

# Ph.D. In Mechanical Engineering

To satisfy the requirements for the Ph.D. in Mechanical Engineering, the student will take a minimum of 60 credits beyond the bachelor's degree. For students entering with a Masters degree, up to 24 graded credits may be applied. Course requirements below.

EGEN 505	Advanced Engineering Analysis	3
EGEN 506	Numerical Sol to Engr Problems	3
EM525	Continuum Mechanics	3
Thermo-fluids Mechanics		3
Solid Mechanics		3
ENGR 610	Rsch & Mthds in Engineering	3
ENGR 694 or ENGR 650	Seminar	1-2
Dissertation		18-25
Other Graded Courses		15-23

**Qualifying Examination:** The exam will be administered on the second Tuesday in February of the Spring semester. The undergraduate Mechanical Engineering topics will include: Thermodynamics, Heat (energy) transfer, Fluid Mechanics, Structural Mechanics, Materials, Dynamics and Vibrations, and Mathematics. Students will solve problems in 4 of the 7 topic areas. The exam will be 5 hours duration in an open book, open notes format. Each problem set will be graded by the faculty member that submitted the set. The results will be analyzed by the Mechanical Engineering graduate studies committee, and each candidate will receive a grade of Pass (P), Fail (F) or Remediate (R). Students will not be given the test back in order to protect the questions from dissemination. In cases where remediation in certain topic areas is required, the Ph.D. adviser will develop a problem-solving-based plan with the Ph.D. candidate to prepare for a retest on the identified topic areas. The retest must occur prior to the next fall semester and will be overseen by the Ph.D. adviser.

**Comprehensive Examination:** The public research seminar will include 40 minutes for the student's presentation and 10 minutes for questions from the audience. This will be followed immediately by a closed-session oral examination of 45-90 minutes by the student's Ph.D. committee and additional remediation may be required at this point.