Basic Electrical Engineering

ECS 303

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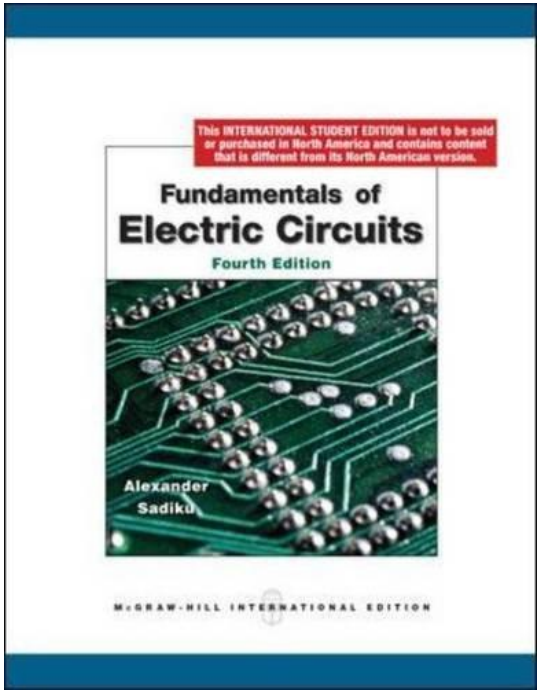
Lecture 1

Office Hours:
BKD 3601-7
Tuesday 14:00-16:00
RS ETU (1st floor)
Friday 15:00-16:00

Course Organization

- **Course Web Site:**
  http://www.siit.tu.ac.th/prapun/ecs303/
- **Lectures:**
  - **Friday 10:40-12:00**
  - **Friday 13:00-14:20**
- **Textbook:**
  - Fundamentals of Electric Circuits
    - By C.K. Alexander and M.N.O. Sadiku
    - 4th ed., International Edition, 2009.



Tutorial session

- Friday 9:00-10:20 AM
- No tutorial this week.
- From now on, we will have tutorial every week that we have lectures.
  - Check the course announcement part on the course website regularly for news about class/session cancelling.
- Practice solving problems.

Course Web Site

- Please check the course Web site regularly.
- Announcement
- References
- Handouts/Slides
- Calendar
  - Exams
  - HW due dates

www.siit.tu.ac.th/prapun/ecs303/

Grading System

- Coursework will be weighted as follows:

Assignments	5%
Class Participation and Quizzes	15%
Midterm Examination •25 Dec 2009 TIME 09:00 - 12:00	40%
Final Examination (comprehensive) •5 Mar 2010 TIME 09:00 - 12:00	40%

- Mark your calendars now!
- Late HW submission will be rejected.
- All quizzes and exams will be closed book.

Class Participation

- NOT the same as class attendance!
- If you come only to **receive**, you will fall **asleep**.
- Need **interaction** between lecturer and students.
- **Ask question** when there is something that you don't understand.
  - It is very likely that your friends don't understand it as well.
- If you already understand what I'm presenting, SHOW ME!
  - Point out the errors/typos.
  - I will raise many issues/questions in class. Try to comment on them.
- Don't be shy!

Policy

- We will start the class on time and will finish on time.
  - 7 min late = absence.
  - Raise your hand and tell me immediately if I go over the time limit.
  - Does NOT mean that I will leave the room immediately after lecture.
    - I will stay and answer questions.
- Mobile phones *must* be set to the silent mode.
- We may have some pop quizzes (without prior warning or announcement) and many in-class activities.
- Attendance and pop quizzes will be taken/given irregularly and randomly.
- Cheating will not be tolerated.

Policy (con't)

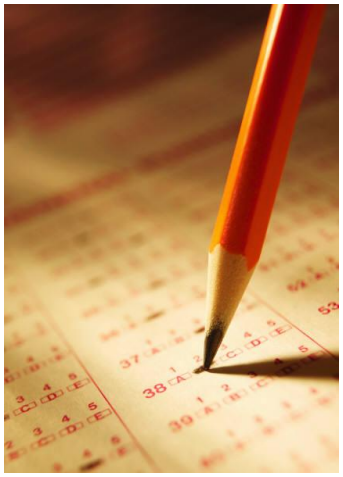
- Class participation is highly encouraged.
  - It does not mean simply sitting quietly in the class.
  - Feel free to stop me when I talk too fast or too slow.
  - Ask question! Don't be shy!
    - If you don't understand something, there is a good chance that your friends do not understand as well.
- You may be called upon to complete exercises in front of the class at any time.
  - Emphasis on EFFORT and METHODOLOGY, not right or wrong answers.
- I will surely make some mistakes in lectures / HWs / exams
  - Some amount of class participation scores will be reserved to reward the first student who inform me about each of these mistakes.

