

## Course Outline

### 1. COURSE INFORMATION

<b>Session Offered</b>	Winter 2017	
<b>Course Name</b>	Capstone Design Project I	
<b>Course Code</b>	PROCTECH4TR1	
<b>Date(s) and Time(s) of lectures</b>	C02 – Monday 3:30pm - 6:20pm	
<b>Program Name</b>	Process Automation Technology	
<b>Calendar Description</b>	This course requires students to research, design, develop and implement an independent project. The project plan and a model developed will be documented as a technical report and presented in a seminar.	
<b>Instructor(s)</b>	Dr. Mostafa Soliman	E-Mails: solimm12@mcmaster.ca Office Hours & Location: Mon 1:00 pm-3:00 pm & by appointment

### 2. COURSE SPECIFICS

<b>Course Description</b>	Students will work in groups of 2 or 3 to design and develop a plan to implement a technical project. By the end of the course, the students will have produced a detailed technical report describing the techniques, equipment, and time-line, among other aspects, to achieving their proposed technical implementation. The students will have weekly lab time dedicated to tutorial sessions on technical writing and project management as well as lab time for hardware and software experimentation and testing. The technical report will serve as a guide for the implementation of their final project which will commence in the second part of the course, PROC TECH 4TR3.		
<b>Instruction Type</b>	<b>Code</b>	<b>Type</b>	<b>Hours per term</b>
	C	Classroom instruction	12
	L	Laboratory, workshop or fieldwork	24
	T	Tutorial	
	DE	Distance education	
	<b>Total Hours</b>		36
<b>Resources</b>	<b>ISBN</b>	<b>Textbook Title &amp; Edition</b>	<b>Author &amp; Publisher</b>
	ISBN:		
	<b>Other Supplies</b>	<b>Source</b>	
	Lecture Notes	Avenue	
<b>Prerequisite(s)</b>	PROCTECH 3CE3, 3MC3, 3SD3, GEN TECH 3MT3 and registration in level IV of Process Automation Technology.		
<b>Corequisite(s)</b>	N/A		
<b>Antirequisite(s)</b>	N/A		
<b>Course Specific Policies</b>	<ul style="list-style-type: none"> <li>• To pass this course, the student must attend at least 10, 3-hours laboratory sessions.</li> <li>• Class presentations will be made by each group.</li> <li>• Each group of students will submit a Mid Term Report* which will</li> </ul>		

	<p>include project design concepts &amp; their viability, project background and plan, and list of items with supplier names and prices for ordering and other required items. The list of items that need ordering should be submitted ASAP.</p> <ul style="list-style-type: none"> <li>• Each group of students will submit a Final Report* at the end of the semester. The evaluation of this report will be based on : <ul style="list-style-type: none"> <li>a) Project plan and system design, technical content, depth and comprehension, originality, mathematical and prototype models, model demonstration, technical calculations, economic analysis.</li> <li>b) Background, report structure &amp; format, written communication skills.</li> <li>c) Literature references (internet, text &amp; reference books, reports, and original journals).</li> <li>d) Contribution by each group member.</li> </ul> </li> <li>• Each group will present their project plan to the class. The evaluation will be based on the project concept, its viability, technical depth, and results. This activity will occur in the 13<sup>th</sup> week of the semester.</li> <li>• Each student will keep a log of work performed each week outside and inside the lab/class room. The log book 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. The logbook must be signed by your instructor every week. The logbook will be used to assess the amount of work done outside the classroom environment as well as your contribution to the project. The logbook will be submitted to the instructor at the end of the semester along with your final report. A mark of 0% will be assigned for the logbook component of the assessment if a log book is not submitted.</li> <li>• It is expected that each student will also work on their project outside the assigned class room/lab time. In this course, for every classroom hour spent, students are expected to spend three hours on “out of class” work. These activities will be recorded in the logbook as described above.</li> <li>• Final written report and logbook must be submitted in the first week of the exams.</li> <li>• The late reports will result in 5% loss of marks per day, to a maximum of 5 days (including weekends), after which the report will receive a mark of zero.</li> <li>• The departmental Safety Policy must be followed by the students working in the lab.</li> </ul> <p>*These submitted reports and logbook, 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.</p>
<b>Departmental Policies</b>	<p>Students must maintain a GPA of 3.5/12 to continue in the program.</p> <p>In order to achieve the required learning objectives, on average, B.Tech.</p>

