Wayne County Community College District

COURSE SYLLABUS

MCT 203   Electrical Machinery and Controls

CREDIT HOURS: 3.00   **CONTACT HOURS:**   60.00

COURSE DESCRIPTION:
This course covers principles involved in the function of DC and AC motors and generators and their connection, operation and load characteristics. Study of different types of speed controls and starters, characteristics of single phase motors and polyphase machines including synchronous and induction motors, transformer characteristics such as losses, efficiencies, paralleling transformers and transformer testing are included. Laboratory experiments to examine the characteristics of the various DC and AC motors and generators, using various speed controllers and starters.

PREREQUISITES: *EE 102*

EXPECTED COMPETENCIES:
Upon successful completion of this course, the student will:
- Transformers Basics
- Single-Phase Transformers calculations
- Transformers Polarities
    - Auto Transformers
- Three-Phase Circuits
    - Three-Phase Transformers
- Basic operation of DC generator
- Connection, operation, and load characteristics of a separately-exited DC shunt generator.
- Connection, operation, and load characteristics of a DC compound generator.
- Connection, operation, and load characteristics of a DC shunt motor.
- Connection, operation, and load characteristics of a DC series motor.
- Connection, operation, and load characteristics of a DC compound motor
- Speed control of a DC motor using field rheostat and armature speed controller
- Basic operation, speed and torque characteristics of polyphase induction motor.
- Load characteristics and losses and efficiency of polyphase induction motor.
- Familiarization with control of motor with PLC
- Using RS logix 500 to control electrical machines

ASSESSMENT METHODS:
Student performance may be assessed by examination, quizzes, case studies, oral conversation, group discussion, oral presentations. The instructor reserves the option to employ one or more of these assessment methods during the course.

GRADING SCALE:
90%-100% = A
80%-89.9%= B
70%-79.9%= C
60%-69.9%= D
<60% = E