

**W.Booth School of Engineering Practice
&Technology
PROCTECH 4TR3
Capstone Design Project II
Fall 2023**



ENGINEERING

Instructor Information

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Office Hours:
TBD

Course Information

Lectures: 1 hour per week

Labs: 3 hours per week

Lecture and labs are delivered in one continuous 4-hour section

Course Dates: 09/05/2023 - 12/06/2023

Units: 3.00

Course Delivery Mode: In Person

Course Description: This course is a continuation of PROCTECH 4TR1 and it requires students to conduct further research, modify/refine project design, develop and implement the independent project proposal submitted as a part of the Capstone Design Project I course. The project will be documented as a technical report and presented in a seminar. One tutorial, one lab (three hours); first term Prerequisite(s): PROCTECH 4TR1, 4IT3; PROCTECH 4IC3 or SMRTTECH 4ID3, ENGTECH 4EE0 and registration in level IV of Automation Systems Engineering Technology

Instructor-Specific Course Information

Course Description:

The main objective of this course is to teach students the concept of design optimization and implementation. The course is a continuation of Technical Project I and it requires the application of the knowledge gained in earlier courses to the design and implementation process of the students' project, including:

- System definition, synthesis, analysis.
- Improve communication skills.
- Promote organizational skills.

Furthermore the course stresses the importance of other influences on design and implementation such as economics, reliability, performance, safety, ethics and social impacts.

Course Policies:

1. Course attendance is mandatory. Students are expected to attend the full four-hour course section and spend that time working on their project and discussing project issues with their instructor and group peers. Failure to attend course sections, without submitted MSAF, will affect the final student's course grade.
2. While students work in groups to complete their project, it is expected that they will work independently on different aspects and the final project will be formed by the integration, by a group member, of these different parts.
3. Students will be meeting face-to-face in ETB/B111. Students should always follow all health guidelines issued by McMaster as well as provincial, and federal government.
4. Each student will keep a log of work performed each week outside and inside the lab/class. The logbook will have the following information: project progress as compared to the plan, what tasks were accomplished and what was learned. The logbook will also contain any suggestions that were made and any action taken on them. Logbook entries must be uploaded on Avenue each week at the end of class after discussion with the instructor.
5. It is expected that each student will also work on their project outside the assigned classroom/lab time. These activities will be recorded in the logbook as described above.

6. Each group shall develop a plan for executing their project. This plan must be submitted by the end of the second week of the term and must clearly identify the scope of work and responsibilities of each group member. Group members will be judged against this plan for marking of the final project.
7. Each group will submit a Mid Term Report. The Mid Term report is required by the end of week 6 in the semester. The list of items that need ordering, if any, should be submitted ASAP. The report should have the structure that would form the basis of the final report. Any change in the project scope as outlined in the 4TR1 course should be clearly identified.
8. Each group will submit a Final Report* at the end of the semester. The evaluation of this report will be based on :a) project plan, its implementation and accomplishments, technical content, depth and comprehension, originality, working demonstration, and problem solving skills; b) background, report structure & format, & written communication skills; and c) literature references (internet, text & reference books, reports, & original journals).
9. Each group will present their project to the class. The actual date for the presentation shall be communicated during the semester.
10. Without use of logbook the final report will not be accepted.
11. Each group shall make a short video of the project implementation. The video shall demonstrate the operation of the implemented device. It shall not be longer than 3 minutes and it shall be played as part of the final presentation.
12. Late reports will result in 5% loss of marks per day. Submissions later than 10 days will be given a mark of zero.
13. The departmental Safety Policy must be followed by the students while working in the lab.

*The submitted reports after grading will become the property of the department and will not be returned to the students. The student will be able to view them after grading.

Meeting Details

Week	Topic
Week 1	Project Work & Consultation
Week 2	Project Work & Consultation - <i>Project Plan due</i>

Week 3	Project Work & Consultation
Week 4	Project Work & Consultation
Week 5	Project Work & Consultation
<i>Midterm Recess</i>	
Week 6	Midterm Presentations - <i>Midterm Report due</i>
Week 7	Project Work & Consultation
Week 8	Project Work & Consultation
Week 9	Project Work & Consultation
Week 10	Project Work & Consultation
Week 11	Project Work & Consultation
Week 12	Final Presentations - <i>Final Report due</i>

Important Links

- [Mosaic](#)
- [Avenue to Learn](#)
- [Student Accessibility Services - Accommodations](#)
- [McMaster University Library](#)
- [eReserves](#)

Course Learning Outcomes

For accreditation reasons, these learning outcome statements must be tied back to CEAB graduate attributes (GAs), including those that are measured in this course. If you are unsure how to do this, please contact the Associate Chair Undergraduate in your department.

- Construct a technical project with real-world applications using sensors, actuators, computers or microprocessors with accompanied software logic and user interface.
- Test the hardware and software components of the proposed design to evaluate

its feasibility for implementation using the provided laboratory equipment and time line.

- Construct a technical project with real-world applications using sensors, actuators, computers or microprocessors with accompanied software logic and user interface.
- Understand the importance and necessity of team building and project management for complicated technical designs
- Generate technical reports and proposals to illustrate design plans using sophisticated and accurate technical language in appropriate report formats.
- Deconstruct a technical problem into its constituent parts to systematically solve issues and incrementally move towards achieving an objective.
- Judge the relevance of a design for its practicality and necessity in real-world applications.

