

Engineering Technology Summer Camps



- Who:** Ages 12-18 can qualify to attend as a function of curriculum
Twelve students maximum per camp session
- What:** A 5-day camp experience that introduces students to careers in Advanced Manufacturing, to educational pathways including college credit certificates and the A.S. Engineering degree, as well as A.S.-to-B.S. ET statewide articulation programs, and to a variety of program course content and activities
Complete lesson plans are provided in the latter pages of this document
- When:** Two sessions will be offered, with up to 12 students in each session
Session 1 will be held Monday, June 17 through Friday, June 21, 2019, 9AM to 4PM
Session 2 will be held Monday, June 24 through Friday, June 28, 2019, 9AM to 4PM
Possible 3rd session TBD
- Cost:** The camp will be free of charge to students, and lunch will be provided

2019 Engineering Tech Summer Camp 1



Session 1 – Monday, June 17 thru Friday June 21, 2019, 9AM to 4PM, 12 students

DAY 1: Monday June 17 th , 2019		
8:45 to 9:00 AM	Arrival and sign-in	
9:00 to 10:30 AM	Wiring how-to clinic Build simple DC & AC parallel & series electrical circuits Introduction to voltage, current, resistance and Ohm's Law, with live circuit measurements	
10:30 AM to Noon	Build foxhole AM radio using wire, paper clips, cardboard, tape	
Noon to 12:45 PM	Lunch provided by Chipola College Presentation: Engineering vs. Engineering Technology, types of jobs in advanced manufacturing	
12:45 to 3:45 PM	Build foxhole AM radio using wire, paper clips, cardboard, tape (continued)	
3:45 to 4:00 PM	Clean up and sign-out	
DAY 2: Tuesday June 18 th , 2019		
8:45 to 9:00 AM	Arrival and sign-in	
9:00 to Noon	Build voltaic pile batteries from a variety of metal scraps, coins and fruits/vegetables to power flashlights and calculators	
Noon to 12:45 PM	Lunch provided by Chipola College Presentation: Certificate, AS and AS-to-BS ET educational pathways	
12:45 to 2:45 PM	Build a Joule thief electronic device, Introduction to transistors and capacitance	
2:45 to 3:45 pm	Build an electric motor, Introduction to electromagnetism and Lentz's Law	
3:45 to 4:00 PM	Clean up and sign-out	

DAY 3: Wednesday June 19th, 2019		
8:45 to 9:00 AM	Arrival and sign-in	
9:00 to noon	Build a compound gear or sprocket drive train, Introduction to gear ratios and the speed/torque relationship	
Noon to 12:45 PM	Lunch provided by Chipola College Presentation: Chipola college application, financial aid, registration and scholarship process from start to finish	
12:45 to 1:15 PM	Live demonstration of a backhoe and its systems	
1:15 to 3:45 pm	Build a working model of the hydraulic system that powers a backhoe, and that powers a bulldozer, Introduction to fluid power concepts and force multiplication	
3:45 to 4:00 PM	Clean up and sign-out	
DAY 4: Thursday June 20th, 2019		
8:45 to 9:00 AM	Arrival and sign-in	
9:00 to Noon	Build a simple PLC-based digital control system, create a PLC program and download it to the PLC, Introduction to the role of PLCs is industrial automation	
Noon to 12:45 PM	Lunch provided by Chipola College Presentation: Chipola college application, financial aid, registration and scholarship process from start to finish	
12:45 to 3:15 PM	Build and program a PLC (continued), operate your autonomous control system	
3:15 to 3:45 PM	Automated control system demonstrations: PLC-controlled variable speed motor, integrated assembly line	
3:45 to 4:00 PM	Clean up and sign-out	
DAY 5: Friday June 21th, 2019		
8:45 to 9:00 AM	Arrival and sign-in	
9:00 AM to 3:45 PM	Field trip to an advanced manufacturing facility (location TBD) Transportation to be via Chipola College van(s) Lunch will be on site at field trip	
3:45 to 4:00 PM	Disembark at Chipola college and sign-out	

2019 Engineering Tech Summer Camp 2



Session 2 – Monday, June 24 thru Friday June 28, 2019, 9AM to 4PM, 20 students

DAY 1: Monday June 24th, 2019		
8:45 to 9:00 AM	Arrival and sign-in	
9:00 to 10:30 AM	Wiring how-to clinic Build simple DC & AC parallel & series electrical circuits Introduction to voltage, current, resistance and Ohm's Law, with live circuit measurements	
10:30 AM to Noon	Build foxhole AM radio using wire, paper clips, cardboard, tape	
Noon to 12:45 PM	Lunch provided by Chipola College Presentation: Engineering vs. Engineering Technology, types of jobs in advanced manufacturing	
12:45 to 3:45 PM	Build foxhole AM radio using wire, paper clips, cardboard, tape (continued)	
3:45 to 4:00 PM	Clean up and sign-out	
DAY 2: Tuesday June 25th, 2019		
8:45 to 9:00 AM	Arrival and sign-in	
9:00 to Noon	Build voltaic pile batteries from a variety of metal scraps, coins and fruits/vegetables to power flashlights and calculators	
Noon to 12:45 PM	Lunch provided by Chipola College Presentation: Certificate, AS and AS-to-BS ET educational pathways	
12:45 to 2:45 PM	Build a Joule thief electronic device, Introduction to transistors and capacitance	
2:45 to 3:45 pm	Build an electric motor, Introduction to electromagnetism and Lenz's Law	
3:45 to 4:00 PM	Clean up and sign-out	

DAY 3: Wednesday June 26th, 2019		
8:45 to 9:00 AM	Arrival and sign-in	
9:00 to noon	Build a compound gear or sprocket drive train, Introduction to gear ratios and the speed/torque relationship	
Noon to 12:45 PM	Lunch provided by Chipola College Presentation: Chipola college application, financial aid, registration and scholarship process from start to finish	
12:45 to 1:15 PM	Live demonstration of a backhoe and its systems	
1:15 to 3:45 pm	Build a working model of the hydraulic system that powers a backhoe, and that powers a bulldozer, Introduction to fluid power concepts and force multiplication	
3:45 to 4:00 PM	Clean up and sign-out	
DAY 4: Thursday June 27th, 2019		
8:45 to 9:00 AM	Arrival and sign-in	
9:00 to Noon	Build a simple PLC-based digital control system, create a PLC program and download it to the PLC, Introduction to the role of PLCs is industrial automation	
Noon to 12:45 PM	Lunch provided by Chipola College Presentation: Chipola college application, financial aid, registration and scholarship process from start to finish	
12:45 to 3:15 PM	Build and program a PLC (continued), operate your autonomous control system	
3:15 to 3:45 PM	Automated control system demonstrations: PLC-controlled variable speed motor, integrated assembly line	
3:45 to 4:00 PM	Clean up and sign-out	
DAY 5: Friday June 28th, 2019		
8:45 to 9:00 AM	Arrival and sign-in	
9:00 AM to 3:45 PM	Field trip to an advanced manufacturing facility (location TBD) Transportation to be via Chipola College van(s) Lunch will be on site at field trip	
3:45 to 4:00 PM	Disembark at Chipola college and sign-out	