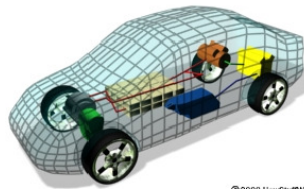


Mercer County Community College Engineering Degree Programs

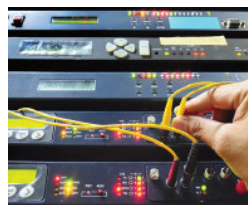
Engineering Science



Civil Engineering Technology



Electronics Engineering Technology



Mercer County Community College Engineering Degree Programs

- A.S. in Engineering Science (Two Year Degree or Certificate)

- Focuses on theory and conceptual design
- Designed to transfer into any University offering a Bachelor's Degree in Engineering
- Allows transfer into any Engineering Discipline (Civil, Mechanical, Electrical, etc.)
- Can lead to licensure as a Professional Engineer
- University Level Math and Science (Calculus)

- A.A.S. in Civil Engineering Technology (Two Year Degree)

- Focuses on design application and implementation (hands-on instruction)
- Designed to transfer into Universities offering a Bachelor's Degree in Engineering Technology (New Jersey Institute of Technology, Temple University, Fairleigh Dickinson University, Penn State University)
- Can lead to licensure as a Professional Civil Engineer
- College Level Math and Science (Algebra & Trigonometry)

- A.A.S. in Electronics Engineering Technology (Two Year Degree or Certificate)

- Focuses on design application and implementation (hands-on instruction)
- Designed to transfer into any College's EET program. Mercer maintains a transfer agreement with NJIT. Other options for EET graduates include Rowan, Drexel, and Rutgers universities.
- Several of these institutions have programs which allow EET graduates to complete the requirements for a BSET degree in two years or a Master of Science (MSEE) in three years.
- Can lead to licensure as a Professional Engineer

Engineering Science

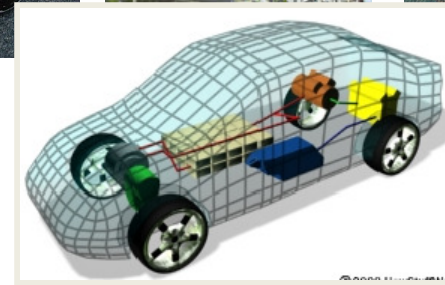
(A certificate option is also available)

Curriculum

| Code | Course (lecture/lab hours) | Credits |
|---------|---|---------|
| CHE 101 | General Chemistry I (3/3) | 4 |
| CMN 112 | Public Speaking (3/0) | 3 |
| ENG 101 | English Composition I (3/0) | 3 |
| MAT 151 | Calculus I (4/0) | 4 |
| PHY 115 | University Physics I (3/3) | 4 |
| <hr/> | | |
| CHE 102 | General Chemistry II (3/3) | 4 |
| CIV 103 | Statics (3/0) | 3 |
| ENG 102 | English Composition II (3/0) | 3 |
| MAT 152 | Calculus II (4/0) | 4 |
| PHY 215 | University Physics II (3/3) | 4 |
| <hr/> | | |
| CIV 230 | Mechanics of Solids (3/3) | 4 |
| ECO 112 | Microeconomics (3/0) | 3 |
| ENT 116 | Engineering Graphics (1/2) | 2 |
| | OR | |
| DRA 190 | Introduction to Computer-Aided Drafting (1/2) | 2 |
| MAT 251 | Calculus III (4/0) | 4 |
| PHY 225 | University Physics III (3/3) | 4 |
| <hr/> | | |
| COS 101 | Introduction to Computer Science (3/2) | 4 |
| MAT 252 | Differential Equations (4/0) | 4 |
| — — | General Education elective ¹ | 3 |
| — — | General Education elective ¹ | 3 |
| | | 67 |

NOTE: Select courses in consultation with an academic advisor in order to assure maximum transfer of credits.

¹ Select courses from either Humanities or Historical Perspective general education categories.



Careers:

The Engineering Science program prepares students to transfer to a baccalaureate degree in Engineering. Students develop a strong foundation in mathematics, physics, and chemistry, with emphasis on engineering applications and use of the computer as a problem-solving tool. *Can lead to licensure as a Professional Engineer.*

Transfer Information:

Students can transfer to a four-year ABET-accredited engineering program with majors such as civil, computer, electrical, industrial, mechanical, biomedical, chemical, environmental, or architectural engineering.

