

DOCTORAL DEGREE REQUIREMENTS

The School of Engineering offers programs leading to the Doctor of Philosophy (Ph.D.) in engineering and in electro-optics, and Doctor of Engineering (D.E.). The programs leading to the Ph.D. in engineering and D.E. degrees encompass major fields of study in aerospace engineering, electrical engineering, materials engineering, and mechanical engineering.

To learn more about available doctoral programs, please click on the "Programs of Study" link on the navigation menu to the right.

Doctor of Philosophy (Ph.D.)

The Ph.D. is granted in recognition of superior achievement in independent research and coursework. The research must demonstrate that the student possesses the capacity for original thought, a talent for research, and the ability to organize and present findings.

The minimum credit hours required for the Ph.D. degree are 60 semester hours beyond the master's degree. This includes a minimum of 30 semester hours for the dissertation and a minimum of 30 semester hours of course-work. A student seeking a Ph.D. is required to complete a minimum of six semester hours in approved advanced mathematics beyond their bachelor's degree. At the discretion of the dissertation committee and/or department, additional mathematics semester hours may be required.

The dissertation must either add to the fundamental knowledge of the field or provide a new and better interpretation of facts already known. It is expected to result in one or more manuscripts submitted for publication in a refereed journal.

Doctor of Engineering (D.E.)

The D.E. is granted in recognition of superior achievement in coursework and an independent project. The project will usually be broad in scope, involve more than one discipline or subdiscipline, and be closely tied to an industrial application.

Coursework Requirements: ¹

EGR 500	Academic Integrity and Responsible Conduct of Research for Engineers ²	0
Coursework		39
Major Area ³		
Advanced Mathematics ^{4,5}		
Synergistic Area of Engineering Science ⁶		
Dissertation ⁷		21

For additional details, see the Doctoral Degree Requirements section on the School of Engineering page and consult with the program director.

¹ A minimum of 60 semester hours beyond the master's degree is required for the D.E. degree.

² EGR-500 or equivalent, as determined by program requirements.

³ Minimum of 21 semester hours in the major area covering the domains of at least two subdisciplines

⁴ Minimum of six semester hours in approved advanced mathematics beyond the bachelor's degree.

⁵ At the discretion of the dissertation committee and/or department, additional mathematics semester hours may be required.

⁶ Minimum of nine semester hours required

⁷ The dissertation must address an integrated industrial project. It is expected to result in a manuscript submitted for publication in an applied engineering journal and/or to documentation leading to a patent.

Temporary Advisor

Immediately upon admission into the doctoral program, a student will be assigned a temporary advisor. This temporary advisor will assist the student in the initial selection of courses for the first semester of enrollment.

Doctoral Advisory Committee

Before the student completes the second enrolled semester or 12 credit hours, the student, in consultation with the department chair or program director, selects a major professor to serve as the chair of the doctoral advisory committee. The chair of the doctoral advisory committee will be a member of the graduate faculty. An advisory committee consisting of the chair and at least two other graduate faculty members from the programs of the School of Engineering will then be recommended for approval to the department chair or program director and to the associate dean of engineering. The appointment of one additional member of the committee from outside the student's program (i.e., other university faculty, adjunct professors, prominent researchers in industry or government) is required. One additional graduate faculty member may be appointed by the associate dean of engineering. The composition of the committee will generally reflect the student's area of study and research interest. The duties of the doctoral advisory committee include advising the student, assisting the student in preparing the program of study, administering and reporting the candidacy examination, assisting in planning and conducting research, approving the dissertation, and conducting and reporting the results of the dissertation defense. A dissertation advisor other than the chair of the doctoral advisory committee may be appointed by the doctoral advisory committee.

