

# Engineering Education

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## An Interdisciplinary Curriculum

The Ph.D. in Engineering with concentration in Engineering Education (ENE) incorporates theory and practice so that its students are prepared to be teachers and scholars in the emerging field of engineering education. Engineering education incorporates theory with applied practice to prepare its graduates for a wide range of careers.

- Engineering policy
- Corporate training management
- Educational technology development
- University assessment
- University administration
- Academia
- Research and scholarship

Graduates of the doctoral program will be able to conduct and direct research in engineering education, develop, review, and critique effective research designs, effectively teach engineering subjects, design and assess engineering programs, and address critical issues facing engineering education.

The engineering education graduate program is interdisciplinary, with faculty drawn from the academic departments of the Bagley College of Engineering and the College of Education. Program of study and research leads to the Doctor of Philosophy in Engineering degree with concentration in Engineering Education and is offered on the Starkville campus.

**Admission Criteria**--An applicant for admission to graduate study must hold a bachelor's degree from a fully recognized four-year educational institution that has unconditional accreditation with appropriate accreditation agencies. He/she must meet the admission requirements of the Graduate School and receive a positive recommendation by the Engineering Education Program Committee. Admission is based primarily on past performance, letters of recommendation, Grade Record Examination (GRE) scores, and the applicant's demonstrated ability to be successful in the ENE Ph.D. program. Applicants with a bachelor's or master's degree from a program accredited by the Engineering Accreditation Commission (EAC) of ABET are preferred.

Regular admission to graduate study in the ENE Ph.D. program for students entering with only a Bachelor's degree requires a minimum grade point average (last four semesters of undergraduate work) of 3.50/4.00. Regular admission to graduate study in the ENE Ph.D. program for students entering with a Master's degree requires a minimum grade point average of 3.30/4.00 in the student's graduate work. When a student is deficient in one of the criteria cited, the student's application, nevertheless, may be considered for admission based on the strength of other materials contained in the student's application. However, reasonable minimum levels of performance must be achieved in both the applicant's GPA and GRE scores. International applicants not holding degrees from U.S. institutions must submit a Test of English as a Foreign Language (TOEFL) report of 575 PBT (84 iBT) or an International English Language Testing Systems (IELTS) score of 7.0 or higher to be considered for admission.

**Provisional Admission**--An applicant who has not fully met the GPA requirement stipulated by the University may be admitted on a provisional basis. The provisionally-admitted student is eligible for a change to regular status after receiving a 3.50 GPA on the first 9 hours of graduate courses at Mississippi State University (with no grade lower than a B). The first 9 hours of graduate courses must be within the student's program of study. Courses with an S grade, transfer credits, or credits earned while in Unclassified status cannot be used to satisfy this requirement. If a 3.50 GPA is not attained on the first 9 hours of graduate courses, the provisional student shall be dismissed from the graduate program. While in the provisional status, a student is not eligible to hold a graduate assistantship. The minimum acceptable undergraduate grade point average for admission as a provisional student is 3.00/4.00 for the junior and senior years.

**Contingent Admission**--A student not possessing a B.S. or M.S. degree in an engineering or computer science discipline may be granted contingent admission, depending on qualifications and experience. A plan of action toward regular admission is formed by the ENE Graduate Coordinator and

ENE Program Committee on a case-by-case basis. Typically, contingency is removed by completing undergraduate prerequisite courses in the first few terms after admission. Contingency-admitted students must maintain at least a 3.50/4.00 GPA on all undergraduate prerequisite courses prescribed by their contingency plan of action. For more information, please contact the ENE Graduate Coordinator.

The specific requirements for the Ph.D. in Engineering with concentration in engineering Education degree are governed by the requirements of the Graduate School, the Bagley College of Engineering, and by the student's graduate committee. The ENE Ph.D. student's graduate committee must include at least two Engineering Education faculty, one College of Education faculty member, and one faculty member from their engineering technical subject area. The graduate committee will ensure that the student's program of study adequately addresses each of the three primary cross-disciplinary areas: engineering education, educational theory/cognitive science/psychology, and an engineering technical area. The Engineering Education Graduate Coordinator must approve the composition of the graduate committee.

#### Required Courses

ENE 8003	Foundations in Engineering Education	3
ENE 8303	Pedagogy & Assessment in Engineering Education	3
EDF 8363	Function and Methods of Research in Education	3
EDF 9373	Educational Research Design	3
<b>Statistics Requirement</b>		
IE 6623	Engineering Statistics II	3
Advanced Statistics Course (see Graduate Coordinator for a list of approved courses)		3
Select graduate courses in EDF and EPY		6
Other Engineering graduate courses		18
Select graduate elective courses		6
ENE 9000	Dissertation Research /Dissertation in Engineering Education	20

#### Total Hours

68

The Engineering Education Graduate Coordinator and the student's graduate committee must approve the student's program of study.

The Doctor of Philosophy in Engineering with concentration in Engineering Education, in addition to the coursework and research hours, includes an oral preliminary, a dissertation, and dissertation defense. Each candidate for the doctoral degree must conduct research and in their dissertation defense on that research demonstrate a master of the techniques of research and make a distinct contribution to the field of Engineering Education. The dissertation must conform to the rules of the Graduate School.

Students in the ENE PhD program are required to pass the oral comprehensive examination in accordance with the program requirements and all Graduate School policies. The student must have completed, or be within 6 hours of completing, their program of study coursework. The comprehensive exam consists of topics from the student's completed program of study, a presentation of current research activities toward the student's dissertation, and a detailed plan/proposal of dissertation research to be done. Upon successful completion of the comprehensive exam and all coursework on the student's program of study, the student advances to PhD candidacy.

Ph.D. candidates are required to pass a public dissertation defense to graduate. The Graduate Catalog lists dissertation defense requirements. Additionally, Ph.D. Candidates must submit two journal papers from their dissertation prior to graduation. They receive the ENE Graduate Coordinator's signature on the signature page, a Ph.D. candidate must provide proof of two journal submissions from the dissertation work; otherwise, the Ph.D. candidate will not be allowed to graduate. Journal paper submissions from work not a part of the dissertation, while strongly encouraged, cannot be used to satisfy this requirement.

## Academic Performance

In addition to the criteria defined in the current *Graduate Catalog*, unsatisfactory performance in the Ph.D. program in Engineering with concentration in Engineering Education is defined as any of the following:

- Failure to maintain a 3.50/4.00 or better GPA on all prerequisite undergraduate courses taken while in the ENE Ph.D. program.
- Failure to maintain a 3.30/4.00 or better GPA on all graduate courses attempted.