SYLLABUS
PART I
EDISON STATE COMMUNITY COLLEGE
ELT 231S ELECTRICAL POWER AND CONTROL
3 CREDIT HOURS

COURSE DESCRIPTION
A study of the principles of design, construction, operation, operational characteristics and selection of single and polyphase AC and DC rotating machinery. Circuitry and procedures for effecting speed control, motor starting, stopping, and jogging are studied together with electrical power wiring, switching and safety considerations. Prerequisite: ELT 131S. Lab fee.

COURSE GOALS
The student will:

Bloom's Level		Program Outcomes
2	1. Describe and analyze the operational characteristics of single phase and three phase AC motors and alternators and DC generators and motors.	1, 2, 4
4	2. Interpret electrical and mechanical characteristics of AC and DC machines.	1, 2, 4
4	3. Recognize basic motor installation requirements and how to verify safe installations.	1, 2, 4
2	4. Describe the test equipment and practices commonly used in motor and control maintenance and installation.	1, 2, 4
5	5. Identify and construct a variety of electrical controls for motors.	1, 2, 4
2	6. Classify electrical safety requirements.	1, 2, 4
2	7. Identify and describe various motor controllers, relays, timers and sensors and how to use and maintain them.	1, 2, 4
3	8. Develop and interpret electrical wiring diagrams related to motor control.	1, 2, 4

CORE VALUES
The Core Values are a set of principles which guide in creating educational programs and environments at Edison State. They include communication, ethics, critical thinking, human diversity, inquiry/respect for learning, and interpersonal skills/teamwork. The goals, objectives, and activities in this course will introduce/reinforce these Core Values whenever appropriate.

TOPIC OUTLINE
1. Characteristics and Operation of Single-phase AC Motors and NEMA Specifications.
2. Motor Maintenance and Installation, Test Equipment Uses.
3. Power and Efficiency, NEC Requirements, Practices.
4. Industrial Motor Control, Relays and Timers, and Wiring Diagrams.
5. Three-phase Alternators, Transformers and Three-phase Motors.
6. Electromechanical and Electronic Control and Starting of Three-phase Motors.
7. DC Generators and Motors and Controls.