



Syllabus

TECH 122 Electronic Theory

General Information

Date November 13th, 2020

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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