EXPANDED COURSE DESCRIPTION
MECHANICAL ENGINEERING
Lassonde School of Engineering
Mechanical Engineering
LE / MECH 2412 3.0 SECTION M
MINI DESIGN PROJECT 1
FALL 2018 / WINTER 2019

Last Modified Date: 08/20/2018

COURSE CALENDAR DESCRIPTION

The course consists of two main modules. The first module covers workshop safety and introduces and practices of various subtractive manufacturing methods (e.g., cutting, drilling, machining). The second module includes a review of the design process, project planning techniques, and effective project and team management skills. The student will work in teams and will apply the fundamental concepts of the design process through completing a mini design project. Course credit exclusions: LE/MECH 2402 2.00, LE/MECH 2501 2.00. Prerequisites: LE/ENG 1102 4.00, LE/MECH 2401 3.00.

INSTRUCTOR(S)

<table>
<thead>
<tr>
<th>Name</th>
<th>Section / Format / Term</th>
<th>Contact Email</th>
<th>Contact Phone</th>
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<tbody>
<tr>
<td>Boakye-Yiadom, Solomon</td>
<td>Sec. M / LECT / W</td>
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ADDITIONAL INFORMATION

TOPICS AND CONCEPTS

The course comprises three main elements: (1) Learning about the fundamentals of mechanical workshop practices and safety procedures, (2) introduction and practicing of various subtractive manufacturing methods (such as cutting, drilling, machining), (3) application of fundamental knowledge of design concepts through a hands-on mini-design group projects.

Introduction
  • Introduction of the course structure, design project, team dynamics

Mechanical shop safety principles
  • Mechanical shop safety principles
  • Canada Occupational Health and Safety Regulations

Mechanical shop operations and practices
  • Various subtractive manufacturing machines (such as milling, lathe machines)
  • Measurement instruments (such as micrometer, vernier, gauges, vernier protractor)
  • Tolerance for subtracting manufacturing processes

Project Management
  • Design Team Dynamics
  • Project planning and time management techniques
  • Effective use of Case Studies to understand design techniques and gain experience

Problem Definition
  • Determining customer requirements and design objectives
  • Techniques for formulating the Real Problem
  • Determining Constraints
• Creating and using a Requirement List (Design Specification)
• Establishing Functions
• Break down the problem into systems and determine inputs, and outputs

**Conceptual Design**
• Generating and evaluating Design Alternatives
• Morphological Charts, determining evaluation criteria, weighting and applying evaluation criteria (Evaluation Matrix)

**Design Implementation**
• Design For Manufacturing and Assembly
• Final design reports
• Transforming a Design Concept Into Reality

**GRADED ASSESSMENT**

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<tr>
<th>TYPE</th>
<th>PERCENTAGE</th>
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<tr>
<td>Out-of-class M.S Exam</td>
<td>5%</td>
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<tr>
<td>In-class Safety Quiz (3 quizzes - 5% each)</td>
<td>15%</td>
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<tr>
<td>Lab Machining Assignment</td>
<td>10%</td>
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<tr>
<td>In-class / Lab Participation (2 quizzes)</td>
<td>10%</td>
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<tr>
<td>Out-of-class Mini Design Project (team)</td>
<td>50%</td>
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<tr>
<td>Peer Evaluation</td>
<td>10%</td>
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**ACADEMIC INTEGRITY LINKS**
• Senate Policy on Academic Honesty - http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/
• Academic Integrity - http://lassonde.yorku.ca/academic-integrity

**STUDENT LINKS**
• Student Rights and Responsibilities - http://oscr.students.uit.yorku.ca/student-conduct
• Religious Observance - https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs
• Academic Accommodation for Students with Disabilities - http://secretariat-policies.info.yorku.ca/policies/academic-accommodation-for-students-with-disabilities-policy/
• Counselling and Disability Services - http://cds.info.yorku.ca/
• York University’s Policies on Sexual Violence - http://secretariat-policies.info.yorku.ca/policies/sexual-violence-policy-on/
• York University’s Policies on Gender/LGBTQ*/Positive Space - http://rights.info.yorku.ca/lgbtq/

**LAND ACKNOWLEDGEMENT**
• We acknowledge our presence on the traditional territory of many Indigenous Nations. The area known as Tkaronto has been care taken by the Anishinabek Nation, the Haudenosaunee Confederacy, the Huron-Wendat, and the Métis. It is now home to many Indigenous Peoples. We acknowledge the current treaty holders, the Mississaugas of the New Credit First Nation. This territory is subject of the Dish With One Spoon Wampum Belt Covenant, an agreement to peaceably share and care for the Great Lakes region.
• The Indigenous Framework for York University: A Guide to Action can be found here: http://indigenous.info.yorku.ca/
• Meaning of a land acknowledgement: http://healthydebate.ca/opinions/indigenous-land-acknowledgements
Many courses utilize Moodle, York University’s course website system. If your course is using Moodle, click here to access it.

Moodle @ York University