

COURSE: Robotics & Automation I

UNIT OF STUDY: Introduction to Robotics

TEACHER: Rick Ortiz

PROJECT SCOPE: 18-SEP-2017 — 22-SEP-2017

STANDARDS ADDRESSED: HS.CTE.O.RA: 5.A, 5.B, 5.C, 5.D, 9.A, 9.C,

STUDENT OBJECTIVES:

- Ss will understand the mechanics of a PWM Servo.
- Ss will apply programming fundamentals to manipulate the behavior of a PWM Servo.
- Ss will understand the relationship between a Servo and other VeX components and how they come together to create a system.

- *Background Concepts:*
 - Ss will identify the various components and features of the RobotC Integrated Development Environment. (IDE)
 - Ss will understand RobotC programming fundamentals: variables, functions, syntax, naming conventions, punctuation, etc.
 - Ss will understand the connection between software and hardware behaviors.
 - Ss will apply understanding of programming fundamentals to an active robot testbed.
 - Ss will create commands to manipulate the behavior of robot system hardware using software.

PROJECT TITLE: RobotC Programming Fundamentals

INSTRUCTIONAL MATERIALS: VeX Educational Robotics Design System, Student workstations, Internet Access, Robotics Toolkit, RobotC IDE

PROJECT BRIEF: Students will become familiar with the RobotC Integrated Development Environment (IDE) by utilizing it to manipulate hardware components on their VeX testbed.

- T will explain the mechanics of a PWM servo.
- Ss will practice applying programming fundamentals to control the behavior of the PWM Servo.
- Ss will create and compile complex programs including use of the PWN servo and other VeX components.
- Ss will practice utilizing the servo in conjunction and in relation to other VeX components.

ASSESSMENT:

T: Direct observation; observation checklist.
T: Observation of working code in real time.
S: Labs, Quizzes, and Exams completed In-class.

INSTRUCTIONAL STRATEGIES: Hands-on training, Technology, Collaborative Learning

DIFFERENTIATED INSTRUCTION SUPPORT:

Provide accommodations to students in accordance with IEP. Instructional aides (videos, graphic organizers, etc.) provided for ELL students. Tutoring provided before and after school.