Articulation Agreements:

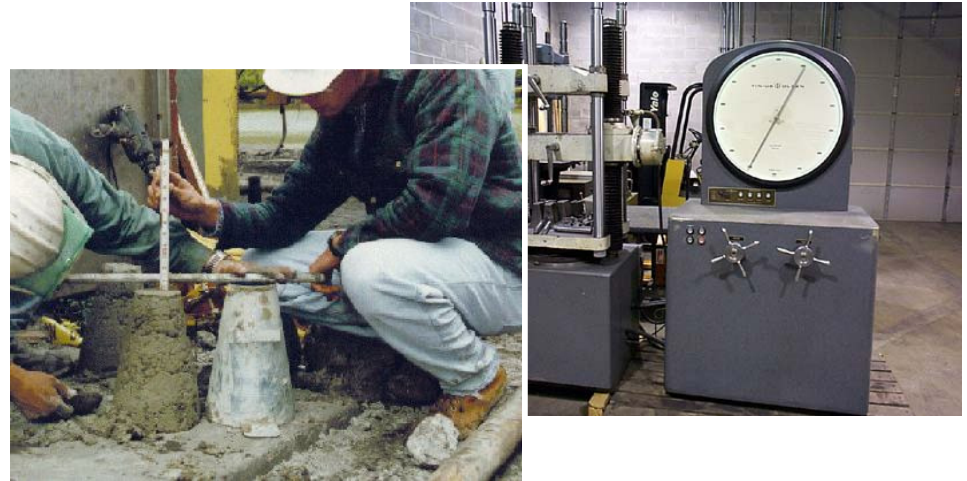
Mercer currently has articulation agreements with Rowan University, New Jersey Institute of Technology (NJIT), The College of New Jersey, Drexel University, and Rutgers University.

Civil Engineering Technology

Curriculum

| Code | Course (lecture/lab hours) | Credits |
|---------|---|---------|
| CIV 101 | Surveying I (2/3) | 3 |
| ENT 116 | Engineering Graphics (1/2) | 2 |
| DRA 190 | Introduction to Computer-Aided Drafting (1/2) | 2 |
| ENG 101 | English Composition I (3/0) | 3 |
| MAT — | Mathematics elective (3/0) ¹ | 3-4 |
| — — | Science elective ² | 3 |
| <hr/> | | |
| CIV 102 | Surveying II (2/3) | 3 |
| CIV 106 | Mechanics (3/0) | 3 |
| ENG 112 | English Composition II With Speech (3/0) | 3 |
| MAT — | Mathematics elective (3/0) ¹ | 3-4 |
| — — | Science elective ² | 3 |
| <hr/> | | |
| CIV 223 | Fluid Mechanics (3/3) | 4 |
| CIV 227 | Structural Steel Design (2/3) | 3 |
| CIV 229 | Mechanics of Materials (3/3) | 4 |
| — — | General Education elective ³ | 3 |
| — — | General Education elective ⁴ | 3 |
| <hr/> | | |
| CIV 228 | Reinforced Concrete Design (2/3) | 3 |
| CIV 216 | Highway Engineering (2/2) | 3 |
| HPE 110 | Concepts of Health and Fitness (1/2)† | 2 |
| IST 102 | Computer Concepts with Programming (2/2) | 3 |
| | OR | |
| IST 109 | Introduction to Programming (2/2) | 2 |
| — — | Technical elective ⁵ | |
| — — | General Education elective ⁴ | |
| | | 64-66 |

NOTE: Electives should be selected in consultation with an academic advisor in order to assure maximum transfer of credits.



Careers:

Prepares students for employment in field and office positions with architects, engineers, and government agencies as engineering aides; construction, highway or materials technicians; transit operators; or estimators. *Also can lead to licensure as a Professional Civil Engineer.*

Transfer Information:

Graduates wishing to pursue studies leading to a bachelor's degree can transfer into the junior year at many institutions. Temple University, New Jersey Institute of Technology (NJIT), Pennsylvania State University, and Fairleigh Dickinson University are among the institutions accepting Mercer graduates.

Articulation Agreements:

Mercer currently has an articulation agreement with Fairleigh Dickinson University, and has agreements pending with Temple University, New Jersey Institute of Technology (NJIT), and Pennsylvania State University.

