

4+1 BCHE/MEPT Program Policy

Approved unanimously by Faculty Senate on February 6, 2016, the 4+1 BCHE/MEPT program from the Department of Chemical and Biomolecular Engineering allows for dual-count of 2 courses for BCHE students, and a transfer of credit of 3 or more core or MEPT relevant elective courses to the MEPT transcript.

Background

The MEPT program addresses the unique challenges inherent in particulate materials and particle processes rarely addressed in undergraduate engineering programs. While elements of particle processing may be introduced in some chemical, mechanical or materials engineering curricula, no program provides a comprehensive background in the properties of granular systems or the design and analysis of particle products and processes. The MEPT program fills this gap by providing a rigorous, fundamental and industry-sector-agnostic education in the behavior of particulate systems and the analysis and design of particulate processes and products. The program is intended for BCHE students who want to develop their expertise in particle technology for industrial application. The program builds on the undergraduate-level background in chemical engineering, including mathematics, chemical thermodynamics, physical chemistry, and transport phenomena.

Admission Requirements

- A program GPA of 3.25 or higher in STEM undergraduate coursework (see STEM GPA Conversion Chart).
- An overall GPA of 3.0 or higher.
- Completion of 60 credit hours.
- An application to the 4+1 program before fall of senior year, but preferably before fall of junior year
 - Unofficial Transcript
 - Resume/CV (1-2 pages)
 - Graduate application essay
 - Supplemental documents:
 - 4+1 BCHE/MEPT Curriculum Advisory Plan (signed by your advisor)
 - STEM GPA Conversion Chart
 - NOTE: GRE waiver can be requested
- Completion of the following undergraduate course prerequisites:
 - Engineering thermodynamics: CHEG 231, CHEG 325
 - Calculus, ODE's and linear algebra: MATH 243, MATH 305
 - Physical chemistry: CHEM 444
- Notes:
 - 4+1 BCHE/MEPT is a competitive application process.
 - Applicants who meet the minimum requirements are not guaranteed admission.
 - No one element of the application will exclude or ensure admission.
 - MEPT has a rolling admission.

Degree Requirements

Upon successful completion of the 126 credits required for the Bachelor of Science in Chemical Engineering (BCHE) degree, students will be eligible for the BCHE degree. Upon successful completion of the 30 credits required for the Master of Engineering in Particle Technology (MEPT) degree, students will be eligible for the MEPT degree. MEPT core and elective courses are transferable into the MEPT graduate engineering degree program, as long as the student remains eligible for the MEPT degree:

- The student earns a grade of B- or better.
- The student maintains an overall GPA of 3.0 or higher.

Course Requirements

- The following four courses are required (12 credits) and taught in fall semester:*
 - CHEG 670 – Particle Rate Processes (prereq CHEG 332)
 - CHEG 671 – Particle Transport (prereq CHEG 341)
 - CHEG 672 – Mathematics of Particle Systems (prereq MATH 305)
 - CHEG 673 – Particle Properties & Characterization (prereq CHEG 325/CHEM 444)
- The following two courses are required (6 credits) and taught in spring semester:*
 - CHEG 674 – Particle Processing Operations (prereq CHEG 670, 671, 672, 673)
 - CHEG 675 – Particle Product Engineering (prereq CHEG 670, 671, 672, 673)
- The capstone industrial internship (6 credits) is required and taught in summer semester:*
 - CHEG 684 – Particle Technology Internship (prereq CHEG 674, 675)
- 2 additional courses (6 credits) are required as relevant approved electives:
 - Students may choose from pre-approved electives:
 - CHEG 600 – Intro to Science & Engineering of Polymer Systems
 - CHEG 604 – Probability & Statistics for Engineering
 - CHEG 615 – Special Topics in Mixing
 - CHEG 616 – Chemistry & Physics of Surfaces & Interfaces
 - CHEG 617 – Colloid Science & Engineering
 - CHEM 685 – Colloid Chemistry
 - CIEG 670 – Physics of Cohesive Sediment
 - CIEG 679 – Sediment Transport Mechanics
 - MEEG 613 – Nanomaterials & Nanotechnology
 - MEEG 615 – Mechanical Properties of Materials
 - PHYS 624 – Intro to Condensed Matter Physics
 - Students may seek approval from MEPT Directors to take/transfer another relevant elective from UD or external institution

*Students may seek approval from the MEPT Directors to take core or elective courses in a different sequence or semester than the standard course offering.

Funding

The MEPT program does not offer funding (fellowship or teaching assistantship), however, a reduced graduate tuition has been approved for 4+1 BCHE/MEPT students in their Plus1 year. In addition, the capstone industrial internship requires an industry sponsor and it is expected that MEPT students will interview, be hired and paid by the industry collaborator.