

# College of Engineering

**Anthony Muscat, dean**

**A117 Partnership 2 • 316-WSU-3400**

**College of Engineering Webpage (<http://wichita.edu/engineering/>)<sup>1</sup>**

**TBD, associate dean, undergraduate studies, finance and administration**

**TBD, associate dean, graduate studies, research and faculty success**

**Jason Bosch, scholarship coordinator**

## Departments

**Aerospace, 316-978-3410** — Suresh Keshavanarayana, *chairperson and master's graduate coordinator*; Klaus Hoffmann, *doctoral graduate coordinator*

**Biomedical, 316-978-5904** — Anil Mahapatro, *chairperson and graduate coordinator*

**Computing, School of, 316-978-3156** — M. Edwin Sawan, *interim chairperson*; Sourabh Bose, *graduate coordinator, computer science*; Huabo Lu, *graduate coordinator, computing*; Shruti Kshirsagar, *graduate coordinator, data science*

**Electrical and Computer Engineering, 316-978-6324** — Visvakumar Aravinthan, *chairperson, PhD academic advisor and graduate coordinator*, PhD in electrical engineering and computer science, MS in electrical and computer engineering

**Industrial, Systems and Manufacturing Engineering, 316-978-3425** — Krishna Krishnan, *chairperson*; Deepak Gupta, *graduate coordinator*

**Mechanical, 316-978-3402** — Tiruvadi (TS) Ravigururajan, *chairperson and graduate coordinator*

The College of Engineering offers graduate programs leading to a:

- Master of Science (MS) in:
  - Aerospace engineering,
  - Biomedical engineering,
  - Computer science,
  - Computing,
  - Data Science,
  - Electrical and computer engineering,
  - Industrial engineering,
  - Materials Engineering, and
  - Mechanical engineering.
- Master of Engineering Management (MEM)
- Doctor of Philosophy (PhD) in:
  - Aerospace engineering,
  - Biomedical engineering,
  - Electrical engineering and computer science,
  - Industrial engineering, and
  - Mechanical engineering.

Areas of specialization can be found in the individual departmental sections. The graduate programs are enhanced by the presence of the industrial complex in Wichita, the Innovation Campus, and the National Institute for Aviation Research on the Wichita State campus.

A number of certificate programs are also offered through the College of Engineering. See Graduate Certificates for information.

Only students admitted to the College of Engineering or the Graduate School will be allowed to enroll in engineering courses. The academic dean will consider petitions for exceptions to the preceding statement because of legitimate reasons for qualified non-engineering students enrolling in engineering courses.

## Professional and Scholarly Integrity Training

Graduate students in the College of Engineering must complete the following four modules provided by Collaborative Institutional Training Initiative (CITI) as part of their graduation requirements:

1. Research misconduct;
2. Responsible authorship in engineering;
3. Conflicts of interest in engineering research; and
4. Ethical issues in management of data in engineering research.

It is the student's responsibility to show evidence of the completion of the above four modules at the time of filing the plan of study.

<sup>1</sup> Link opens new window.

## Graduation Requirements

### Master of Science Admission Requirements

To be admitted to the MS program, students must have completed the equivalent of an undergraduate degree in an engineering or related field. Students with deficiencies in certain areas may be required to take additional courses. Master's engineering programs require a minimum GPA of 3.000/4.000 for admission to full standing, 2.750/4.000 for admission on probation, and 2.500/4.000 for admission to nondegree, Category B. For some programs, GPAs are based on the last two years or approximately 60 credit hours of coursework. Other programs consider cumulative GPAs. These standards may be waived at the discretion of the individual department based on an applicant's other qualifications. Scores for the general test of the Graduate Record Examination (GRE) are recommended for all students applying from non-U.S. institutions.

Consult departmental admission sections of this catalog for additional admission requirements.

### Program Requirements

The MS degree requires the completion of a plan of study approved by the student's advisor and the department graduate coordinator, which must be filed within the first 12 credit hours of graduate coursework.

Three options are available:

1. The thesis option:

Course	Title	Hours
Select a minimum of 24 credit hours of coursework		24
Select a minimum of 6 credit hours of thesis		6
<b>Total Credit Hours</b>		<b>30</b>

2. The directed project option:

Course	Title	Hours
Select a minimum of 30 credit hours of coursework		30
Select a minimum of 3 credit hours of directed project		3
<b>Total Credit Hours</b>		<b>33</b>

3. The coursework option:

Course	Title	Hours
Select a minimum of 33–36 credit hours of coursework		33-36
<b>Total Credit Hours</b>		<b>33-36</b>

At least 60 percent of the credit hours in the plan of study must be 700-level or above. Additional details of the MS degree may be obtained from the department graduate coordinator.

