

# 2022-2023 TTC Catalog - Industrial Electricity-Electronics (EEM)

---

## **EEM 001 - EEM 001**

**Lec: 0 Lab: 0 Credit: \***

Indicates credit given for industrial electricity/electronics course work transferred from another college for which there is no equivalent course at TTC. \*Hours vary depending on external course.

**Division:** Engineering and Construction

---

## **EEM 105 - Basic Electricity**

**Lec: 2.0 Lab: 0 Credit: 2.0**

### **Course Offered**

Fall  
Spring  
Summer

This course is a survey of basic electrical principals, circuits, and measurements.

### **Prerequisite**

MAT 033

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

## **EEM 107 - Industrial Computer Techniques**

**Lec: 2.0 Lab: 0 Credit: 2.0**

### **Course Offered**

Fall  
Summer

This course is an introduction to microcomputers. Topics include definitions of computer types, hardware and software structure, movement of data, and applications of microcomputers. Emphasis will be placed on industry-standard software for the electrical and automated technologies industry.

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

## **EEM 113 - DC Circuits I**

**Lec:** 1.5 **Lab:** 1.5 **Credit:** 2.0

### **Course Offered**

Fall

Spring

This course is an introduction to the study of atomic theory related to electronics and circuit theory. It covers electrical parameters and units, Ohm's Law, Kirchhoff's voltage and current laws, power and energy. It also includes complex circuits and DC instruments. Students will construct and test circuits.

### **Prerequisite**

RWR 100

and

MAT 033

or appropriate test scores

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

## **EEM 114 - DC Circuits II**

**Lec:** 1.5 **Lab:** 1.5 **Credit:** 2.0

### **Course Offered**

Fall

Spring

This course is a continuation of the study of atomic theory related to more complex electronics and circuit theory. It includes advanced electrical parameters and units, Ohm's Law applications, additional Kirchhoff's voltage and current laws, along with new power and energy applications. Topics also include complex circuits and DC instruments. Students will construct and test circuits.

### **Prerequisite**

EEM 113

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

## **EEM 119 - AC Circuits I**

**Lec: 1.5 Lab: 1.5 Credit: 2.0**

### **Course Offered**

Fall  
Spring

This course is an introduction to the study of the characteristics of alternating current and voltage in resistors, capacitors and inductors. It includes study of series, parallel and complex circuits. Students will construct and test circuits.

### **Prerequisite**

EEM 114

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

## **EEM 120 - AC Circuits II**

**Lec: 1.5 Lab: 1.5 Credit: 2.0**

### **Course Offered**

Spring  
Summer

This course is a continuation of the study of the characteristics of alternating current and voltage in resistors, capacitors and inductors in more complex applications. New series, parallel and complex circuits are covered with emphasis on hands-on construction. Students will construct and test circuits.

### **Prerequisite**

EEM 119

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

## **EEM 129 - Solid State Devices I**

**Lec: 1.5 Lab: 1.5 Credit: 2.0**

### **Course Offered**

Fall  
Spring

This course is an introduction to the study of semiconductor theory and common solid state devices. Students will construct and test circuits.

### **Prerequisite**

EEM 114

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

## **EEM 130 - Solid State Devices II**

**Lec:** 1.5 **Lab:** 1.5 **Credit:** 2.0

### **Course Offered**

Fall

Spring

This course is a continuation of the study of semiconductor theory and common solid state devices with new and more complex applications. Students will construct and test circuits.

### **Prerequisite**

EEM 129

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

## **EEM 138 - National Electrical Code I**

**Lec:** 1.0 **Lab:** 3.0 **Credit:** 2.0

### **Course Offered**

Spring

Summer

This course is an introduction to the study of the National Electrical Code and is based on the latest codes as published by the National Fire and Protection Association (NFPA).

### **Prerequisite**

EEM 164

and

EEM 168

and

EEM 174

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

## **EEM 139 - National Electrical Code II**

**Lec:** 1.0 **Lab:** 3.0 **Credit:** 2.0

### **Course Offered**

Spring  
Summer

This course is a continuation of the study of the National Electrical Code. Students will be required to identify violations of the Code in working applications and will demonstrate a working knowledge of the latest codes. Topics are based on the latest codes as published by the National Fire and Protection Association (NFPA).

