Course Title: Intro to Solid State Electronics
Quarter Course Prefix and Number: 
Semester Course Prefix and Number: EIAT 1233

Number of Credits: 4
Number of Lecture Credits: 1
Number of Lab Credits: 3
Semester(s) Offered: 
Class Size: 24

Catalog Description:
This offering is designed as a foundational course for those entering electrical maintenance/engineering related fields. Basic solid state theory is studied with a focus on semiconductor materials, PN junction devices, discrete and integrated semiconductor applications, 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 is emphasized.

Prerequisites and/or recommended entry skills/knowledge:
Course Prerequisite(s): None
Reading Prerequisite: Minimum score on basic skills test
Composition Prerequisite: 
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.) Explain semiconductor material construction.
2.) Explain depletion layer principles.
3.) Properly bias a PN junction.
4.) Construct and troubleshoot a filtered, regulated full wave bridge rectifier.
5.) Construct and troubleshoot a basic BJT amplifier.
6.) Apply thyristor principles to AC phase control.
7.) Explain operational amplifier characteristics.
8.) Apply operational amplifiers to basic summing/differentiation circuits.
9.) Properly use test equipment to measure voltage, current and resistance.
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