

GRADUATE PROGRAM IN CHEMICAL ENGINEERING

The Chemical Engineering Department offers three types of graduate degrees:

- Master of Professional Studies (MPS)
- Master of Science (MS)
- Doctor of Philosophy (PhD)

The graduate program provides students with opportunities to pursue advanced study and research in a broad range of areas, including bioprocessing, pulp and paper engineering, process and product development, process modeling and simulation, and the production of chemicals, energy, and value-added products from sustainable resources through both chemical and biological conversion pathways. The overall objective of the program is to educate and train graduate students in the design, development, analysis, and optimization of innovative processes and products that advance sustainability while addressing environmental, economic, and societal needs.

Applicants to all programs of study are required to have a bachelor's degree in science or engineering and are expected to have completed college-level courses in physics, chemistry, calculus, and biology. Students admitted without the necessary background are required to take prerequisite courses that fulfill these baseline requirements.

M.P.S. in Bioprocess Engineering

The Master of Professional Studies or MPS is a non-thesis (terminal) degree program. The program requires 30 credit-hours of coursework, including at least 24 credits of 500 + level courses in the core area of study and at least 3 credits of professional experience.

The MPS program is aimed at students who wish to make a career transition to focus more on industrial processes. However, students graduating with an MPS degree can choose to continue with either MS or PhD.

M.P.S. in Paper Science & Engineering

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M.P.S. in Sustainable Engineering Management

The MPS program in Sustainable Engineering Management (SEM) allows students to investigate a variety of science and engineering topics together with courses in business, management, policy, and law. Students in this program must complete a total of 36 credit hours. The topical core of the program consists of 21 credit hours of courses in their technical field including 15 credits in the core areas of study (BPE or PSE). It requires an additional 12 credits of courses in business,

management, policy, law and other related areas. The last 3 credits are fulfilled with an integrative experience in the form of an internship or research.

The MPS program is aimed at students who wish to make a career transition to focus more on industrial processes. However, students graduating with an MPS degree can choose to continue with either MS or PhD.

M.S. in Bioprocess Engineering

Master of Science (MS) is a thesis degree program. The program requires 30 total credits. This must include at least 18 credit hours of coursework (500+ level) and at least 6 (and up to 12) credits of thesis research. Coursework must contain at least one class from each of the core groups in Table 1.

M.S. in Paper Science & Engineering

Master of Science (MS) is a thesis degree program. The program requires 30 total credits. This must include at least 18 credit hours of coursework (500+ level) and at least 6 (and up to 12) credits of thesis research. Coursework must contain at least one class from each of the core groups in Table 1.

Ph.D in Bioprocess Engineering

The PhD program requires 60 total credits. This must include at least 30 credit hours of coursework (500+ level) and at least 12 (and up to 30) credits of dissertation research. Coursework must contain at least one class from each of the core groups in Table 1.

Ph.D in Paper Science & Engineering

The PhD program requires 60 total credits. This must include at least 30 credit hours of coursework (500+ level) and at least 12 (and up to 30) credits of dissertation research. Coursework must contain at least one class from each of the core groups in Table 1.

Table 1. Core Courses

	Group A	Group B	Group C
PSE	Lignocellulosics Wood Chemistry	Papermaking Processes Pulping & Bleaching	Paper Properties Paper Physics Packaging Tissue
BPE	Biochemistry Lignocellulosics Microbiology	Transport Phenomena Bioseparations	Bioprocess Kinetics Reaction Engineering Catalysis

	Advanced Thermodynamics		
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