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Northeast Wisconsin Technical College

31-413-355 022726 Electricity-Linepersons

Course Outcome Summary

Course Information

Description	31-413-355 ELECTRICITY-LINEPERSONS ...electric power/energy, three-phase voltage generation, three-phase circuit power, transformer operation principles, transformer connections, and safety practices in high voltage applications. (Prerequisite: 31-413-353, Electricity-Basic)
Total Credits	2
Total Hours	72

Course History

Last Revision Date	3/16/2017
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Employability Skills

Communicate Effectively
Demonstrate Community and Global Accountability
Demonstrate Personal Accountability
Solve Problems Effectively
Think Critically and Creatively
Value Individual Differences and Abilities
Work Cooperatively and Professionally

Program Outcomes

TSA1 - Apply electrical theory

Course Competencies

1. Explain the operation of common electromagnetic devices

Assessment Strategies

On a written exam, without the aid of text, notes or aides of any kind

Criteria

Your performance will be successful when:

can accomplish the learning objectives to a level of 75% accuracy

2. Calculate the circuit values of voltage, current, resistance, and power, for an AC resistive circuit

Assessment Strategies

On a written exam, without the aid of text, notes, or reference of any kind

Using a calculator and writing all formulas used, showing all work

Criteria

Your performance will be successful when:

can accomplish each learning objective to an accuracy of 75%

3. Describe the effects of inductance and inductive reactance on AC circuits

Assessment Strategies

On a written exam, without the aid of text, notes, or reference of any kind

Using a calculator and writing all formulas used, showing all work

Criteria

Your performance will be successful when:

can accomplish each learning objective to an accuracy of 75%

4. Explain the effects of capacitance, and capacitive reactance on AC circuits

Assessment Strategies

On a written exam, without the aid of text, notes, or reference of any kind

Using a calculator and writing all formulas used, showing all work

Criteria

Your performance will be successful when:

can accomplish each learning objective to an accuracy of 75%

5. Apply right angle trigonometry and the Pythagorean theorem to solve values of voltage, current, impedance, power factor and phase angles of given AC reactive circuits

Assessment Strategies

On a written exam, without the aid of text, notes, or reference of any kind

Using a calculator and writing all formulas used, showing all work

Criteria

Your performance will be successful when:

can accomplish each learning objective to an accuracy of 90%

6. Calculate values of voltage, current, impedance, power, and power factor, and phase angle for resistive-inductive (R-L) series and parallel AC circuits.

Assessment Strategies

On a written exam, without the aid of text, notes, or other reference

Using a calculator, writing all formulas used, and showing all work

Criteria

Your performance will be successful when:

can accomplish each learning objective to an accuracy of 75%

7. Calculate values of voltage, current, impedance, power, phase angle, and power factor, for resistive-capacitive (R-C) series and parallel AC circuits

Assessment Strategies

On a written exam, without the aid of text, notes, or other reference

Using a calculator, writing all formulas used, showing all work

Criteria

Your performance will be successful when:

can accomplish each learning objective to an accuracy of 75%

8. Calculate values of voltage, current, impedance, power, phase angle and power factor, for a resistive-inductive-capacitive (R-L-C) AC circuits.

Assessment Strategies

Using a calculator, writing all formulas used, showing all work

Criteria

Your performance will be successful when:

can accomplish each learning objective to an accuracy of 75%

9. Analyze examples of industrial power circuits

Assessment Strategies

On a written exam, without the aid of text, notes, or other reference

Using a calculator, writing all formulas used, and showing all work

Criteria

Your performance will be successful when:

can accomplish each learning objective to an accuracy of 75%

10. Describe the operating principles, and basic types, of direct current generators

Assessment Strategies

on a written exam without text, notes or reference of any type

Criteria

Your performance will be successful when:

can accomplish each of the learning objectives to an accuracy of 75%

11. Describe the operating principles of single and three phase alternating generators

Assessment Strategies

on a written exam without text, notes, or reference of any type

Criteria

Your performance will be successful when:

can accomplish each learning objective to an accuracy of 75%

12. Characterize the three phase systems commonly used for power distribution

Assessment Strategies

using a calculator, writing all formulas used, and showing all work

Criteria

Your performance will be successful when:

can accomplish each learning objective to an accuracy of 75%

13. Explain the principles of operation, and the physical requirements of single phase transformers.

Assessment Strategies

on a written exam without the aid of text, notes, or reference of any type

using a calculator where necessary

Criteria

Your performance will be successful when:

can accomplish the learning objectives to the accuracy of 75%

14. Explain the principles of operation of three phase transformers

Assessment Strategies

on a written exam including incomplete connection diagrams without the aid of references
using a calculator where needed
by completing connection diagrams

Criteria

Your performance will be successful when:

can accomplish the learning objectives to an accuracy of 75%
can complete connection diagrams to an accuracy of 100%

15. Distinguish between the types of, and draw the proper connections for, common instrument transformers

Assessment Strategies

on a written exam without the aid of text, notes, or reference of any type

Criteria

Your performance will be successful when:

can accomplish the learning objectives to an accuracy of 75%