Course Title: Intro to Digital Electronics
Quarter Course Prefix and Number: EIAT 1243
Semester Course Prefix and Number: EIAT 1243
Number of Credits: 3
Number of Lecture Credits: 1
Number of Lab Credits: 2
Semester(s) Offered: Number of Studio/Discussion Credits:
Class Size: 24

Catalog Description:
This offering is designed as a foundational course for those entering electrical maintenance/engineering related fields. Basic digital concepts are studied with a focus on basic logic gates, numbering systems, combinational logic circuits, circuit simplification, integrated logic circuits, schematic symbols, device testing, and the mathematical and practical analysis of circuits from a troubleshooting perspective. Lab safety and the safe and proper use of tools and test equipment are emphasized.

Prerequisites and/or recommended entry skills/knowledge:
Course Prerequisite(s): None
Reading Prerequisite: Minimum score on basic skills test
Composition Prerequisite: Minimum score on basic skills test
Mathematics Prerequisite: Minimum score on basic skills test

Career Programs and Transfer Majors Accessing this Course:
Electrical and Industrial Automation Technology

Minnesota Transfer Curriculum Goal(s) partially met by this course if applicable:

0. X None
1. _____ Communications
2. _____ Critical Thinking
3. _____ Natural Sciences
4. _____ Mathematical/Logical Reasoning
5. _____ History and the Social and Behavioral Sciences
6. _____ The Humanities and Fine Arts
7. _____ Human Diversity
8. _____ Global Perspectives
9. _____ Ethical and Civic Responsibility
10. _____ People and the Environment
Learning outcomes, including any relevant competencies listed in the Minnesota Transfer Curriculum:

Following the completion of this course the student will be able to demonstrate the ability to:

1.) Differentiate between digital and analog circuits.
2.) Understand the numbering systems unique to digital electronics.
3.) Describe the functions of the seven basic logic gates.
4.) Utilize the seven basic logic gates in combinational logic circuits.
5.) Simplify combinational logic circuits using Karnaugh mapping and NAND logic.
6.) Understand memory circuits.
7.) Understand logic timing diagrams.
8.) Apply basic integrated digital circuits (encoders, decoders, data selectors).
9.) Properly use test equipment to measure digital logic levels.
10.) Read a schematic.
11.) Identify basic electronic and electrical components and their schematic symbols.
12.) Observe proper safety procedures.
13.) Work cooperatively.
14.) Apply critical thinking skills.

Possible student assessment methods:

Lab assignments, worksheets, papers, and tests.

Use of instructional technology (includes software, interactive video and other instructional technologies):

Power Point Software, videos, software based lab simulators.

A one-paragraph summary or outline of the major course content:

See “Learning Outcomes” above.

Additional special information (special fees, directives on hazardous materials, etc.)

Laptop Computer Lease

Approvals:

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Distribution: Original – Administrative Office
Copies: Curriculum Committee Chair, Learning Center, Library, Originating Faculty Member, Records, Student Services, Scheduler, Transfer Specialist
Revised February 10, 2004