

INDUSTRIAL AND SYSTEMS ENGINEERING

PROGRAM OVERVIEW FOR EMPLOYERS

The industrial engineering curriculum covers the principal concepts of contemporary process design, facilities planning, human performance, mathematical modeling and production control, project management, systems simulation, and quality. Specifically, industrial engineering is concerned with the design, improvement and installation of integrated systems of people, materials, equipment and information typically found in all industries (e.g. manufacturing, healthcare, banking, entertainment, distribution) – including the design and management of supply chains.) Lean production and Six-Sigma concepts are also introduced and reinforced throughout the curriculum.

Degree(s) Awarded

Bachelor of Science Degree (5 year)

Options of study in: Ergonomics, Supply Chain Management, Manufacturing, Six Sigma, and Lean Six Sigma

Bachelor of Science/Master of Engineering Dual degrees

Bachelor of Science/MBA

Bachelor of Science/Master of Science in Industrial Engineering and Applied Statistics

Master of Engineering in Engineering Management

Master of Engineering in Industrial Engineering

Master of Engineering in Systems Engineering

Master of Science in Industrial Engineering

Master of Engineering/Master of Science in Sustainable Engineering

Enrollment

- Approximately 200 full-time undergraduates.
- Approximately 10 part-time graduate students.
- Approximately 75 full-time graduate students.

Cooperative Education Component

Students are required to complete a total of five (5) co-op work periods during 3rd-5th years.

Work periods occur year around; each lasts either 3 or 6 months.

Salary Information (Avg/Range)

Co-op:	\$17.17	\$8.00 - \$32.00
BS:	\$56,500	\$51,428 - \$60,000
MS:	\$61,307	\$48,500 - \$76,000

Equipment & Facilities

The ISE department is located in the James E. Gleason building, within the Kate Gleason College of Engineering. The department houses several state-of-the-art laboratories to support their programs, including the Brinkman Machine Tools and Manufacturing Lab, the Human Performance Lab, the Advanced Systems Integration Lab, the Toyota Production Systems Lab, and a general computer lab. These labs are fully accessible to all ISE students.

There are ample computing facilities within these specialized labs as well as a dedicated computer PC lab. These labs offer an extensive library of software to support industrial engineering research and project work; including, conventional word processing, spreadsheet, and presentation applications (e.g. Office), database management (e.g. ACCESS, FoxPro), data acquisition (e.g. Lab View) statistical analysis (e.g., Minitab, SAS) facilities layout (e.g., AutoCAD, Factory Flow, Factory Plan), systems simulation applications (e.g., ProModel, Arena), and manufacturing software (e.g., MasterCam, material selection software.)

Accreditation

Accredited by the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012-telephone: (410) 347-7700.

Student Skills & Capabilities

Use of computers as an engineering tool; includes programming (in “C++”) and PC applications (Office, AutoCAD, MS Project, Access)

-Data analysis, Minitab

-Modeling physical systems

-Simulation

-Applied statistics (including quality control)

-Operations research (including production and inventory control)

Engineering economics

Human Factors/Ergonomics (including workplace and methods design and safety)

Contemporary production methods (e.g. lean production, flexible systems)

Project Management

Work measurement and process improvement

Engineering design methodologies

Six-Sigma concepts

Systems facilities & planning

Logistics and Supply Chain Management

Technical writing and oral presentations

Industrial and Systems Engineering

Course Sequence BS degree

1st & 2nd Years:

Fundamentals of Process Design
PC applications (Office, AutoCAD, Access, MS Project)
Programming (in “C++”)
Chemistry
Human Biology
University Physics
Calculus; Differential Equations;
Matrix Algebra
Materials Processing
Materials Science
Mechanics (statics, strength of materials, dynamics)
6 Liberal Arts Core
1 Liberal Arts Concentration
2 Phys. Ed. Activities
1 Phys. Ed. Wellness
1 Free Elective

3rd & 4th Years:

Engineering Economics
Engineering Management
Operations Research
Systems & Facilities Planning
Probability & Statistics (2 courses)
Production Control
Ergonomics/Human Factors (2 courses)
Design and Analysis of Production Systems
Statistical Quality Control
Regression
Simulation/Modeling
Professional Elective (1)
2 Liberal Arts Concentration
Four (4) co-op quarters

5th Year:

Systems Integration
Multi-disciplinary Senior Design Project
(team-based working solution to an actual engineering problem)
Professional Electives (3)
One (1) co-op quarter
2 Free Electives

Elective Course Areas: 4th & 5th year students can take their electives in the following areas:

Advanced Manufacturing
Contemporary Production Systems (i.e. Lean Manufacturing)
Cost Accounting
Ergonomics / Safety
Database/Information Systems
Microelectronics/Electrical Engineering
Mechanical Engineering
Supply Chain Management / Logistics
Sustainable Engineering
Systems Engineering
Quality & Applied Statistics

Selected Employers of Industrial and Systems Engineering Co-op and Graduating Students:

BAE Systems, Bausch & Lomb, Boeing, General Mills, Harris Corporation, IBM, Intel, Johnson & Johnson, Lockheed Martin, McNeil Consumer Products, Toyota, UPS, Walt Disney World, Wegmans, Xerox

Contact Us:

We appreciate your interest in hiring RIT co-op, graduating students or alumni. We will make every effort to make your recruiting endeavor a success. Call our office and ask to speak with Annette Stewart, the program coordinator who works with the Industrial and Systems Engineering program. For your convenience, you can access information and services through our web site at <http://www.rit.edu/recruit>.

Annette K. Stewart

Program Coordinator

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