	<p>students can expect to do at least 3 hours of “out-of-class” work for every scheduled hour in class. “Out-of-class” work includes reading, research, assignments and preparation for tests and examinations.</p> <p>Where group work is indicated in the course outline, such collaborative work is mandatory.</p> <p>The use of cell phones, iPods, laptops and other personal electronic devices are prohibited from the classroom during the class time, unless the instructor makes an explicit exception.</p> <p>Announcements made in class or placed on Avenue are considered to have been communicated to all students including those individuals that are not in class.</p> <p>Instructor has the right to submit work to software to identify plagiarism.</p>
--	---

### 3. SUB TOPIC(S)

Week 1	Introduction , Project Choices, Lab Introductions	
Week 2	Project Selection, Project Work	
Week 3	Preliminary Project Proposals, Project Work	
Week 4	Presentation, Project Work	
Week 5	Presentation, Project Work	
Week 6	Presentation, Project Work	
Mid-term Recess: Monday, February 20 to Sunday, February 26, 2017		
Week 7	Presentation, Mid Term Report Review, Project Work	
Week 8	Presentation, Project Work	
Week 9	Presentation, Project Work	
Week 10	Project Work	
Week 11	ISA Poster Presentation	
Week 12	Project Plan Presentations	

Classes end: Thursday, April 6, 2017  
Final examination period: Tuesday, April 11 to Thursday, April 27, 2016  
All examinations MUST be written during the scheduled examination period.

Note that this structure represents a plan and is subject to adjustment term by term. The instructor and the University reserve the right to modify elements of the course during the term. The University may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes.

4. ASSESSMENT OF LEARNING *including dates*	Weight
Class Presentations	10%
Mid-term Report	10%
Logbook	10%
Project Plan Presentation	10%
Poster Session	20%
Final Report	40%
<b>TOTAL</b>	<b>100%</b>

Percentage grades will be converted to letter grades and grade points per the University calendar.

### 5. LEARNING OUTCOMES

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

implementation using the provided laboratory equipment and time line.

3. Understand the importance and necessity of team building and project management for complicated technical designs.
4. Generate technical reports and proposals to illustrate design plans using sophisticated and accurate technical language in appropriate report formats.
5. Deconstruct a technical problem into its constituent parts to systematically solve issues and incrementally move towards achieving an objective.
6. Judge the relevance of a design for its practicality and necessity in real-world applications.
7. Create clear and coherent presentation slides to illustrate the basic design features of the technical report. Also clearly communicate and verbalize the proposed concepts of the design.

## 6. POLICIES

### Anti-Discrimination

The Faculty of Engineering is concerned with ensuring an environment that is free of all discrimination. If there is a problem, individuals are reminded that they should contact the Department Chair, the Sexual Harassment Officer or the Human Rights Consultant, as soon as possible.

[http://www.mcmaster.ca/policy/General/HR/Discrimination\\_Harassment\\_Sexual\\_Harassment-Prevention&Response.pdf](http://www.mcmaster.ca/policy/General/HR/Discrimination_Harassment_Sexual_Harassment-Prevention&Response.pdf)

### Academic Integrity

You are required 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.

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.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy, located at: <http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicIntegrity.pdf>.

The following illustrates only three forms of academic dishonesty:

1. Plagiarism. E.g. the submission of work that is not own or for which other credit has been obtained
2. Improper collaboration in group work
3. Copying or using unauthorized aids in tests and examinations.

### Requests for Relief for Missed Academic Term Work (Assignments, Mid-Terms, etc.)

The McMaster Student Absence Form is an on-line self-reporting tool for **Undergraduate Students** to report absences for:

- 1) Relief for missed academic work worth less than 25% of the final grade resulting from medical or personal situations lasting up to three calendar days:
  - Students may submit a maximum of one academic work missed request per term. It is the responsibility of the student to follow up with instructors immediately (within the 3 day period that is specified in the MSAF) regarding the nature of the accommodation. All work due in that time period however can be covered by one MSAF.
  - MSAF cannot be used to meet religious obligation or celebration of an important religious holiday, for that has already been completed or attempted or to apply for relief for any final examination or its equivalent.
- 2) For medical or personal situations lasting more than three calendar days, and/or for missed academic work worth 25% or more of the final grade, and/or for any request for relief in a term where the MSAF has not been used previously in that term:
  - Students must visit their Associate Dean's Office (Faculty Office) and provide supporting documentation.

