Faculty of Engineering
Mechanical Engineering-GENIE

Mechanical Engineering Laboratory
MCG4340A00
Davide Spinello
2017 Winter Term

Course Hours

Friday 14:30 - 16:00
Location: STEG0103
Type:

Professor

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Course Description

Professional engineering practice and ethics, societal and environmental obligations of the engineer, workplace health and safety. Laboratory experiments on mechanical engineering systems.

General and Specific Objectives

This course consists of seven laboratory experiments covering a number of different areas of mechanical engineering, a weekly professional practice seminar series, and a weekly lecture. Because of the interdisciplinary nature of the course, it is being "team taught", with four different professors responsible for professional practice seminars and for experiments in, or close to, their areas of expertise. The class is divided into 24 groups according to the list of names published separately in Virtual Campus. Each student is assigned a group number and must follow this group in all activities of this course. Groups 1 to 12 attend Laboratory Session 1 and Groups 13 to 24 attend Laboratory Session 2.

The list of experiments, their location, and the professors and laboratory assistants responsible for each follows:

Experiment	Room	Instructor	TA
1. Welding and Cutting Processes	CBY E012	A. Weck	D. Guo and H. Sahamirad
2. Pumps	CBY B206	S. Tavoularis	A. Mouslim
3. Turbine	CBY B206	S. Tavoularis	A. Mouslim
4. Dynamic Balancing of Rotating Masses	CBY D214	D. Spinello	I. Azoaz
5. Closed Loop Control System	CBY D214	D. Spinello	I. Azoaz
6. Design and Testing of a Structural Sandwich	CBY B08A	A. Weck	M. Sain
7. Measurement of Frequency and Loudness of Sound	CBY D214	D. Spinello	M. Sain

Required Material

The reference material is the course manual (available in pdf from Virtual Campus and printed from docUcentre), which includes detailed schedules.

Evaluations

Professional Practice Seminars

Evaluation Date: Ongoing
Evaluation Percentage: 5

The grade for the Professional Practice Seminars portion of the course is determined by your attendance, participation and performance on 3 questions on the final exam. The exam questions are based on what you will have heard from the presenters in the weekly seminar. A wrap-up session

in the last week will help you recall all the talks.

Laboratory logbook

Evaluation Date: Ongoing
Evaluation Percentage: 20

The logbook should be updated every week and be available for inspection at all activities of this course, including all tutorials and experiments.

Pre-experiment checking: Just before each experiment starts, each laboratory assistant will collect the logbooks of the members of the corresponding group and will briefly inspect their contents concerning the experiment to be conducted. The assistant will initial each logbook, enter the rating "satisfactory" or "unsatisfactory", and return it to its owner, providing comments orally, if necessary. An unsatisfactory rating will result in 20% reduction of the grade for this particular laboratory.

Correction and grading: At the beginning of each tutorial session, each student will hand his/her updated logbook to the corresponding assistant according to the schedule in the enultimate page of the course manual. The logbook will contain a full and final entry of all material concerning the corresponding past experiment. Each logbook will be graded by the assistant and returned to the student by the end of the tutorial session. A mark will be assigned to each entry according to the following scheme

- 70% for content.
- 30% for appearance and style.

If the pre-experiment rating was unsatisfactory 20% of the maximum mark will be deducted. A penalty will be assigned for a late submission during the tutorial time and a zero mark will be assigned to a logbook that was not submitted during the appropriate tutorial session. The mark will not be adjusted for improvements made after the initial mark was assigned, but such improvements are recommended for educational purposes. Failure to deliver the logbook to the TA will result to a zero mark for the specific laboratory. As a general rule, students attending Laboratory Session 1 on Monday will have their logbooks marked on Friday in the same week; students attending Laboratory Session 2 on Wednesday will have their logbooks marked on Friday in the following week.

Lab report

Evaluation Date: Tuesday 18 April, 2017
Evaluation Percentage: 20

Each student will submit an individual final report on the same topic as the one assigned to his/her group for the oral presentation, as specified in the table on the front cover page of the course manual.

- **Content:** The Final Report should be written following the document *Technical Reports* in the Course Manual.
- **Due date:** The due date for all reports is the date of the Final Exam. Submit your report to the teaching assistant before the beginning of the exam.
- **Correction and grading:** Each report will be graded by a teaching assistant. The mark will be assigned according to the following scheme
    - 70% for content.
    - 30% for appearence and style.

Problem Set

Evaluation Date: Ongoing
Evaluation Percentage: 10

Tutorial homework assignments: see lectures schedule in the course manual.

