

UMBC UGC Program Changes & Other Request: Chemical Engineering

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Proposed Effective Date: Retroactive

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Specifics (see instructions):

For our Chemical Engineering traditional track program we are requesting a change in credit hours from 130 to 131 which is a result of our request to change the credits for ENCH 446 to increase from 3 credits to 4 credits.

A side-by-side comparison of the current requirements and the requested requirements is provided on the next page, so that the changes requested can be reviewed in context.

Rationale (see instructions):

For our Chemical Engineering traditional track program we are requesting a change in credit hours from 130 to 131 which is a result of our request to change the credits for ENCH 446 from 3 credits to 4 credits. This request is part of our continuous assessment and improvement processes and in preparation for an ABET accreditation visit; the Department intermittently redesigns courses to address deficiencies. ENCH 446 has been targeted for redesign based on feedback from our students, the instructor and our external advisory board. The curriculum and structure of ENCH 446 have been revised to provide a more rigorous design experience for our final semester seniors. Students work in groups to design a chemical process facility including both technical and economic analyses. Due to the open-ended nature of the design assignment, final design solutions are often quite different from one another and utilize very different technologies. Therefore, in addition to the traditional lecture time in the course, each design group is now required to meet with the instructor for an additional hour each week. The purpose of this added discussion is to focus on design-specific details and technologies not appropriate for inclusion in the lecture periods. Therefore, the contact time for students is now 4 hours per week instead of 3 hours. We request a change in credit hours to match the time requirement.

B.S. Degree in Chemical Engineering

Traditional Track (Current)

Freshman Year

CHEM 101 Principles of Chemistry I (4)
MATH 151 Calculus and Analytic Geometry I (4)
ENES 101 Introductory Engineering Science (3)
GFR electives (6)

CHEM 102 Principles of Chemistry II (4)
CHEM 102L Introductory Chemistry Lab (2)
PHYS 121 Introductory Physics I (4)
MATH 152 Calculus and Analytic Geometry II (4)
ENES 110 Statics (3)

Sophomore Year

CHEM 351 Organic Chemistry I (3)
ENCH 215 Chemical Engineering Analysis (3)
MATH 251 Multivariable Calculus (4)
PHYS 122 Introductory Physics II (4)
GFR electives (3)

CHEM 351L Organic Chemistry Lab I (2)
ENCH 225 Chem Eng Problem Solving and Exp Design (4)
MATH 225 Introduction to Differential Equations (3)
Advanced Science elective (3)
GFR electives (6)

Junior Year

CHEM 301 Physical Chemistry I (4)
CHEM 311 Advanced Laboratory I (3)
ENCH 300 Chemical Process Thermodynamics (3)
ENCH 425 Transport Processes I (3)
GFR elective (3)

CHEM 302 Physical Chemistry II (3)
ENCH 427 Transport Processes II (3)
ENCH 440 Chemical Engineering Kinetics (3)
ENCH 442 Chemical Engineering Systems Analysis (3)
ENGL 393 Technical Writing (3)

Senior Year

ENCH 437 Chemical Engineering Laboratory (3)
ENCH 444 Process Eng Econ and Design I (3)
ENCH 445 Separation Processes (3)
ENCH XXX Chemical Engineering elective (3)
GFR elective (3)

ENCH 446 Process Engineering Economics and Design II (3)
ENCH XXX Chemical Engineering elective (3)
ENCH XXX Chemical Engineering elective (3)
GFR elective (6)

130 Credits

Traditional Track (Requested)

Freshman Year

CHEM 101 Principles of Chemistry I (4)
MATH 151 Calculus and Analytic Geometry I (4)
ENES 101 Introductory Engineering Science (3)
GFR electives (6)

CHEM 102 Principles of Chemistry II (4)
CHEM 102L Introductory Chemistry Lab (2)
PHYS 121 Introductory Physics I (4)
MATH 152 Calculus and Analytic Geometry II (4)
ENES 110 Statics (3)

Sophomore Year

CHEM 351 Organic Chemistry I (3)
ENCH 215 Chemical Engineering Analysis (3)
MATH 251 Multivariable Calculus (4)
PHYS 122 Introductory Physics II (4)
GFR electives (3)

CHEM 351L Organic Chemistry Lab I (2)
ENCH225 Chem Eng Problem Solving and Exp Design (4)
MATH 225 Introduction to Differential Equations (3)
Advanced Science elective (3)
GFR electives (6)

Junior Year

CHEM 301 Physical Chemistry I (4)
CHEM 311 Advanced Laboratory I (3)
ENCH 300 Chemical Process Thermodynamics (3)
ENCH 425 Transport Processes I (3)
GFR elective (3)

CHEM 302 Physical Chemistry II (3)
ENCH 427 Transport Processes II (3)
ENCH 440 Chemical Engineering Kinetics (3)
ENCH 442 Chemical Engineering Systems Anal. (3)
ENGL 393 Technical Writing (3)

Senior Year

ENCH 437 Chemical Engineering Laboratory (3)
ENCH 444 Process Eng Econ and Design I (3)
ENCH 445 Separation Processes (3)
ENCH XXX Chemical Engineering elective (3)
GFR elective (3)

ENCH 446 Process Engineering Economics and Design II (4)
ENCH XXX Chemical Engineering elective (3)
ENCH XXX Chemical Engineering elective (3)
GFR elective (6)

131 Credits