



DOCTOR OF ENGINEERING Student Advising Manual

Johns Hopkins University's Doctor of Engineering (D.Eng.) program provides professional engineers with the advanced technical expertise they need to succeed in industry and the public sector by emphasizing creative problem solving and the innovative application of technical knowledge.

- The D.Eng. program is a doctoral-level graduate degree program designed for working engineers and scientists.
- It is a nonresidential full-time program with semiannual D.Eng. conferences held at the Homewood Campus in Baltimore twice a year (once in January and once in June).
- The program is structured as a research collaboration between a student's employer and the Whiting School of Engineering.
- Students are actively mentored by a primary advisor in the Whiting School as well as a co-advisor at their place of employment.
- Students customize their program (<https://engineering.jhu.edu/doctor-of-engineering/about-the-program/program-structure>) to meet their professional goals, and immediately contribute to their current job responsibilities.

Admissions

To be admitted to the Doctor of Engineering program, the application must be approved both by the Doctor of Engineering Oversight Committee as well as the WSE faculty member who will be serving as advisor.

Educational Objectives

There are three overarching educational objectives for D.Eng. students:

- Ability to acquire new, advanced knowledge
- Ability to formulate a research problem/program
- Execution of the proposed research

These objectives are assessed by three milestone examinations, respectively:

- Preliminary Examination
- Proposal Presentation and Examination
- Project Defense

Curriculum

Year One

Doctor of Engineering students are expected to come to Baltimore twice each year: once in January and once in June for the Semiannual Doctor of Engineering Conferences. D.Eng. students may begin their program at either time.

1. Diagnostic Interview, Syllabus of Study, and Start of Research

D.Eng. students begin their program with an extended, in-person meeting with their advisor. This meeting is called the **Diagnostic Interview**. The student and advisor discuss the proposed project and identify new material for the student to learn (roughly equivalent to two graduate-level courses). This new material should be relevant to the proposed research, especially to guide the student to fill in background material that the advisor anticipates will be needed. Together, the advisor and student lay out a syllabus of study for the coming

months. (The syllabus is then approved by the student's three-person supervisory committee.)

The student works to learn the material on the syllabus. This may be done through online courses (such as those offered by our Engineering for Professionals program) or guided independent reading. The advisor and co-advisor are available to the student to answer questions and, if need be, revise the syllabus. The student works on research.

2. Required Course Enrollment

EN.700.791 Doctor of Engineering Fundamentals. 10 credits

This is an intense, professor-guided, individualized course for D.Eng. students preparing for their Preliminary Examinations. The course instructor is the student's primary advisor and sets the requirements. Successful students pass their Preliminary Examinations upon completing this course. Students may enroll in this course for multiple semesters if necessary.

3. Preliminary Examination

At the student's second Doctor of Engineering Conference (in either January or June, roughly six months from the start of their program) they will be examined on the syllabus developed in the Diagnostic Interview. This **Preliminary Examination** is administered by the student's supervisory committee. The format of the exam may be either written or oral at the discretion of the supervisory committee.

4. Refining the Written Research Proposal

After successfully completing the Preliminary Exam, the student spends the next six months refining the basic proposal in the application into a robust, more specific written research proposal.

Year Two to Degree Completion

1. Required Course Enrollment

EN.700.792 Doctor of Engineering Proposal. 10 credits

The purpose of this course is to synthesize a coherent research proposal for the Doctor of Engineering major project. The course instructor is the student's primary advisor, working with the student to create the research proposal to be defended in a public presentation and private examination. Students may enroll in this course for multiple semesters if necessary.

2. Proposal Presentation and Examination

At the start of the 2nd year in the program, the student stands for the **Proposal Presentation and Examination**. This is an oral exam conducted by the supervisory committee plus two additional JHU faculty members. The first portion of the examination is a presentation of the research proposal. This portion of the exam is a public presentation of the research proposal (and other D.Eng. students are encouraged to attend). This is followed by an examination by the five-member panel to assess the student's readiness to engage in the proposed research.

3. Continued Research, Project Development, and Defense

Upon successful completion of the **Proposal Presentation and Examination**, the student works in earnest to execute the research. Of course, the scope and direction of the research may deviate from the plan originally presented. At this time, the student should register for **EN.700.891 Doctor of Engineering Research. 10 - 20 credits**

Once your advisor and Supervisory Committee deem the research to be sufficient for the degree, you will present your research and project at a public defense conducted by your Supervisory Committee. Typically doctoral students report and archive the fruits of their research by writing a dissertation. D.Eng. students may choose to do likewise, but we allow greater latitude in our program for alternative projects. There are, however, a few required components no matter the format.

All D.Eng. projects must include a written description of the key results, including a

- Title Page
- Table of Contents
- Extended Abstract between 10 – 20 pages

D.Eng. projects should include evidence as well, such as in a portfolio comprising:

- Prototypes;
- Animations or simulations;
- Computer code;
- Journal paper submissions;
- Invention disclosures/patent applications
- Other accepted forms of evidence as approved by your advisor and supervisory committee

Taken together, the portfolio is used to evaluate the depth and quality of the student's work. The design of the portfolio (what is included) is subject to the approval of the student's advisory committee.

