



Syllabus

TECH 123 Digital Electronics

General Information

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Department Science and Technology

Course Prefix TECH

Course Number 123

Course Title Digital Electronics

Course Information

Catalog Description This first-year course focuses on the theory and application of digital devices and circuits. Topics investigated include digital signals, binary number systems, Boolean algebra and Karnaugh mapping circuit reduction techniques. Digital devices/circuits tested include basic logic gates, flip-flops, counters, adders, registers, encoders, decoders, multiplexers, demultiplexers, and analog-digital converters.

Credit Hours 3

Lecture Contact Hours 2

Lab Contact Hours 3

Other Contact Hours 0

Grading Scheme Letter

Prerequisites

MAT 145

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. Use Boolean Algebra to simplify digital circuits.
2. Simulate digital circuits.
3. Construct and verify digital circuits.

Outline of Topics Covered

- I. Analog vs Digital Systems**
- II. Binary Numbers**
- III. Logic Gates: AND OR NOT**
- IV. Logic Gates: NAND and NOR**
- V. Simple Logic Gate Circuits**
- VI. Boolean Algebra**
- VII. Karnaugh Maps**
- VIII. Binary Coded Decimal**
- IX. Seven-Segment Display Decoder**
- X. Half Adder**
- XI. Full Adder**
- XII. Two's Complement Arithmetic**
- XIII. Binary Subtraction Circuit**
- XIV. Flip-Flops**
- XV. Counters**
- XVI. Multiplexers**

Program Affiliation

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

AAS Instrumentation and Control Technologies