



ALAMO COLLEGES DISTRICT
Workforce Training Network



NSF Grant Workshop

ADVANCED AUTOMATION, ROBOTICS,
AND MANUFACTURING EDUCATION FOR
21ST CENTURY WORKFORCE NEEDS

Robot Virtual Teach Pendant

Academy Students Courses:

- Curriculum
 - Modified robotics systems training to include:
 - Robotics – to meet academic requirements.
 - Virtual Teach Pendant (VTP) Orientation.
 - Remote operation of robot using VTP.
 - Associated VTP labs.

Robot Virtual Teach Pendant

Academy Students Courses:



- Curriculum
 - Aligns with Southern Association of Colleges and Schools – Commission on Colleges (SACSCOC) requirements.
 - Curriculum samples included in resources.

Robot Virtual Teach Pendant

- Curriculum
 - Utilizes Lab-Volt 5150 robot arm using:
 - Proprietary software purchased from Festo.
 - VTP developed by TX A&M graduate students.
 - Applied to Festo automated system.
- Demonstration of VTP instruction.
 - [Administrator's guide.](#)
 - [Pretest.](#)
 - [VTP account creation & login exercise.](#)

Robot Virtual Teach Pendant (VTP) Lab

Creation of VTP Account

LAB No.: 1

Robot Virtual Teach Pendant

- Demonstration (continued).
 - [Lab-Volt robot arm familiarization lesson.](#)
 - [Lab-Volt control of robot arm using VTP \(answer key\).](#)
 - [Specified task using VTP.](#)
 - [Post-test](#)
 - Evaluation



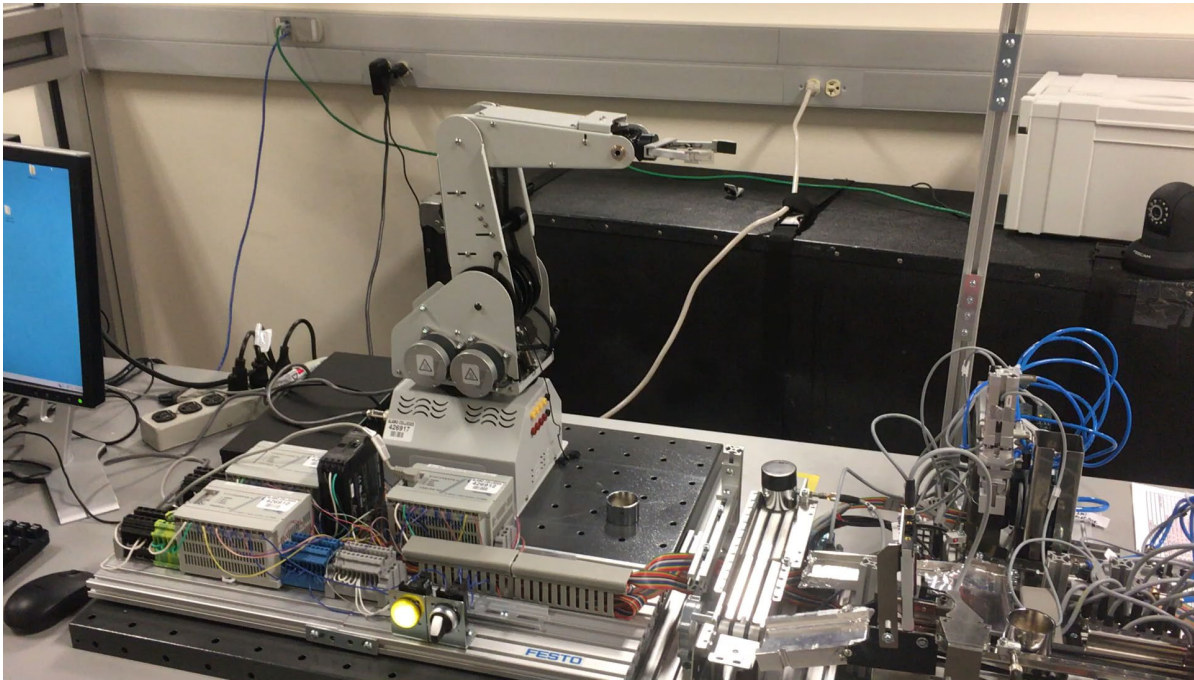
Robot Virtual Teach Pendant (VTP) Lab

VTP Control of Robot Arm Orientation

LAB No.: 2

Robot Virtual Teach Pendant

- Student performing specified task using VTP.




[Click to start video](#)

Robot Virtual Teach Pendant

- Project website for curriculum and remote access.
- Project remote access demonstration.

Click to access
website and remote
access link



Robotics Fundamentals

This material is sponsored by the National Science Foundation (NSF) with a focus on understanding how engineers develop expertise in the area of system integration. Many modern industrial work cells use *robotics* as a means to improve production rates, to perform tasks in hazardous environments, or to perform repetitive tasks. This online curriculum emphasizes robotics safety, operations, programming methods, and applications in manufacturing.

Learn about Robotics

Click on each section below to learn more about Robotics

Chapter 1: Introduction to Robotics	Chapter 2: Fundamentals of Robotics	Chapter 3: Programming Industrial Robots
Chapter 4: Industrial Robotics Applications	Chapter 5: Electro-mechanical Systems (Motors)	Chapter 6: Fluid Power Systems
Chapter 7: Sensors	Chapter 8: End Effectors	

Robot Arm Live Remote

This project allows participants to control our robot arm using remote access. A camera is positioned to allow real-time viewing while controlling the Robot Arm.

Prior to accessing the Robot Arm Live Remote you must complete the Robotics Fundamentals curriculum.

To access the remote system, click anywhere on this button. You will be redirected to the remotely accessible system login. You will then be directed to the control page and provided additional instructions for operating the robot arm.

NOTE: You must send an email to one of our contacts so that some pre-conditions are met for operating the systems

Robot Virtual Teach Pendant (VTP) Lab

Robot Specified Task using VTP

LAB No.: 3

Robot Virtual Teach Pendant

Thank you.

Are there any questions?

