Glendale College

# Course Outline of Record Report

Course ID 004200

Revision - April 2025

# ECT160 : Inspection and Codes For Electricians

## General Information

| | |
|---|---|
| **Author:** | • Christopher Herwerth |
| **Course Code (CB01) :** | ECT160 |
| **Course Title (CB02) :** | Inspection and Codes For Electricians |
| **Department:** | ECT |
| **Proposal Start:** | Spring 2026 |
| **TOP Code (CB03) :** | (0934.00) Electronics and Electric Technology |
| **CIP Code:** | (47.0101) Electrical/Electronics Equipment Installation and Repair Technology/Technician, General. |
| **SAM Code (CB09) :** | C - Clearly Occupational |
| **Distance Education Approved:** | No |
| **Will this course be taught asynchronously?:** | Yes |
| **Course Control Number (CB00) :** | CCC000523681 |
| **Curriculum Committee Approval Date:** | 04/23/2025 |
| **Board of Trustees Approval Date:** | 06/17/2025 |
| **Last Cyclical Review Date:** | 04/23/2025 |
| **Course Description and Course Note:** | ECT 160 introduces students to the National Electrical Code (NEC) using national, state, and local codes. The course teaches the duties of the electrical inspector with emphasis on code enforcement, inspection procedures, plan reading, electrical symbols, and terminology. Methods of performing electrical inspections and interpreting electrical systems are based on the current electrical codes and standards. Upon completion, students will understand safety, asbestos abatement awareness, anchoring and supporting for earthquake mitigation, quality artistry, efficient and well-designed electrical systems, and retrofitting. |
| **Justification:** | Mandatory Revision |
| **Academic Career:** | • Credit |
| **Mode of Delivery:** | • In-Person<br>• Remote<br>• Online |
| **Author:** | No value |
| **Course Family:** | No value |

## Academic Senate Discipline

| | |
|---|---|
| **Primary Discipline:** | • Electronic Technology (Radio, television, computer repair, avionics) |
| **Alternate Discipline:** | No value |
| **Alternate Discipline:** | No value |

## Course Development

**Basic Skill Status (CB08)**

Course is not a basic skills course.

☐ Allow Students to Gain Credit by Exam/Challenge

**Course Special Class Status (CB13)**

Course is not a special class.

**Pre-Collegiate Level (CB21)**

Not applicable.

**Grading Basis**

- Grade with Pass / No-Pass Option

**Course Support Course Status (CB26)**

Course is not a support course

## General Education and C-ID

**General Education Status (CB25)**

Not Applicable

**Transferability**

Transferable to CSU only

**Transferability Status**

Approved

## Units and Hours

### Summary

| | |
|---|---|
| **Minimum Credit Units (CB07)** | 3 |
| **Maximum Credit Units (CB06)** | 3 |
| **Total Course In-Class (Contact) Hours** | 54 |
| **Total Course Out-of-Class Hours** | 108 |
| **Total Student Learning Hours** | 162 |

### Credit / Non-Credit Options

**Course Type (CB04)**

Credit - Degree Applicable

**Noncredit Course Category (CB22)**

Credit Course.

**Noncredit Special Characteristics**

No Value

**Course Classification Code (CB11)**

Credit Course.

☐ Variable Credit Course

**Funding Agency Category (CB23)**

Not Applicable.

☐ Cooperative Work Experience Education Status (CB10)

### Weekly Student Hours

| | In Class | Out of Class |
|---|---|---|
| Lecture Hours | 3 | 6 |
| Laboratory Hours | 0 | 0 |
| Studio Hours | 0 | 0 |

### Course Student Hours

| | |
|---|---|
| **Course Duration (Weeks)** | 18 |
| **Hours per unit divisor** | 0 |
| **Course In-Class (Contact) Hours** | |
| Lecture | 54 |

| | |
|---|---|
| Laboratory | 0 |
| Studio | 0 |
| **Total** | 54 |

**Course Out-of-Class Hours**

| | |
|---|---|
| Lecture | 108 |
| Laboratory | 0 |
| Studio | 0 |
| **Total** | 108 |

## Time Commitment Notes for Students

No value

## Units and Hours - Weekly Specialty Hours

| Activity Name | Type | In Class | Out of Class |
|---|---|---|---|
| No Value | No Value | No Value | No Value |

## Prerequisites, Corequisites, Recommended Corequisites, and Recommended Preparation

### Prerequisite

ECT110 - Electricity and Electronics Principles

**Objectives**

- Determine the value of resistors from their color code, measure DC (Direct Current) and AC (Alternating Current) voltage.
- Identify conductors and insulators, and test common types of switches.
- Measure current in a circuit, verify ohms law, investigate errors in measurement.
- Design a series and parallel circuit that will meet specified resistance requirements.
- Develop a general rule for calculating the voltage across each resister in an unloaded and loaded resistive voltage divider.
- Develop methods of troubleshooting circuits using voltage, current, capacitor, and resistance measurements.
- Identify the operating controls of an oscilloscope.
- Identify the controls and features of an audio frequency generator.
- Describe the effect of AC and DC electrical motors and inductance.
- Identify and measure affect transformers and magnetic relays and contactors.