Oral presentation

Evaluation Date: Ongoing
Evaluation Percentage: 10

A collective oral presentation will be delivered by each group, but all group members are expected to contribute to it and each should present a roughly equal portion of the material. The topic for each group will be related to a laboratory according to the table on the cover page of the course manual. Each presentation will last 10 minutes with 3 additional minutes for questions.

These presentations are not meant to summarize material form the Laboratory Manual or results of the experiments in this course. Instead, they should consist of a self-contained, concise and clear outline of some technological application that is relevant to the subject of the lab. Some synthesis of material collected from various sources is expected and some original analysis in support of the presented material would be desirable. An unprocessed collation of images and videos available in the public domain would be unacceptable.

Structure and marking scheme for oral presentations are given in the course manual.

Written exam (e.g. exam, long answer)

Evaluation Date: Tuesday 18 April, 2017
Evaluation Percentage: 35

MRT 205 and MRT 218 from 9:30 to 12:30.

The final examination will be three-hour long and closed-book, closed notes. Questions may pertain any material that was covered in the Course Manual, the Tutorial Sessions, Lectures given by invited speakers, and the Professional Practice Seminars. You may be asked to

- Define terms.
- Explain differences and similarities between devices and properties.
- Select suitable methods or devices for a given task.
- Design a measuring system that can perform a prescribed function related to this course's experiments.
- Make some simple calculations similar to those discussed in the tutorials or entered in the logbooks.
- Synthesize information from the entire course with basic engineering concepts and practices.

Course Calendar

Date	Content / Activity / Event / Evaluation
Weekly	LAB 1: Monday 13:30 - 17:30 (see above for locations)
Weekly	LAB 2: Wednesday 16:00 - 21:00 (see above for locations)

Weekly	SEM: Wednesday 14:30 - 16:00 in STE G0103
Weekly	LEC: Friday 14:30 - 16:00 in STE G0103

Other Information

Emergency information:

- The University emergency number is 613-562-5411 (or extension 5411 within the University). Do not call 911 for emergencies within the University.
- Nearest first aid kit locations:
  - for B206 in the MCG secretariat on the second floor.
  - for D06 and E012 in E012 (Mechanical Engineering workshop).

Safety rules:

- Know the locations of the nearest exit, fire alarm, and fire extinguisher.
- If it does not belong to you, don’t touch it!
- Any accident must be reported immediately to the teaching assistant or to Dr. D. Spinello (course coordinator).

Monographs

The Course Manual is available:

- For download in pdf form from Virtual Campus (Blackboard).
- In paper printed form from docUcentre.

Plagiarism

Beware of academic fraud!

Academic fraud is an act by a student that may result in a false evaluation (including papers, tests, examinations, etc.). It is not tolerated by the University. Any person found guilty of academic fraud will be subject to severe sanctions.

Here are some examples of academic fraud:

- Plagiarism or cheating of any kind;
- Present research data that has been falsified;
- Submit a work for which you are not the author, in whole or part;
- Submit the same piece of work for more than one course without the written consent of the professors concerned.

Please consult this webpage: it contains regulations and tool to help you avoid plagiarism.
An individual who commits or attempts to commit academic fraud, or who is an accomplice, will be penalized. Here are some examples of possible sanctions:

- Receive an “F” for the work or in the course in question;
- Imposition of additional requirements (from 3 to 30 credits) to the program of study;
- Suspension or expulsion from the Faculty.

You can refer to the regulations on this webpage.

Student Services

Academic Writing Help Centre
At the AWHC you will learn how to identify, correct and ultimately avoid errors in your writing and become an autonomous writer.
In working with our Writing Advisors, you will be able to acquire the abilities, strategies and writing tools that will enable you to:

- Master the written language of your choice
- Expand your critical thinking abilities
- Develop your argumentation skills
- Learn what the expectations are for academic writing

Career Services
Career Services offers various services and a career development program to enable you to recognize and enhance the employability skills you need in today's world of work.

Counselling Service
There are many reasons to take advantage of the Counselling Service. We offer:

- Personal counselling
- Career counselling
- Study skills counselling

Access Service
The Access Service acts as intermediary between students, their faculty and other University offices to ensure that the special needs of these students are addressed and that the best possible learning conditions are being offered.

Note that the University of Ottawa is affiliated with AERO and ACE services for the adaptation of accessible academic materials for students with perceptual disabilities. If you have any questions, please contact the Accessibility Librarian or the Access services for textbooks.

Last updated: Monday 10 April, 2017