## **E-Learning Policy**

Consistent with the Bachelor of Technology's policy to utilize e-learning as a complement to traditional classroom instruction, students are expected to obtain appropriate passwords and accounts to access Avenue To Learn for this course. Materials will be posted by class for student download. It is expected that students will avail themselves of these materials prior to class. Students should be aware that, when they access the electronic components of this course, private information such as first and last names, user names for the McMaster e-mail account, and program affiliation may become apparent to all other students in the course. The available information is dependent on the technology used. Continuation in this course will be deemed consent to this disclosure. If you have any questions or concerns about this disclosure please discuss this with the course instructor. Avenue can be accessed via <http://avenue.mcmaster.ca>.

## **Communications**

It is the student's responsibility to:

- Maintain current contact information with the University, including address, phone numbers, and emergency contact information.
- Use the University provided e-mail address or maintain a valid forwarding e-mail address.
- Regularly check the official University communications channels. Official University communications are considered received if sent by postal mail, by fax, or by e-mail to the student's designated primary e-mail account via their @mcmaster.ca alias.
- Accept that forwarded e-mails may be lost and that e-mail is considered received if sent via the student's @mcmaster.ca alias.
- Check the McMaster/Avenue email and course websites on a regular basis during the term.

## **Turnitin (Optional)**

This course will be using a web-based service (Turnitin.com) to reveal plagiarism. Students submit their assignment/work electronically to Turnitin.com where it is checked against the internet, published works and Turnitin's database for similar or identical work. If Turnitin finds similar or identical work that has not been properly cited, a report is sent to the instructor showing the student's work and the original source. The instructor reviews what Turnitin has found and then determines if he/she thinks there is a problem with the work. Students who do not wish to submit their work to Turnitin.com must still submit a copy to the instructor. No penalty will be assigned to a student who does not submit work to Turnitin.com. All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, etc.). To see the Turnitin.com Policy, please go to <http://www.mcmaster.ca/academicintegrity/turnitin/students/>

## **Protection of Privacy Act (FIPPA)**

The Freedom of Information and Protection of Privacy Act (FIPPA) applies to universities. Instructors should take care to protect student names, student numbers, grades and all other personal information at all times. For example, the submission and return of assignments and posting of grades must be done in a manner that ensures confidentiality.

<http://www.mcmaster.ca/univsec/fippa/fippa.cfm>

## **Academic Accommodation of Students with Disabilities Policy**

Students who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contacted by phone 905-525-9140 ext. 28652 or e-mail [sas@mcmaster.ca](mailto:sas@mcmaster.ca). For further information consult McMaster's policy for Academic Accommodation of Students with Disabilities

<http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicAccommodation-StudentsWithDisabilities.pdf>

Students must forward a copy of the SAS accommodation to the instructor of each course and to the Program Administrator of the B.Tech. Program immediately upon receipt. If a student with a disability chooses NOT to take advantage of a SAS accommodation and chooses to sit for a regular exam, a petition for relief may not be filed after the examination is complete. <http://sas.mcmaster.ca>

## Student Code of Conduct

The Student Code of Conduct (SCC) exists to promote the safety and security of all the students in the McMaster community and to encourage respect for others, their property and the laws of the land. McMaster University is a community which values mutual respect for the rights, responsibilities, dignity and well-being of others. The purpose of the Student Code of Conduct is to outline accepted standards of behavior that are harmonious with the goals and the well-being of the University community, and to define the procedures to be followed when students fail to meet the accepted standards of behavior. All students have the responsibility to familiarize themselves with the University regulations and the conduct expected of them while studying at McMaster University.

[http://studentconduct.mcmaster.ca/student\\_code\\_of\\_conduct.html](http://studentconduct.mcmaster.ca/student_code_of_conduct.html)