History

Spun out of Mech. Eng. in 1958

Unique combination of Mg. Sc. Researchers and IE practitioners

Gradual expansion including BS, Stat. in the 1960s, Eco in the 1970s, IS in the 1980s, Mgt. in the 1990s

People

54 FT academic positions
80 adjunct professors
60 teaching assistants

1,000 Undergraduate students

300+ graduate students in MSc and PhD programs
250+ graduate students in MBA programs
60+ graduate students in ME programs

25 administrative and technical staff members
Undergraduate Programs

- Industrial Engineering & Mgt
  - Production and Service Systems
  - Enterprise Information Systems
  - Economics

- Information Systems Eng. (jointly with CS)

- Economics & Mgt.
Graduate Programs

- MSc and PhD
  - Industrial Engineering
  - Operations Research
  - Statistics & Probability
  - Economics
  - Behavioral Sciences
  - Information Management Engineering
- MBA
- ME
Student Excellence Program

- Close guidance by a faculty advisor
- Flexibility to design individual study programs
- Allowed to get extra credit by extending the study of specific courses
- Invited to join research programs of faculty members
- Receive excellence awards
- Invited to serve as TAs
- Relations are maintained after graduation
“It was a pleasure to visit the Technion – a world-class and eminent institution and to review one of its strongest Faculties, that of Industrial Engineering and Management.
The IE&M Faculty is world class, and the Technion should be proud of it”

Report of the 2001 international evaluation committee

Prof. Thomas L. Magnanti, Massachusetts Institute of Technology, committee chair
Prof. Lawrence D. Brown, University of Pennsylvania (The Wharton School)
Prof. Nachum Finger, Ben Gurion University of the Negev
Prof. Alvin E. Roth, Harvard University
Management Engineering: how to engineer management practices

Engineering Management: how to manage engineering (tech-based) enterprises
The management engineering perspective

Educate a new kind of management (enterprise) engineers that will be capable of designing, managing and improving complex business & organizational systems under constantly changing market environments.

The engineering management perspective

“There is a real need for educating managers at the Technion in order to meet the demands of Israel’s industry and to provide students in the engineering, science and medicine fields the skills needed to commercialize research ideas…..It is recommended that the Technion will open MBA programs for managers in the engineering field as do other technological universities in the world.”

Protocol of the Technion’s Board of Governors meeting, June 2005
Research Areas

- Behavioral Sciences
- Economics and Finance
- Industrial Engineering
- Information Management Engineering
- Operations Research
- Statistics and Probability
- Strategic Management & Entrepreneurship
Research Areas

- Behavioral Sciences
  - Cognitive processes
  - Multi-cultural teams
  - Human decision making
  - Motivation, compensation
  - Emotions
  - Safety climate
  - Disaster mgt.

- Economics and Finance

- Industrial Engineering

- Information Management Engineering

- Operations Research

- Statistics and Probability

- Strategic Management & Entrepreneurship
Research Areas

- Behavioral Sciences
- **Economics and Finance**
  - Game theory & applications
  - Electronic commerce
  - Econometrics
  - Environmental economics
  - Financial engineering
- Industrial Engineering
- Information Management Engineering
- Operations Research
- Statistics and Probability
- Strategic Management & Entrepreneurship
Research Areas

- Behavioral Sciences
- Economics and Finance
- Industrial Engineering
- Information Management Engineering
- Operations Research
- Statistics and Probability
- Strategic Management & Entrepreneurship

- Supply chain mgt.
- Project mgt.
- Process & layout design
- Quality & reliability
- Computer integrated mfg.
- Ergonomics
- Work methods
Research Areas

- Behavioral Sciences
- Economics and Finance
- Industrial Engineering
- Information Management Engineering
- Operations Research
- Statistics and Probability
- Strategic Management & Entrepreneurship

- Modeling of physical & information systems
- Data and knowledge mgt.
- Distributed algorithms
- Artificial Intelligence
- E-Commerce & web technologies
- Program Verification
Research Areas

- Behavioral Sciences
- Economics and Finance
- Industrial Engineering
- Information Management Engineering
- Operations Research
- Statistics and Probability
- Strategic Management & Entrepreneurship

