PhD in Mechanical Engineering

The PhD degree is usually a four-year program which requires rigorous study and a high degree of emphasis on original research. PhD graduates take up positions in academic institutions, design, services and consulting companies.

Admission

Following are the minimum requirements for admission to the PhD in mechanical engineering program.

1. Applicants whose native language is not English must submit official, acceptable scores for either the TOEFL, the Academic Module of the IELTS examination, or the PTE-Academic test. Please visit the Graduate School website (http://wichita.edu/gradschool), to check English proficiency requirements;
2. Submission of official GRE scores is required. GRE must be taken within two years of the application submission;
3. Cumulative GPA in graduate coursework. On a 4.000 scale, must have at least 3.250 in all graduate work;
4. Evidence of the ability to carry out an independent research problem and present it in written English is required;
5. Submission of two letters of recommendation and a statement of purpose indicating applicant’s research interests;
6. Prerequisites:
   a. Completion of the following or equivalent courses:
      b. ME 662 Senior Capstone Design 3
      MATH 555 Differential Equations I 3
      A natural science course sequence equivalent to that in a typical ABET undergraduate engineering program.
   c. Programming competence in at least one of the following languages: C, C++, or MATLAB and;
   d. Possession of (or nearing the completion of) a master’s degree in mechanical or closely-related engineering, or physical sciences.

Direct Phd Admission of BS Graduates in Mechanical Engineering:

The mechanical engineering department offers direct admission for truly exceptional students to its PhD program. Applicants must have consistent and exceptional credentials throughout all their academic career — including:

- A program GPA equivalent of 3.500/4.000 or higher in an undergraduate mechanical or closely related engineering program.
- A minimum combined GRE score of 310 or greater in Verbal and Quantitative skills and a minimum score of 3.5 in Analytical Writing skill are required.
- Also, applicants are expected to demonstrate proven undergraduate research experience.

All other application requirements of the PhD program, such as a statement of purpose and two professional reference letters, and undergraduate prerequisites are required.

Program Requirements

1. Course Distribution: Total credit hours = minimum of 84 credit hours
   a. Graduate Coursework: at least 60 credit hours; 60 percent of the PhD courses beyond the master’s degree (including dissertation) must be at the 800 or higher level, and 60 percent of all graduate courses (including dissertation) must be at the 700 or higher level.

b. Mathematics/Statistics
   Select at least 6 credit hours in calculus-based mathematics and/or statistics from a list of approved courses 1
   Graduate Seminar
   ME 777 Mechanical Engineering Seminar (The ME department requires its PhD candidates to take this mandatory 0 credit hour seminar)
   Dissertation
   Select at least 24 credit hours in dissertation
   Concentrations in the ME graduate program:
   Mechanical Systems Design
   Thermal Sciences/Energy Systems
   Control Systems
   Materials
   Robotics
   Technical Electives
   Select as many hours as necessary to satisfy the total credit hour requirements

2. Advisor, Advisory Committee and Plan of Study: Before completing 12 PhD credit hours at WSU, a student must select an advisor and an advisory committee. With the help of the advisor, the student must prepare a plan of study that needs to be approved by the advisory committee, graduate coordinator and Graduate School before the preliminary and comprehensive exam is attempted. For details of the preliminary examination, please refer to the ME website.

3. Preliminary examination: Before completing four semesters, or 36 credit hours of coursework in the PhD program, a student must pass the preliminary examination administered by the department in at most two attempts. Students who cannot pass the preliminary exam in 1.5 years will be dismissed from the PhD program.

4. Comprehensive examinations: Must pass the comprehensive examinations covering the major and minor areas. A student may attempt these exams no more than twice in each area. A student can enroll in dissertation hours only after passing the comprehensive exams.

5. Dissertation approval examination: Prepare a dissertation research proposal and pass an oral examination of the proposal. A student cannot attempt the examination more than twice. A student must be continuously enrolled in ME 976 after the dissertation approval examination.


7. Time limits and residency requirement: From the time the student is admitted to the program, no more than six years may elapse until requirements for the degree have been completed.

8. Transfer of credit from another university: (Check the transfer rules in the Graduate Catalog.) Up to 12 credit hours may be transferred from another accredited graduate school.

9. Professional and scholarly integrity training requirement: Must complete professional and scholarly integrity training requirement, preferably during the first semester of the program.

1 Note: minor and MATH/STAT hours must add to at least 18 credit hours.