

## Master Syllabus

### EGV 2201 - Electrical Lighting & Motors

**Division:** Science, Mathematics and Engineering

**Department:** Engineering Technology Design

**Credit Hour Total:** 2.0

**Lecture Hrs:** 1.0 **Lab Hrs:** 2.0

**Prerequisite(s):** EET 1120 AND EGV 1251 AND PHY 1100 OR PHY 1131 OR PHY 1141 OR PHY 2201

**Date Revised:** March 2012

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#### Course Description:

This course covers components of lighting systems, control strategies, current technologies and electric motors. Energy efficiency opportunities and environmental impacts are identified and analyzed. One classroom, two lab hours per week.

#### General Education Outcomes:

- Written Communication Competency
- Critical Thinking/Problem Solving Competency

#### Course Outcomes:

##### Lighting and motor systems

Describe the basic operation of lighting and motor systems.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% or better on exams

##### Instrument use

Demonstrate proper use of various required analytical instruments, including the multimeter and light meter.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% or better on exams

##### Frequency drives

Explain the operation and application of variable speed and variable frequency drives and their impact on energy consumption.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% or better on exams

##### Energy use

Estimate energy use of lighting systems and motors.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% or better on exams

##### Energy efficiency

List and describe energy efficiency opportunities for lighting and motors.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% or better on exams

#### Outline:

Motors and safety review: ammeter, voltmeter, ohmmeter, lightmeter  
Motor and lighting electrical circuit configurations; schematic, pictorial, and installation diagrams  
Power distribution and voltage systems  
Electrical circuits and circuits components for lighting systems and motors  
Sizing motors, including energy efficient motors  
Components for electric motors  
Variable speed drives  
Operational costs, potential savings and environmental impact