



National Taiwan University of Science and Technology

2021 Summer Program

ELEC 210 Electric Circuit Analysis

Course Outline

Course Code: ELEC 210

Instructor: Roberto Vega

Home Institution: Southern Methodist University

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Credit: 4

Course Description: Analysis of resistive electrical circuits, basic theorems governing electrical circuits, power considerations, analysis of circuits with energy storage elements. Transient and sinusoidal steady-state analysis of circuits containing resistors, operational amplifiers, inductors and capacitors.

Course Objectives:

1: An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

2: An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

Required Textbook: *Electric Circuit Fundamentals*, by S. Franco, Saunders College Pub., 1995.

Grading & Evaluation:

Course will be evaluated based on homework 25%, two midterm exams 50%, and one final exam 25%. Typically, the standard grade assignment will apply, i.e. 95-100 A, 90-94 A-, 88-89.9 B+, 84-87.9 B, 80-83.9 B-, 78-79.9 C+, 74-77.9 C, 70-73.9 C-, 68-69.9 D+, 64-67.9 D, 60-63.9 D-, Below 60 F.



Tentative schedule of classes

Week 1:

- 1) Basic Concepts and components in circuit analysis, Chapter 1, 2 hrs
- 2) Resistive Circuits, series and parallel Combinations, Chapter 2, 2 hrs
- 3) Circuit solution by inspection, nodal and loop analysis, superposition, Chapter 3, 3.5 hrs

Lab 1: TBA

Week 2:

- 1) Circuit Theorems, Chapters 3 & 4, Chapter 4, 4 hrs
- 2) Power transfer, transformers, Chapter 5, 3.5 hrs

Lab 2: TBA

Week 3:

- 1) Operational Amps, Chapter 6, 3.5 hrs
- 2) Transient Circuits, Chapter 7 & 8, 4 hrs

Lab 3: TBA

Week 4:

- 1) AC Analysis, phasor, impedance, Chapters 10 and 11) 4 hrs
- 2) AC Power and Resonance, Chapters 12 and 13, 3.5 hrs