

# Electrical Trades Technology (ETT)

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## ETT 1100 Electrical Print Reading .....3 Credit Hours

**ESL Placement Level:** Placement into ENG 1510, ENG 1510E, or ENG 1510S, or placement into ESL 2510 or higher or completion of ESL 2510 or higher. ENG transfer credit will also satisfy this prerequisite.

This course focuses on the general concept of blueprint reading from engineering drawing used in residential and commercial application in the electrical field. The course reflects current NEC, NEMA, ANSI, ISO, and ASME specifications as it relates to lines, views, elevations, and dimensions along with orthographic and two-dimensional drawings.

**BILLABLE CONTACT HOURS:** 3

## ETT 1110 Industrial Electrical Systems .....3 Credit Hours

**ESL Placement Level:** Placement into ENG 1510, ENG 1510E, or ENG 1510S, or placement into ESL 2510 or higher or completion of ESL 2510 or higher. ENG transfer credit will also satisfy this prerequisite.

**Prerequisite:** EEC 1020 and EEC 1040 or consent of instructor.

This course is primarily for industrial electrical apprentices, presenting the broad spectrum of industrial systems that might be encountered in a typical industrial environment. Based on an intensive study of AC polyphase circuits, (reinforced by some laboratory experimentation), the course content is expanded to include: (1) electrical energy sources for industry; (2) distribution systems; (3) industrial control systems; (4) industrial electrical loads; and (5) indicating systems for industry. Field trips to local industries may be incorporated according to relevancy and availability. **BILLABLE CONTACT HOURS:** 3

## ETT 1210 Electrical Residential Wiring .....3 Credit Hours

**ESL Placement Level:** Placement into ENG 1510, ENG 1510E, or ENG 1510S, or placement into ESL 2510 or higher or completion of ESL 2510 or higher. ENG transfer credit will also satisfy this prerequisite.

**Prerequisite:** EEC 1020, EEC 1040 and ETT 1250 or consent of instructor.

Students will utilize fundamental electrical knowledge and National Electrical Code (NEC) to design and install electrical wiring systems in residential environments. Students will develop and utilize building plans, hand and power tools, electrical calculations, and industry standard components to construct electrical systems. All student activities meet NEC standards through instructor direction. This course fulfills the State of Michigan registered electrical apprenticeship required contact hours in material identification, blueprint reading, over current protection and branch circuit distribution. **BILLABLE CONTACT HOURS:** 3

## ETT 1230 Electrical Commercial Wiring .....3 Credit Hours

**ESL Placement Level:** Placement into ENG 1510, ENG 1510E, or ENG 1510S, or placement into ESL 2510 or higher or completion of ESL 2510 or higher. ENG transfer credit will also satisfy this prerequisite.

**Prerequisite:** EEC 1020 and EEC 1040 or consent of instructor.

This course is designed to prepare the novice electrician for commercial wiring jobs. Students will be provided with safe and proper installation procedures and the operation of specialized commercial equipment included in installation. Course content is kept current to reflect the latest advances in design and utilization. The latest edition of the National Electric Code is used as the basic standard for the layouts and construction of the required circuits to design and install electrical wiring systems in commercial environments. Students will develop and utilize building plans, hand and power tools, electrical calculations, and industry standard components to construct electrical systems. This course fulfills the State of Michigan registered electrical apprenticeship required contact hours in material identification, blueprint reading, over current protection and branch circuit distribution. **BILLABLE CONTACT HOURS:** 3

## ETT 1250 National Electrical Code .....3 Credit Hours

**ESL Placement Level:** Placement into ENG 1510, ENG 1510E, or ENG 1510S, or placement into ESL 2510 or higher or completion of ESL 2510 or higher. ENG transfer credit will also satisfy this prerequisite.

**Prerequisite:** EEC 1020 and EEC 1040 or consent of instructor.

This course is designed to provide students or apprentices with the knowledge and application of the national, state, and local electrical codes for the safe installation of electrical wiring and equipment. The topics considered are scope and purpose, definitions, wiring design and protection, wiring methods and materials, equipment for general use, special occupancies, special equipment, special condition, communication systems, tables and examples, and diagrams for the solutions of practical wiring problems. Students will utilize the National Electrical Code (NEC) and appropriate written and application activities to master the concepts and apply their knowledge of the NEC. This course fulfills forty five (45) contact hours of National Electrical Code Instruction for State of Michigan registered Electrical Apprentices. **BILLABLE CONTACT HOURS:** 3

## ETT 2500 Electrical Machines .....4 Credit Hours

**ESL Placement Level:** Placement into ENG 1510, ENG 1510E, or ENG 1510S, or placement into ESL 2510 or higher or completion of ESL 2510 or higher. ENG transfer credit will also satisfy this prerequisite.

**Prerequisite:** EEC 1040 or consent of instructor.

This course is designed to investigate the theory and application of rotating machines commonly found in industrial, commercial, and residential applications: single-phase AC motors, three-phase AC electric motors, and DC electric motors. Students will learn industry relevant skills including operation, installation, analyzing performance, and selecting electric machines for various applications. This is a 'hands-on' course including physical labs. **BILLABLE CONTACT HOURS:** 5

**ETT 2700 Electrical Control Wiring ..... 4 Credit Hours**

**ESL Placement Level:** Placement into ENG 1510, ENG 1510E, or ENG 1510S, or placement into ESL 2510 or higher or completion of ESL 2510 or higher. ENG transfer credit will also satisfy this prerequisite.

**Prerequisite:** EEC 1040 or consent of instructor.

This course is designed to prepare students for the installation, maintenance and repair of industrial controls. Students will install control wiring in an electrical panel; installing wiring into limit switches, solenoids, pressure switches, variable-frequency-drive and PLC. Students will work with a 3-phase motor, pushbuttons, switches, valves and a 24 VDC power supply. Finally, students will write some PLC software to verify wiring. This is a 'hands-on' course including labs. BILLABLE CONTACT HOURS: 5