

❖ 2020S-ENGR_0031: Electric Circuits

• Course information

• Electric Circuits

- Learn the basics of Electric Circuit, and the systematic approaches in obtaining and designing the Circuit properties

• Text Book

- Introduction of Electrical Circuits, 9th Ed. Svoboda and Dorf, 2014 (国际学生版)
- ISBN 978-1-119-54657-3, **WILEY**

• Lecture

- Instructor : **Jeungphill Hanne**, PhD
jeungphill.hanne@scupi.cn
- Time : Tue.(09:15-11:55),or Thr. (09:15-11:55)
- Office Hour : Thr.(16:45-17:30)/ Fri.(15:40-16:25)
- Office : 3-321 @ Zone 3

• TA : Tim, and

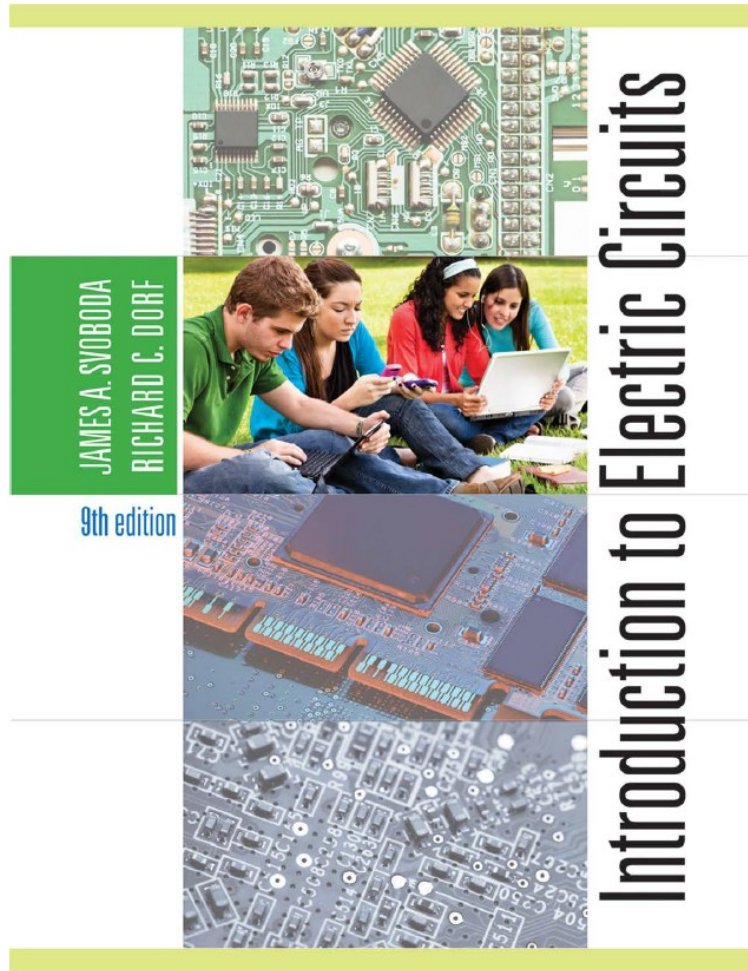
- Office Hrs : To be announced.

• Course Format

- Lecture, and Active Participation (i.e. Quiz, **Quiz Presentation**, **Group Presentation**, etc.)

• Course Grading

- Two Midterms, Final, Homework, Quiz, and Attitude (ex. Attendance, Engagement, Punctuality for HW, etc.)



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• Course Scope & Objective

- Objective : Understand the basic Electric Circuits, Systematically Solving Electrical properties and eventually obtaining an ability to design a simple Electric Circuit.
- Scope : An advanced Course based on “Electricity & Magnetism” of the Physics 2 course
 - Required : **Basic Concepts** (the Physics 2 course) + **Some mathematical approaches!**
 - 1. Steady State Circuit : Constant Sources (Voltage, Current), Resistors, Op Amp
 - Chap 1 ~ Chap 6 : **Not much for Math ! (Just simple Matrices)**
 - 2. Time dependent Circuit : 1+ Variable Sources (Voltage, Current), Capacitors, Inductors
 - Chap 7 ~ Chap 13 : **1st, 2nd Order Differential Eq.. Frequency Domain Analysis (AC)**
 - 3. A Mathematical tool to tackle **Differential Equation**
 - Chap 14 ~ Chap 16 : **Mathematical Transformation(Laplace, Fourier)**

• Course Learning Key Points

- **Systematically and Mathematically Formularize Concepts and Results of Electric Circuit**
 - Can Assist to solve to Electrical Properties Easily and Quickly, and to design a New Circuit!
(So, Assume Concepts and Results are already familiarized!!, and Also Some Math!)

• Course Grading

- Grading Components : HW(15%), Quiz (10%), Midterm I (23%), Midterm II (23%), Final (24%)
and Attitude(5% : Attendance, Engagement, Punctuality for HW, etc.)

Tests are not accumulative, but might overlap a little bit !

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• Tentative Course Schedule

Week	Physics 2 (PHYS 0175)	Topics	Assignment
Week 1 (2/24-3/1)	Introduction & Chap 1	Syllabus & Electric Circuit Variables	
Week 2 (3/2-3/8)	Chap2 & Chap 3	Circuit Elements	HW1
Week 3 (3/9-3/15)	Chap3 & Chap 4	Resistive Circuits	HW2
Week 4 (3/16-3/22)	Chap 4 & Chap 5	Analysis of Resistive Circuits	HW3
Week 5 (3/23-3/29)	Chap 5 & Chap 6	Circuit Theorems	HW4
Week 6 (3/30-4/5)	Chap 6 & Mid Term 1	The Operational Amplifier	
Week 7 (4/6-4/12)	Chap7	Energy Storage Elements	HW5
Week 8 (4/13-4/19)	Chap 8	RL and RC Circuits	HW6
Week 9 (4/20-4/26)	Chap 9	RLC Circuits	HW7
Week 10 (4/27-5/3)	Chap 10	Sinusoidal Steady-State Analysis	HW7
Week 11 (5/4-5/10)	Chap 11	AC Steady-State Power	HW8
Week 12 (5/11-5/17)	Chap11 & Mid Term 2		
Week 13 (5/18-5/24)	Chap13	Frequency Response	HW9
Week 14 (5/25-5/31)	Chap 14	The Laplace Transform	HW10
Week 15 (6/1-6/7)	Chap 15	Fourier Series/ Transform	HW11
Week 16 (6/8-6/14)	Chap 16	Filter Circuits	HW12
Week 17 (6/15-6/21)	Review		
Week 18 (6/22-6/28)	Final week		