## COURSE INFORMATION FORM

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<th>DISCIPLINE</th>
<th>INTE</th>
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<tr>
<td>COURSE TITLE</td>
<td>Electric Motor Controls I</td>
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<td>CR.HR</td>
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<tr>
<td>LECT HR</td>
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<td>LAB HR</td>
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**CATALOG DESCRIPTION**

The course is designed to present the fundamentals of electrical motor control components, circuits and systems. Topics include electrical control symbols, power distribution, control transformers, solenoids and relays, motor starters, pilot devices, timers and sequencers, dc and ac motor principles, proximity sensors and troubleshooting.

**PREREQUISITES**

HVAC 109 or INTE 115

**EXPECTED STUDENT OUTCOMES IN THE COURSE**

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

1. Identify symbols used in motor control circuits.
2. Describe correct motor system power distribution.
3. Construct two and three wire control circuits.
4. Describe the characteristics of relays; solenoids and motor starters.
5. Select motor starter heaters for different motors.
6. Describe the operation of complex motor control circuits.
7. Construct complex motor control circuits.
CLASS-LEVEL ASSESSMENT MEASURES

Student accomplishment of expected student outcomes will be assessed using the following measures. (Identify which measures are used to assess which outcomes.)

Written examinations (1, 2, 4)
Project (3, 5 – 7)

PROGRAM-LEVEL OUTCOMES ADDRESSED

General Education Outcomes
Specify which general education outcomes, if any, are substantially addressed by the course by completing the “Course/Program Assessment Matrix” to show the relationship between course and program outcomes and assessment measures.

Occupational Program Outcomes
Specify which occupational program outcomes, if any, are substantially addressed by the course by completing the “Course/Program Assessment Matrix” to show the relationship between course and program outcomes to assessment measures.
Individual instructors may order this outline as fits the needs of their individual courses. In addition, they may place more emphasis on some areas than on others. What is assured is that this particular list is covered in the course. Other topics may be added to a course as the instructor sees fit, and as time and interest allow. An *asterisk can be used to mark an item as optional.

I. Motor circuit safety
II. Motor control circuit electrical symbols
   A. NEMA symbols
   B. EU symbols
III. Basic control circuits
   A. Operations
   B. Selection considerations
IV. Manual control devices
V. Magnetic principles, solenoids and relays
   A. Operation
   B. Selection considerations
VI. Motor starters and contactors
   A. Contactors
   B. Motor starters
VII. Pilot devices
VIII. Timers
   A. Dash pot timers
   B. Electronic timers
   C. Motor driven timers
IX. Motor fundamentals
   A. AC motors
   B. DC motors
X. Complex motor control circuits
   A. Sequential
   B. Permissive
   C. Timed event