EXPANDED COURSE DESCRIPTION
MECHANICAL ENGINEERING
Lassonde School of Engineering
Mechanical Engineering
LE / MECH 2401 3.0 SECTION A
ENGINEERING GRAPHICS & CAD MODELING
FALL 2017 / WINTER 2018

Last Modified Date: 08/17/2017

COURSE CALENDAR DESCRIPTION

This course discusses technical drawing principles, introduction and application of computer aided design tools, and solid modeling. Simple model parts, which can be assembled together, are fabricated in teams (e.g., using additive technology). Prerequisites: LE/ENG 1102 4.00. Cross-listed: LE/ESSE 2401 3.00.

Course Listed Courses: ESSE 2401

INSTRUCTOR(S)

<table>
<thead>
<tr>
<th>Name</th>
<th>Section / Format / Term</th>
<th>Contact Email</th>
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<tbody>
<tr>
<td>Leung, Siu-Ning</td>
<td>Sec. A / LECT / F</td>
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TOPICS AND CONCEPTS

Topics:
This course covers topics including basic freehand sketch techniques, different CAD tools, and different CAD modeling techniques. Simple model parts and/or assemblies are fabricated in teams (e.g., using additive technology).
Topics include:
Introduction to Engineering Graphics and CAD Modeling
Freehand Engineering Sketches
CAD, CAM, and Introduction to SolidWorks
Modeling Using Geometries
Surface Modeling vs Solid Modeling
Constraint-Based Modeling
Design Intent
Tolerance
Tolerance (Cont’d)
Modeling for Assembly
Documentation
Basics of Part Analysis using CAD
Future of CAD

LIST OF LEARNING OUTCOMES AND EXAMPLES OF

Course Learning Outcomes
Upon the completion of this course, students are expected to learn and retain the following concepts and skills:

1. Identify the similarities and differences of various modeling methods using CAD software
2. Prepare solid models of mechanical components with given geometries and dimensions using CAD techniques in SolidWorks
3. Obtain key information about an engineering design from a given technical
4. Determine basic physical properties (e.g., mass properties) of a part using CAD software.
5. Add tolerance information to technical drawings and identify tolerance information in them
6. Design, model and fabricate components, which can be integrated into a larger assembly in a group project, using CAD as a tool

GRADED ASSESSMENT

Tentative Evaluation Scheme
Class Participation - 10%
Assignment x6 - 30%
Team Design Project - 40%
Quizzes x2 - 20%

Grading
The grading scheme for the course conforms to the 9-point grading system used in undergraduate programs at York (e.g., A+ = 9, A = 8, B+ = 7, B = 6, etc.). Assignments and tests will bear either a letter grade designation or a corresponding number grade (e.g. A+ = 90 to 100, A = 80 to 90, B+ = 75 to 79, etc.)
(For a full description of York grading system see the York University Undergraduate Calendar - http://calendars.registrar.yorku.ca/2010-2011/academic/index.htm

Assignment Submission
Proper academic performance depends on students doing their work not only well, but on time. Accordingly, assignments for this course must be received on the due date specified for the assignment. Assignments are to be handed in during lectures, tutorials, or through the course Moodle site as specified by the respective instructions.

Late Penalty
Assignments received later than the due date will be penalized (i.e., 20% deduction per day after the deadline). Exceptions to the late penalty for valid reasons such as illness, compassionate grounds, etc., may be considered by the Course Instructor, only with the submission of the supporting documentation (e.g., a doctor’s note).

Missed Tests
You must provide the appropriate documentation (procedures included on the website) to be granted alternatives to the missed test or exam. Further accommodation needs may require a formal petition to the Faculty.

ADDITIONAL INFORMATION

Textbook

Labs
The computer labs will be used for students to learn and practice the basics as well as different techniques related to the uses of SolidWorks. Weekly worksheets/tasks will need to be completed by all students, and will be collected by the end of each lab. Some special lab sessions will be used for the
demonstration of the operation of additive manufacturing (e.g., 3-D printer). In addition, the computer labs will also be used for students to work on project-related tasks.

**Team Project**
There will be one team project (i.e., team of three students) that involves various tasks throughout the term. The tasks and deadlines of the team project will be announced through the course’s Moodle site.

**Examinations**
There will be NO final examination in this course.

**Classroom Participation**
A component of your grade is assigned to classroom participation. This will include the completion of in-class or out of class mini-assignments and/or participating in classroom discussions.

**Online Lecture Notes & e-Learning Contents**
To enhance the learning experiences and to facilitate in-class discussion, a portion of course contents will be delivered in the form of e-Learning. Lecture materials and e-Learning contents will be posted on the MECH 2401 course site within Moodle. Students have to visit this page as often as possible for latest updates. Minimum technical skills are expected of the student in order to access the e-Learning materials. Students should contact the instructors for any difficulty experienced in accessing the recommended e-Learning materials.

**Classroom Etiquette**
Class attendance will form part of the participation grade for this course. The use of electronic devices (smart-phones, tablets, etc…) during lectures and tutorials is only permitted for education purposes.

**NETiquette**
In all online communications (e.g., email, online discussion, or other forms of online communications), please consider the guidelines from the Core Rules of Netiquette by Virginia Shea: (http://www.albion.com/netiquette/corerules.html).

**Other Codes of Conduct:**
Any incidents that are discriminatory in nature should be reported to the Course Instructor, Department Chair, the Sexual Harassment Officer, the Human Rights Consultant, and/or the Ombudsperson as appropriate. Student code of conduct shall be forced to its full extent: (http://www.yorku.ca/secretariat/policies/document.php?document=202)

**Additional Remarks:**
If you are using a personal e-mail address, please identify yourself as a student registered in this course by providing your student number in your signature block. You are responsible for ensuring you are receiving official course information in an efficient and timely manner.

Additional resources related to add/drop courses, student life, academic resources, campus services, …etc. can be found at this link: http://www.yorku.ca/yorkweb/cs.htm

**ACADEMIC INTEGRITY LINKS**
- Senate Policy on Academic Honesty
- Academic Integrity

**STUDENT LINKS**
- Student Rights and Responsibilities
- Religious Observance
- Academic Accommodation for Students with Disabilities
- Counselling and Disability Services

Many courses utilize Moodle, York University’s course website system. If your course is using Moodle, click here to access it.

Moodle @ York University