

Minnesota State College Southeast

INDS 1633: Electrical Principles & Practices 1

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 2

Lab Hours/Week: 2

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

The course will start out with a study of the fundamental concepts of AC and DC electricity. Students will utilize Ohm's Law, construct basic circuits and learn the operation of basic test equipment. Students will be introduced to basic electrical components and systems found in the industrial maintenance world. Magnetic induction, AC waveforms, impedance and troubleshooting techniques, wiring diagrams, and a review of electrical safety are most of the topics covered. (Prerequisite: None) (3 credits: 2 lecture/1 lab)

B. COURSE EFFECTIVE DATES: 03/02/2009 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

D. LEARNING OUTCOMES (General)

1. Demonstrate electrical safety
2. Describe electrical safety practices
3. Identify voltage, amperes and resistance relationships (Ohm's law)
4. Demonstrate use of electrical measuring devices and meters
5. Describe electron flow verses conventional flow
6. Construct parallel electrical circuits
7. Construct series electrical circuits
8. Identify open and closed circuits
9. Describe methods of generating electricity
10. Identify electrical components
11. Identify switching devices
12. Measure volts, amps, and resistance of circuits
13. Calculate volts, amps, and resistance of circuits
14. Determine voltage polarities
15. Identify electrical symbols
16. Describe electronic terms
17. Define work, energy, and power
18. Calculate circuit power values
19. Examine capacitance, inductance and impedance of electrical circuits
20. Examine common electrical maintenance practices
21. Demonstrate troubleshooting techniques
22. Read electrical wiring diagrams and symbols
23. Examine electromagnetism

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted