COMPUTER ENGINEERING AREA OF CONCENTRATION, ENGINEERING SCIENCE AS: 409
Total Credits: 65
Catalog Edition: 2022-2023

Program Description

This curriculum is designed to provide the first two years of a four-year program leading to the award of a BS in engineering. A student planning to transfer to any baccalaureate degree granting institution should follow the appropriate area of concentration listed below in consultation with an engineering advisor. The student should also visit the Montgomery College Engineering Advising website www.montgomerycollege.edu/engineeringadvising for up-to-date comprehensive information on transfer requirements for all universities and colleges with which we have an articulated transfer program.

Completion of all requirements for any area of concentration in engineering science will lead to the award of the AS in engineering science.

This area of concentration will prepare students to transfer to a four-year university with a major in computer engineering. Specific requirements in colleges vary, and the student preparing for a particular institution may, with approval, change the sequence listed below; this sequence of courses is articulated with the computer engineering program at the University of Maryland, Baltimore County. A suggested course sequence for full-time students follows; all students should consult an engineering advisor. The student should also visit the Montgomery College Engineering Advising website at www.montgomerycollege.edu/engineeringadvising for up-to-date comprehensive information.

Program Outcomes

Upon completion of this program a student will be able to:

- Identify, formulate, and solve basic physics and engineering problems in programming and digital circuits.
- Design simple systems using computing theory and numerical methods in the area of Computer Engineering.
- Use appropriate computer application software in computer engineering.

Program Advisors

- **Email**: engineeringprogram@montgomerycollege.edu
- **Phone**: 240-567-5230
- **Craig Mogren**, Craig.Mogren@montgomerycollege.edu
- **Alex Hou**, Chienannalex.Hou@montgomerycollege.edu
- **Monica Mellini**, Monica.Mellini@montgomerycollege.edu
- **Wendy He**, Wendy.He@montgomerycollege.edu
- **Max Nam**, Max.Nam@montgomerycollege.edu

For more information, please visit https://www.montgomerycollege.edu/engineering-advising

To view the Advising Worksheet, please visit https://www.montgomerycollege.edu/_documents/counseling-and-advising/advising-worksheets/current-catalog/409.pdf

COMPUTER ENGINEERING AREA OF CONCENTRATION, ENGINEERING SCIENCE AS: 409

Suggested Course Sequence

A suggested course sequence for full-time students follows. All students should review this advising guide and consult an advisor.

First Semester

ENGL 102 - Critical Reading, Writing, and Research *3 semester hours* (ENGF)

MATH 181 - Calculus I *4 semester hours* (MATF)

CHEM 135 - General Chemistry for Engineers *4 semester hours*

OR

CHEM 132 - Principles of Chemistry II *4 semester hours*

ENES 100 - Introduction to Engineering Design *3 semester hours* (NSND/GEEL)

Third Semester

CMSC 204 - Computer Science II *4 semester hours*

ENEE 244 - Digital Logic Design *3 semester hours*

MATH 282 - Differential Equations *3 semester hours*

PHYS 262 - General Physics II: Electricity and Magnetism *4 semester hours* (NSLD)

Humanities Distribution *3 semester hours (HUMD)*

Second Semester

CMSC 203 - Computer Science I *4 semester hours*

MATH 182 - Calculus II *4 semester hours*

PHYS 161 - General Physics I: Mechanics and Heat *3 semester hours* (NSND)

Arts Distribution *3 semester hours (ARTD)*

Behavioral and Social Sciences Distribution *3 semester hours (BSSD) ***

Fourth Semester

CMSC 207 - Introduction to Discrete Structures *4 semester hours*

ENEE 207 - Electric Circuits *4 semester hours*

ENEE 222 - Elements of Discrete Signal Analysis *4 semester hours*

ENEE 245 - Digital Circuits and Systems Laboratory *2 semester hours*

Behavioral and Social Science Distribution*3 semester hours (BSSD) ***

Total Credit Hours: 65

** Behavioral and Social Science Distribution (BSSD) courses must come from different disciplines.

Advising Notes

Most engineering students will start at MC missing one or more pre-requisites for CHEM 131, CHEM 132, CHEM 135, ENGL 102, ENES 100, MATH 181, or CMSC 203.

The appropriate initial chemistry courses will be determined by the student's score on the Chemistry Placement Exam, mathematics level, AP/IB credits, or transfer credits. Possible courses include CHEM 099, CHEM 131, CHEM 132, or CHEM 135. Either CHEM 132 or CHEM 135 satisfies the required chemistry credit for UMCP. CHEM 131 -CHEM 132 satisfies the required chemistry credit for UMBC, but CHEM 135 does not.

The pre-requisite for ENGL 102 is ENGL 101 or ENGL 101A. English course placement is determined by the Accuplacer English/Reading Test.

The co-requisite for ENES 100 is MATH 165 or higher.

The pre-requisite for MATH 181 is MATH 165 (Precalculus). Mathematics initial course placement will be determined by the ALEKS Math Placement, Accuplacer Math Test, AP/IB credit, or transfer credits.

The pre-requisite for CMSC 203 is a grade of C or better in CMSC 140 or consent of department. The pre- or corequisite for CMSC 203 is MATH 181.

Transfer Opportunities

Montgomery College has partnerships with multiple four-year institutions and the tools to help you transfer. To learn more, please visit https://www.montgomerycollege.edu/transfer or http://artsys.usmd.edu .

Get Involved at MC!

Employers and Transfer Institutions are looking for experience outside the classroom.

MC Student Clubs and Organizations: https://www.montgomerycollege.edu/life-at-mc/student-life/
Engineering Student Professional Groups: https://www.montgomerycollege.edu/academics/programs/engineering-science/resources.html

Related Careers

Some require a Bachelor's degree.
Energy Auditor, Security Management Specialist, Wind Energy Project Manager, Compliance Manager, Computer Systems Analyst.

Career Services
Montgomery College offers a range of services to students and alumni to support the career planning process. To learn more, please visit https://www.montgomerycollege.edu/career

Career Coach
A valuable online search tool that will give you the opportunity to explore hundreds of potential careers or job possibilities in Maryland and the Washington D.C. metropolitan area. Get started today on your road to a new future and give it a try. For more information, please visit https://montgomerycollege.emsicc.com

Notes: