

Course Outline

Course Title: Electrical for Operators

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Semester Course Prefix and Number: EIAT 1255

Approval Date:

Old Quarter Course Prefix and Number:

Revision Date:

Number of Credits: 3

Number of Lecture Credits: 2

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. It encompasses topics starting with basic electrical theory and continues with electrical safety, electrical distribution systems, and motor control. The course focus is on practical knowledge needed by multiple craft 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 a broad knowledge base of safety practices including, but not limited to, electrical shock, arc flash hazards, use of electrical test equipment, circuit interlocks, resetting overcurrent devices, situations where Personal Protection Equipment (PPE), and ground fault protection must be used.
- identify electrical quantities or measurements.
- demonstrate an understanding of Ohm's Law.
- analyze electrical distribution systems and equipment.
- identify system voltages.
- explain the relationship between Power and Power Factor.
- describe Emergency and Backup Power Systems.
- identify Distribution Panels and Motor Control Centers (MCC's).
- explain causes for equipment overloads.
- apply equipment grounding requirements.
- analyze basic motor control strategy.
- differentiate between local and remote control systems.
- differentiate between automatic and manually controlled systems.
- identify motor control problems and faults.

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

Outline of the major course content:

See "Catalog Description"

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

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

Approvals:

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