

## Ph.D. in Engineering

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**Degree Codes:** ES PhD ENGR

**Concentration:** Education

Course Category	Number	Course Name		SCH
Core Courses	STAT 620	Theory of Probability	3	9
	STAT 621	Theory of Statistics	3	
	Select one of the following two courses			
	ENGR 641	Formulation of Solutions to Engineering Problems	3	
	MATH 574	Numerical Solutions to PDEs	3	
Concentration Courses <sup>1</sup>	ENGR 601	Foundations in Engineering Education	3	9
	Select two of the following courses			
	PSYC 502	Cognitive Psychology	3	
	PSYC 507	Learning and Development	3	
	PSYC 513	Organizational Psychology	3	
	PSYC 523	Leadership and Decision Making	3	
	ENGR 510 and ENGR 511	Research Methods and Sci. Research Proposal Dev.	3	
Engineering Discipline Core <sup>2</sup>	Select seven (21 SCH) courses from a core MS/ENGR area of concentrations			21
Qualifying Examinations <sup>3</sup>	ENGR 685	Written Qualifying Exam	0	
	ENGR 686	Oral Comprehensive Exam	0	
Doctoral Seminar	ENGR 611	Dissertation Enhancement Seminar (taken three times)	1	3
Directed Study	ENGR 650 <sup>4</sup>	Doctoral Directed Study (taken twice)	6	6
Research and Dissertation <sup>5</sup>	ENGR 651	Pre-Candidacy Doctoral Research	1-9	9
	ENGR 751	Post-Candidacy Dissertation Research	1-9	9
				Total 66

<sup>1</sup> The concentration courses for the concentration in Engineering Education.

<sup>2</sup> All PhD students in this track must earn an MS in Engineering. The 21 SCH courses chosen should be in consultation with the student's Dissertation committee so that they will serve as courses for the MS in Engineering Plan of Study.

<sup>3</sup> The qualifying examinations are managed by the Chair of the Advisory Committee. ENGR 685 consists of a written paper and presentation discussion of one or more research article(s) in a complementary area to the student's research. ENGR 686 involves a presentation focused on the student's proposed doctoral research. ENGR 685 and 686 should be attempted in the same quarter for this track, and may only be repeated once.

<sup>4</sup> Taken under the supervision of the faculty member. Can be a preparation for the research leading to the dissertation.

<sup>5</sup> Complete 9 SCH of ENGR 651 prior to ENGR 686. After successful passing ENGR 686, complete 9 SCH of 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.

\*Students are expected to have published one or more peer reviewed journal publications or conference proceedings by the time they graduate.

**Plan of Study Important Information:** When entering information in the plan of study, it is important to note that only core courses and all core courses need to be put in section 1.1, while all others are put in section 1.2 (i.e. special topics, seminar, and research courses).

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