

## Process for Admission

Whether you are planning to study full- or part-time, you must submit an admission application (free of charge) to the Student Records Office. An online application is available at [www.mccc.edu](http://www.mccc.edu). A print version may be requested by calling the Admissions Office at 609-570-3795. Applications submitted by regular mail should be sent to: Student Records Office, Mercer County Community College, P.O. Box B, Trenton, NJ 08690. Students must also contact their high school or previous/current college and request that official transcripts be sent to the same address.

Students may also be required to take an academic placement test (free of charge) in English and/or math. The two-hour test is self-administered and does not affect admission to the college. Certain scores on the SAT/ACT or your transcript from another college may exempt you from portions of the test.

After taking the placement test, students meet with an advisor to select their courses and then register for classes.

## Approved for Veterans

MCCC is an approved institution for veterans' training under various GI bills. For more information, call 609-570-3240.

## Contact Us

We encourage you to visit the college and meet with faculty and staff. To arrange a campus tour or request additional information, contact the Admissions Office on either campus.

MCCC Admissions Office at 609-570-3795  
(Monday-Friday, 9:00 am - 5:00 pm)

Visit the college's website [www.mccc.edu](http://www.mccc.edu)  
Trenton, New Jersey 08690 (609) 586-4800

To contact Mercer's Civil Engineering Technology Program Coordinator James Maccariella, call 609-570-3462, or email [maccarij@mccc.edu](mailto:maccarij@mccc.edu).



# Build Your Career At Mercer!

## CIVIL ENGINEERING TECHNOLOGY

### Pursue a career in:

- Bridge & Building Design
- Highway Design
- Surveying
- Construction Inspection
- Computer-Aided Drafting

Get **Academic  
Solutions** at Mercer



## Civil Engineering Technology CET Program

As a graduate of the Civil Engineering Technology program, you will work with architects, engineers, and government agencies in positions such as engineering aides, construction inspectors, surveying technicians, material technicians, and estimators. You may also work with CADD (computer-aided drafting and design) technicians to prepare maps and specifications.

As a successful graduate, you will be able to:

- Assist engineers with planning and designing structures
- Function as construction-site supervisor or inspector
- Perform highway inspections and construction surveys
- Serve as a laboratory technician in testing and analyzing construction materials
- Serve as an engineering salesperson or technician

- Prepare construction and civil engineering drawings with a computer based drafting system
- Communicate effectively both verbally and in writing
- Apply critical thinking skills related to drawings and systems

The program is also designed for transfer, and many graduates find opportunities at colleges and universities nationwide. Our graduates have pursued studies leading to a bachelor of engineering technology degree at many area institutions such as: the New Jersey Institute of Technology, Temple University, Penn State University, and Fairleigh Dickinson University.



## Course Descriptions

### CIV 101 Surveying I 3 credits

**Corequisites:** MAT 115 or MAT 110 or approved equivalent; ENT 116 or prior drafting experience; DRA 190

Introduces the three basic surveying tools – the tape, level, and transit/theodolite – along with proper field procedures for basic surveying. These include taking field notes, taping and EDM, leveling, bearings and azimuths, topography, and mapping – the latter including an introduction to computer-aided design. **2 lecture/3 laboratory hours**

### CIV 102 Surveying II 3 credits

**Prerequisite:** CIV 101 or permission of instructor

Application of the fundamentals and techniques achieved in elementary surveying to solve additional problems in vertical curves, horizontal curves, traversing computations and profiles. Computations include bearings and azimuths, latitudes and departures, areas, and use of the planimeter. Applies AutoCAD and land development software, plus “Total Station” survey equipment for traversing, radial stakeout, and layout of horizontal curves. **2 lecture/3 laboratory hours**

### CIV 106 Mechanics 3 credits

**Prerequisite:** MAT 115 or MAT 110 or divisional permission

Introduction to the basic principles of engineering mechanics, including terminology and types of force systems, for engineering technology students. Topics include the resultant force of a force system, distributed and concentrated forces, force systems in equilibrium, trusses, frames and machines, friction, centroids, and moments of inertia. **3 lecture hours**

### CIV 216 Highway Engineering 3 credits

**Prerequisites:** MAT 115 and ENT 116

**Corequisites:** CIV 102, DRA 190, or divisional permission

Explores the planning, design, construction, and characteristics of highways and city streets, including layout, traffic requirements, safety and control, drainage, subgrade structure, base courses, and surface pavements. Problems to be solved include geometric design, traffic volume, channelization, and hydrology. Lab projects involve roadway designing. **2 lecture/2 laboratory hours**

