

MESABI RANGE COLLEGE

Course Outline

Course Title: Industrial Motor Control

Semester Course Prefix and Number: ECM 1266

Old Quarter Course Prefix and Number:

Submitted By: Robert Stevens

Approval Date:

Revision Date: 9/6/16

Number of Credits: 6

Number of Lecture Credits: 2

Semester(s) Offered: Spr

Number of Lab Credits: 4

Number of Lab Hours: 8

Class Size: 24

Number of Studio/Demonstration/Internship Credits:

Negotiated by AASC on:
(date)

Course Purpose Code:

0 – Developmental Courses

1 – Non-transferable

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 MNTC (e.g. computer science, health, physical education)

5 – Course which is intended to fulfill the Minnesota Transfer Curriculum (MNTC) requirements or intended for transfer.

9 – Continuing Education/Customized Training specialized credit course (not occurring in 0-5)

Catalog Description:

The course is a "Hybrid" or "Blended" course with the majority of the learning environment traditional in-class lectures and hands on lab work but also includes Web-based learning activities to complement face-to-face work. This course covers the design, wiring, and operation of AC motor control circuits from the power distribution system, or source, to the final control circuit and motor. The student will receive instruction in the installation, troubleshooting, and maintenance of equipment associated with motors and motor controls. Topics include three phase power, transformers, control devices, motor starters and motors. Students should possess knowledge of basic electricity and electronic fundamentals.

Prerequisites and/or recommended entry skills/knowledge:

Course Prerequisite(s): ECM 1253, ECM 1243

Reading Prerequisite: None

Composition Prerequisite: None

Mathematics Prerequisite: None

Career Programs and Transfer Majors Accessing this Course:

Electrical Controls and Maintenance Diploma

Electrical Controls and Maintenance 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. AASC 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)

Upon completion of this course, the student will be able to:

- Identify safe work rules and procedures
- Interpret industrial electrical systems and distribution
- Understand motor design theory.
- Interpret electrical control prints and diagrams.
- Install and wire industrial motor control components.
- Calculate and set-up over current protection devices.
- Interpret standard motor control circuit designs

Student Assessment Methods:

Assessment made of lab assignments, worksheets, and papers using rubrics and check lists. Tests and quizzes of technical knowledge to be given at regular intervals during semester.

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

ECM Laptop Computer Lease with Industrial Software

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

Laptop Computer Lease and Required Tool List

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

None

Affiliated Mesabi Range College Courses and Programs:

Approvals:

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

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Copies: Transfer Specialist, Originating Faculty Member, Records
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