More Policy

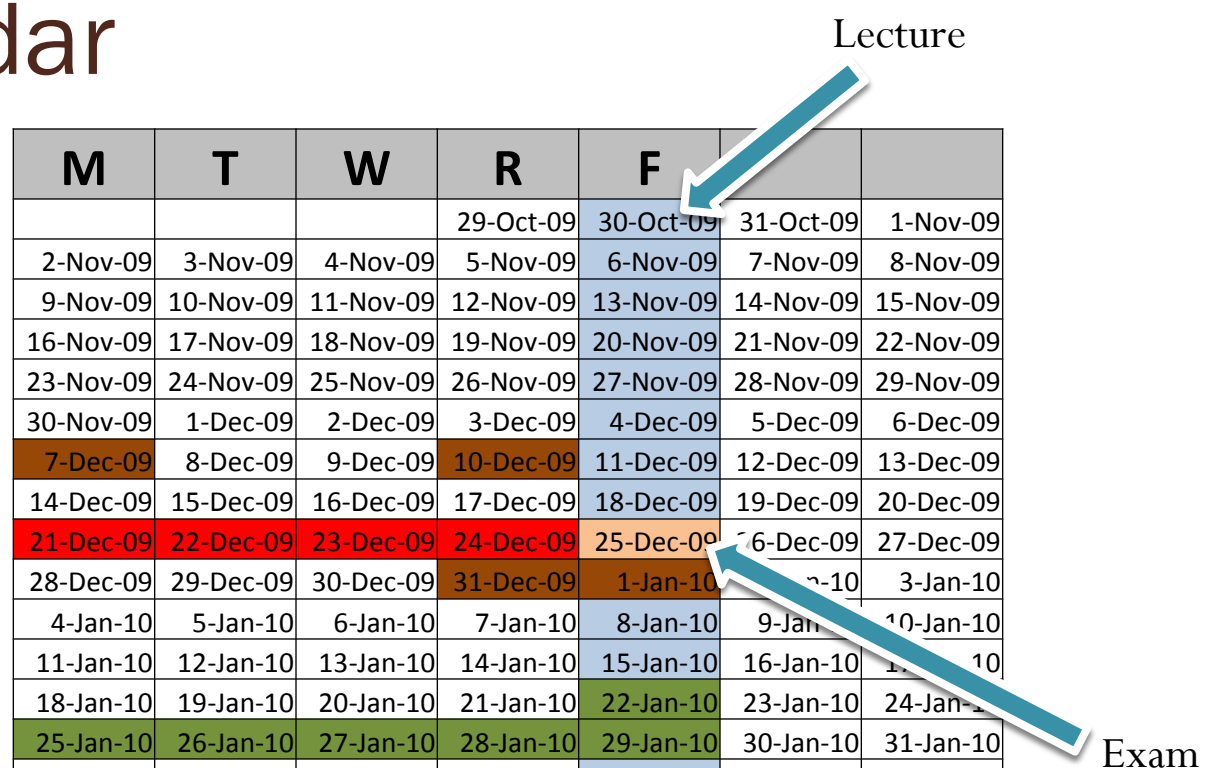
- Get some help!
  - Do not wait until the final exam time or after the grade is out
- Office Hours
  - BKD-3601: **Tuesday 14:00-16:00**
  - RS ETU (1st floor): **Friday 15:00-16:00**
  - Appointment can be made if needed
  - Feel free to come to my office and chat!
  - Don't be shy
- You may also ask question(s) after class.
- Points on quizzes/ exercises/ exams are generally based on your entire solution, not your final answer.
  - You can get full credit even when you have the wrong final answer.
  - You may get zero even when you write down a right answer without justification.

