

CHE 101 General Chemistry I **4 credits**

Prerequisite: MAT 135

Corequisite: ENG 101

Basic concepts and theoretical principles of modern chemistry. Topics include stoichiometry; atomic theory and the structure of matter; periodic table; chemical bonding; kinetic-molecular theory and the states of matter; gas laws; solutions; oxidation-reduction; and acid-base systems. Lab work introduces the use of computers for data collection and analysis.

2 lecture/1 recitation/3 laboratory hours

CIV 103 Statics **3 credits**

Prerequisites: MAT 146 with a minimum C grade;

one semester of high school or college physics

Corequisite: MAT 151

Calculus-based introduction to the basic principles of engineering statics, including terminology and types of force systems, for engineering science 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 230 Mechanics of Solids **4 credits**

Prerequisites: CIV 103 and MAT 151

with a minimum C grade

Calculus-based introduction to engineering materials and their mechanical properties, examining 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 demonstrate various testing techniques.

3 lecture/3 laboratory hours

COS 101 Introduction to Computer Science **4 credits**

Prerequisite: MAT 037 (or MAT 037A and 037B)

or proficiency in basic algebra

Introduces both majors and non-majors to programming and to the concepts and topics of computer science, including computer architecture, algorithm analysis, operating systems, and programming languages. Students develop algorithmic thinking and abstraction through program design and language structures using a 3-D animation programming language.

3 lecture/2 laboratory hours

DRA 190 Introduction to Computer-Aided Drafting **2 credits**

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

MAT 151 Calculus I **4 credits**

Prerequisite: MAT 146 with a minimum C grade or appropriate College Level Math placement test score

First course in the standard integrated calculus sequence. Topics include differentiation of algebraic, exponential, logarithmic, trigonometric, hyperbolic, and inverse trigonometric functions. Applications include curve sketching, related rates, maxima, minima, and approximations as well as integration and applications of the definite integral.

4 lecture hours

PHY 115 University Physics I **4 credits**

Prerequisites: MAT 146 with a minimum C grade;

one semester of high school or college physics

Corequisite: MAT 151

The first course in a calculus-based physics sequence intended for students majoring in physics, engineering science, computer science, mathematics, and other technical areas. Topics include kinematics, dynamics, statics, energy, momentum, oscillations, gravity, as well as solid and liquid materials. The laws of physics are investigated and applied to problem solving.

3 lecture/3 laboratory hours

Process for Admission

Whether you are planning to study full or part-time, you must submit an admission application (free of charge) to the Enrollment Services Office. An online application is available at www.mccc.edu. A print version may be requested by calling the Enrollment Services Office at 609-570-3795. Applications submitted by regular mail should be sent to: Enrollment Services Office, Mercer County Community College, P.O. Box 17202, 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 veteran's 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 Enrollment Services Office on either campus.

West Windsor Campus: 609-570-3795

James Kerney Campus: 609-570-3139

(Monday-Friday, 9 a.m. to 5 p.m.)

To contact Mercer's Engineering Science program coordinator James Maccariella, call 609-570-3462 or e-mail maccarij@mccc.edu

1200 Old Trenton Road
West Windsor, NJ 08550
www.mccc.edu
609-586-4800



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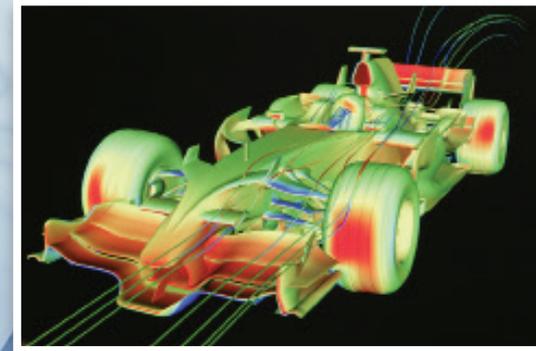
ENGINEERING SCIENCE

The Engineering Science A.S. degree program prepares students to transfer to a baccalaureate degree program 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. A strong general education curriculum helps students develop communication and analytical skills.

Engineering is a profession that integrates science and mathematics with design and laboratory study. It is and will continue to be the profession upon which the United States depends for its growth and ability to compete in world markets. Engineering offers more career options than any other discipline. Engineers are behind almost all of today's exciting technology. Engineers are problem solvers who search for quicker, better, and less expensive ways to use the forces and materials of nature to meet today's challenges.

Successful graduates of the Engineering Science degree program will be able to:

- analyze engineering drawings, demonstrating an understanding of the concept of scale and orthographic projection;
- assist engineers and technologists in performing tasks relevant to the chosen branch of engineering;
- complete written engineering reports;
- write computer programs to solve engineering-based problems;
- complete computer-aided design (CAD) drawings;
- communicate effectively both verbally and in writing;
- demonstrate effective mathematical skills and application of scientific principles in solving engineering problems;
- apply critical thinking and problem-solving skills in the analysis of data, design of experimental procedures, and evaluation of outcomes;
- transfer to a four-year institution in an ABET-accredited engineering program with a major in civil, computer, electrical, industrial, mechanical, biomedical, chemical, environmental, or architectural engineering.



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
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
CIV 230	Mechanics of Solids (3/3)	4
ECO 112	Microeconomics (3/0)	3
ENT 116	Engineering Graphics (1/2)	2
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
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
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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.

