

Ph.D. in Engineering

Materials and Construction Systems Emphasis

Recommended Plan of Study (09/2006)

Degree Codes: ES PhD ENGR

Contact: Professor Ray Sterling

General Core Courses

Take the following 3 courses (9 SCH)

ENGR 641	Formulation of Solutions to Engineering Problems (<i>Fall</i>)
STAT 505	Statistics for Engineering and Science (<i>Winter</i>)
MATH 574	Numerical Solutions to PDEs (<i>Spring</i>)

Disciplinary (Materials and Construction Systems) Core Courses

Choose 4 of the following courses: (12 SCH)

CVEN 459	Introduction to Infrastructure Management
CVEN 580	Introduction to Trenchless Technology
ENGR 530	Engineering Experimentation and Research
MEMT 508	Finite Element Analysis
MEMT 511	Modern Engineering Materials
MEMT 563	Theory of Elasticity
MEMT 577	Advanced Strength of Materials

Qualifying Examinations

ENGR 685	Doctoral Qualifying Examination
ENGR 686	Oral Comprehensive Examination

Doctoral Seminar: 3 SCH

All students are automatically enrolled in the Doctoral Seminar course (ENGR 610) each Fall quarter. 3 SCH of the seminar may be counted towards the degree.

Independent Study and Special Topics (12 SCH total)

At least two Doctoral level Special Topics courses (ENGR 657) are part of the required course work for the degree, for a total of 6 SCH.

A PhD student must participate in 6 SCH of Doctoral Independent Study (ENGR 650) under the supervision of a faculty member. Independent Study can be a preparation for the research leading to the dissertation.

Recommended Elective courses*

Choose 4 of the following courses: 12 SCH [or from the courses not included in the student's program from the above core course lists. Note: No more than two other graduate courses may be substituted for the courses in Materials and Construction Systems course lists. Also, such substitution courses must be applicable to the area of thesis research and be approved by the student's committee.)

CMEN 513	Transport Phenomena
CVEN 509	Dynamic Analysis of Structures
CVEN 510	Advanced Soil Mechanics

* Courses not listed are also acceptable, provided they are approved by the Advisory Committee.

CVEN 517	Advanced Pavement Design
ENGR 566	Quality in Engineering
ENGR 590	Applications of Artificial Intelligence
ENGR 592	Engineering Computational Methods
ENGR 631	Global Competitiveness & Mgmt of Science and Technology
INEN 504	Systems Simulation
INEN 506	Dynamic Programming
INEN 509	Advanced Engineering Economy
MEMT 565	Continuum Mechanics
MEMT 588	Inelastic Deformations
STAT 506	Regression Analysis
STAT 511	Design of Experiments
STAT 620	Theory of Probability
STAT 621	Theory of Statistics
STAT 651	Discrete Markov Processes

Research and Dissertation Minimum 18 hours (ENGR 651).
3, 6 or 9 hours per quarter. Maximum total allowed is 30 hours.

Total: 48 SCH of courses + 18 SCH of Research & Dissertation = 66 SCH.