

ACADEMIC COUNCIL REPORT

ACTION REQUESTED:

- Recommendation**
Decision
Discussion/Direction
Information

DATE: 27 February 2024

FROM: Undergraduate Studies Committee

SUBJECT: Major Program Modification – BEng Mechanical Engineering and Mechanical Engineering and Management programs – Artificial Intelligence specialization

COMMITTEE MANDATE:

In accordance with the Undergraduate Studies Committee (USC) Terms of Reference, USC has the responsibility “to examine proposals for new undergraduate degree programs and major changes to existing programs and to recommend their approval, as appropriate, to the Academic Council”.

MOTION FOR CONSIDERATION:

That pursuant to the recommendation of the Undergraduate Studies Committee, Academic Council hereby approves the Major Program Modification to the BEng Mechanical Engineering and Mechanical Engineering and Management programs to create a specialization in Artificial Intelligence.

BACKGROUND/CONTEXT & RATIONALE:

The Faculty is proposing to create a specialization in Artificial Intelligence by replacing the three existing engineering electives in the core Mechanical Engineering program with three AI specific courses:

- ENGR 3150U: Artificial Intelligence and Machine Learning,
- ENGR 4170U: Deep Learning
- ENGR 4270U: Machine Learning Applications.

Artificial Intelligence (AI) and Machine Learning (ML) are rapidly becoming a tool that can be used to solve numerous engineering problems. The proposed specialization in AI will provide students a solid foundation on the main aspects of ML and AI, including Deep Learning, and their application to solving modern engineering problems and challenges. In addition, students will learn the ethical implications of the use of Artificial Intelligence in engineering and society.

The proposed specialization aligns well with Ontario Tech’s mission to “... equip future leaders to solve complex problems.” AI is a tool that will help our graduate solve these complex problems. In addition, the proposed specialization will be a unique offering amongst engineering programs in Canada.

RESOURCES REQUIRED:

No additional financial/physical resources required.

TRANSITION PLAN:

New specialization and courses will be available to students beginning Fall 2024.

There is no impact on the core Mechanical Engineering program since the specialization is simply replacing the three existing engineering electives with specific courses for those students who take the specialization. Existing students can potentially take the specialization by taking the three specified courses as their electives.

CONSULTATION AND APPROVAL:

- ✓ FEAS Curriculum Committee: 23 November 2023
- ✓ Faculty Council: 30 November 2023
- ✓ Undergraduate Studies Committee (Recommendation): 16 January 2024
- Academic Council (Approval): 27 February 2024

Additionally, prior consultation at program level curriculum committees and Department Council garnered support from faculty and student representatives.

NEXT STEPS:

Pending the approval of Academic Council, this change will be included in the 2024-2025 Academic Calendar.

SUPPORTING REFERENCE MATERIALS:

- [Major Program Modification Proposal](#)
- [ENGR 4170U – New Course Proposal](#)
- [ENGR 4270U - New Course Proposal](#)