Note that the portfolio, as well as its defense, must be public. That is, neither classified nor otherwise restricted material may be used. However, it is reasonable that the student's project may support a proprietary or classified application at the student's home company/agency. Nevertheless, it must be possible for the student to demonstrate their accomplishments in a fully open setting.

Program Policies

Continuous Enrollment Requirement

All D.Eng. students are required to register in every term (Summer, Intersession) and semester (Fall, Spring) they are in the program, and must complete registration at the beginning of each term in accordance with instruction issued by the registrar. Detailed instructions about registration will be provided to all students before the registration period each term.

Students who, for any reason, do not complete their registration until after the prescribed registration period are required to pay a late registration service fee. The late registration fee schedule is posted every semester on the registrar's website. <https://studentaffairs.jhu.edu/registrar/students/graduate-registration/> (see Term Dates & Deadlines). Graduate students must obtain permission from the chair of their department to register after the second week of classes.

Non-Curricular Program Requirements

In addition to their academic coursework, exams, and research, D.Eng. students must also satisfy three additional requirements:

- Academic Ethics, EN.500.603 (an online module)
- Responsible Conduct of Research, AS.360.624 (an online module)
- Title IX Training (through JHU's MyLearning portal)

Please contact Ms. Mia Brooms with any questions.

Retakes and Probation

Ideally, students in the Doctor of Engineering program will pass their milestone exams on the first attempt. However, students will have a second chance to pass any of their exams should they fail on their first attempt. Failing any exam twice is grounds for dismissal from the Doctor of Engineering program.

D.Eng. students are expected to be fully engaged and make progress toward their degree. Should a student become disengaged, or have a significant period with no progress, the student may be placed on probation. Please see Assistant Dean Christine Kavanagh (christinekavanagh@jhu.edu) for guidance.

Annual Student Review

Doctoral students need to have a clear understanding of their progress and what is expected next in their programs. To this end, D.Eng. students will undergo a formal annual review. This consists of four parts:

- First, the student will be given a self-evaluation in which they should report their accomplishments from the previous year and lay out their expectations for the coming year.
- Second, advisor's evaluation of your research progress and professional development, along with suggestions for improvement.
- Third, documentation that you have discussed Parts 1 and 2 with your advisor.
- Fourth, you will evaluate your advisor and the climate within your cohort and the program.

Semiannual Doctor of Engineering Conference

D.Eng. students are nonresidential and therefore have little opportunity to interact with each other. However, they are expected to come to Baltimore for semi-annual Doctor of Engineering Conferences in June and January. As described earlier, the various milestone examinations take place during these conferences. D.Eng. students are strongly encouraged to attend public portions of each other's oral examinations (proposal and project defenses).

In addition, the conferences provide opportunities for social networking among the students as well as professional development programming.

Funding

The training of a Doctor of Engineering student takes the form of a research contract between the student's employer and the Whiting School of Engineering. Annual tuition is posted on the Homewood Student Accounts website. D. Eng. students are not usually personally liable for these fees, except in the cases of health insurance premiums through the JHU Student Insurance plan facilitated by CHP, and any late fees, library fines, etc.. There will be no additional funding provided to a D.Eng. student by the Whiting School of Engineering/Johns Hopkins University. Students may be admitted to the D.Eng while funding details are being resolved, however, they cannot start their program until funding is secured. They may file for a deferral for up to a year.

Advisor/Employer/Funding Changes

Loss of funding or an advisor will generally require a leave of absence from the program until the situation is resolved. Students switching employers before the completion of their degree generally encounter difficulty in continuing in the program, as their new employer would need to agree to continuation of the research and in most cases, funding support as well. Students should contact Vice Dean Sri Sarma immediately if they have questions about any of the above issues (and ideally, before any transition).

Selection of Co-Advisor

The external Co-advisor may not be someone who either reports directly or indirectly to the D.Eng student. In exceptional cases, an external advisor may be someone from another company, or an exception can be made to have all the advisors be from within JHU. Any co-advisor assignments or changes need to be approved by the D.Eng. Oversight Committee.

Note that graduate students are subject to these policies and requirements in addition to all university and departmental policies and requirements.

[1] This exam is analogous to the Graduate Board Oral (GBO) examination for PhD students. As with GBO exams, non-JHU examiners may be used on the exam subject to the approval of the WSE Vice Dean for Graduate Education.

Faculty

Chair

Sri Sarma
Chair, Doctor of Engineering Oversight Committee; Vice Dean, Graduate Education;
Associate Professor, Institute of Computational Medicine

Doctor of Engineering Oversight Committee

John Boland
Professor Emeritus, Environmental Health and Engineering

Amitabh Basu
Associate Professor, Applied Mathematics and Statistics

Amy Foster
Associate Professor, Electrical and Computer Engineering

Dennice Gayme
Associate Professor, Mechanical Engineering

Russell Taylor
Professor, Computer Science

Leslie Tung
Professor, Biomedical Engineering

Advisory Committee

Primary Advisor: Any WSE Professor or Research Professor (including BME faculty appointed in the School of Medicine and EHE faculty appointed in the School of Public Health)

Co-Advisor: From the student's home company/agency, and vetted by the Doctor of Engineering Oversight Committee

Third Committee Member: Any JHU professor or research professor