

INDUSTRIAL AND SYSTEMS ENGINEERING

<http://www.rit.edu/~633www/undergrad/bsise.htm>

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. The department houses state-of-art laboratory facilities, including the Human Performance Lab, Brinkman Manufacturing and Machining Lab, Advanced Systems Integration Lab, and Toyota Production Systems Lab, as well as ample computing facilities.

Degree(s) Awarded

Bachelor of Science Degree (5 year)
 Master of Engineering in Engineering Management
 Master of Engineering in Industrial Engineering
 Master of Engineering in Systems Engineering
 Master of Science in Industrial Engineering

Enrollment

- Approximately 200 full-time undergraduates.
- Approximately 10 part-time graduate students.
- Approximately 30 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 about 3 or 6 months.

Salary Information (Avg/Range)

Co-op:	\$15.38	\$9.00 - \$23.00
BS:	\$55,500	\$49,200 - \$63,000
MS:	\$62,500	\$60,000 - \$70,000

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

The industrial and systems engineering program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET). The program and its options are evaluated using the program criteria for industrial engineering.

Student Skills & Capabilities

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

Mathematical applications:

- Data analysis
- 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 manufacturing methods (e.g. lean manufacturing, flexible systems)

Project Management

Work measurement and performance analysis

Engineering design methodologies

Six-Sigma concepts

Systems facilities & planning

Technical writing and oral presentations

Industrial and Systems Engineering

Course Sequence BS degree

1st & 2nd Years:

MS Project
Product & Process Design
PC applications (Office, AutoCAD, Access)
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
Operations Research
Production Control
Probability & Statistics (2 courses)
Design and Analysis of Production Systems
Applied Statistical Quality Control and Regression (2 courses)
Ergonomics/Human Factors (2 courses)
Engineering Management
Systems & Facilities Planning
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
Information Systems
Microelectronics/Electrical Engineering
Mechanical Engineering
Supply Chain Management / Logistics
Systems Engineering
Quality & Applied Statistics

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

Bausch & Lomb, Boeing, General Mills, General Motors, Harris Corporation, IBM, Intel, Johnson & Johnson, Lockheed Martin, McNeil Consumer Products, Motorola, Toyota, UPS, Walt Disney World, 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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