

Ph.D. in Industrial Engineering

The objectives of the Ph.D. in Industrial Engineering program are to provide the knowledge and develop the skills that students need to become leaders of research in academia, industry and government. The program is for superior students with a master's or bachelor's degrees in industrial engineering or a closely related field. This program is intended for highly qualified students who wish to pursue advanced research in industrial engineering and related areas. The program emphasizes two areas: supply chain and manufacturing systems, and operations research applications. Students can be admitted with an appropriate BS or MS degree.

Degree Requirements

Ph.D. students with a recognized Master's degree or equivalent are required to take four 700-level 3-credit courses (12 credits). Ph.D. students with a recognized Baccalaureate degree are required to take eight 600-level or 700-level 3-credit courses (24 credits) of coursework beyond the Baccalaureate degree as well as four additional 700-level 3-credit courses (12 credits), for a total of twelve 3-credit courses (36 credits).

The department approves specific degree requirements and dissertation topics on an individual basis. Students must attain a minimum overall GPA of 3.0. Students must conduct independent original research in a specific area of industrial engineering. Key milestones for a Ph.D. students are: (i) Complete 12 credits of courses work beyond the Masters or 36 credits beyond the Bachelors , including at least 12 credits at the 700 level, (ii) Pass the Qualifying Exam (ii) Select a dissertation advisor and defend the research proposal and (iv) submit and pass the Ph.D. dissertation exam. For dissertation credit registration requirements please see <http://www5.njit.edu/graduatestudies/content/new-phd-credit-requirements/> .

Program deadlines for full#time students: The required coursework for the Ph.D. program and the (major part of the) QE must be completed successfully by the end of the second year in the program. The dissertation proposal must be defended successfully either by the end of the third year in the Ph.D. program or four semesters after registering for the first time in the 792 pre#doctoral research course, whichever occurs earlier. The dissertation must be defended successfully by the end of the sixth year in the Ph.D. program.

Qualifying Examination

All student are expected to pass a written qualifying exam. The exam is organized into two parts each of four hours duration (A) Mathematics, Probability and Statistics and (B) Industrial Engineering Topics. Part B will focus on seven different industrial engineering topics (i) Human Factors (ii) Operations Research (iii) Supply Chain and Production Planning (iv) Simulation Modeling (v) Reliability and Quality Control (vi) Engineering Economy and (vii) Manufacturing Processes. The test is administered 1-2 times a year, and a pass/fail grade is assigned to each section. A student can appear for the exam a maximum of 2 times.

Dissertation Proposal Examination

Doctoral students must prepare a written research proposal and make an oral presentation for approval by their dissertation committee. The proposal must be presented after formation of the committee but within one year after passing the qualifying examination. Research is expected to investigate or develop a unique contribution to science and technology.

Dissertation Defense

When the novel and independent dissertation research conducted by a doctoral student produces sufficient and significant results, the student, in consultation with his/her dissertation committee, will prepare for the completion of the dissertation. An oral defense of the dissertation with the dissertation committee is required after submission of the final document to the department for approval. Signatures of all members of the dissertation committee must be received for final approval to be granted.