#### Examination

Before the MS degree is granted, candidates in the thesis option must pass an oral examination over the thesis. Candidates in the directed project option must give an oral presentation and submit a written report on their directed project. Candidates in the coursework option may be required to pass a written exit exam. Details of the exit exam can be obtained from the department graduate coordinator.

#### Doctor of Philosophy

PhD programs are offered by four of the departments of engineering at WSU. Typical fields of specialization can be found in the individual departmental sections. These fields will be used in determining testing areas for the comprehensive examination in the major and minor fields.

#### Admission Requirements

Admission to any PhD program in engineering requires that the student has completed (or nearly completed) a master's degree in engineering or physical science. A grade point average of at least 3.250 in all graduate-level coursework is required for admission. The College of Engineering also offers direct admission to some PhD programs for exceptional students with a BS degree in engineering or related areas. Direct admission to PhD program requirements vary by program. Please refer to specific engineering graduate programs for admission requirements.

In some programs, scores for the general test of the Graduate Record Examination (GRE) must be submitted. Some students may find it necessary to take prerequisite courses to be able to meet the course breadth requirements. The student is recommended to the graduate dean for admission by the department chairperson in consultation with the graduate coordinator of the department where the graduate student will be housed.

Consult departmental admission sections of this catalog for additional admission requirements.

#### Plan of Study and Advisory Committee

Within the first 12 credit hours of PhD coursework, the department chairperson, in consultation with the graduate coordinator and the student, recommend to the graduate dean an advisory committee for each student. The committee will be composed of a minimum of five members, with at least four having graduate faculty status including the chairperson. A majority of the advisory committee members must be from the major department and at least one member must be outside the student's major department. The chairperson of the advisory committee should be the student's dissertation advisor. The student and advisory committee chairperson will formulate a plan of study and a tentative dissertation topic for approval by the advisory committee, the department chairperson or graduate coordinator, and the graduate dean. The plan of study will include all graduate-level coursework which is applicable to the degree.

A PhD plan of study should contain a minimum of 72 total credit hours with the following requirements:

- A minimum of 24 dissertation credit hours.
- A minimum of 36 credit hours of coursework, including a maximum of 24 credit hours from a master's degree.
- 12 credit hours of additional coursework, dissertation, or a combination of both.

#### Comprehensive Examination

Refer to the individual program's or department's requirements for the PhD comprehensive or qualifying examination. Upon passing the comprehensive examination, a student is known as a PhD aspirant.

#### Time Limits and Residency Requirement

From the time the student is admitted to the program, no more than 10 years may elapse until requirements for the degree have been completed. However, the student may petition the advisory committee for a leave of absence to pursue full-time professional activities related to his or her doctoral program and long-range professional goals. At least two semesters shall be spent in residency on the WSU campus involved in full-time academic pursuits. This may include up to half-time teaching and research. Well-designed plans for obtaining dissertation research experience under the supervision of the student's advisor will be considered in lieu of the residency requirement.

#### Dissertation Approval Examination (DAE)

When the PhD aspirant has completed the major portion of the coursework, the advisory committee can petition for permission to administer the DAE. The aspirant submits a written dissertation proposal to the advisory committee. After reading the proposal, the advisory committee conducts an oral examination to determine the aspirant's ability to carry out the proposed research and whether or not this research qualifies as a PhD dissertation. Any essential change in the project requires committee approval.

After passing the DAE, the student is known as a candidate for the PhD degree. Upon notification to the graduate dean of a successful DAE, the student's doctoral committee is officially acknowledged and recorded by the Graduate School. A candidate must be continuously enrolled in PhD Dissertation for a minimum of 6 credit hours each semester and 2 credit hours in the summer session until completion of the dissertation or 24 credit hours of PhD Dissertation have been taken. After this, 2 credit hours per semester are required. In any case, no less than 24 credit hours of enrollment for PhD Dissertation will be required. The dissertation may be performed in absentia with the approval of the advisory committee.

#### Final Dissertation Examination

The student must defend the dissertation before the advisory committee. At least five months must elapse between the DAE and the final examination. The final examination will be open to the public. Invited guests or external examiners may be invited if the committee desires.

#### Courses in the College of Engineering

- Aerospace Engineering (AE) (<http://catalog.wichita.edu/graduate/courses/ae/>)
- Applied Engineering (APEN) (<http://catalog.wichita.edu/graduate/courses/apen/>)
- Biomedical Engineering (BME) (<http://catalog.wichita.edu/graduate/courses/bme/>)
- Computer Science (CS) (<http://catalog.wichita.edu/graduate/courses/cs/>)
- Electrical and Computer Engineering (ECE) (<http://catalog.wichita.edu/graduate/courses/ece/>)
- Industrial and Manufacturing Engineering (IME) (<http://catalog.wichita.edu/graduate/courses/ime/>)

- Mechanical Engineering (ME) (<http://catalog.wichita.edu/graduate/courses/me/>)