Required Materials and Texts

Textbook Listing: <https://textbooks.mcmaster.ca>

N/A

Class Format

In Person

Course Evaluation

Assessment	Weight
Project Plan (Due Sept 18)	10%
Midterm Report (Due Oct 23)	15%
Weekly Meeting Reports and Log Books	15%

Final Project Presentation	15%
Final Project Demonstration & Video	20%
Final Report	25%

Grading Scale

Grade	Equivalent Grade Point	Equivalent Percentages
A+	12	90-100
A	11	85-89
A-	10	80-84
B+	9	77-79
B	8	73-76
B-	7	70-72
C+	6	67-69
C	5	63-66
C-	4	60-62
D+	3	57-59
D	2	53-56
D-	1	50-52
F	0	0-49

Course Schedule

Thursdays 12:30 - 16:30 in ETB/B111

Laboratory Overview, Operation, and Safety

The Faculty of Engineering is committed to McMaster University's Workplace and Environmental Health and Safety Policy which states: "Students are required by University policy to comply with all University health, safety and environmental programs and policies". It is your responsibility to understand McMaster University's Risk Management system, which is supported by a collection of Risk Management Manuals (RMMs) that contain programs and policies in support of the Risk Management System.

The RMMs are available from https://hr.mcmaster.ca/employees/health_safety_well-being/our-safety/risk-management-manuals-rmms/.

It is also your responsibility to follow any specific Standard Operating Procedures (SOPs) provided for specific experiments (see course lab manuals) and the laboratory equipment

Food or drinks are not permitted in ETB/B111

Additionally, McMaster University's workplace health and safety guidance related to COVID-19 must always be followed (available from <https://hr.mcmaster.ca/resources/covid19/workplace-health-and-safety-guidance-during-covid-19/>).

Turnitin.com

Some courses may use a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. For courses using such software, students will be expected to submit their work electronically either directly to Turnitin.com or via an online learning platform (e.g. A2L, etc.) using plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty.

Students who do not wish their work to be submitted through the plagiarism detection software must inform the Instructor before the assignment is due. No penalty will be assigned to a student who does not submit work to the plagiarism detection software. All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, other software, etc.). For more details about McMaster's use of Turnitin.com please go to www.mcmaster.ca/academicintegrity.

Generative AI: Use Prohibited

Students are not permitted to use generative AI in this course. In alignment with [McMaster academic integrity policy](#), it "shall be an offence knowingly to ... submit academic work for assessment that was purchased or acquired from another source". This includes work created by generative AI tools. Also state in the policy is the following, "Contract Cheating is the act of "outsourcing of student work to third parties" (Lancaster & Clarke, 2016, p. 639) with or without payment." Using Generative AI tools is a form of

contract cheating. Charges of academic dishonesty will be brought forward to the Office of Academic Integrity.

APPROVED ADVISORY STATEMENTS

Academic Integrity

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. **It is your responsibility to understand what constitutes academic dishonesty.**

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university. For information on the various types of academic dishonesty please refer to the [Academic Integrity Policy](https://secretariat.mcmaster.ca/university-policies-proceduresguidelines/), located at <https://secretariat.mcmaster.ca/university-policies-proceduresguidelines/>

The following illustrates only three forms of academic dishonesty:

- plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
- improper collaboration in group work.
- copying or using unauthorized aids in tests and examinations.

Authenticity / Plagiarism

Some courses may use a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. For courses using such software, students will be expected to submit their work electronically either directly to Turnitin.com or via an online learning platform (e.g. Avenue to Learn, etc.) using plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty.

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Courses with an On-line Element

Some courses may use on-line elements (e.g. e-mail, Avenue to Learn, LearnLink, web pages, capa, Moodle, ThinkingCap, etc.). Students should be aware that, when they access the electronic components of a course using these elements, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in a course that uses on-line elements will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure please discuss this with the course instructor.

Online Proctoring

Some courses may use online proctoring software for tests and exams. This software may require students to turn on their video camera, present identification, monitor and record their computer activities, and/or lock/restrict their browser or other applications/software during tests or exams. This software may be required to be installed before the test/exam begins.

Conduct Expectations

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all of our living, learning and working communities. These expectations are described in the [Code of Student Rights & Responsibilities](#) (the "Code"). All students share the responsibility of maintaining a

positive environment for the academic and personal growth of all McMaster community members, **whether in person or online.**

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g. use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students' access to these platforms.

Academic Accommodation of Students with Disabilities

Students with disabilities who require academic accommodation must contact [Student Accessibility Services](#) (SAS) at 905-525-9140 ext. 28652 or sas@mcmaster.ca to make arrangements with a Program Coordinator. For further information, consult McMaster University's [Academic Accommodation of Students with Disabilities](#) policy.

Academic Advising

For any academic inquires please reach out to the Office of the Associate Dean (Academic) in Engineering located in JHE-Hatch 301.

Details on academic supports and contact information are available from:

<https://www.eng.mcmaster.ca/programs/academic-advising>

Requests for Relief for Missed Academic Term Work

In the event of an absence for medical or other reasons, students should review and follow the [Policy on Requests for Relief for Missed Academic Term Work](#).

Academic Accommodation for Religious, Indigenous, or Spiritual Observances (RISO)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the [RISO](#) policy. Students should submit their request to their Faculty Office *normally within 10 working days* of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

Copyright and Recording

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, **including lectures** by University instructors.

The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

Extreme Circumstances

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, Avenue to Learn and/or McMaster email.