

# 10220 EE 221000 電路學 Electric Circuits

楊尚達 Shang-Da Yang Institute of Photonics Technologies Department of Electrical Engineering National Tsing Hua University, Taiwan

### **Overview**

- Instructor: 楊尚達 (Shang-Da Yang)
- Office: 台達810
- Email: shangda@ee.nthu.edu.tw
- Web:
  - www.ee.nthu.edu.tw/~sdyang/Courses/Circuits.htm
- Class/office hours: M34, W234
- TA head: 翁敬哲 (EE12G) Email: u9760106@oz.nthu.edu.tw



 TA hours: Wednesday 7-9 PM, エミ118 (other times are available with appointment.)

### Textbook

# James W. Nilsson, Susan A. Riedel *Electric Circuits*, 9th ed., Prentice Hall, 2010 ISBN-13: 978-0-13-705051-2 ISBN-10: 0-13-705051-8



#### What can you learn from this course?



# Syllabus (1)

1	Basics (Ch1-4, 6): Circuit elements (R, L, C); analysis techniques for resistive circuits	5 weeks: 2/17-3/19
Midterm 1		<mark>3/24</mark> (M34)
2	Circuit analysis in the $\omega$ - and t-domains (Ch9-10, 7-8): Sinusoidal steady-state response, transient response of RLC circuits	5 weeks: 3/26-4/28
Midterm 2		<mark>5/5</mark> (M34)

## Syllabus-2

3	Circuit analysis in the s- domain (Ch12-14, 18): Laplace transform and its applications in circuit analysis, filters, two-port circuits	5 weeks: 4/30-6/11, except for 6/2 (Dragon-boat festival)
Final exam		6/16

## Grading policies (1)

- 作業Homework+小考Quiz (20%):
- ~8 homework assignments. Neither delay nor plagiarism is allowed (ethic codes).
- 2. Quiz problems will come from textbook examples and homework problems.
- 第一次期中考Midterm exam 1 (20%).
- 第二次期中考Midterm exam 2 (25%).
- 期末考Final exam (35%).

### Grading policies (2)

- 紅利加分 (bonus points): Properly answering one bonus question in class may earn 1-3 points of the semester credit. Presence & thinking are encouraged.
- Term for "gladiators": Get passed if the final exam is above the class average (It's real. Two people applied this term in Spring 2012!)

## Grading & casualties statistics

Semester	Mean	Standard deviation	Casualties/ attendees
Spring 2013	70	19	<mark>8</mark> /39
Spring 2012	63	19	<mark>10</mark> /44

### Special comments (1)

- This course is most appropriate for those who have taken 微分方程與複變函數(ordinary differential equations, complex variables, Laplace transform).
- Capability of using math software (e.g. Matlab, but not SPICE) to solve matrix problems is very useful in homework assignments.

### Special comments (2)

- The lecture slides are sufficient for understanding the concepts. However, the number of examples is far less than required.
- Ideas are simple. Getting correct numbers is not.
   Practicing homework questions independently and intensively is essential.
- Don't satisfy with correct answers of specific examples, but try to conclude general features.
   "Engineering intuitions" will be the only thing that can eventually last.