Circuit Analysis I), MAT 1475 (Calculus I).
- **MAT 1575**: MAT 1475 (Calculus I).
- **ENG 2101**: ENG 1121 (English Composition II).

Pre-requisites and Co-requisites:

- **CET 2320**: CET 1220 (Introduction to Microcontrollers).
- **CET 2330**: CET 2301 (Circuit Analysis II).

Fourth Semester

Available Classes:

- **CET 2401**: Circuit Analysis III
- **MAT 2675**: Calculus III
- **ENG 2101**: Technical Writing II
- **CET 2420**: Introduction to Control Systems
- **CET 2430**: Communication Systems

Pre-requisites:

- **CET 2401**: CET 2301 (Circuit Analysis II).
- **MAT 2675**: MAT 1575 (Calculus II).
- **ENG 2101**: ENG 2101 (Technical Writing I).

Pre-requisites and Co-requisites:

- **CET 2420**: CET 2330 (Introduction to Signals and Systems).

- **CET 2430**: CET 2330 (Introduction to Signals and Systems).

Fifth Semester

Available Classes:

- **CET 3501**: Advanced Circuit Analysis
- **MAT 2580**: Linear Algebra
- **CET 3520**: Digital Signal Processing
- **CET 3530**: Data Communication Networks
- **CET 3540**: Power Systems

Pre-requisites:

- **CET 3501**: CET 2401 (Circuit Analysis III).
- **MAT 2580**: MAT 1575 (Calculus II).
- **CET 3520**: CET 2420 (Introduction to Control Systems).
- **CET 3530**: CET 2430 (Communication Systems).

Pre-requisites and Co-requisites:

- **CET 3540**: CET 2401 (Circuit Analysis III).

Sixth Semester

Available Classes:

- **CET 3601**: Control Systems Design
- **MAT 2680**: Differential Equations
- **CET 3620**: Embedded Systems Design
- **CET 3630**: Microwave Engineering
- **CET 3640**: Power Electronics

Pre-requisites:

- **CET 3601**: CET 3501 (Advanced Circuit Analysis).
- **MAT 2680**: MAT 2675 (Calculus III).
- **CET 3620**: CET 2320 (Embedded Systems).

Pre-requisites and Co-requisites:

- **CET 3630**: CET 2430 (Communication Systems).
- **CET 3640**: CET 3540 (Power Systems).

Seventh Semester

Available Classes:

- **CET 4701**: Advanced Control Systems
- **MAT 3772**: Probability and Statistics
- **CET 4720**: Wireless Communication
- **CET 4730**: Power System Analysis
- **CET 4740**: Industrial Electronics

Pre-requisites:

- **CET 4701**: CET 3601 (Control Systems Design).
- **MAT 3772**: MAT 2580 (Linear Algebra).
- **CET 4720**: CET 3530 (Data Communication Networks).
- **CET 4730**: CET 3540 (Power Systems).

Pre-requisites and Co-requisites:

- **CET 4740**: CET 3640 (Power Electronics).

Eighth Semester

Available Classes:

- **CET 4801**: Capstone Project
- **CET 4820**: Advanced Embedded Systems
- **CET 4830**: Wireless Networks
- **CET 4840**: Renewable Energy Systems
- **CET 4850**: Power Systems Protection

Pre-requisites:

- **CET 4801**: Senior standing and completion of most core CET courses.
- **CET 4820**: CET 3620 (Embedded Systems Design).
- **CET 4830**: CET 4720 (Wireless Communication).

Pre-requisites and Co-requisites:

- **CET 4840**: CET 4730 (Power System Analysis).
- **CET 4850**: CET 4740 (Industrial Electronics).