Electronics Engineering Technology

(A certificate option is also available)

Curriculum

| Code | Course (lecture/lab hours) | Credits |
|---------|---|---------|
| EET 138 | Introduction to Electronics I (3/3) | 4 |
| EET 140 | Electronic Construction (1/3) | 2 |
| ENG 101 | English Composition I (3/0) | 3 |
| MAT — | Mathematics elective ¹ | 4 |
| — — | Science OR Technology elective ² | 3 |
| <hr/> | | |
| EET 139 | Introduction to Electronics II (3/3) | 4 |
| EET 215 | Fiber Optics (3/2) | 4 |
| ENG 102 | English Composition II (3/0) | 3 |
| — — | Science OR Technology elective ² | 3 |
| — — | General Education elective ³ | 3 |
| <hr/> | | |
| EET 219 | Electronic Networks (3/3) | 4 |
| EET 251 | Digital Circuit Fundamentals (3/3) | 4 |
| HPE 110 | Concepts of Health and Fitness (1/2)† | 2 |
| — — | General Education elective ⁴ | 3 |
| <hr/> | | |
| EET 214 | Communications Electronics (3/3) | 4 |
| EET 230 | Linear Integrated Circuits (3/3) | 4 |
| EET 263 | Digital Technology (3/3) | 4 |
| — — | General Education elective | 3 |
| | | 61 |

NOTE: Electives should be selected in consultation with an academic advisor in order to assure maximum transfer of credits.



Program Information:

The Electronics Engineering Technology (EET) program is primarily a transfer program. Successful graduates may transfer to a college or university which offers a four-year bachelor's degree in electronics engineering technology. *Also can lead to licensure as a Professional Engineer.*

Transfer Information:

Mercer County Community College's EET program maintains a transfer agreement with the ECET program of NJIT. Other options for EET graduates include Rowan, Drexel, and Rutgers universities. Several of these institutions have programs which allow EET graduates to complete the requirements for a BSET degree in two years or a Master of Science (MSEE) in three years.

Engineering versus Engineering Technology

| Program | Engineering | Engineering Technology |
|-----------------------|---|---|
| Associate Degree | Associate in Science | Associate in Applied Science |
| | ↓ | ↓ |
| Bachelor's Degree | B.S. Engineering | B.S. Engineering Technology |
| | Any University offering a Bachelor of Science in Engineering | University offering a Bachelor of Science in Engineering Technology |
| | ↓ | ↓ |
| Engineering Exam 1 | E.I.T. Exam | E.I.T. Exam |
| Work Experience | 4 Years Experience under supervision of Professional Engineer | 6 Years Experience under supervision of Professional Engineer |
| Engineering Exam 2 | P.E. Exam | P.E. Exam |
| Professional Engineer | Professional Engineer | Professional Engineer |

Engineering Science

Course Offering Information (Traditionally Offered Times)

| Course | Semester | 9am-noon | 1pm-4pm | 4pm or later |
|---|--------------------|------------|------------|--------------|
| CHE101-General Chemistry I | Fall/Spring/Summer | F - Sp - S | F - Sp - S | F - Sp |
| CMN112-Public Speaking | Fall/Spring/Summer | F - Sp - S | F - Sp - S | F - Sp - S |
| ENG101-English Composition I | Fall/Spring/Summer | F - Sp - S | F - Sp - S | F - Sp - S |
| MAT151-Calculus I | Fall/Spring/Summer | F - Sp - S | F - Sp - S | F - Sp - S |
| PHY115-University Physics I | Fall/Spring | F - Sp | F - Sp | F - Sp |
| | | | | |
| CHE102-General Chemistry II | Spring/Summer | Sp - S | Sp - S | Sp |
| CIV103-Statics | Spring/Summer | - | Sp | S |
| ENG102-English Composition II | Fall/Spring/Summer | F - Sp - S | F - Sp - S | F - Sp - S |
| MAT152-Calculus II | Fall/Spring/Summer | F - Sp - S | - | F - Sp - S |
| PHY215-University Physics II | Fall/Spring | Sp | F - Sp | - |
| | | | | |
| CIV230-Mechanics of Solids | Fall | - | F | - |
| ECO112-Microeconomics | Fall/Spring/Summer | F - Sp - S | F - Sp | F - Sp - S |
| ENT116-Engineering Graphics OR | Fall/Spring | Sp | - | F |
| DRA190-Introduction to CAD | Fall/Spring/Summer | - | F | F - Sp - S |
| MAT251-Calculus III | Fall/Spring/Summer | F | - | F - Sp - S |
| PHY225-University Physics III | Spring | Sp | - | - |
| | | | | |
| COS101-Introduction to Computer Science | Fall/Spring | - | F - Sp | F - Sp |
| MAT252-Differential Equations | Spring | - | Sp | - |
| General Education Elective | Fall/Spring/Summer | F - Sp - S | F - Sp - S | F - Sp - S |
| General Education Elective | Fall/Spring/Summer | F - Sp - S | F - Sp - S | F - Sp - S |

