

# CHEMICAL ENGINEERING (PH.D.)

Degree: Doctor of Philosophy

Major: Chemical Engineering

- All College of Graduate Studies general degree requirements
- The student with a Master's degree shall complete a residency of at least one year; the student with a bachelor's degree shall complete a residency of at least two years
- Completion of a total of 15 semester hours of core courses:

Code	Title	Hours
CHEN 6302	Transport Phenomena	3
CHEN 6343	Kinetics and Reactor Design	3
CHEN 6345	Fundamentals of Sustainability	3
CHEN 6347	Advanced Thermodynamics	3
CHEN 6348	Adv Chem Engineering Math	3

- Completion of a minimum of 21 semester hours of elective courses in chemical engineering or related fields approved by the department graduate advisor
- Completion of a minimum of 12 semester hours of research courses (CHEN 6680 Research ; CHEN 6380 Research) prior to admission to candidacy
- Completion of a minimum of 4 semester hours of the professional seminar (ENGR 6110 Professional Seminar)
- Completion of the qualifying examination.
- Completion and approval of a Ph.D. dissertation proposal. Upon committee approval of the proposed research through an oral defense, the student is admitted to candidacy. The approved proposal must be submitted to the College of Graduate Studies at least 14 weeks prior to the scheduling of the final defense of the dissertation
- Completion of 18 semester hours of Ph.D. dissertation courses (CHEN 6690 Ph. D. Dissertation and CHEN 6691 Ph. D. Dissertation for a regular semester and CHEN 6390 Dissertation and CHEN 6391 Dissertation II for summer) after admission to candidacy and satisfactory defense of the Ph.D. dissertation
- The Ph.D. degree must be completed within 10 consecutive years of study.

## Qualifying Examination Format

The qualifying exam will consist of an oral exam and written proposal. The student will be assigned a Request for Proposal (RFP) by their advisor based on approval by the faculty committee for the current semester. The student will develop and submit a research proposal and give a 20-minute oral presentation that is followed by open-ended questions on the proposal and chemical engineering fundamentals. The student's advisor will not be part of the committee and will not have input into the proposal writing or pass/fail status of the student. Students will be given their RFP and will have ~ 6 weeks to prepare for the exam.

A committee of 3 faculty members will administer the exam. Multiple exam committees may be formed, and multiple exams will be held in parallel throughout the day, if necessary. Students will submit their written proposal a week prior to the scheduled exam so it can be provided to the appropriate committee. The committee will discuss and

assign each student a Pass/Fail grade. A majority of "Pass" among the committee members is required.

## Qualifying Examination Timing

The qualifying exams will be administered after every long semester. All PhD and DE students are expected to take the exam after their first full year in attendance. If necessary, a second round of exams will be held later in the Summer semester for students who did not pass the first cycle.

## Process for students who do not pass the qualifying examination

Students who fail the qualifying exam must retake and pass the exam in the cycle. Students who fail the qualifying exam in two consecutive sittings will transfer to the Master of Engineering Science or Master of Engineering programs. These students will be given the option of reentering the PhD or DE program after successful completion of a Master of Engineering Science degree (if that route is pursued) and based on the recommendation of the MES thesis committee. For ME students, they will be required to obtain the written support from at least 3 faculty members, including a faculty member agreeing to become the PhD advisor for the student.

## Note for Research-Based Student (MES and PhD)

A student pursuing a research-based degree is expected to complete research that meets or exceeds a reasonable level of rigor and complexity. As such, a reasonable amount of time is necessary to pursue the research to an acceptable degree. To meet this requirement, **ALL MES AND PHD STUDENTS** are expected to have identified and come to an agreement with a faculty research mentor by the end of your first long semester. Failure to achieve this may result in transfer into the ME program or expulsion from the program.