EXPANDED COURSE DESCRIPTION
MECHANICAL ENGINEERING
Lassonde School of Engineering
Mechanical Engineering
LE / MECH 3409 3.0 SECTION A
MACHINE ELEMENTS DESIGN
FALL 2019 / WINTER 2020

Last Modified Date: 09/03/2019

COURSE CALENDAR DESCRIPTION

Introduces methodology for mechanical design of components. It discusses topics including design for static and dynamic loads, failure analysis, fatigue, component design and selection for materials and machine elements, e.g. threaded joints, springs, gears, belt, chain, bearings, etc. Course Credit Exclusions: LE/MECH 2409 3.00. Prerequisites: LE/MECH 2301 3.00, LE/MECH 2401 3.00.

INSTRUCTOR(S)

<table>
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<tr>
<th>Name</th>
<th>Section / Format / Term</th>
<th>Contact Email</th>
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<tbody>
<tr>
<td>Tavakoli-Gheynani, Babak</td>
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ADDITIONAL INFORMATION

Course Learning Outcomes

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

• Apply the fundamentals of stress analysis, theories of failure and material science in the design of machine components (fasteners, gears, shafts, springs, bearings, etc.).
• Analyze the various elements of a machine followed by the appropriate selection of suitable components from manufacturers' catalogues and apply codes and standards to machine component design.
• Understand the design and analysis of actual machine components under cyclic loading and local stress concentration including prediction of their life and failure.
• Prepare detailed engineering drawings using computer aided design (CAD) software for machine elements design assignments and group project.
• Work as a team member on the group design project and ability to professionally present the final design and project report.
• Demonstrate the ability to take technical, safety, and other issues (such as environmental) into account when selecting and/or designing mechanical components.

Evaluation Scheme

Take-home assignments (3 x 5%): 15%
In-Tutorial assignments (3 x 2%): 6%
Tutorial participation (8 x 0.5%): 4%
Group Project: 30%

Textbook

Reference Books


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
- Student Accessibility Services (SAS) - https://accessibility.students.yorku.ca/
- 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