### **Prerequisite**

EEM 138

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

## **EEM 151 - Motor Controls I**

**Lec:** 2.0 **Lab:** 6.0 **Credit:** 4.0

### **Course Offered**

Spring

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

### **Prerequisite**

EEM 219

or

### **Corequisite**

EET 113

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

## **EEM 163 - Residential Wiring I**

**Lec:** 1.5 **Lab:** 1.5 **Credit:** 2.0

### **Course Offered**

Fall  
Spring

This course is an introduction to the study of wiring methods and practices used in residential applications.

**Prerequisite**

RWR 032

and

MAT 033

or appropriate test scores

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

**EEM 164 - Residential Wiring II**

**Lec:** 1.5 **Lab:** 1.5 **Credit:** 2.0

**Course Offered**

Fall

Spring

This course is a study of advanced wiring methods and practices used in residential applications.

**Prerequisite**

EEM 163

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

**EEM 167 - Commercial-Industrial Wiring I**

**Lec:** 1.5 **Lab:** 1.5 **Credit:** 2.0

**Course Offered**

Fall

Summer

This course is an introduction to the study of wiring methods and practices in commercial and industrial applications.

**Corequisite**

RWR 032

and

MAT 031

or appropriate test scores

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

## **EEM 168 - Commercial-Industrial Wiring II**

**Lec:** 1.5 **Lab:** 1.5 **Credit:** 2.0

### **Course Offered**

Fall  
Summer

This course is a continuation of the study of advanced wiring methods and more complex practices in commercial and industrial applications.

### **Prerequisite**

EEM 167

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

## **EEM 173 - Electrical Installation I**

**Lec:** 1.5 **Lab:** 1.5 **Credit:** 2.0

### **Course Offered**

Fall  
Spring

This course is an introduction to the study of electrical wiring techniques commonly used in commercial, industrial and residential applications. Emphasis will be placed on compliance with the National Electrical Code.

### **Prerequisite**

RWR 032

and

MAT 033

or appropriate test scores

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

## **EEM 174 - Electrical Installation II**

**Lec:** 1.5 **Lab:** 1.5 **Credit:** 2.0

### **Course Offered**

Fall  
Spring

This course is the study of advanced electrical wiring techniques commonly used in more complex commercial, industrial and residential applications. Emphasis will be placed on compliance with the National Electrical Code.

**Prerequisite**

EEM 173

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

**EEM 218 - AC DC Machines with Electrical Codes I**

**Lec:** 1.5 **Lab:** 1.5 **Credit:** 2.0

**Course Offered**

Summer

This course is an introduction to the study of AC and DC machines to include operational theory, applications and construction. Relevant sections of the National Electrical Code will also be covered.

**Prerequisite**

EEM 120

or

EET 113

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

**EEM 219 - AC DC Machines with Electrical Codes II**

**Lec:** 1.5 **Lab:** 1.5 **Credit:** 2.0

**Course Offered**

Summer

This course is a continuation of the study of AC and DC machines to include complex and in-depth construction and application of operational theory. Relevant sections of the National Electrical Code will also be covered.

**Prerequisite**

EEM 218

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---



## **EEM 221 - DC AC Drives**

**Lec:** 2.0 **Lab:** 3.0 **Credit:** 3.0

### **Course Offered**

Spring  
Summer

This course covers the principles of operation and application of DC drives and AC drives.

### **Prerequisite**

EEM 114

or

### **Corequisite**

EET 113

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

## **EEM 251 - Programmable Controllers**

**Lec:** 2.0 **Lab:** 3.0 **Credit:** 3.0

### **Course Offered**

Fall  
Spring

This course introduces programmable control systems with emphasis on basic programming techniques. A variety of input/output devices and their applications are covered.

### **Prerequisite**

EEM 114

and

EEM 107

or

EET 113

or

EGR 110

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---

## **EEM 252 - Programmable Controllers Applications**

**Lec:** 2.0 **Lab:** 3.0 **Credit:** 3.0

### **Course Offered**

Fall

This course covers the application of programmable controller theories and operation procedures. Topics such as interfacing, data manipulation and report generation are covered. Programmable controller projects are constructed, operated and tested.

### **Prerequisite**

EEM 251

**Grade Type:** Letter Grade

**Division:** Engineering and Construction

---