Course Title: Intro to Digital Electronics
Semester Course Prefix and Number: PAS 1243
Old Quarter Course Prefix and Number:

Number of Credits: 3
Semester(s) Offered: Fall
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 is emphasized.

Prerequisites and/or recommended entry skills/knowledge:
Course Prerequisite(s): None
Reading Prerequisite: None
Composition Prerequisite: None
Mathematics Prerequisite: None

Career Programs and Transfer Majors Accessing this Course:
Process Automation Systems Diploma
Process Automation Systems AAS
Wind Energy Technology AAS

Minnesota Transfer Curriculum Goal(s) partially met by this course if applicable:
(Notes: No more than two goals may be met by any one course. Curriculum Committee review and the Chief Academic Officer's approval are required.)

0. 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.) Comprehend 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.) Comprehend memory circuits.
7.) Comprehend 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.

**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.

**Outline or Statement of Major Course Content:**

See "Learning Outcomes" above.

**Additional Special Information:** (special fees, directives on hazardous materials, etc.)

Laptop Computer Lease

**Transfer Information:** (Please list colleges/majors that accept this course in transfer.)

None

**Approvals:**

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<th>Representative Signatures</th>
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<tbody>
<tr>
<td>Curriculum Committee</td>
<td>H. R. Kohl</td>
<td>11-27-11</td>
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<tr>
<td>Faculty Association</td>
<td>Sue Devereux</td>
<td>12-5-11</td>
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<tr>
<td>Academic Affairs Standards Committee</td>
<td>H. R. Kohl</td>
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<td>Chief Academic Officer</td>
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**Distribution:** Original – Administrative Office

**Copies:** Curriculum Committee Chair, AASC Chair, Transfer Specialist, Originating Faculty Member, Scheduler, Records, Student Services, Learning Center, Library

**Revised:** October 2006