

Course Outline

1. COURSE INFORMATION

Session Offered	Fall 2015	
Course Name	CAD for Design	
Course Code	AUTOTECH 2CD3	
Date(s) and Time(s) of lectures	Mondays 8:30am-11:30am Mondays 11:30am-2:30pm Mondays 2:30pm-5:30pm Sept 8, 2015 – Dec 8, 2015	
Program Name	Automotive and Vehicle 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. Three-dimensional solid modeling: parts, assemblies, 2D drawings generation.	
Instructor(s)	Dr. Lucian Balan	Phone: MARC 289-674-0250 ext.59102 E-Mail: Avenue Email Office: MARC 271

2. COURSE SPECIFICS

Course Description	<p>Drafting: Engineering two-dimensional drawings; orthographic sketching and standard orthographic projections; standard views, selection and positioning of views; 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; detail and assembly drawings</p> <p>Solid Modeling: Three-dimensional solid modeling in engineering; 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 and geometric constraints; interference detection, solid model part editing; assembling animation</p>		
Instruction Type	Code	Type	Hours per term
	C	Classroom instruction	
	L	Laboratory, workshop or fieldwork	36
	T	Tutorial	
	DE	Distance education	
	Total Hours		36
Resources	ISBN	Textbook Title & Edition	Author & Publisher
	9780176501709	Interpreting Engineering Drawings (optional)	Jensen, Cecil H Nelson Publishing
	9780073521510	Engineering Drawing and Design (optional)	Jensen, Cecil H., Helsel, Jay D., and Short, Dennis R. McGraw-Hill Publishing
	Other Supplies		Source

	Software	AutoCAD 2014, SolidWorks 2014
	USB flash drive	Students must provide their own USB flash drive (min. 2 GB)
Prerequisite(s)		
Corequisite(s)		
Antirequisite(s)		
Course Specific Policies	<ul style="list-style-type: none"> ○ E-mail communication for this course is exclusively through Avenue Mail (from student's Avenue account to instructor's Avenue account). ○ Students should provide their own <u>USB flash drive</u> with enough storage space available for saving their course work. Students must have the USB flash drive with them at all times during the labs. ○ Lab attendance is mandatory. Labs missed due to legitimate reasons must be completed by the student at a time of mutual agreement with instructor before the assignment solution has been posted on Avenue or discussed in class. ○ Students must complete and submit in-class and home assignments as indicated by instructor. Home work submitted outside of the lab will not be accepted without its corresponding in-class portion, unless this is specifically stated. ○ Assignment submissions will not be accepted after the solution has been discussed in class or posted on Avenue. For msaf's submitted for coursework whose solution was already posted or discussed, the student has to meet with the instructor and discuss available make-up options for missed work. ○ The instructor will pick few submissions for marking as assignment grading. The assignment grade will be equally weighted between AutoCAD and SolidWorks sections. ○ Term tests and final examination on this course are time constrained, meaning that both proficiency and speed of completion are evaluated and graded. All term tests and exams are to be carried on provided lab computers. ○ 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 any work submitted in a wrongful format. All tests (mid-terms, final exam) must be performed on existing lab computers. 	
Departmental Policies	<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. 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</p>	

	communicated to all students including those individuals that are not in class. Instructor has the right to submit work to software to identify plagiarism.	
3. SUB TOPIC(S)		
Week 1	No classes, school starts on a Tuesday	
Week 2	Drafting: <ul style="list-style-type: none"> ○ Introduction to CAD ○ Basic drawing commands 	
Week 3	Engineering Drawings <ul style="list-style-type: none"> ○ Drawing commands ○ Drawing settings ○ Plotting output 	
Week 4	Engineering Drawings <ul style="list-style-type: none"> ○ Drawing editing ○ Drawing environment ○ Dimensions and tolerances ○ Title block and bill of materials 	
Week 5	Shape descriptions <ul style="list-style-type: none"> ○ Standard views. Rules. ○ Orthographic projections ○ Sectional views. Hatching ○ Auxiliary views 	
<i>Mid-term recess (Monday, October 12 to Saturday, October 17)</i>		
Week 6	<i>Term-test #1. (2 hours)</i>	
Week 7	Solid Modeling: <ul style="list-style-type: none"> ○ Concept of 3-D Modelling ○ Sketches ○ Geometric constraints ○ Dimensional constraints 	
Week 8	Building a simple 3D parametric model <ul style="list-style-type: none"> ○ Parametric modeling ○ Design table with dimensional parameters 	
Week 9	Assemblies <ul style="list-style-type: none"> ○ Inserting parts into assemblies ○ Adding mechanical constraints 	
Week 10	From 3D models to 2D drawings <ul style="list-style-type: none"> ○ Generate two-dimensional drawings from part model ○ Linked dimensioning 	
Week 11	<i>Term-test #2. (2 hours)</i>	
Week 12	Assemblies <ul style="list-style-type: none"> ○ Interference check ○ Part editing 	
Week 13	Advanced 3D parametric assemblies <ul style="list-style-type: none"> ○ Assembling operation animations ○ Explode / collapse assemblies Introduction to kinematics in assemblies	
Classes end – Tuesday December 8, 2015 Final examination period: Wednesday December, 9, 2015 to Tuesday, December 22, 2015 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
Assignments / Quizzes	20%
Term Test 1 (Drafting)	22%
Term Test 2 (Solid Modeling)	22%
Final examination (tests cumulative knowledge)	36%
TOTAL	100%

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

5. LEARNING OUTCOMES

1. Read, understand, and interpret two-dimensional engineering drawings
2. Produce orthographic view, auxiliary views, section view, detail and assembly drawings of engineering parts and assemblies
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 existing solid-modeling software available on the market
5. Create two-dimensional drawings from the three-dimensional models; generated drawings include dimensions and title block information.
6. Perform collision analysis on static assemblies, and edit model parts if necessary to fit design 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

You are required to exhibit honestly 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 a self-reporting tool for **Undergraduate Students** to report absences that last up to 3 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 3 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. 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. 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://judicialaffairs.mcmaster.ca/pdf/SCC.pdf>