MESABI RANGE COMMUNITY & TECHNICAL COLLEGE – VIRGINIA/EVELETH

Course Outline

Course Title: **Electrical for Industrial Mechanical Technology** **Submitted By:** **Bob Stevens Scott Norcia**

Semester Course Prefix and Number: **PAS 1235** **Approval Date:**

Old Quarter Course Prefix and Number: **Revision Date:** **4/4/13**

Number of Credits: **2** **Number of Lecture Credits:** **1**

Semester(s) Offered: **Number of Lab Credits: 1** **Number of Lab Hours: 2**

Class Size: **24** **Number of Studio/Demonstration/Internship Credits:**

Negotiated by AASC on (date)_____

Course Purpose Code:

_____ **0 –** Developmental Courses
_____ **1 –** Non-transferable, General Education
__X__ **2 –** Technical course related to career programs
_____ **3 –** College course which has the primary goal of applying certain concepts (e.g. vocal ensemble)
_____ **4 –** Other college course not considered a part of general education (MNTC) e.g. computer science, health, physical education
_____ **5 –** Course which is intended to fulfill the Minnesota Transfer Curriculum (MNTC) requirements.
_____ **9 –** Continuing Education/Customized Training specialized credit course (not occurring in 0-5)

Catalog Description:

This course provides a general knowledge of industrial electrical systems. The curriculum encompasses electrical safety, fundamentals of electricity, electrical distribution systems, and industrial motor control and protection systems for personnel and equipment. The course focus is on practical knowledge needed by multiple craft, mechanical, and operation personnel.

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:

Industrial Maintenance Technology

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. __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:
The goal is to increase students' knowledge about the fundamentals of electricity. The student will have knowledge in electrical safety with lockout procedures, over-current protection techniques, electrical distribution fundamentals, and motor characteristics.

Following the completion of this course, the student will

- demonstrate safe work practices including, but not limited to:
  - electrical shock
  - arc flash hazards,
  - Personal Protection Equipment (PPE
  - resetting overcurrent protection devices (OCPD)
  - ground fault protection
- identify electrical quantities or measurements.
- demonstrate an understanding of Ohm's Law.
- identify electrical distribution systems and equipment.
- identify Distribution Panels and Motor Control Centers (MCC's).
- explain causes for overcurrent conditions.
- apply equipment grounding requirements.
- analyze basic motor control strategy.
- identify motor control problems and faults.
- recognition of hazardous areas.

Student assessment methods:

Lab assignments, worksheets, papers, and tests.

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

PowerPoint Software, videos, and software-based lab simulators.

Lecture covers theory and terminology
Lab: scheduled lab, lab by arrangement, and/or on-the-job-training/internships

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

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

Affiliated Mesabi Range College Courses and Programs:

Industrial Mechanical Technology

Approvals:

Body	**Representative Signatures**	**Date**
Faculty Association		
Academic Affairs Standards Committee		
Chief Academic Officer		

Distribution: **Original – Instructional Services**
Copies: **Transfer Specialist, Originating Faculty Member, Records**
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