Warning

- This class can be difficult if you don't keep up with the lectures
- I will evaluate your understanding of the course regularly through
  - In class problems/activities where you (or your group) are asked to answer short questions in front of the class
  - Quizzes
  - Exams



Calendar



M	T	W	R	F		
			29-Oct-09	30-Oct-09	31-Oct-09	1-Nov-09
2-Nov-09	3-Nov-09	4-Nov-09	5-Nov-09	6-Nov-09	7-Nov-09	8-Nov-09
9-Nov-09	10-Nov-09	11-Nov-09	12-Nov-09	13-Nov-09	14-Nov-09	15-Nov-09
16-Nov-09	17-Nov-09	18-Nov-09	19-Nov-09	20-Nov-09	21-Nov-09	22-Nov-09
23-Nov-09	24-Nov-09	25-Nov-09	26-Nov-09	27-Nov-09	28-Nov-09	29-Nov-09
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28-Dec-09	29-Dec-09	30-Dec-09	31-Dec-09	1-Jan-10	-10	3-Jan-10
4-Jan-10	5-Jan-10	6-Jan-10	7-Jan-10	8-Jan-10	9-Jan	10-Jan-10
11-Jan-10	12-Jan-10	13-Jan-10	14-Jan-10	15-Jan-10	16-Jan-10	10
18-Jan-10	19-Jan-10	20-Jan-10	21-Jan-10	22-Jan-10	23-Jan-10	24-Jan-
25-Jan-10	26-Jan-10	27-Jan-10	28-Jan-10	29-Jan-10	30-Jan-10	31-Jan-10
1-Feb-10	2-Feb-10	3-Feb-10	4-Feb-10	5-Feb-10	6-Feb-10	7-Feb-10
8-Feb-10	9-Feb-10	10-Feb-10	11-Feb-10	12-Feb-10	13-Feb-10	14-Feb-10
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22-Feb-10	23-Feb-10	24-Feb-10	25-Feb-10	26-Feb-10	27-Feb-10	28-Feb-10
1-Mar-10	2-Mar-10	3-Mar-10	4-Mar-10	5-Mar-10	6-Mar-10	7-Mar-10
8-Mar-10	9-Mar-10	10-Mar-10	11-Mar-10	12-Mar-10	13-Mar-10	14-Mar-10
15-Mar-10	16-Mar-10	17-Mar-10	18-Mar-10	19-Mar-10	20-Mar-10	21-Mar-10
22-Mar-10	23-Mar-10	24-Mar-10	25-Mar-10	26-Mar-10	27-Mar-10	28-Mar-10

Simple?

- What do I mean by something being simple?
- I will sometimes say that something is very simple and I may offend many of you to whom it's not simple.
- The point is something becomes simple after you understand it.
  - Nothing is simple before you understand it.
- So, when I say that something is simple, what I mean is if you think about it long enough it will become simple.
  - It's not simple to start with.
  - Other things are just messy.

Course Outline

1. Intro, math review, units, quantities & measurements
2. Intro electric circuits: Ohm's Law, node/branches/loops, Kirchoff's Laws, resistive circuits
3. Series/parallel resistors, voltage divider, current divider, nodal analysis
4. Mesh analysis, linearity, superposition
5. Source transformation, Thevenin's/Norton's equivalent circuits, maximum power transfer
6. Basic electronics: Op amps
7. **MIDTERM**: 25 Dec 2009 TIME 09:00 - 12:00
8. Capacitors and inductors; diodes
9. First-order circuits
10. Electric power systems. Sinusoids, phasors; complex number review
11. Phasor relationships for circuit elements, impedance and admittance, Kirchoff's laws in frequency domain, impedance combinations.
12. Sinusoid steady-state analysis: nodal/mesh analysis, superposition theorem, source transformation, Thevenin/Norton equiv. circuits
13. AC power analysis: instantaneous and average power, maximum average power transfer, effective or RMS value, apparent power and power factor. Power factor correction.
14. Three-phase circuits, transformers, household/industry wiring
15. Preview of communication systems (if time permitted)
16. **FINAL**: 5 Mar 2010 TIME 09:00 - 12:00

Reading Assignment

- Read Chapter 1 and 2 of Alexander & Sadiku

Attendance Check

- I use video attendance.
- Say your name into the camera ☺
- Make sure that your voice is loud enough