

Chemical Engineering

The Department of Chemical Engineering offers a Master of Science, which is a high-quality non-thesis degree oriented toward engineering design and practice. The degree has no residency requirement and can be earned entirely online. The classes are the same as taught to the doctorate (Ph.D.) students. Some of these specialties include: surface science, biochemical engineering, catalysis, pulp and paper engineering, environmental engineering, waste conversion, computer-aided process design and simulation, novel bioseparations systems, chemical kinetics and reactor design, biomedical engineering, process control and optimization, thermodynamics, advanced energy research, mass and energy transfer, electrochemical engineering, polymer engineering, interfacial phenomena, process synthesis, material science, and space science.

The applicant must hold a bachelor's degree or its equivalent from an institution of recognized standing and must have the prerequisite undergraduate experience in areas of study relevant to the proposed graduate program. Applicants with a chemical undergraduate degree should be from a program accredited by the American Chemical Society. This accreditation assumes that the student has taken: General Physics, Calculus and Differential Equations, Organic and Physical Chemistry and Computer Science.

Requirements for Master Degree

- ▶ 30 semester credit hours in Chemical Engineering graduate level (6000 and 7000 level courses) course work
 - ◆ Half of the total must be at the 7000 level
 - ◆ 21 of these credit hours must be in chemical engineering and must include CHEN 7100, 7200, and 7250
 - ◆ Nine of these semester credit hours must be technical electives from engineering, science, math or business which are individually tailored to the student's background / interests
- ▶ Specific plan of study must be approved by the student's advisory committee.
- ▶ No residency or language requirement
- ▶ All applicants must submit GRE scores for the General Test and TOEFL scores for international applicants

M.S. and Ph.D. Programs

With departmental approval, it is also possible to complete thesis-requiring master's of science and doctoral degrees via a combination of distance learning and on-campus activities

Special Requirements: Students with Degrees in Fields Other than Chemical Engineering

The Department of Chemical Engineering can grant provisional admission to motivated students whose undergraduate degrees are from other science, math or engineering disciplines. These students can often be an asset in our interdisciplinary research. However, chemical engineering graduate courses require significant knowledge of undergraduate chemical engineering material. Therefore, prior to entering the graduate program students from other majors are required to complete undergraduate coursework or online bridge programs. The department does not provide any financial assistance for undergraduate courses or bridge programs. The exact courses required are determined on a case by case basis. A typical example is given below. General science and math courses, including chemistry, physics, biology or computer science, are required undergraduate prerequisites to be eligible for our graduate degree.

Typical Plan of Study

- CHEN 2100/2101 Principles of Chemical Engineering and Lab
- ENGR 2010 Engineering Thermodynamics

CHEN 2610 Transport I – Fluids and Fluid/Solids
CHEN 3370 Phase & Reaction Equilibria
CHEN 3620 Transport II – Heat and Mass Transport
CHEN 3700 Chemical Reaction Engineering
CHEN 3650 Analysis
CHEN 3660 ChE Separations
MATH 2630 Multivariate Calculus
MATH 2650 Linear Differential Equations

Students should be aware that prior to consideration they most likely will have to

- Take approximately one year of undergraduate coursework
- Earn A's (maybe a B) in a two-semester outreach bridge program
(eg: [MSU://www.chems.msu.edu/academics/cont.ed](http://www.chems.msu.edu/academics/cont.ed))
- Be prepared to handle advanced differential equations

Course Offerings

CHEN 6116 Plup and Paper Engineering	3 hours
CHEN 6172 Digital Process Control	3 hours
CHEN 6466 Process Simulation Synthesis and Optimization	3 hours
CHEN 6656 Hazardous Materials Management and Engineering	2 hours
CHEN 6706 Advanced Separation Processes	2 hours
CHEN 7106 Transport Phenomena	3 hours
CHEN 7116 Chemical Engineering Analysis and Advanced Transport Phenomena	3 hours
CHEN 7206 Chemical Engineering Thermodynamics	3 hours
CHEN 7256 Chemical Reaction Engineering	3 hours
CHEN 7906 Independent Study	1 hour
CHEN 7976 Advanced Special Topics In Chemical Engineering	1 hour
CHEN 8006 Graduate Chemical Engineering Analysis	1 hour
CHEN 8346 Process Modeling and Simulation	3 hours

Application Procedures

- ▶ Fill out the online graduate application at app.applyyourself.com/?id=auburn-g (you will be required to create an account)
- ▶ Upload your statement of purpose and resume
- ▶ For more information visit grad.auburn.edu

www.eng.auburn.edu/chen