

# Piedmont Technical College Course Syllabus

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## COURSE INFORMATION

**Course Prefix/Number:** EEM 231

**Title:** Digital Circuits I

**Responsible Division:** Technical Education

**Last Day to Withdraw from this Course:** For the last date to withdraw from this course, consult the current *Student Calendar*.

### Course Description:

For course, credit hour, pre-requisite(s) and co-requisite(s) information, visit the Detailed Course Information page: [www.ptc.edu/courses/EEM231](http://www.ptc.edu/courses/EEM231).

### Textbook and Other Materials:

For textbook information and additional required and/or supplemental materials, visit the [college bookstore](http://www.ptc.edu/bookstore) (www.ptc.edu/bookstore).

### Proctored Examinations:

Proctored examinations for distance learning courses taken at non-PTC campuses may require a proctoring fee for each exam taken.

## COURSE POLICIES

Course policies are available online through the *Academic Catalog* and *Student Handbook*. Visit the [Course Policies page](http://www.ptc.edu/syllabus/policies) (www.ptc.edu/syllabus/policies) for a detailed list of important policies and more information.

## GRADE POLICY

Detailed grading policy information can be found on the [Grading Policy webpage](http://www.ptc.edu/grading-policy) (http://www.ptc.edu/grading-policy). Final grade appeal information is available in the [Academic Catalog](http://www.ptc.edu/catalog/) (http://www.ptc.edu/catalog/).

## **ACCOMMODATIONS**

### **Accommodations for ADA:**

Information is available on the [Student Disability Services webpage](http://www.ptc.edu/ada) (<http://www.ptc.edu/ada>).

## **TITLE IX HARASSMENT AND SEXUAL ASSAULT INFORMATION**

In accordance with Title IX of the Education Amendments of 1972, Piedmont Technical College does not discriminate on the basis of sex in its education programs or activities. Title IX protects students, employees, and applicants from sex discrimination in admissions and employment to include discrimination based on gender identity or failure to conform to stereotypical notions of masculinity or femininity. More information regarding Title IX, including contact information for the Title IX coordinators, is available at [Title IX Harassment and Sexual Assault Information](https://www.ptc.edu/about/legal-disclosures/title-ix-harassment-and-sexual-assault-information) (<https://www.ptc.edu/about/legal-disclosures/title-ix-harassment-and-sexual-assault-information>).

## **RATIONALE**

### **Why do I need this course?**

Robotics, programmable logic controllers, automation: these are just a few of the advances that have helped to dramatically increase the productivity and efficiency of modern manufacturing. To be able to work with these automatic processes, the Mechatronics Technician must have a firm foundation in Digital Electronics. This course is a study of the logic elements, mathematics, components, and circuits utilized in digital equipment. Emphasis is placed on the function and operation of digital integrated circuit devices.

## **PROGRAM INFORMATION**

For program information including required courses, program learning outcomes, gainful employment information and advisement information, refer to the Academic Program webpage. Go to [Academics](http://www.ptc.edu/academics) (<http://www.ptc.edu/academics>), select your program, and then select Credentials Offered.

## **COURSE STUDENT LEARNING OUTCOMES**

Upon successful completion of this course and/or clinical, each student will be able to:

1. Successfully identify, understand and troubleshoot Digital Electronic Systems.
2. Convert numbers between Base 10, Base 2 and Base 16.
3. Perform Binary Addition.
4. Identify the 7 basic logic gates and develop a truth table for each.
5. Combine and interpret logic combinations.
6. Understand Boolean Algebra.

## **GENERAL EDUCATION COMPETENCIES**

### **Piedmont Technical College General Education Competencies for All Graduates:**

*This course may address one or more of the following General Education Competencies (assessment will be stated when applicable):*

#### **Communicate effectively.**

Assessment:

N/A

#### **Apply mathematical skills appropriate to an occupation.**

Assessment:

Perform binary addition and convert numbers between the Base 10, Base 2 and Base 16 numbering systems.

#### **Employ effective processes for resolving problems and making decisions.**

Assessment:

N/A

#### **Demonstrate the basic computer skills necessary to function in a technological world.**

Assessment:

Using Multimedia Logic and MultiSim to build digital circuits.

*To validate proficiency in the general education competencies, students in some programs will be tested using Work Keys.*