- Continuous optimization
- Discrete optimization
- Queuing networks
- Partition problems
- Dynamic programming
- Robust optimization
- Stochastic programming
Research Areas

- Behavioral Sciences
- Economics and Finance
- Industrial Engineering
- Information Management Engineering
- Operations Research
- Statistics and Probability
- Strategic Management & Entrepreneurship

- Theoretical and applied statistics
- Queuing theory and service engineering
- Stochastic processes & their applications
Research Areas

- Behavioral Sciences
- Economics and Finance
- Industrial Engineering
- Operations Research
- Statistics and Probability
- Information Management Engineering
- Strategic Management & Entrepreneurship

- Multi National Corporations
- Entrepreneurship & Startups
- Strategic Alliances & Networks
- Value Creation & Appropriation
- Strategic Learning & Competitive Positioning
- Innovation in Services
Research Laboratories

- MINERVA Optimization Center
- Statistics
- Computer-Integrated-Manufacturing
- Enterprise Systems Modeling
- Behavioral Research
- Work Methods Analysis
- Information Systems
MINERVA Optimization Center

- Fundamental research in the area of continuous optimization and its applications
- Applications of optimization models and techniques in Eng., Medicine, Industry, etc.
- Supervising and supporting graduate research
- Disseminating advances in optimization techniques
Research Laboratories

Statistics

Performs statistical analyses in various levels:
- Consulting services to researchers and graduate students in academic institutions
- Consulting to industry and governmental agencies
- Research projects funded by external sources
A semi-industrial manufacturing facility including an FMS, AS/RS, conveyer and a robot farm all managed and monitored by workstations running CAD and DSS tools for graphic design, simulations, optimizations and control.

- Research on plant design, routing of AGVs, work scheduling procedures, inspection routines, safety issues, etc.
Research Laboratories

Enterprise Systems Modeling

- Development of languages and methodologies for complex systems modeling
- Modeling enterprises as complex systems
- Integrating project and product in a comprehensive model
- Modeling of product requirements and tests
Testing responses of human subjects to various cognitive and social stimuli

Using computerized simulations of various social situations to examine social dynamics in these situations

Using computerized simulations to examine individual preferences and behavioral tendencies

Developing computer simulations of intra- and inter-personal dynamics
Educating IE students in the theoretical methods and the practical implementations of work study procedures

Simulating productivity of workers in service and manufacturing settings in a laboratory environment

Conducting applied and basic research in the field of motion time analysis, computerized work measurement processes, occupational applications of man and combined man–machine performances
Research Laboratories

Information Systems

- Allow students to perform large-scale simulations of information-intensive applications
- Facilitates research in the areas of databases, verification, communication, artificial intelligence, e-commerce, information retrieval
- Used mainly by graduate students for research, but also by undergraduate students for large projects
Research Centers

- Work Safety & Human Factors Engineering
- The Marcus Service Enterprise Eng.
- The Bronica Entrepreneurship & Innovation
Research Centers

Work Safety & Human Factors Eng.

Facilitates collaborative work of large and active group of scientists working in the areas of Cognitive Psychology and Ergonomics at the University of Haifa and the Technion.

The cooperation covers various aspects of human cognition and human performance.
Developing and applying engineering and scientific principles to support modeling, design and management of the infrastructure, processes, and systems that comprise the Service Sector.
Seeks to become the focal point for the development of campus wide entrepreneurial activities, for students, faculty, staff and alumni.

The center has a three pronged mission:

- **Outreach**: providing direct consultation for budding entrepreneurs
- **Research**: understanding of innovation and technology entrepreneurship and its contribution to economic growth
- **Teaching**: support, organize and teach entrepreneurship
Planned Research Centers & Laboratories

- **Centers**
  - Managerial Decision Making
  - Electronic Commerce
  - Global Management & Organizations
  - Modeling of Behavioral Processes

- **Labs**
  - Collaborative Information Systems
  - Business Intelligence
  - Financial Engineering & Risk Management
  - Product & Process Usability
Industrial Affiliates Program

- Stimulates and supports the mutual needs of business, industry and academia in applied research, developing management skills and promoting technology transfer initiatives
- Provides appropriate mechanisms for technical exchange, research collaboration, curricula feedback and supporting students during their studies as well as after graduation
Thank You