The Edward P. Fitts Department of Industrial and Systems Engineering is among the top 10 public programs in the nation (US News) and offers the following degrees: Doctor of Philosophy (Ph.D.), Master of Science (M.S.; thesis required) and Master of Industrial Engineering (M.I.E.; non-thesis). In addition, the department offers a dual MIE/MBA degree jointly with the Poole College of management.

**GRADUATE DEGREES**

**Advanced Manufacturing**
- Additive Manufacturing
- Biomedical Manufacturing
- Micro/Nano-Scale Manufacturing
- Smart and Digital Manufacturing
- Systems Automation and Robotics

**Health Systems Engineering**
- Medical Decision Making
- Health Analytics
- Care Delivery Optimization
- Infectious Disease Modeling
- Clinical Operations Management
- Population Health and Public Health Policy
- Emergency Medical Systems and Public Health Preparedness

**Human-Systems Engineering**
- Brain-Computer Interfaces
- Virtual and Augmented Reality
- Human-Machine System Design
- Performance Measurement Reality and Modeling
- Occupational and Systems Safety

**Production and Logistics Systems**
- Just-in-Time Systems
- Humanitarian Logistics
- Facility Locations and Design
- Vehicle Routing and Scheduling
- Reliability and Quality Engineering
- Planning, Scheduling, and Inventory
- Production Systems Analysis Control and Design

**Systems Analysis and Optimization**
- Analytics
- Decision Analysis
- Modeling and Analysis of Deterministic and Stochastic Systems
- System Simulation
- Optimization
- Artificial Intelligence

**DEGREE REQUIREMENTS**

The Doctor of Philosophy (Ph.D.) degree requires a minimum of 72 hours of graduate credit beyond the bachelor’s degree, including coursework in major and minor areas of concentration together with credit for doctoral research and dissertation preparation. For students who have completed a Master’s degree prior to joining the Ph.D. program, a minimum of 54 hours of additional graduate credit are required.

The Master of Science (M.S.) degree involves some depth of study in a specified area of concentration and requires a research thesis. A minimum of 30 hours, including 9 hours in a minor and 3-6 hours of thesis research, is required for this degree.

For a Master of IE degree, a minimum of 33 credit hours are required - at least 21 hours must be in Industrial and Systems Engineering. At least 27 hours of the 33 must be at the 500 level or above, and at least one 700 or 800 level ISE course must be included. 6 credit hours of project work for the degree is optional.
The department has outstanding laboratories located in Daniels Hall and collaborates closely with other engineering and non-engineering departments.