GAVILAN COLLEGE
5055 Santa Teresa Blvd
Gilroy, CA 95020

Course Outline

COURSE: ENGR 3 DIVISION: 10 ALSO LISTED AS:

TERM EFFECTIVE: Spring 2013 CURRICULUM APPROVAL DATE: 10/08/2012

SHORT TITLE: ELECTRIC CIRCUIT ANALYSIS

LONG TITLE: Electric Circuit Analysis

Units	Number of Weeks	Type	Contact Hours/Week	Total Contact Hours
4	18	Lecture:	3	54
		Lab:	3	54
		Other:	0	0
		Total:	6	108

COURSE DESCRIPTION:

An introduction to the theory of electric circuits. Topics include resistive circuits, voltage and current sources, network theorems, op-amp circuits, energy storage elements, RC, RL, and RLC circuits. PREREQUISITE: Mathematics 2C (may be taken concurrently) and Physics 4B with a grade of 'C' or better.

PREREQUISITES:

(Completion of MATH 2C, as UG, with a grade of C or better., Concurrent OK
AND Completion of PHYS 4B, as UG, with a grade of C or better.)

COREQUISITES:

CREDIT STATUS: D - Credit - Degree Applicable

GRADING MODES

L - Standard Letter Grade

REPEATABILITY: N - Course may not be repeated

SCHEDULE TYPES:

02 - Lecture and/or discussion
03 - Lecture/Laboratory
04 - Laboratory/Studio/Activity

STUDENT LEARNING OUTCOMES:

1. Identify, compare, contrast, describe, and analyze resistive circuits using circuit analysis techniques and network theorems.

Measure: Exam, homework, labs.

PLO: 1, 2, 4

ILO: 7, 1

GE-LO: B1, 3, 5, 7, 8

Year Assessed:

2. Identify, compare, contrast, describe, and analyze circuits containing operational amplifiers.

Measure: Exam, homework, labs.

PLO: 1, 2, 4

ILO: 7, 1

GE-LO: B1, 3, 5, 7, 8

Year Assessed:

3. Identify, compare, contrast, describe, analyze, and determine the natural and forced responses of first-order RL and RC circuits.

Measure: Exam, homework, labs.

PLO: 1, 2, 4

ILO: 7, 1

GE-LO: B1, 3, 5, 7, 8

Year Assessed:

4. Identify, compare, contrast, describe, analyze, and determine the natural and forced responses of second-order RLC circuits.

Measure: Exam, homework, labs.

PLO: 1, 2, 4

ILO: 7, 1

GE-LO: B1, 3, 5, 7, 8

Year Assessed:

5. Identify, compare, contrast, describe, and analyze steady-state AC circuits, including power calculations, using complex notation and phasors.

Measure: Exam, homework, labs.

PLO: 1, 2, 4

ILO: 7, 1

GE-LO: B1, 3, 5, 7, 8

Year Assessed:

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS

Curriculum Approval Date: 10/08/2012

HOURS: 40

TOPIC: Resistive Circuits.

STUDENT PERFORMANCE OBJECTIVES:

1. Identify, analyze, compare and contrast resistive circuits.

2. Identify, compare, contrast, and solve for solutions to resistive circuit problems using Ohm's Law, Kirchoff's Laws, equivalent networks, mesh and node analysis, and phasors and impedance methods.

OUT OF CLASS ASSIGNMENTS: Reading and problems from text and instructor.

HOURS: 46
TOPIC:RL, RC, and RLC Circuits.
STUDENT PERFORMANCE OBJECTIVES:
1. Identify, compare, contrast, and analyze RL, RC, and RLC circuits.
2. Identify, compare, contrast, and solve natural and forced responses of first-order RL and RC circuits.
3. Identify, compare, contrast, and solve natural and forced responses of second-order RLC circuits.
OUR OF CLASS ASSIGNMENTS: Reading and problems from text and instructor.
HOURS: 20
TOPIC: Steady-state AC Circuits.
STUDENT PERFORMANCE OBJECTIVES:
1. Identify and analyze steady-state AC circuits.
2. Set-up and solve problems with power calculations.
3. Identify, apply and solve problems using complex notation and phasors.
OUT OF CLASS ASSIGNMENTS: Reading and problems from text and instructor.
HOURS: 2
TOPIC: Final Exam.

METHODS OF INSTRUCTION:
Lecture/Discussion/Laboratory

METHODS OF EVALUATION:
CATEGORY 1 - The types of writing assignments required:
Percent range of total grade: 20 % to 30 %
Lab Reports
CATEGORY 2 -The problem-solving assignments required:
Percent range of total grade: 70 % to 80 %
Homework Problems
Exams

REPRESENTATIVE TEXTBOOKS:
Charles Alexander and Matthew Sadiku, Fundamentals of Electric Circuits, McGraw Hill, 2013, or other appropriate college level text.
Reading level of text, Grade: 13Verified by: Russell Lee using MS Word

ARTICULATION and CERTIFICATE INFORMATION
Associate Degree:
CSU GE:
IGETC:
CSU TRANSFER:
Transferable CSU, effective 201330
UC TRANSFER:
Transferable UC, effective 201330

SUPPLEMENTAL DATA:
Basic Skills: N
Classification: A

Noncredit Category: Y
Cooperative Education:
Program Status: 1 Program Applicable
Special Class Status: N
CAN: ENGR12
CAN Sequence: XXXXXXXX
CSU Crosswalk Course Department: ENGR
CSU Crosswalk Course Number: 3
Prior to College Level: Y
Non Credit Enhanced Funding: N
Funding Agency Code: Y
In-Service: N
Occupational Course: E
Maximum Hours:
Minimum Hours:
Course Control Number: CCC000533718
Sports/Physical Education Course: N
Taxonomy of Program: 090100