

# Ph.D. in Engineering

## Engineering Education Concentration

Recommended Curriculum for students admitted for or after Spring 2016 (3/2016)<sup>1</sup>

Degree Codes: ES PhD ENGR

Contact: Dr. Kelly Crittenden

### General Core Courses

Take the following 3 courses (9 SCH)

STAT 620            Theory of Probability

STAT 621            Theory of Statistics

Choose ONE course from the following:

ENGR 641    Formulation of Solutions to Engineering Problems

MATH 574    Numerical Solutions to PDEs

### Engineering Education Core

Take the following 3 courses (9 SCH)

1. ENGR 601            Foundations in Engineering Education

2. *Choose TWO courses from the following:*

PSYC 502    Cognitive Psychology

PSYC 507    Learning and Development

PSYC 513    Organizational Psychology

PSYC 523    Leadership and Decision Making

ENGR 510    Research Methods

### Engineering Discipline Core<sup>2</sup>

Take any 6 courses (18 SCH total) from a core MS/ENGR area of concentration.

Courses chosen from the core MS/ENGR area of concentration.

### Directed Study and Special Topics (12 SCH total)

At least one Doctoral level Special Topics (ENGR 657) and two Doctoral Independent Study (ENGR 650) courses are required as part of the course work for the degree. Independent Study can be a preparation for the research leading to the dissertation.

### Qualifying Examinations

ENGR 685            Written Qualifying Examination

ENGR 686            Oral Comprehensive Examination (Preq. or coreq., ENGR 685)

### ENGR Dissertation Enhancement Seminar: (3 SCH)

ENGR 611 (Section 2)            ENGR Dissertation Enhancement Seminar (3 SCH total)

### Research and Dissertation    Minimum 18 hours total (ENGR 651 and ENGR 751).

ENGR 651            Pre-Candidacy Doctoral Research

ENGR 751            Post-Candidacy Dissertation Research

Complete 9 SCH of ENGR 651 prior to ENGR 686. After successful completion of ENGR 686, the student will become a PhD Candidate and will complete at least 9 SCH of ENGR 751. For

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<sup>1</sup> Optional for students admitted to the program for Winter 2015-16 quarter or before.

<sup>2</sup> All PhD students in this track must earn an MS in Engineering. The 12 Semester Credit Hours chosen in the Engineering Discipline Core should be chosen in consultation with the student's Dissertation committee so that they will serve as courses on the MS in Engineering Plan of Study.

ENGR 651 or ENGR 751, registration in any quarter is for 1 to 3 semester hours or multiples thereof, up to a maximum of 9 semester hours per quarter.

**Total:** 45 SCH of coursework + 3 SCH of doctoral seminar courses + 9 SCH of Pre-candidacy Doctoral Research + 9 SCH of Post-candidacy Dissertation Research = 66 SCH