

# Discover ENGINEERING

As a student in the 21st century, your future is at your fingertips. Whether you know exactly what you want or are still considering your options for the future, Butler Tech, in collaboration with Lakota Local Schools, provides you with possibilities to explore.

## Career & Technical Student Organizations & Competitions

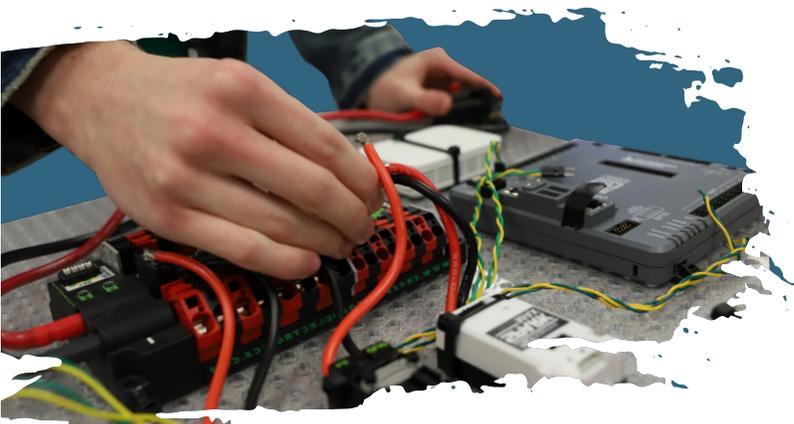
Students enrolled in Butler Tech courses at Lakota may have the opportunity to participate in a variety of career and technical student organizations (CTSOs) at the regional, state and national levels. Students participate in activities designed to expand their leadership abilities, utilize their academic instruction in real-world settings, and encourage them to pursue their education in their career field of interest. Annually, more than 1,000 Lakota students participate at the state and national levels.

## Career-Technical Credit Transfer (CT<sup>2</sup>)

Several Butler Tech courses at Lakota offer guaranteed transfer of college credits to Ohio's public colleges and universities, allowing students to enter college with free college credit. This technical credit saves students time and money!

### CT<sup>2</sup> approved course in Engineering:

- Intro to Engineering Design (IED)
- Principles of Engineering (POE)
- Digital Electronics (DE)
- Engineering Design and Development (EDD)
- Computer Integrated Manufacturing (CIM)



**bt** Butler  
Tech  
in Lakota Local  
Schools

Butler Tech offers the following Engineering courses in Lakota Local Schools:

- Aerospace Engineering
- Computer Integrated Manufacturing
- Digital Electronics
- Engineering Design and Development
- Introduction to Engineering Design
- Principles of Engineering

## Why Butler Tech Courses

An industry leader in teen education, Butler Tech provides career-technical education options beginning in the 7th grade on-site at Lakota Local Schools. Students who take Butler Tech courses are prepared to make important decisions about college and careers because our teachers and curriculum are driven by providing real-world experiences for students.

**WE are  
Lakota**

# Butler Tech Engineering Course Offerings at Lakota

Offered at Lakota East and West Campuses

## **Aerospace Engineering (AE)** | AEZ74150 | 2 semesters / 1 credit

The Project Lead the Way course explores the evolution of flight, flight fundamentals, navigation and control, aerospace materials, propulsion, space travel, orbital mechanics, ergonomics, remotely operated systems and related careers. In addition, the course presents alternative applications for aerospace engineering concepts. Utilizing the activity-project-problem-based (APPB) teaching and learning pedagogy, students will analyze, design, and build aerospace systems. While implementing these designs, students will continually hone their interpersonal skills, creativity, and application of the design process. Students apply knowledge gained throughout the course in a final multimedia project to envision their future professional accomplishments.

*Prerequisites: Successful completion of Principles of Engineering (POE)*

## **Computer Integrated Manufacturing (CIM)** | ZW120160

Computer Integrated Manufacturing is one of the specialization courses in the PLTW Engineering program. The course deepens the skills and knowledge of an engineering student within the context of efficiently creating the products all around us. Students build upon their Computer Aided Design (CAD) experience through the use of Computer Aided Manufacturing (CAM) software. CAM transforms a digital design into a program that a Computer Numerical Controlled (CNC) mill uses to transform a block of raw material into a product designed by a student. Students learn and apply concepts related to integrating robotic systems such as Automated Guided Vehicles (AGV) and robotic arms into manufacturing systems. Throughout the course students learn about manufacturing processes and systems. This course culminates with a capstone project where students design, build, program, and present a manufacturing system model capable of creating a product.

*Prerequisite: Successful completion of Principles of Engineering (POE)*

## **Digital Electronics (DE)** | Z2255 | 2 semesters / 1 credit

From smartphone to appliances, digital circuits are all around us. This course provides a foundation for students who are interested in electrical engineering, electronics, or circuit design. Students study topics such as combinational and sequential logic and are exposed to circuit design tools used in industry, including logic gates, integrated circuits, and programmable logic devices.

*Prerequisite: Successful completion of Aerospace Engineering (AE) or Computer Integrated Manufacturing (CIM).*

## **Engineering Design and Development (EDD)**

ZW253170 | 2 Semesters / 1 credit

The capstone course provides opportunities for students to apply knowledge, attitudes and skills that were learned in the Engineering program in a more comprehensive and authentic way. Capstones include project/problem based learning opportunities that occur both in and away from school. Under supervision of the school and through community partnerships, students may combine classroom learning with work experience. Past project partnership include Cincinnati Children's Hospital and the Perlman Center.

*Prerequisite: Successful completion of 3 Engineering courses*

## **Introduction to Engineering Design (IED)**

Z2249 East / Z2247 West | 2 semesters / 1 credit

This Project Lead the Way course is the entry level for students considering a pathway to an engineering field. The major focus of IED is the design process and its application. Through hands-on projects, students apply engineering standards and document their work. Students use industry standard 3D modeling software to help them design solutions to solve proposed problems, document their work using an engineer's notebook, and communicate solutions to peers and members of the professional community.

## **Principles of Engineering (POE)**

Z2251 East / Z2252 West | 2 semesters / 1 credit

This Project Lead the Way survey course exposes students to major concepts they'll encounter in a post-secondary engineering course of study. Topics include mechanisms, energy, statics, materials, and kinematics. Students develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges, document their work and communicate solutions.

*Prerequisite: Prefer that students have taken Introduction to Engineering Design (IED)*



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See your guidance counselor  
for registration information.

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