Name: Robert Lefrandt	Grading Quarter: 2	Week Beginning: 05 11/13/2023
School Year: 2023-24	Subject: Robotics	

Monday

Notes:

11/13/2023
Check for VEX Game Elements arrival/Register

Robotic Assemblies
Mechtronics

Engineering:
ReEngineering
Reverse Engineering

Structural
Chassis frame body

Mechanical (Motion)
Gear: Box, train, parallel (linear) stack (vertical), ratio, torque speed

Electrical
Chemical
electrochemical

Physical
Magnetism
Batteries

Software
Block
PLC ladder logic, CNC, Python, C++,

Sensors
Bump/touchDistance
Light
Camera

Physical Computing

AI
Data Collect
DataAnalyze

Collaborate with schools, 'Industry Professional Community

*****Hold Robotics Team/Club Meeting this week to discuss:**

- PO/Paid/Check Registstration VEX V5 Team/VEX Prof+ Access
- VEX V5 Robotics 11/17-18/23 Competition @ Whiteriver, Chief Alchesay Center
- Battlebot Competition with Show Low High School
- Download Libraries for Thonny IDE on Laptop for Pico W Kit
- SunFounder Raspberry Pi Pico W Ultimate Starter Kit with Online Tutorials, 450+ Items, 117 Projects, MicroPython, Piper Make and C/C++ (Compatible with Arduino IDE)
- Prep for Test/Az CTE Assessment late Nov. 2023 (vocab, distinction)
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- PERFORM ELECTRICAL AND ELECTRONIC TASKS
- ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS
- PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D and 3D)
- DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR ELECTRICAL MOTORS
- Explain the operation and use of DC motors in automation controls
- PERFORM MECHANICAL SYSTEMS LINKAGES TASKS
- APPLY SENSOR SOLUTIONS
- DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER LABORATORY EQUIPMENT, TOOLS, AND MATERIALS

Lesson Overview:

1st Semester Students:

- Login to VEX Certification Accounts:
- VEX V5, Block, Python Programming, Workcell
- Continue building VEX V5 Robots: Sriikerfor Over/Under Competition

Coding-Block/Python/C/C++

Sensors

- Bump/touch, Distance, Line Tracker, Camera, AI, Data Analysis

2nD Semester Plus+ Students:

- Login to VEX Certification Accounts:
- VEX V5, Block,Python Programming, Workcell

Customizing Robots and Parts

- Tinkercade/Fusion 360, FreeCad(Python coding)
  - 3D Modeling, Electric circuits, Arduino IDE – C/Python Code
  - Workflow Process:
  - Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing
- Inkscape > Tinkercad > Ultimaker Cura > Ultimaker (*print Key fob)

*Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D Modeling

- Raspberry Pi – Pico Bluetooth/WiFi, Python

Precision Machining

- Manual/Traditional - Mill and Drill

CNC – ComputerNumeric Control –G/M Code

Academic Standards:

AZ_CTE

Automation & Robotics Tech-Standards

STANDARD 2.0 PERFORM ELECTRICAL AND ELECTRONIC TASKS

STANDARD 4.0 ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS

STANDARD 7.0 PERFORM DRAFTING TASKS
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STANDARD 5.0 DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR ELECTRICAL MOTORS

5.2 Explain the operation and use of DC motors in automation controls

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Tuesday

Notes:
11/14/2023

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Mechatronics

Engineering:
Re-Engineering
Reverse Engineering

Structural
Chassis frame body

Mechanical (Motion)
Gear: Box, train, parallel (linear) stack (vertical), ratio, torque speed

Electrical
Chemical
electrochemical

Chemical
Batteries
Magnetism

Computer Sci.
Hardware/Software
Block
PLC ladder logic, CNC, Python, C++,

Sensors
Bump/touch
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AZ_CTE

Automation & Robotics
Tech-Standards

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Wednesday

Notes:
11/15/2023

Robotic Assemblies Mechtronics

Engineering: ReEngineering Reverse Engineering

Structural Chassis frame body

Mechanical (Motion) Gear: Box, train, parallel (linear) stack (vertical), ratio, torque speed

Electrical Chemical electrochemical

Physical Magnetism Batteries

Software Block PLC ladder logic, CNC, Python, C++,

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Thursday

Notes:
11/16/2023

Robotic Assemblies Mechtronics

Engineering: ReEngineering Reverse Engineering

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