Program of Study

At the completion of 12 credit hours of coursework, the student, in consultation with their doctoral advisor will complete the Program of Study (found on Porches). The program of study shall include all the specific courses beyond the master's degree that the student is required to complete. The program shall indicate the time and manner in which these requirements will be met. The preliminary Program of Study is to be completed by the student and approved by the doctoral advisor, the department chair or program director, and the associate dean of engineering, before the beginning of the third semester of the student's enrollment. The final Program of Study should be completed once the committee is formed and prior to the presentation of the dissertation proposal. The Program of Study can be amended if needed with required approvals.

Candidacy Examination

The candidacy examination for the doctoral degree is generally taken when most of the coursework, as outlined on the approved plan of study, has been completed. Its purpose is to determine the student's eligibility to become a candidate for the doctoral degree. It will include two parts: (1) a written and an oral examination covering the domain of coursework; and (2) an oral examination on the dissertation proposal. Part 2 must be completed within six months of the completion of Part 1. At the discretion of the doctoral advisory committee, the Part 2 examination can be taken simultaneously with the oral portion of the Part 1 examination.

The proposal outlining in detail the proposed area of dissertation research should clearly show the review of the literature in the area, the need for and the uniqueness of the research, the general approach,

expected results, the laboratories and/or other facilities needed, and a schedule of work. No more than 12 semester hours of dissertation can be taken prior to the successful presentation of the dissertation proposal. The student must make a copy of this proposal available to each doctoral advisory committee member at least one week prior to the Part 2 examination.

The student must pass all parts of the examination to be admitted to candidacy. The student is considered to have passed only when the decision of the doctoral advisory committee is unanimous. All members must sign the examination report form with an indication of their decision noted prior to it being submitted to the associate dean of engineering. If any part of the examination is unsatisfactory, the student will be notified in writing of the conditions for another examination. No student will be permitted to take any part of the examination more than twice. A second examination may not be given earlier than four months after the submission of the examination report.

A student must pass the candidacy examination at least six months prior to the dissertation defense.

Dissertation

A single author dissertation is required of each doctoral candidate who has passed the candidacy examination. The dissertation topic will be selected by the student in consultation with the advisor and the doctoral advisory committee. The dissertation topic must be approved by the doctoral advisory committee.

The student must obtain approval from the doctoral advisory committee to undertake all or part of the dissertation in absentia. A letter requesting such permission, signed by the chair of the doctoral advisory committee, must be submitted to the associate dean of engineering. This letter should outline in detail the relationship between the advisor and the candidate and the name and background of the person who will directly advise the candidate during the accomplishment of this independent research. This person will be added to the advisory committee.

The University of Dayton's guide to creating and submitting a thesis or dissertation can be found at <http://libguides.udayton.edu/etd> (<http://libguides.udayton.edu/etd/>).

Dissertation Defense

No earlier than six months after the successful candidacy examination, the candidate shall defend the doctoral dissertation in a public forum to demonstrate to the committee that all the preparation for which the doctoral degree is awarded has been met. The defense is open to all members of the University of Dayton faculty, student body, and interested outside parties. The members of the doctoral advisory committee, with the advisor acting as chair, will conduct this dissertation defense.

Before the announcement of this defense, the doctoral advisory committee must agree that the dissertation is ready for public defense. At least two weeks prior to the date of the defense, the candidate must provide the committee with copies of the nearly final dissertation and also submit "Request to Schedule Dissertation Defense" form to their advisor. For the defense to be satisfactory, the advisory committee members must agree that the dissertation defense has been successfully completed. If the candidate's defense is deemed unsatisfactory by only one member, the case will be referred to the associate dean of the engineering for appropriate action.

In addition to defending the dissertation, the candidate must verify that a paper based on the dissertation has been submitted to a refereed journal for publication.

Additional Requirements

Two-thirds of the semester hours required beyond the master's degree should be earned at the University of Dayton. Generally, this is 40 semester hours beyond the master's degree.

Candidates must complete a minimum of 30 semester hours of dissertation. Students are expected to complete the dissertation requirements for the doctoral degree within nine years from matriculation.

Any other specific requirements and sequences leading to these degrees are described in the following sections or in departmental and program documents.