

# Mechanical Engineering, PhD

Effective 2020-2021

College of Engineering

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The Ph.D. degree in Mechanical Engineering provides both advanced instruction and independent research opportunities for students. Graduates are typically employed in research environments in government laboratories and industries, and as university faculty. The Ph.D. degree program is highly individualistic in nature, and the student is expected to make a significant contribution to the reservoir of human knowledge by investigating a significant topic within the domain of mechanical engineering.

## **Unconditional Admission**

To be considered for unconditional admission to the Doctoral Program in Mechanical Engineering, an applicant must have either:

- a. The Master of Science degree in Mechanical Engineering (MSME) or a closely related engineering discipline with a minimum GPA of 3.3. The student must have at least 18 credit hours of mechanical engineering or equivalent courses at the graduate level and satisfactory GRE scores OR
- b. The Bachelor of Science degree in Mechanical Engineering (BSME) with a minimum cumulative GPA of 3.5 and satisfactory GRE scores.

## **Conditional Admission**

To be considered for conditional admission to the Ph.D. in Mechanical Engineering, an applicant must have either:

- a. The Master of Science degree in Physical Science, Mathematics or other related disciplines with a minimum GPA of 3.3 OR
- b. The Bachelor of Science degree in Physical Science, Mathematics or other related disciplines with a minimum cumulative GPA of 3.5.

Students entering the doctoral program with conditional status will have two semesters to meet the conditional requirements.

## **Additional Admission Requirements**

- Bachelor of Science degree in Mechanical Engineering with a minimum cumulative GPA of 3.5 or Master of Science degree in Mechanical Engineering or a closely related engineering discipline with a minimum GPA of 3.3
- GRE score

## **Program Outcomes**

- Graduates of the Ph.D. program will apply their critical thinking skills to invent, analyze, and model complex engineering systems and make novel contributions to the discipline.
- Graduates of the Ph.D. program will demonstrate effective communication skills through project and dissertation work and conference presentations.
- Graduates of the Ph.D. program will perform research or undertake advanced projects in an area of mechanical engineering such as mechanical systems and materials, energy and thermal-fluid sciences, and aerospace and make novel contributions in their respective areas of research.
- Graduates of the Ph.D. program will be active and effective leaders in their professional societies.

## **Degree Requirements**

### **Total credit hours: 60 (post baccalaureate)**

- Core courses (9 credits): MEEN 613,631, 716
- MATH electives (3 credits): Take 3 credit hours from MATH 650, 651, 652
- MEEN electives (30 credits): Take 24 credits of additional MEEN 600-899 courses with approval of advisor (specifically 60%: 18 credit hours from 800-899 for post BS).
- Technical electives (6 credits): Take additional 6 credit hours with approval of advisor and department
- Seminar (2 credits): Take MEEN 992 two times in two semesters (assume zero credit)
- Dissertation (12 credits): MEEN 997
- Pass qualifying exam, preliminary exam, dissertation defense

### **Total credit hours: 36 (post Masters)**

- Core courses (9 credits): MEEN 613,631, 716. (0-9 see handbook)
- MATH electives (3 credits): Take 3 credit hours from MATH 650, 651, 652. (0-3 see handbook)
- MEEN electives (18 credits): Take 18 credits of additional MEEN 600-899 courses with approval of advisor (specifically 60%: 12 credit hours from 800-899 for post MS).
- Technical electives (6 credits): Take additional 6 credit hours with approval of advisor and department
- Seminar (2 credits): Take MEEN 992 two times in two different semesters (assume zero credit)
- Dissertation (12 credits): MEEN 997
- Pass qualifying exam, preliminary exam, dissertation defense

**Dissertation Research:**

A student may not register for dissertation credits before passing Qualifying Examination. No more than 12 dissertation credits are counted toward the total credit hours requirement for the degree.

**Qualifying Examination:**

The Qualifying Examination is given to assess the student's competence in a broad range of relevant subject areas. Only students with unconditional status and in good academic standing may take the Qualifying Examination. A student who wants to retake the Qualifying Examination must apply to retake the Qualifying Examination by the posted deadline. No student is permitted to take the Qualifying Examination more than twice. A student not recommended for re-examination or who fails the exam on a second attempt may be dismissed from the doctoral program.