MURRAY STATE UNIVERSITY

DEPARTMENT OF INDUSTRIAL AND ENGINEERING TECHNOLOGY

COURSE NUMBER: EMT 355 CREDIT HOURS: 4

I. TITLE: Electric Machinery and Controls

II. CATALOG DESCRIPTION:
A study of electric motors and their controls including the operating characteristics and applications of various dc and ac motors, electromechanical controls and electronic drives. Three hours lecture and two hours lab. Prerequisite: TSM 110

III. PURPOSE:
To familiarize the student with the operating characteristics, applications and control ac and dc motors.

IV. COURSE OBJECTIVES:
A. To provide the student with a basic knowledge of the operating characteristics of ac and dc motors.
B. To provide the student with the ability to select the proper machine for a given application.
C. To provide the student with a working knowledge of electromechanical controls and control circuits.
D. To provide the student with basic knowledge of electronic drives and their applications.

V. CONTENT OUTLINE:
A. DC Generators
B. DC Motors
C. Efficiency and Heating of Motors
D. Three-Phase Induction Motors
E. Selection and Application of Three-Phase Induction Motors
F. Basics of Industrial Motor Control
G. Electromechanical Control of Three-Phase Induction Motors
H. Electronic Control of Three-Phase Induction Motors
I. Three-Phase Synchronous Motors
J. Single-Phase Motors
K. Stepper Motors

VI. INSTRUCTIONAL ACTIVITIES:
A. Lecture
B. Discussion
C. Laboratory Reinforcement

VII. FIELD, CLINICAL, AND/OR LABORATORY EXPERIENCES:
Field Trips

VIII. RESOURCES: Textbook

IX. GRADING PROCEDURES:

A. Grading: Four (4) one-hour tests of 100 points each, and laboratory reports totaling 100 points for a total of 500 points. Besides technical correctness, tests and lab reports will be graded for neatness, spelling and the correct use of grammar. In addition, one lab report will be given in the form of an oral presentation. Grading Scale: A: 90-100, B: 88-89, C: 70-79, D: 60-69, E: 59 and below.

B. Make-up Tests: No make-up test will be given unless the instructor is notified before the test concerning the reason for missing the test. Excuses for missing tests must be documented.

X. ATTENDANCE POLICY:

You are expected to attend class regularly.

XI. ACADEMIC HONESTY POLICY:

Cheating, plagiarism (submitting another person's material as one's own), or doing work for another person which will receive academic credit are all impermissible. This includes the use of unauthorized books, notebooks or other sources in order to secure or give help during an examination; the unauthorized copying of examinations, assignments, reports or term papers; or the presentation of unacknowledged material as if it were the student's own work. Disciplinary action may be taken beyond the academic discipline administered by the faculty member who teaches the course in which the cheating took place.

XII. TEXT AND REFERENCES:

Electric Machines, Drives and Power Systems by Theodore Wildi, 6th Edition, 2006, Prentice Hall

XIII. PREREQUISITES: TSM 110

XIV. STATEMENT OF AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY:

Murray State University endorses the intent of all federal and state laws created to prohibit discrimination. Murray State University does not discriminate on the basis of race, color, national origin, gender, sexual orientation, religion, age, veteran status, or disability in employment, admissions, or other provision of services and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities equal access to participate in all programs and activities.

J. Weatherly, 1/11