Doctoral Education
The PhD is the highest academic degree offered in CCNY’s doctoral program in mechanical engineering which attracts students with a variety of backgrounds, interests, and talents. We provide extensive opportunities for graduate students to engage in advanced research and collaborate with faculty and colleagues. The goal of the doctoral program is to push the boundaries of the professional disciplines and develop creative and productive researchers with critical thinking who will grow profoundly as engineers, researchers, and innovators.

Doctoral degrees are awarded upon the completion of a program of advanced study in the student’s principal area of interest and a thesis of significant original research, design, or development. Doctoral degrees are offered in all areas represented by the department’s faculty.

The Mechanical Engineering Department provides research opportunities for graduate work in the broader areas of:

1. Mechanics and Materials
2. Fluid Mechanics and Heat Transfer
3. Electro-mechanical Systems
4. Dynamics, Controls and Sensing
5. Micro-nano-scale Science and Engineering
6. Computational Engineering
7. Aerospace Applications
8. Energy and the Environment
9. Biomechanics
10. Interdisciplinary Topics

Graduate students are matched with a research and academic advisor during the admission process or upon arrival at CCNY. Each student, together with his or her adviser, develops a coherent program of research and study that involves a coordinated sequence of courses.

Typically, graduate programs involve core courses taken in the Department of Mechanical Engineering and courses in other related fields, such as materials science, mathematics, chemical engineering, civil engineering, environmental engineering, electrical engineering, computer science, sustainability, physics, biology and chemistry.

The size of the doctoral student population ensures a close association between each student and a faculty adviser that continues from arrival to the completion of the degree program.

Admission to the Doctoral Program
The applicant’s academic record must demonstrate the promise of superior performance in advanced study and research, as evidenced by a strong undergraduate record, strong letters of recommendation, and a focused statement of purpose that explains why the applicant wants to pursue a Ph.D. in mechanical engineering.

The criteria used in determining each applicant’s eligibility for consideration shall include:

1. evidence of award of a bachelor’s degree in engineering or a closely related field or its equivalent (prior to matriculation) from a recognized institution with a minimum grade point average (GPA) of 3.75
2. a master degree in engineering or a closely related field with a minimum grade point average (GPA) of 3.5. Prospective students who do not hold a master’s degree but hold a bachelor’s degree in engineering or a closely related field with an exceptional record and GPA better than 3.75 may also apply
prior research experience and skills preferred. The general Graduate Record Examination (GRE) is required. Applicants from countries where English is not the primary language must also take the Test of English as a Foreign Language (TOEFL). While there are no minimum scores for the GRE or TOEFL, it is expected that the scores demonstrate aptitude for graduate research.

From eligible candidates, the department may make final admission decisions based on a combination of factors, including academic degrees and records, the statement of purpose, letters of recommendation, test scores, and relevant work experience. Also considered is the appropriateness of the applicant’s goals to the degree program in which they are interested and to the research interests of the program’s faculty. Satisfying minimal standards, however, does not guarantee admission, since the number of eligible applicants generally far exceeds the number of places available. As a result, many well-qualified applicants cannot be accommodated. All admitted students are offered financial support through research assistantships, fellowships, or teaching assistantships.

Requirements for a Doctoral Degree

Credits: A minimum of 60 graduate credits must be completed within the area of specialty. Forty-eight of these are course credits and 12 credits are research credits (ME58990 – doctoral dissertation research). Students with a Master’s degree may transfer up to 30 credits from their previous institution.

Levels: The doctoral student’s level reflects the progress made by the student toward the completion of the degree requirements and affects the tuition charged. The student will be classified as:

- **Level I**: Upon acceptance into the doctoral program.
- **Level II**: After completion of 45 credits and the passing of the 1st exam (Ph.D. qualifying exam).
- **Level III**: After the successful presentation and defense of the 2nd exam which consists of the Ph.D. dissertation proposal, the completion of 48 credits of coursework with grades of B or better in each course, the completion of 12 credits of doctoral dissertation research, and demonstration of the necessary skills and tools for completing the proposed research. A level III student is a Ph.D. candidate. Ph.D. candidates must register for one credit of ENGR90000 - dissertation supervision every semester until graduation.

*Doctor of Philosophy in Mechanical Engineering*: The degree is awarded following the successful completion of the 3rd exam which consists of a presentation of the Ph.D. dissertation and its defense before an examining committee consisting of the candidate’s mentor and 4 examiners with one of them being external.

If a student enrolls in the program with only a Bachelor’s degree, the expected time to complete the requirements for the Ph.D. degree is approximately 5 years. Students admitted with a Master’s degree normally require 3 to 4 years to complete their requirements.

Guidelines for Ph.D. Qualifying Examination

The purpose for taking the Ph.D. Qualifying Exams is to enable the faculty to assess whether each student has mastered the material necessary to pursue more advanced study and research. This includes mastery of fundamental concepts, physical understanding needed for modeling phenomena and processes relevant to the subjects that comprise the discipline, working knowledge of the mathematical tools needed for quantification and for solving the relevant equations, and the ability to extract practical conclusions from the results.

Every doctoral student must take the Qualifying Examination in order to be admitted into candidacy. The following general rules apply:
• The qualifying examination is to be taken at the end of the first year of full time study by students entering the Ph.D. program with a Master's degree, and no later than the end of the second year by students entering the program with a Bachelor's degree.
• Qualifying examinations are usually held in late August or mid-January.
• A student wishing to take the qualifying examination in consultation with his/her advisor should notify the graduate advisor for permission to take the examination.
• The type, content and duration of the Qualifying Examination are at the discretion of the Graduate Faculty. The normal format, however, consists of a written part, as described below.

Written Part
1. The type of written examination, e.g., open book, equations sheets, etc., is at the discretion of the Graduate Faculty.
2. The examinee will be notified of the outcome of the examination by the graduate advisor.
3. If a student fails the examination or any part of it, the question of reinstatement and make-up of the exam is at the discretion of the Graduate Faculty. A student who fails the examination may be allowed to repeat the examination at the most, one more time.
4. Ph.D. candidates, i.e., those who pass the qualifying examination, are required to register for credit in the one-credit research seminar for one (1) semester after the examination. They should subsequently register in it for no credit during all subsequent semesters.