**CASE WESTERN RESERVE UNIVERSITY**
Case School of Engineering
Department of Electrical Engineering and Computer Science

## ENGR 210. Introduction to Circuits and Instruments
## Spring 2004 Agenda and Assignment Dates

*Notes*:
1. Labs are posted on MON mornings and reports are collected the following week, at scheduled lab times.
2. HW is posted and collected on WED mornings (in lecture), and solutions are posted on WED afternoons.
3. Quizzes are given on FRI mornings (in lecture), and solutions are posted on FRI afternoons.
4. Reading is from The Analysis and Design of Linear Circuits, 4th Ed., Thomas and Rosa, Wiley, 2004.

| Date | Class | Due | Agenda | Reading | Lab |
|---|---|---|---|---|---|
| 1/12 | 1 | | *Course Overview* | 1.1 | |
| 1/14 | 2 | | Introduction | 1.2-3 | *intro* |
| 1/16 | 3 | | Basic Circuit Analysis | 2.1-2 | |
| 1/19 | | | Martin Luther King Day | | |
| 1/21 | 4 | HW1 | " | 2.3 | **L1** |
| 1/23 | 5 | Q1 | " | 2.4 | Ohm's Law |
| 1/26 | 6 | | " | 2.5 | **L2** |
| 1/28 | 7 | HW2 | " | 2.6 | Computer-based |
| 1/30 | 8 | Q2 | Circuit Analysis Techniques | 3.1 | Instruments |
| 2/2 | | | " | 3.2 | **L3** |
| 2/4 | 10 | HW3 | " | 3.3 | DC Instruments |
| 2/6 | 11 | Q3 | " | 3.4 | |
| 2/9 | 12 | | " | 3.5 | **L4** |
| 2/11 | 13 | HW4 | Active Circuits | 4.1 | AC Instruments |
| 2/13 | 14 | Q4 | " | 4.2 | |
| 2/16 | 15 | | " | 4.4 | **L5** |
| 2/18 | 16 | HW5 | " | 4.5 | Operational |
| 2/20 | 17 | Q5 | " | | Amplifiers |
| 2/23 | 18 | | " | 4.6 | **L6** |
| 2/25 | 19 | HW6 | " | | Digital Logic |
| 2/27 | 20 | Q6 | " | 4.7 | |
| 3/1 | 21 | | Signal Waveforms | 5.1 | **L7** |
| 3/3 | 22 | HW7 | " | 5.2 | Exponential |
| 3/5 | 23 | Q7 | " | 5.3 | Waveforms |
| 3/8 | | | Spring Break | | |
| 3/10 | 24 | | " | 5.4 | *none* |
| 3/12 | 25 | | " | 5.5-6 | |
| 3/15 | 26 | | Capacitance and Inductance | 6.1 | **L8** |
| 3/17 | 27 | HW8 | " | 6.2 | RC Oscillators |
| 3/19 | 28 | Q8 | " | 6.3 | |
| 3/22 | 29 | | " | 6.4 | **L9** |
| 3/24 | 30 | HW9 | 1st and 2nd-order Circuits | 7.1 | Data Converters |
| 3/26 | 31 | Q9 | " | 7.2 | |
| 3/29 | 32 | | " | 7.3 | **L10** |
| 3/31 | 33 | HW10 | " | 7.4 | Sampling and |
| 4/2 | 34 | Q10 | Sinusoidal Steady State | 8.1 | Aliasing |
| 4/5 | 35 | | " | 8.2 | **L11** |
| 4/7 | 36 | HW11 | " | 8.3 | Passive RC |
| 4/9 | 37 | Q11 | Frequency Response | 12.1 | Filters |
| 4/12 | 38 | | " | 12.2 | **L12** |
| 4/14 | 39 | | " | | Active RC Filters |
| 4/16 | | | 2nd-order Circuits (Revisited) | 7.5 | |
| 4/19 | 40 | HW12 | | 12.3 | |
| 4/21 | 41 | | " | | *wrap-up* |
| 4/23 | 42 | Q12 | " | | |
| 4/26 | | | Review and Course Evaluations | | |
| 4/27,28 | | | Reading Days | | |
| 5/4 | | | **Final** | 8:30 - 11:30 am | |

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Lab instructors

Mark Zurcher
Craig Birkhimer
David Young

Teaching Assistants

Bryan Inderhees — recitation
Run Wang — quizzes
Chad Simpson — home work

Contact info, e-mail, etc. on course Web page.

ENGR 210 Circuits and Instrumentation

- modeling and circuit analysis
  - voltage & current
  - Kirchoff's Laws
  - Thevenin & Norton circuits
- DC sensors and amplifiers
  - operational amplifiers
- time dependent circuits
  - transients
  - time dependent waveforms
- frequency dependent circuits
  - phasors
  - frequency response
- instrumentation
  - digital multimeter
  - waveform generator
  - oscilloscope
  - computer data acquisition – Lab VIEW

Syllabus

www.eecs.cwru.edu/courses/engr210

Text

Thomas & Rosa, The Analysis and Design of Linear Circuits, 4/e
John Wiley & Sons
ISBN 0-471-27213-2

Grading

25% Homework*, due each Wednesday in class

25% Weekly quizzes* each Friday in class
based on Wednesday's homework, closed book

— Recitation Thursday evening 6:30–
Location TBA

25% Laboratory*, as scheduled
done in groups of two
lab reports (short)

Glennan 308, ID card access
workstation accounts
— telnet to cerne.cwru.edu
"new user"
press "Enter" for password
follow instructions on screen
3 days to activate

25% Final Exam
comprehensive
May 4th, 8:30–11:30

* No late assignments accepted
Lowest (hw/quiz/lab) of each half of semester will be dropped
i.e., before spring break / after spring break

** Errors in grading should be submitted to appropriate TA
— copy of assignment (lab, hw problem, quiz problem)
— written explanation of why your solution is correct