### CIV 223 Fluid Mechanics 4 credits

**Prerequisite:** MAT 115

Introduction to the field of fluid mechanics. Topics include the properties of fluids, buoyancy, basic fluid power, closed pipe flow, open channel flow, forces due to fluids in motion, flow measuring devices, and the energy balances of fluid systems. Lab experiments (requiring written reports) on non-compressible fluids illustrate the theoretical concepts. **3 lecture/3 laboratory hours**

### CIV 227 Structural Steel Design 3 credits

**Corequisite:** CIV 229

Application of basic principles of material mechanics to the analysis and design of structural steel members that occur most commonly in



bridge and building construction. Requires thorough knowledge of the American Institute of Steel Construction Code as well as orderly computational procedures. Lab work involves the design of a building. **2 lecture/3 laboratory hours**

### CIV 228 Reinforced Concrete Design 3 credits

**Prerequisite:** CIV 227

Examines the design of basic reinforced concrete structural members including rectangular beams, slabs, columns, footings, and retaining walls. Requires thorough knowledge of the ACI Standard Code. Covers field inspection procedures. Lab projects involve designing, mixing, and evaluating concrete cylinders and beams, adhering to alternate design and strength design approaches. **2 lecture/3 laboratory hours**

### CIV 229 Mechanics of Materials 4 credits

**Prerequisite:** CIV 106 with a minimum C grade

With an introduction to engineering materials and their mechanical properties, examines strains that occur in elastic bodies subjected to direct and combined stresses, shear and bending moment diagrams, deflections of beams, and stresses due to torsion. Lab testing involves various materials such as cast iron, steel, brass, aluminum, and wood to determine their physical properties and to demonstrate various testing techniques. **3 lecture/3 laboratory hours**

### DRA 190 Intro. to Computer-Aided Drafting 2 credits

**Corequisite:** ABT 120 or divisional permission

Introduction to the use of the computer as a drafting tool. Includes concepts, terminology, and basic commands necessary to prepare drawings using CAD software. Requires basic knowledge of the computer keyboard. **1 lecture/2 laboratory hours**

### ENT 116 Engineering Graphics 2 credits

**Corequisites:** ENG 033 and MAT 033 or equivalent proficiency

Broad-based course in basic graphic concepts of engineering drawing, including such topics as orthographic projection, sectioning, isometric drawing, and dimensioning. **1 lecture/2 laboratory hours**

## Course Requirements

### 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) <sup>1</sup>       | 3-4     |
| — —     | Science elective <sup>2</sup>                 | 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) <sup>1</sup>       | 3-4     |
| — —     | Science elective <sup>2</sup>                 | 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 <sup>3</sup>       | 3       |
| — —     | General Education elective <sup>4</sup>       | 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)             | 3       |
| — —     | Technical elective <sup>5</sup>               | 2       |
| — —     | General Education elective <sup>4</sup>       | 3       |

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

<sup>1</sup> Select mathematics electives in consultation with an advisor. Students must either have competence in trigonometry or be enrolled in MAT 110 or 115 when taking CIV 101. Students who begin their mathematics electives with MAT 110 or lower must also take MAT 135 or 115. Students planning to earn the bachelor's degree should complete MAT 115 and 116 or MAT 146 and 151.

<sup>2</sup> This requirement may be satisfied with PHY 111 plus one other Science general education elective. Students planning to earn the bachelor's degree should take PHY 101 and 102 to satisfy the requirement.

<sup>3</sup> Select course from either Social Science or Humanities general education categories.

<sup>4</sup> Select course from the following general education categories: Social Science, Humanities, Historical Perspective, Diversity and Global Perspective.

<sup>5</sup> Select CIV 234 or 281 with advisor approval.

†HPE 111 is an acceptable alternative.

## Alumni Success

Michael Marano, a supervising civil engineer with Parsons Brinkerhoff, looks back fondly on his years as a student at MCCC. The 1990 graduate transferred to Fairleigh Dickinson University where he earned his BS in Civil Engineering Technology in 1992, and was honored with the Engineering Technology Award.



Marano is a member of the Professional Engineers Society of Mercer County and was named by them as Young Engineer of the Year in 2002. The following year Marano received the Young Engineer of the Year Award from the New Jersey Society of Professional Engineers.

“Mercer definitely played a big part in my success,” he said. “It was a quality education for a great price... Mercer gave me the basic tools I needed to succeed.”

Parsons Brinkerhoff is a global firm with more than 11,000 employees worldwide. In New Jersey, the firm's clients include the New Jersey Department of Transportation (NJDOT), the New Jersey Turnpike Authority (NJTA) and the South Jersey Transportation Authority (SJTA).

