1 INSTRUCTOR

Instructor: Julie Vale, Ph.D., EIT.
Office: THRN 2345, ext. 54863
Email: jvale@uoguelph.ca
Office hours: By appointment

2 LEARNING RESOURCES

2.1 Course Website

Course material, news, announcements, and grades will be regularly posted to the ENGG*6060 Courselink site. You are responsible for checking the site regularly.

Lecture Information: Lecture notes will not be posted. It is your responsibility to take your own notes in class.

Assignments: Assignments are posted to courselink and/or assigned in class.

Additional Resources: Useful links and additional resources will sometimes be posted to the course’s courselink page. It is your responsibility to subscribe to the page or to regularly check for updates.
3 ASSESSMENT

3.1 Dates and Distribution

There are two parts to this course: assignments and a project. Each part is worth 50% of your final grade. There are 4-5 assignments, typically due every second week, submitted in class.

The project is treated as a mini ‘conference’ and is broken into four components:

Draft paper: 5%
Submit a draft of your conference paper. Copies of this will be distributed to three of your peers for a blind peer review. Due: Friday of Week 9

Peer review: 9%
Review three of your colleagues’ papers. The quality of your reviews will be evaluated. (3% per review) Due: Friday of Week 10

Presentation: 16%
Present your paper to the class. Due: Weeks 11 and 12

Final paper: 20%
Submit a final version of your paper, taking into account the peer review comments. Due: Last day of class

Note: these due dates are subject to change depending on the choice of lecture dates. Details of the assignments and their due dates will be provided as the term progresses.

Any late submissions will receive a grade of zero.

3.2 Course Grading Policies

Passing grade To pass this course you must achieve a grade of 65% or higher.

When You Cannot Meet a Course Requirement: When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course in writing, with your name, id#, and e-mail contact. See the graduate calendar for information on regulations and procedures for Academic Consideration:
http://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/sec_d0e1400.shtml

Accommodation of Religious Obligations: If you are unable to meet an in-course requirement due to religious obligations, please email the course instructor within two weeks of the start of the semester to make alternate arrangements. See the undergraduate calendar for information on regulations and procedures for Academic Consideration of Religious Obligations:
http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-accomrelig.shtml
4 AIMS, OBJECTIVES & GRADUATE ATTRIBUTES

4.1 Calendar Description
A study of theoretical and experimental methods for characterizing the dynamic behaviour of engineering systems. Distributed and lumped parameter model development. Digital simulation of systems for design and control.

Prerequisite(s): none

4.2 Course Aims
There are no official prerequisites for this course. Success in this course requires the fundamentals of engineering mathematics (linear algebra, trigonometry, complex numbers, calculus, differential equations, the Laplace transform, and frequency domain), the fundamentals of systems analysis (statics and dynamics, electric circuits, fluids, heat and mass), and the basics of systems and control (feedback, stability, first and second order systems).

This course explores the fundamentals of modeling. After successfully completing the course you will be able to analyse most physical systems in order to obtain a reasonably accurate linear model that is appropriate for control.

4.3 Learning Objectives
After successfully completing this course, you will be able to

1) Split complicated systems into their constituent parts.
2) Apply physics/biology/ecology concepts to model simple sub-systems.
3) Perform system identification on a ‘black box’.
4) Validate the accuracy of a model using simulation.
5) Simplify non-linear models.

A secondary objective of this course is to provide some insight into the conference publication process; to that end, you will learn to

1) Write a paper that conforms to conference requirements.
2) Write an anonymous peer review.
3) Prepare and present a 15 minute conference style presentation.

4.4 Instructor’s Role and Responsibility to Students
The instructor’s role is to develop and deliver course material in ways that facilitate learning for a variety of students. Selected lecture notes will be made available to students on Courselink/D2L but these are not intended to be stand-alone course notes. During lectures, the instructor will expand and explain the content of notes and provide example problems that supplement posted notes. Scheduled classes will be the principal venue to provide information and feedback for tests and project.
4.5 Students’ Learning Responsibilities

Students are expected to take advantage of the learning opportunities provided during lectures and tutorials. Students, especially those having difficulty with the course content, should also make use of other resources recommended by the instructor. Students who do (or may) fall behind due to illness, work, or extra-curricular activities are advised to keep the instructor informed. This will allow the instructor to recommend extra resources in a timely manner and/or provide consideration if appropriate.

E-mail and Communication: As per university regulations, all students are required to check their uoguelph.ca e-mail account regularly: e-mail is the official route of communication between the University and its students. Please use lectures and lab help sessions as your main opportunity to ask questions about the course. Major announcements will be posted to the course website. It is your responsibility to check the course website regularly.

Recording of Materials: Presentations which are made in relation to course work—including lectures—cannot be recorded in any electronic media without the permission of the presenter, whether the instructor, a classmate or guest lecturer.

5 Teaching and Learning Activities

5.1 Timetable

Lectures:
Wednesday 13:45-16:45, THRN 1126

5.2 Lecture Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Intro to systems, linearity</td>
</tr>
<tr>
<td>2</td>
<td>Time invariance, causality, and mathematical system models</td>
</tr>
<tr>
<td>3</td>
<td>Mechanical systems</td>
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<tr>
<td>4</td>
<td>Electrical, hybrid, and fluid systems</td>
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<tr>
<td>5</td>
<td>First and second order systems</td>
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<tr>
<td>6</td>
<td>Dealing with digital data, filters</td>
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<tr>
<td>7</td>
<td>System identification (least squares)</td>
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<tr>
<td>8</td>
<td>Writing, plagiarism, referencing, reviewing</td>
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<tr>
<td>9</td>
<td>Intro to control, specs, objectives, FVT, etc.</td>
</tr>
<tr>
<td>10</td>
<td>More control: PID</td>
</tr>
<tr>
<td>11-12</td>
<td>presentations</td>
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</tbody>
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5.3 Other Important Dates

Drop Date: The last date to drop one-semester courses, without academic penalty, is Friday, July 4, 2014. Refer to the Graduate Calendar for the schedule of dates: http://www.uoguelph.ca/registrar/calendars/graduate/current/sched/sec_d0e736.shtml
6 Lab Safety

There is no lab in this course; however, please note that safety is critically important to the School and is the responsibility of all members of the School: faculty, staff and students. As a student in a lab course you are responsible for taking all reasonable safety precautions and following the lab safety rules specific to the lab you are working in. In addition, you are responsible for reporting all safety issues to the laboratory supervisor, GTA or faculty responsible.

7 Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University’s policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. The Academic Misconduct Policy is detailed in the Graduate Calendar:
http://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/sec_d0e1687.shtml

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member.

7.1 Resources

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:
http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml

A tutorial on Academic Misconduct produced by the Learning Commons can be found at:
http://www.academicintegrity.uoguelph.ca/

The School of Engineering has adopted a Code of Ethics that can be found at:
http://www.uoguelph.ca/engineering/undergrad-counselling-ethics

The Graduate Calendar is the source of information about the University of Guelph’s procedures, policies and regulations which apply to graduate programs:
http://www.uoguelph.ca/registrar/calendars/graduate/current/