

MIE1070H: Intelligent Robots for Society

INSTRUCTOR: Prof. G. Nejat E-mail: nejat@mie.utoronto.ca

LECTURE: Wednesdays 4:00 - 7:00 PM, Room: MC 252

COURSE DESCRIPTION: This course introduces the design of intelligent robots- focusing on the principles and algorithms needed for robots to function in real world environments with people. Topics that will be covered include autonomy, social and rational intelligence, multi-modal sensing, biologically inspired and anthropomorphic robots, and human-robot interaction. Class discussions will centre on the interactive, personal assistive and service robotics fields.

Prerequisites: MIE404 AND MIE444, or equivalent courses. Please note that the course builds on already existing knowledge of feedback control theory and mechatronics systems. Students taking this course should already be adept in these topics as they will not be covered again here.

MARKING: Report: 15% (Due June 19th 2019)
Final Project: 45% (Due Aug 2nd 2019)
Final Presentation: 40% (Approximate Start Date: July 24th 2019,
depending on total number of groups)

Please kindly note: No late submissions will be accepted for reports, projects or presentations.

REQUIRED MATERIAL:

- i) Notes provided by the Instructor

REFERENCE MATERIAL:

- ii) Introduction to AI Robotics, Robin R. Murphy, MIT Press
- iii) Behavior-based Robotics, Ronald C. Arkin, MIT Press

OUTLINE OF TOPICS:

- Introduction to Intelligent Robotic Systems/Agents
- Robot Building Blocks
- AI
- Robot Behaviours and Control
- Bio-Inspired Robots
- Androids
- Methodologies in Human-Robot Interactions
- Roboethics