Syllabus

TECH 122 Electronic Theory

General Information

Date  November 13th, 2020
Author  John Riley
Department  Science and Technology
Course Prefix  TECH
Course Number  122
Course Title  Electronic Theory

Course Information

Catalog Description  An algebra based electric circuit analysis course. Topics include: voltage, current, resistance, Ohm's law, resistor combination, Kirchhoff's laws, power, source conversion, capacitance, relays, microcontrollers, and residential wiring. Computer analysis of circuits introduced. Lab applies classroom theory, teaches use of multimeters and power supplies, and introduces the oscilloscope, breadboarding, schematic reading and troubleshooting.

Credit Hours  3
Lecture Contact Hours  2
Lab Contact Hours  3
Other Contact Hours  0
Grading Scheme  Letter

Prerequisites

MAT 145 or placement into Math Level 3 or higher.

Co-requisites

None

First Year Experience/Capstone Designation
This course DOES NOT satisfy the outcomes applicable for status as a FYE or Capstone.

SUNY General Education

This course is designated as satisfying a requirement in the following SUNY Gen Ed categories
None

FLCC Values

Institutional Learning Outcomes Addressed by the Course
Inquiry and Perseverance

Course Learning Outcomes

Course Learning Outcomes

1. Analyze and design simple DC or AC circuits to solve for voltage and current.

2. Perform a power analysis of an electronic circuit.

3. Use various measurement instrumentation to analyze DC and AC circuits and report the finding in a technical lab report.

Outline of Topics Covered

I. Voltage and Current
II. Ohm's Law, Resistance, Power
III. Conductors, Insulators, Resistors
IV. DC Series Circuits and KVL
V. Voltage Division
VI. DC Parallel Circuits and KCL
VII. Multimeter, Protoboard
VIII. Current Division
IX. DC Series-Parallel Circuits
X. Wheatstone Bridge
XI. Superposition Theorem
XII. Thevenin's Theorem
XIII. Norton's Theorem
XIV. Mesh Analysis
XV. Alternating Current
XVI. Rms Voltage
XVII. Phase Angle
XVIII. Capacitor
XIX. Capacitive Circuits
XX. Inductive Circuits
XXI. RLC Band Filter Circuits
XXII. Transformers
XXIII. Detection of Radio Waves
XXIV. Semiconductor Devices
XXV. Diodes
XXVI. Rectifier Circuit
XXVII. Operational Amplifier
XXVIII. Transistors

Program Affiliation

This course is required as a core program course in the following program(s)

AAS Mechanical Technology and AAS Instrumentation and Control Technologies