

RYERSON UNIVERSITY
Department of Electrical and Computer Engineering
ELE532 - Signals and Systems- Winter 2008
Course Information
www.ee.ryerson.ca/~courses/ele532/

Professor:

| Name | Office | Ext. | Email | Counseling Hours |
|---------------------------------|---------|------|-----------------------|------------------|
| Prof. Dimitri Androutsos | ENG 467 | 6104 | dimitri@ee.ryerson.ca | T.B.D. |

Teaching Assistant:

| Name | Email |
|---------------------|---------------------|
| Raymond Phan | rphan@ee.ryerson.ca |

Lecture/Tutorial/Lab Hours:

Wednesdays 8:00 a.m. – 9:00 a.m.
Fridays 9:00 a.m - 11:00 a.m.

Labs and Tutorials alternate every week

Tutorials: start week of January 14, 2008.

Labs: start week of January 21, 2008.

No Lab or Tutorial the week of March 25th, 2008.

Course Structure:

This course deals with a number of important new concepts. It builds on the basic mathematics courses of your first two years to develop a foundation for the analysis and design of engineering systems. It is important not only to understand the concepts, but also to be able to apply them in modeling and problem solving contexts. We believe the best way for you to learn and be able to use this material is to get as much first-hand, active experience with it as possible. To that end, each class will be combination of lecture segments and tutorial in a sort of workshop/problem solving session. We will use the lecture segments to introduce the ideas and set up the problems. You will then have the opportunity to work in class to explore the ideas and solve the problems in a setting where you can get immediate help and feedback from the instructor as needed. Of course, additional problems from the text, as will be given in the lectures, and should be done as homework to further reinforce the material. You will benefit most from the class session by having read the relevant sections of the text in advance. Quizzes will be given in class according to the schedule provided below. There will not be any make up test for any missed Quizzes. There will be a closed book midterm test during the lecture period and also a 3-hour closed book final exam.

Course Outline and Plan:

Representations of signals. Representations of linear time-invariant systems. Continuous-time signals and systems analysis. Transfer function; impulse response; step response. The convolution integral and its interpretation. Laplace transforms. Fourier analysis for continuous-time signals and systems.

Prerequisites:

Mathematics: The course is fairly mathematical and students should have a strong grasp of complex numbers and complex functions.

Basic calculus: Function limit (L'Hopital's rule), continuity differential calculus (Differentiating functions, investigating functions with the help of first and second derivatives), integral calculus (indefinite integrals, definite integrals). Elements of linear algebra (vectors, arrays).

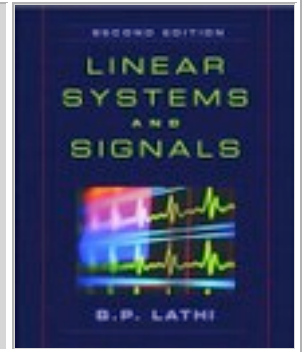
Engineering: Basic linear circuit theory (RLC circuits), input/output Transfer Function, Sinusoidal steady-state transient response.

Textbook Sections Covered:

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| Signals and Systems Representations | Chapter 1 (1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7) |
| Time-domain Analysis of Continuous-time Systems | Chapter 2 (2.1, 2.2, 2.3, 2.4, 2.6, 2.8, 2.9) |
| Continuous-time Signal Analysis: The Fourier Series | Chapter 6 (6.1, 6.2, 6.3, 6.4) |
| Continuous-time Signal Analysis: The Fourier Transform | Chapter 7 (7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9) |
| Sampling: Discrete Time Signals | Chapter 8 (8.1, 8.2, 8.3, 8.4) |
| The Laplace Transform | Chapter 4 (4.1, 4.2, 4.4, 4.6) |

REQUIRED TEXTBOOK

Linear Systems and Signals, by B.P. Lathi, 2nd Edition 2005.
ISBN: 0195158334.



Course Evaluation:

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| Quizzes (weekly) <i>10 quizzes will be written but the best 8 will be counted.</i> | 15% | Jan 18, 25 Feb 1, 8, 15 Mar 7, 14, 21 April 4, 11 |
| Labs (bi-weekly 4X2.5%) | 10% | Starting the week of January 25, 2008 |
| Midterm Test | 25% | Friday February 29, 2008 |
| Final Exam | 50% | T.B.D |

IMPORTANT NOTES:

- It is the student's responsibility to inform the professor, within the first TWO weeks of class, of any religious observances that conflict with important course dates. No accommodation will be made if these conflicts are not brought to our attention within the first TWO weeks.
- It is the students' responsibility to regularly check the course web page for updates and announcements
- If you miss any significant dates for valid medical reasons, then you must fill out a medical form at the front office of the Department of Electrical & Computer Engineering ENG 478.
- Lab assignments handed in past the due date and time will not be accepted for marking and will receive a mark of ZERO.

NOTE: Ryerson University Policy

- "All of the required course specific written reports will be assessed not only on their technical or academic merit, but also on the communication skills of the author as exhibited through these reports."
- "All students are required to activate and maintain a Ryerson University central Matrix e-mail account which shall be an official means by which they will receive University communications." It is also recommended that, where possible, students utilize these account for communicating with their instructors.