

ANALOG AND DIGITAL CIRCUITS
GRADES 11-12
(1 Semester - Prerequisite: Digital Electronics)

COURSE OVERVIEW:

Analog and Digital circuits deals with analysis and applications of active devices such as transistors, diodes, and integrated circuits. Electronic communication is covered for radio transmission and reception and fiber optic communication. Digital applications proceeds to various computer interface circuits and the programming and interfacing of simple micro-processor. A student will also gain a degree of proficiency with applicable test equipment and explore robotics.

UNITS OF INSTRUCTION:

- UNIT I - Series, Parallel, and Complex Circuits
- UNIT II - Inductance and Capacitance in AC Circuits
- UNIT III - Semiconductor Devices
- UNIT IV - Microprocessor Fundamentals

STUDENT OUTCOMES:

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| 1. | The student will investigate AC circuits by building and testing various lab circuits involving inductors, capacitors, and transformers. |
| 2. | The student will investigate various semiconductor devices by building and testing circuits using such components as diodes, scr's, triacs, and various types of transistors. |
| 3. | The student will program and interface a simple microprocessor to control simple in and out functions. |

MAJOR LEARNING EXPERIENCES TO ACHIEVE OUTCOMES:

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| 1. | Build and test several circuits involving capacitors, inductors, and semiconductors. |
| 2. | Troubleshoot various electronic circuits using meters, power supplies, oscilloscopes, frequency counters, and RF and AF generators. |
| 3. | Build two students chosen projects, one using semiconductors and either being an AF or RF application, the other involving the use of a simple micro-processor. |

ADOPTED TEXT OR PRINCIPAL MATERIALS USED:

Digital/Micro-Processor Course. Electronics Industries Association, 1989.

(04/25/00)