

MOTOR CONTROLS I

COURSE SYLLABUS

Revised 11/28/2011

<u>C - L - CR</u>
<u>2 - 6 - 4</u>

COURSE NUMBER: EEM 151

PREREQUISITE(S): None

CO-REQUISITE(S): None

COURSE DESCRIPTIONS This course is an introduction to motor controls, including a study of the various control devices and wiring used in industrial processes.

TEXTBOOK(S): Rockis, Gary and Glen Mazur. Electrical Motor Controls. 4th Ed. Homewood: ATP
Rockis, Gary and Glen Mazur. Electrical Motor Controls. 4th Ed. Homewood: ATP

REFERENCE(S): None

OTHER REQUIRED MATERIALS, TOOLS, AND EQUIPMENT: Safety glasses, proper safety attire, small hand tools

METHOD OF INSTRUCTION: This course is a lecture/lab type course supplemented by demonstrations. WebCT may also be used with supplementary materials and assignments.

GRADING SYSTEM:

90	-	100	=	A
80	-	89	=	B
70	-	79	=	C
60	-	69	=	D
Below	-	60	=	F

GRADE CALCULATION METHOD:

Unit Tests	=	30%
Projects	=	40%
Exam	=	10%
Class Part.	=	20%
	=	100%

ATTENDANCE POLICY: Students are responsible for punctual and regular attendance in all classes, laboratories, field trips, and other class activities. The College does not grant excused absences;

therefore, students are urged to reserve their absences for emergencies. When illness or other emergencies occur, the student is responsible for notifying instructors and completing work missed.

Students are tardy if not in class at the time the class is scheduled to begin. Tardy students are admitted to class at the discretion of the instructor.

If you have attended at least one session during the first week of the semester you are responsible for dropping yourself from the class. **It is the students' responsibility** to withdraw from a course. A student who stops attending class and fails to initiate a withdrawal will remain on the class roster.

If you do not attend a class session during the first week of class you will automatically be dropped by the College.

A student who does not complete an assignment, test, or final exam in the course will receive a zero for each missing grade and the final course grade will be calculated accordingly. **Points will be deducted for attendance.**

Absences for Religious Holidays: Students who are absent from class in order to observe religious holidays are responsible for the content of any activities missed and for the completion of assignments occurring during the period of absence. Students who anticipate their observance of religious holidays will cause them to be absent from class and do not wish such absences to penalize their status in class should adhere to the following guidelines:

1. Observance of religious holidays resulting in three or fewer consecutive absences: Discuss the situation with the instructor and provide written notice at least one week prior to the absence(s). Develop (in writing) and instructor-approved plan which outlines the make up of activities and assignments.
2. Observances of religious holidays resulting in four or more consecutive absences: Discuss the situation with the instructor and provide the instructor with written notice within the first 10 days of the academic term. Develop an instructor-approved plan with outlines the makeup of activities and assignments.

**ACADEMIC
CONDUCT:**

ACADEMIC DISHONESTY: Students are expected to uphold the integrity of the College's standard of conduct, specifically in regards to academic honesty. All forms of academic dishonesty including, but not limited to, cheating on assignments/tests, plagiarism, collusion, and falsification of information will call for disciplinary action. Disciplinary action imposed may include one or more of the following: written reprimand, loss of credit for assignment/test, termination from course, and probation, suspension, or expulsion from the College. For further explanation of this and other conduct codes, please refer to the Student Handbook.

CELLULAR PHONES AND PAGERS/BEEPERS: Cellular phones, pagers and beepers are not permitted to be turned on or used within the classroom. Use of these devices during classroom time will be considered a violation of the student code as it relates to “disruptive behavior.”

**CLASS/LAB
PROCEDURES:**

Students are to maintain awareness and observe safety procedures when operating or troubleshooting “live” electrical panels.

Proper dress including long pants, shirts and full shoes, plus approved safety glasses (which must be worn at all times when inside the lab) must be worn. Each student must clean his/her work area at the end of each lab session.

ACCOMMODATIONS:

Students who need special accommodations in this class because of a documented disability should notify Student Disability Services. You may contact Student Disability Services by calling, (864) 592-4811, toll-free 1-800-922-3679; via email through the Spartanburg Community College web site at www.sccsc.edu/SDS/; or by visiting the office located in the Dan Lee Terhune Student Services Building, room 112 of the Spartanburg Community College campus. By contacting Student Disability Services early in the semester, students with disabilities give the College an opportunity to provide necessary support services and appropriate accommodations.

**COURSE
COMPETENCIES &
OBJECTIVES:**

Upon satisfactory completion of this course, the student will be able to:

- I. Demonstrate safety considerations for personnel, work area, and maintenance of equipment.
 1. Explain and implement various organizational and safe practices as would be found in an electrical/industrial work area.
 2. Explain and implement various safety procedures and practices related to electrical tools and instruments in the work place.

- II. Demonstrate and understanding of the electrical symbols, operation and use various electrical control devices commonly found in motor control systems.
 1. Identify electrical pilot devices, and explain their use and symbols in an electrical circuit.
 2. Identify and explain the operation of various electrical operators like solenoids, transformers and control relays.

- III. Develop and draw an electrical schematic and construct various motor control operating circuits commonly used in the motor controls industry.
 1. Design, construct, and troubleshoot magnetic motor starter circuits using AC/DC Contactors.
 2. Design, construct, and troubleshoot control circuits implementing the use of various time delay circuit elements.
 3. Design, construct, and troubleshoot control circuits implementing the use of various time delay circuit elements.
 4. Design, construct, and troubleshoot control circuits implementing the use of various “logic” elements.
 5. Design, construct, and troubleshoot control circuits implementing the ability to start, stop, forward, and reverse to activate a motor control circuit.