## Entry Standards

| Entry Standards | Description |
| --- | --- |
| **Describe basic laboratory equipment and components.** | No Value |

## Course Limitations

| Cross Listed or Equivalent Course | Description |
| --- | --- |
| No value | No value |

## Specifications

**Methods of Instruction**

| Methods of Instruction | |
| --- | --- |
| **Methods of Instruction** | Lecture |
| **Methods of Instruction** | Discussion |
| **Methods of Instruction** | Multimedia |
| **Methods of Instruction** | Collaborative Learning |
| **Methods of Instruction** | Demonstrations |
| **Methods of Instruction** | Presentations |

**Out of Class Assignments**

- Individual projects (e.g., written assignments, reading reports)
- Group projects (e.g., homework problems, problem solving demonstrations, discussion on textbook topics)

| Methods of Evaluation | Description of Activity/Interaction |
|---|---|
| Exam/Quiz/Test | Quizzes |
| Exam/Quiz/Test | Unit examinations |
| Exam/Quiz/Test | Mid-term examination |
| Exam/Quiz/Test | Final examination |

**Textbook Rationale**

No Value

**Textbooks**

| Author | Title | Publisher | Date | ISBN |
|---|---|---|---|---|
| National Fire Protection Association | NFPA 70, NATIONAL ELECTRICAL CODE (NEC) | National Fire Protection Association, Quincy MA | 2023 | 9781455929368 |

**Other Instructional Materials (i.e. OER, handouts)**

No Value

## Learning Outcomes

**Course Objectives**

List the steps in the inspection process using national, state and local codes.

Outline the principles of energy management systems and retrofitting.

Outline the methods of interpreting electrical systems based on the current electrical codes and standards.

Cite importance of safety regarding asbestos abatement awareness and the anchoring and supporting for earthquake mitigation.

Recognize efficient and well-designed electrical systems for residential, industrial and commercial locations.

**SLOs**

**Apply the inspection process using national, state and local codes.** Expected Outcome Performance: 70.0

**Interpret the duties of an electrical inspector with emphasis on code enforcement, inspection procedures and plan reading.**
Expected Outcome Performance: 70.0

**Define electrical symbols and terminology.**
Expected Outcome Performance: 70.0

## Additional SLO Information

**Does this proposal include revisions that might improve student attainment of course learning outcomes?**

No

**Is this proposal submitted in response to learning outcomes assessment data?**

No

**If yes was selected in either of the above questions for learning outcomes, explain and attach evidence of discussions about learning outcomes.**

No Value

**SLO Evidence**

No Value

## Course Content

**Lecture Content**

**National Electrical Code and Local Code (NEC) (10 hours)**
- Purpose and intent of electrical codes
- Scope on NEC and local codes
- State codes versus local codes

**Utilizing Code Book (18 hours)**
- Mandatory rules
- Fine print rules
- "Neat and workmanlike"
- Locate definitions
- Interpretations
- Recognize and use exceptions
- Materials recognized by NEC
- Identify code markings
- Distinguish wet, damp, and dry locations
- Determine if specific locations are acceptable to code
- Requirements for special occupancies
- Answer specific questions

**Use NEC to Calculate Various Conductors and Fill Situations (18 hours)**
- Service conductors
- Permissible loads on various circuits
- Allowable cable tray fills
- Imparity of various conductor and fill situations
- Imparity of various circuits and load types
- Overload protection for motors, equipment, and phase
- Minimum ampacity for motor disconnect means
- Horsepower ratings for motors and disconnecting means
- Grounding requirements

**Use NEC for hazardous locations (8 hours)**

- Hazardous locations by class
- Equipment and wiring methods necessary for particular hazardous locations

**Total Hours: 54**

## Additional Information

**Repeatability**

Not Repeatable

**Justification (if repeatable was chosen above)**

No Value

**Is it possible this course will have a material fee?**

No

**I have contacted my library liaison (https://campusguides.glendale.edu/faculty/liaisons):**

No Value

**What term(s) will this course be offered?**

Fall/Spring

**Will any additional resources be needed for this course? (Click all that apply)**

- No

**If additional resources are needed, add a brief description and cost in the box provided.**

No Value

## Resources

**Did you contact your departmental library liaison?**

Yes

**If yes, who is your departmental library liason?**

Adina Lerner (Technology & Aviation, Visual & Performing Arts)

**Did you contact the DEIA liaison?**

Yes

**Were there any DEIA changes made to this outline?**

No

**If yes, in what areas were these changes made:**

No Value

**Will any additional resources be needed for this course? (Click all that apply)**

- No

**If additional resources are needed, add a brief description and cost in the box provided.**

No Value