F = FALL

Sp = SPRING

S = SUMMER

| | | | |
|--------------|-----|-----|-----|
| Total Number | 15 | 16 | 15 |
| Percentage | 79% | 84% | 79% |

| | |
|--------------------|------|
| Total from 9am-4pm | 19 |
| Percentage | 100% |

Civil Engineering Technology

Course Offering Information (Traditionally Offered Times)

| Course | Semester | 9am-noon | 1pm-4pm | 4pm or later |
|--|--------------------|------------|------------|--------------|
| CIV101-Surveying I | Fall | - | - | F |
| ENT116-Engineering Graphics | Fall/Spring | Sp | - | F |
| DRA190-Introduction to CAD | Fall/Spring/Summer | - | F | F - Sp - S |
| ENG101-English Composition I | Fall/Spring/Summer | F - Sp - S | F - Sp - S | F - Sp - S |
| MAT146-Pre-Calculus | Fall/Spring/Summer | F - Sp - S | F - Sp - S | F - Sp - S |
| PHY101-College Physics I | Fall/Spring/Summer | F - S | F - Sp | F - Sp - S |
| | | | | |
| CIV102-Surveying II | Spring | - | - | Sp |
| CIV106-Mechanics | Spring, Summer | - | Sp | S |
| ENG112-English Composition II with Speech | Fall/Spring | F, Sp | F | F, Sp |
| MAT151-Calculus I | Fall/Spring/Summer | F - Sp - S | F - Sp - S | F - Sp - S |
| PHY102-College Physics II | Fall/Spring/Summer | S | F, Sp | F, Sp |
| | | | | |
| CIV223-Fluid Mechanics | Fall | - | - | F |
| CIV227-Structural Steel Design | Fall | - | F | - |
| CIV229-Mechanics of Materials | Fall | - | F | - |
| General Education Elective | Fall/Spring/Summer | F - Sp - S | F - Sp - S | F - Sp - S |
| General Education Elective | Fall/Spring/Summer | F - Sp - S | F - Sp - S | F - Sp - S |
| | | | | |
| CIV228-Reinforced Concrete Design | Spring | - | Sp | - |
| CIV216-Highway Engineering | Spring | - | - | Sp |
| HPE110-Concepts of Health and Fitness | Fall/Spring/Summer | F - Sp - S | F - Sp - S | F - Sp - S |
| IST102-Computer Concepts with Programming OR | Fall/Spring/Summer | F - Sp - S | - | F - S |
| IST109-Introduction to Programming | Fall/Spring/Summer | F - Sp | - | F - Sp - S |
| Technical Elective Option 1 (BCT232-Construction Estimating) OR | Spring | - | - | Sp |
| Technical Elective Option 2 (BCT234-Contracts & Specifications) | Fall | - | - | F |
| General Education Elective | Fall/Spring/Summer | F - Sp - S | F - Sp - S | F - Sp - S |

F = FALL
Sp = SPRING
S = SUMMER

| | | | |
|--------------|-----|-----|-----|
| Total Number | 12 | 15 | 19 |
| Percentage | 55% | 68% | 86% |

| | |
|--------------------|-----|
| Total from 9am-4pm | 17 |
| Percentage | 77% |

Engineering Career Descriptions

| Career Name | Career Description |
|------------------------|--|
| Civil Engineer | Professional engineering discipline that deals with the design, construction, and maintenance of the physical and naturally built environment, including works like roads, bridges, canals, dams, and buildings. |
| Computer Engineer | Discipline that integrates several fields of electrical engineering and computer science required to develop computer hardware and software. |
| Electrical Engineer | A field of engineering that generally deals with the study and application of electricity, electronics, and electromagnetism. |
| Industrial Engineer | Branch of engineering dealing with the optimization of complex processes or systems. |
| Mechanical Engineer | Discipline of engineering that applies the principles of engineering, physics and materials science for analysis, design, manufacturing, and maintenance of mechanical systems. |
| Biomedical Engineer | The application of engineering principles and design concepts to medicine and biology for healthcare purposes (e.g. diagnostic or therapeutic). |
| Chemical Engineer | Profession in which one works principally in the chemical industry to convert basic raw materials into a variety of products, and deals with the design and operation of plants and equipment to perform such work. |
| Environmental Engineer | The integration of science and engineering principles to improve the natural environment, to provide healthy water, air, and land for human habitation and for other organisms, and to remediate pollution sites. |
| Architectural Engineer | Applies the knowledge and skills of broader engineering disciplines to the design, construction, operation, maintenance, and renovation of buildings and their component systems while paying careful attention to their effects on the surrounding environment. |