**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 [http://www.montgomerycollege.edu/engineeringadvising](http://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 chemical 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 chemical engineering program at the University of Maryland, College Park. 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 [http://www.montgomerycollege.edu/engineeringadvising](http://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 organic chemistry problems.
- Analyze and design simple chemical processes.
- Use appropriate computer applications software in chemical engineering.

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**Program Advising Guide**

An Academic Reference Tool for Students

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**2020-2021**

**CHEMICAL ENGINEERING AREA OF CONCENTRATION, ENGINEERING SCIENCE ASSOCIATE OF SCIENCE: 406**
CHEMICAL ENGINEERING AREA OF
CONCENTRATION, ENGINEERING SCIENCE AS: 406

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 132 - Principles of Chemistry II 4 semester hours
ENES 100 - Introduction to Engineering Design 3 semester hours (NSND/GEEL)

Second Semester
ENES 120 - Biology for Engineers 3 semester hours
MATH 182 - Calculus II 4 semester hours
PHYS 161 - General Physics I: Mechanics and Heat 3 semester hours (NSND)
Art Distribution 3 semester hours (ARTD)

Third Semester
CHEM 203 - Organic Chemistry I 5 semester hours
MATH 280 - Multivariable Calculus 4 semester hours
PHYS 262 - General Physics II: Electricity and Magnetism 4 semester hours (NSLD)
Behavioral and Social Sciences Distribution 3 semester hours (BSSD) **

Fourth Semester
CHEM 204 - Organic Chemistry II 5 semester hours
MATH 282 - Differential Equations 3 semester hours
PHYS 263 - General Physics III: Waves, Optics, and Modern Physics 4 semester hours
Behavioral and Social Sciences Distribution 3 semester hours (BSSD) **

Total Credit Hours: 61
** Behavioral and social science distribution (BSSD) course must come from different disciplines.

Advising Notes
Most engineering students will start at MC missing one or more prerequisites for CHEM 131, CHEM 132, CHEM 135, ENGL 102, ENES 100, and MATH 181.
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 UMBC, but CHEM 135 does not.
The prerequisite for ENGL 102 is ENGL 101 or ENGL 101A. English course placement is determined by the Accuplacer English/Reading Test.
The corequisite for ENES 100 is MATH 165 or higher.
The prerequisite 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.
UMCP’s courses CHBE 101, 250, 301, and 302 are courses for which MC has no equivalents. CHBE 101, 250, and 301 must be completed for junior standing at UMCP.