Course Outline

1. COURSE INFORMATION

Course Code	PROTECH 2CA3
Course Name	CAD for Design
Session	FALL 2015
Date(s) and Time(s) of lectures	Tue C03 (8:30am – 11:20am) Wed C02 (8:30am – 11:20am) Thu C01 (2:30pm –5:30pm)
Program Name	Process Automation Technology
Calendar Description	Two-dimensional drafting: drawing environment and commands, drafting settings, drawing editing, plotting output, dimensioning, orthographic projections and views, sectional and auxiliary views. Parametric Three-dimensional solid modeling: parts, assemblies, 2D drawings generation.
Instructor	**Name :** Rana Qasass, **E-mail**: qasassr@mcmaster.ca **Office Hours:** by appointment

2. COURSE SPECIFICS

Course Objectives	Engineering <u>two</u>-dimensional drawings; creating electrical and pneumatic schematics, orthographic sketching and standard orthographic projections; standard views and layouts; conventions used in views representations; auxiliary views; section views and hatching rules; text and dimensioning rules, continuous-, chain-, and ordinate-dimensioning; title block and bills of materials. **(Software: AutoCAD)** Engineering <u>three</u>-dimensional solid modeling; creation of prismatic parts; sketch tools, geometric and dimensional constraints; parametric modeling using design tables; creation of two-dimensional drawings from three-dimensional models; creation of full assemblies from parts with assembly constraints; interference detection, solid model part editing. **(Software: SolidWorks)**

Instruction Type	Code	Type	Total Hours
	C	Classroom Instruction	
	L	**Laboratory, workshop or fieldwork**	**39**
	T	Tutorial	
	DE	Distance Education	
		TOTAL HOURS	**39**

Resources	ISBN	Textbook Title & Edition	Author & Publisher
		No text is required for this course since numerous resources are available on line and through the library. The students will use the help and tutorials included in the software and	Additional references list (optional): 1. Engineering Drawing and Design (optional) - Jensen, Cecil H., Helsel, Jay D., and Short, Dennis R.

		additional information provided by the instructor.	McGraw-Hill Publishing, ISBN 9780073521510
	Other Supplies		
	Book Available		
Prerequisite(s)	ENG TECH 1EL3, 1PR3		
Corequisite(s)	PROC TECH 2IC3		
Antirequisite(s)			
Course Specific Policies	- <u>Lab attendance is mandatory</u>. Labs missed due to illness may be excused by the professor if appropriate documentation is provided and the student completes the lab missed on his/her own time, to the professor's satisfaction. - Students must complete and submit each lab assignments before the end of lab session. Work submitted outside of lab hours will not be accepted. - The instructor will select for marking two submissions for AutoCAD and two submissions for SolidWorks as assignment grading. Free hand orthographic projection and additional small questions may also be marked as part of assignments. - AutoCAD and SolidWorks software are installed in the lab. Students are allowed to use their own computers for lab-work submissions as long as their submitted files are compatible with the software versions installed in the lab. The instructor will make no attempt to convert work that was submitted in a wrong format. All tests (mid-terms, final exam) must be performed on the lab computers.		
Departmental Policies	-Students must maintain a 3.5/12 GPA to continue in the program. -In order to achieve the required learning objectives, on average, B.Tech. 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. -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. -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. -Instructor has the right to submit work to software to identify plagiarism. -Instructor is permitted to enforce a preference to shut off all electronic devices during class.		

3.   SUB TOPIC(S)

Week 1	Introduction to Engineering drawing, Orthographic views, Introduction to AutoCAD. Basic drawing commands	
Week 2	Drawing commands. Drawing settings. Plotting output.	
Week 3	Drawing editing, Drawing Templates. Introduction to Pneumatic schematics.	
Week 4	Drawing environment. Dimensions and Tolerances. Orthographic projections.	
Week 5	*Midterm Test #1*	

Week 6	**McMaster University Mid-term Recess**	
Week 7	Shape descriptions. Sectional views. Auxiliary views. Introduction to Electrical and hydraulic schematics.	
Week 8	3-D Modelling: sketches, dimensions and features.	
Week 9	Building a simple 3D parametric model	
Week 10	Editing 3D models	
Week 11	*Midterm Test #2*	
Week 12	From 3D models to 2D drawings.	
Week 13	Introduction to assemblies	
Week 14	Assemblies: interference checks, part and assembly editing	
Final Examination	**Thursday December 9- December 22**	

FINAL EXAMINATIONS will be scheduled, conducted and invigilated by the Office of the Registrar. All students entering the examination room must produce a McMaster photo identification card. No other identification will be accepted. In addition, for classes that allow you to use a calculator, you must use the McMaster standard calculator. For details, please consult your Instructor.

Note: 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
Assignments	**40%**
Midterm Test 1	**15%**
Midterm Test 2	**15%**
Final Exam	**30%**
TOTAL	**100%**

5. LEARNING OUTCOMES

1) Read, understand, create and interpret two-dimensional engineering schematics and drawings.
2) Produce orthographic view, auxiliary views, section view details and assembly drawings of mechanical and electrical components.
3) Develop engineering drawings in agreement with standardized conventions for dimensioning, text, and views placing, as well as necessary documentation such as title block and bills of materials.
4) Produce three-dimensional parametric models of prismatic parts and assemblies of medium complexity using solid-modeling software.
5) Create two-dimensional drawings from the three-dimensional models; generated drawings include dimensions and title block information.
6) Manipulate model parts if necessary to fit design constraints and final requirements.

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/Anti-Discrimination%20policy.pdf

Academic Integrity

Attention is drawn to the Statement on Academic Ethics and the Senate Resolutions on Academic Dishonesty as found in the Senate Policy Statements distributed at registration and available in the Senate Office. Any student who infringes one of these resolutions will be treated according to the published policy.

Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and 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, specifically Appendix 3, located at:

http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicIntegrity.pdf

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

The McMaster Student Absence Form is a self-reporting tool for **Undergraduate Students** to report absences that last up to 5 days and provides the ability to request accommodation for any missed academic work. Please note, this tool cannot be used during any final examination period.

You may submit a maximum of 1 Academic Work Missed requests per term. It is YOUR responsibility to follow up with your Instructor immediately regarding the nature of the accommodation.

If you are absent more than 5 days or exceed 1 request per term you MUST visit your Associate Dean's Office (Faculty Office). You may be required to provide supporting documentation.

This form should be filled out immediately when you are about to return to class after your absence.

http://www.mcmaster.ca/msaf/

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. 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.
- To check their 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 will be expected to submit their work electronically to Turnitin.com and in hard copy so that it can be checked for academic dishonesty. 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/index.html

Protection of Privacy Act (FIPPA)

The Freedom of Privacy 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 Accomodation 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. For further information, consult McMaster University's policy for Academic Accommodation of Students with Disabilities (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/pdf/SCC.pdf

http://www.mcmaster.ca/policy/Students-AcademicStudies/StudentCode.pdf

McMaster University 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 -- Failure