

New Horizons Regional Education Center (C & T)
Pacing Guide

Program: **Introduction to Electronics and Robotics**

Teacher

Ms. J Talmage

1st/2nd/3rd/4th Marking Period Topic/Unit	Virginia State Competency #	Standardized Test Areas for NOCTI/NCCT/Lie./C	Supporting Equipment/Technology
1st Marking Period			
<p>Implementing Virginia's CTE Course Requirements Demonstrate Virginia's Workplace Readiness Skills Apply Virginia's All Aspects of Industry elements in activities Identify Internet safety issues, procedures, compliances</p> <p>Participating in the Student Organization Identify the purposes and goals of the student organization. Explain the benefits & responsibilities of membership in student organization as a student and professional adult. Demonstrate leadership skills through student organization activities, meetings, programs and projects</p> <p>Practicing Safety Demonstrate safety procedures for all types of careers relating Comply with OSHA regulations Demonstrate safe operation of basic hand and power tools Demonstrate safe practices of solder/de-sold techniques Explain the importance of personal protective equipment (PPE) for careers relating to robotics</p> <p>2nd Marking Period Introducing Robotics identify types of robot geometry and manipulators. Identify various types of robot control and drive systems. Describe basic fundamentals of electricity and electronics . (AC and DC) Calculate the electrical characteristics of basic AC and DC Demonstrate an understanding of resistor color codes . and other component descriptions Analyze AC and DC circuits, using a variety of electronic testing equipment</p>	8557.001	NOCTI Test 2051 Industrial Electronics	Interactive Dualboards Touchscreen computers
	8557.002		
	8557.003		
	8557.004		Overhead projector/screens
	8558.005		
	85578.006		Tooling U.com
	8557.007	Safety 10%	Safety CD/Mavco Tooling U.com
	8557.008		
	8557.009	Test Equipment 10%	Tooling U.com IPC Training CD's Tooling U.com Tooling U.com
	8557.01		
	8557.011		
	8557.012		Intellitek Scorbot Robot w/ conveyor
	8557.013		
	8557.014	DC Electricity 13%	NI Elvis Trainer-Digital
	8557.015	AC Electricity 13%	Tooling U.com
	8557.016		
	8557.017	DC&AC Electricity	Tooling U.com

Demonstrate troubleshooting techniques.	8557.018		Tooling U.com
Construct an electronic kit/project.	8557.019	Semiconductors 13%	
Assemble a project, using basic hand and power tools.	8557.02	Test Equipment	
Demonstrate the use of compatible solderless connections.	8557.021		
Use data books and cross reference/technical manuals	8557.022		
Document a technical procedure	8557.023		Tooling U.com
Create schematics, technical drawings, and flowcharts.	8557.0244		
Use listening skills or assistive devices to assess signs and .	8557.025		Tooling U.com
symptoms of equipment malfunctions			
Explain general maintenance procedures relating to the field of	8557.026	Test Equipment	
3rd Marking Period			
Using Robotic Trainers and Training Equipment			
Write programs to control robots, using the C computer	8557.027	Transducers 5%	DES Robotic arm with conveyor system
language			
Manipulate a robot trainer, using a Teach pendant.	8557.028	Dig/Micro ckts 13%	
Manipulate a robot, using a PC host computer	8557.029	Dig/Micro ckts 13%	
Program a robot trainer, using a Teach pendant	8557.03		
Program a robot, using a PC host computer.	8557.031	Dig/Micro ckts 13%	
Understanding Physics			
Perform measurements,using English and metric systems.	8557.032		Tooling U.com
Explain &apply various principles & mechanics of robotics.	8557.033	PLC's 5%	Tooling U.com
Write a computer program to solve physics problems.	8557.034	Ladder Logic 5%	
4th Marking Period			
Understanding Power Systems in Robotics			
Differentiate between servo & non-servo .	8557.035	Electronc ckts 13%	Simulation CD's/Robot
electrical drive systems			
Describe motor control systems.	8557.036	Semiconductors	Simulation CD's/Electrical Robot
Demonstrate troubleshooting techniques for electrical	8557.037	Ladder Logic 5%	Control unit Amatrol
motor control systems			
Explaining Robotic Applications			
Explain the use of robots in various industrial applications	8557.038	PLC's 5%	Simulation CD's/Robot
Explain the use of robots in the inspection and	8557.039	Electronc ckts 13%	
quality-assurance process			
Exploring Robotic Careers			
Investigate community industrial and technical resources.	8557.04		Tooling U.com
Explore occupations related to robotics technology.	8557.041		Tooling U.com
Prepare and present a report about a future career in robotics	8557.042		

