IE Courses and Streams
Industrial Engineering Streams

- Human Factors
- Information Engineering
- Operations Research

- Psychology
- Computer Science
- Mathematics
Operations Research (OR)

- What is operations research?
- What ISN’T operations research?
Operations Research

• OR is everywhere!
• And so are OR careers
Operations Research Areas

Supply Chain
Operations Research Areas

Power Systems
Power System Applications

- Supply Reliability
- Economic Dispatch
- Unit Commitment
- Maintenance Scheduling
- Asset Management
- Capacity Planning
- Operator Succession Planning
Operations Research Areas

Vehicle routing
Operations Research Areas

Finance
Operations Research Areas

Military
Operations Research Areas

Healthcare
Healthcare Applications

• Operating Room Scheduling
• Radiation therapy treatment
• Health Human Resources
• Facility Location
• Capacity Planning
• Patient Flow
• Blood Supply Management
OR Core Courses

Second Year

- MIE250: Fundamentals of Object Oriented Programming
- MIE262: Operational Research I: Deterministic OR
- MIE263: Operations Research II: Stochastic OR

Third Year

- MIE360: Systems Modelling and Simulation
- MIE335: Algorithms & Numerical Methods
- MIE363: Resource and Production Modelling
- MIE364: Quality Control and Improvement
OR Technical Electives

Third Year

- MIE365: Operational Research III: Advanced OR
- MIE354: Business Process Engineering
- MIE469: Reliability and Maintainability Engineering
- MIE367: Cases in Operational Research

Fourth Year

- MIE562: Scheduling
- MIE566: Decision Analysis
- MIE561: Healthcare Systems
- MIE465: Analytics in Action****
- MIE498H/Y: Research Thesis*
Careers in Operations Research

- Manager, Business Strategy at Air Canada
- Missionary at Global Outreach Mission, Author of "On the Potter's Wheel"
- Consulting Executive - Technology Strategy Sr Manager at Accenture
- Avenue Investment Management
- Senior Manager, at BMO Financial Group
- Google Asia & Pacific Financial Planner and Analyst
- Director, Commercial & Supply Chain (Retail Division) at Webcor Group
- Consultant at Avanade
- Senior Consultant at Capco
- Healthcare IT Professional at Carestream Health
- Program Manager at Enoro (Finland)
- Health Policy and Management Specialist at Cancer Care Ontario
- Project Manager – Lean, Ontario Ministry of the Attorney General
Operations Research Faculty

Michael Carter  Timothy Chan  Dionne Aleman  Michael Kim

Roy Kwon  Chi-Guhn Lee  Viliam Makis  Daniel Frances  Chris Beck
Graduate Studies for Operations Research

Want to be an Industrial Engineer?  →  Work for a while  +  MBA?
Want to be an Operations Researcher?  →  Grad school?

M.Eng: Professional development degree
10 courses or 7 courses plus a project
12 months full time or longer part time.
Optional Certificates, e.g. Healthcare Engineering Certificate

M.A.Sc: Develop your research abilities
4 courses plus a research thesis
2 years is typical

Ph.D: Looking for a career in research or teaching?
5 courses plus thesis
4 years is the target
Ontario’s Bulk Electricity System Diagram