Name:	Grading Quarter:	Week Beginning: 10
Robert Lefrandt	2	10/23/2023
School Year: 2023-24	Subject: Robotics	

Portable perimeter Field, Anti-Static Tiles, Bag AZ CTE Robotic **VEXV5 2023 Game Elements (Delay Shipping Added to purchase)** Assemblies **VEX V5 Robotics 2023 Competition @ Whiteriver in November** • Mechtronics Automation & **Battlebot Competition with Show Low High School Robotics** Tech-Standards Engineering: <u>SunFounder Raspberry Pi Pico W Ultimate Starter Kit with Online Tutorials, 450+ Items, 117</u> Projects, MicroPython, Piper Make and C/C++ (Compatible with Arduino IDE) ReEngineering STANDARD 2.0 Reverse PERFORM ELECTRICAL Objective: Engineering AND ELECTRONIC Apply basic engineering principles and technical skills for... artificial **TASKS** intelligent management ...the principles of robotics, design, operational Structural testing, system maintenance, repair procedures, robot computer systems, STANDARD 4.0 Chassis frame and control languages. **ANALYZE** body (AZ CTE Automation & Robotics-Program Description) **PROGRAMMABLE** Mechanical LOGIC CONTROLLER (Motion) (PLC) SYSTEMS PERFORM ELECTRICAL AND ELECTRONIC TASKS ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS Gear: Box, PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D and 3D) STANDARD 7.0 train, parallel DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR ELECTRICAL PERFORM DRAFTING (linear) stack **MOTORS TASKS** (vertical), ratio, torque speed 7.5 Make dimensional Explain the operation and use of DC motors in automation controls PERFORM MECHANICAL SYSTEMS LINKAGES TASKS CAD drawings (e.g., 2D and 3D) APPLY SENSOR SOLUTIONS Electrical DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER Chemical STANDARD 5.0 LABORATORY EQUIPMENT, TOOLS, AND MATERIALS electrochemical **DESCRIBE THE** OPERATION AND USE Physical **Lesson Overview:** OF VARIOUS FORMS Magnetism 1st Semester Students: OR ELECTRICAL **Batteries** Login to VEX Certification Accounts: **MOTORS** VEX V5, Block, Python Programming, Workcell Software Continue building VEX V5 Robots 5.2 Explain the Block operation and use of Speedbot/Base Bot PLC ladder DC motors in logic, CNC, Coding-Block/Python/C/C++ automation controls Python, C++, Sensors • Bump/touch, Distance, Line Tracker, Camera, AI, Data Analysis STANDARD 6.0 Sensors **PERFORM** 2nD Semester Plus+ Students: Bump/touchDis MECHANICAL tance Login to VEX Certification Accounts: SYSTEMS LINKAGES Light VEX V5, Block, Python Programming, Workcell **TASKS** Camera **Customizing Robots and Parts** STANDARD 10.0 APPLY **SENSOR SOLUTIONS** Tinkercade Physical Computing • 3D Modeling, Electric circuits, Arduino IDE – C/Python Code STANDARD 13.0 Workflow Process: **DEMONSTRATE SAFE** Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing AND PROPER USE OF **Data Collect** Inkscape > Tinkercad > Ultimaker Cura > Ultimaker **ELECTRONIC AND** DataAnalyze OTHER LABORATORY *Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D Modeling EQUIPMENT, TOOLS, Collaborate Raspberry Pi – Pico Bluetooth/WiFi, Python AND MATERIALS with schools, **Precision Machining** 'Industry Manual/Traditional - Mill and Drill **Professionals**

CNC – ComputerNumeric Control –G/M Code

***Hold Robotics Team/Club Meeting this week to discuss Q2 purchases:

VEX Prof+ Access

Academic

Standards:

Monday

Community

Notes:

10/23/2023

10/24/2023 **VEX Prof+ Access** AZ CTE Portable perimeter Field, Anti-Static Tiles, Bag Robotic **VEXV5 2023 Game Elements (Delay Shipping Added to purchase)** Automation & Assemblies **Robotics VEX V5 Robotics 2023 Competition @ Whiteriver in November** • Mechtronics Tech-Standards **Battlebot Competition with Show Low High School** Engineering: <u>SunFounder Raspberry Pi Pico W Ultimate Starter Kit with Online Tutorials, 450+ Items, 117</u> STANDARD 2.0 Projects, MicroPython, Piper Make and C/C++ (Compatible with Arduino IDE) ReEngineering PERFORM ELECTRICAL Reverse AND ELECTRONIC Objective: **TASKS** Engineering Apply basic engineering principles and technical skills for... artificial STANDARD 4.0 intelligent management ...the principles of robotics, design, operational Structural **ANALYZE** testing, system maintenance, repair procedures, robot computer systems, Chassis frame **PROGRAMMABLE** and control languages. body LOGIC CONTROLLER (AZ CTE Automation & Robotics-Program Description) (PLC) SYSTEMS Mechanical (Motion) PERFORM ELECTRICAL AND ELECTRONIC TASKS STANDARD 7.0 ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS Gear: Box, PERFORM DRAFTING PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D and 3D) train, parallel **TASKS** DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR ELECTRICAL (linear) stack 7.5 Make dimensional **MOTORS** (vertical), ratio, CAD drawings (e.g., 2D torque speed Explain the operation and use of DC motors in automation controls and 3D) PERFORM MECHANICAL SYSTEMS LINKAGES TASKS APPLY SENSOR SOLUTIONS Electrical STANDARD 5.0 DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER Chemical DESCRIBE THE LABORATORY EQUIPMENT, TOOLS, AND MATERIALS electrochemical **OPERATION AND USE** OF VARIOUS FORMS Physical **Lesson Overview:** OR ELECTRICAL Magnetism 1st Semester Students: **MOTORS Batteries** Login to VEX Certification Accounts: VEX V5, Block, Python Programming, Workcell 5.2 Explain the Software operation and use of Continue building VEX V5 Robots Block DC motors in Speedbot/Base Bot **PLC ladder** automation controls logic, CNC, Coding-Block/Python/C/C++ Python, C++, Sensors STANDARD 6.0 **PERFORM** Bump/touch, Distance, Line Tracker, Camera, AI, Data Analysis Sensors **MECHANICAL** 2nD Semester Plus+ Students: Bump/touchDis SYSTEMS LINKAGES tance Login to VEX Certification Accounts: TASKS Light VEX V5, Block, Python Programming, Workcell STANDARD 10.0 APPLY Camera **SENSOR SOLUTIONS Customizing Robots and Parts** Tinkercade **Physical** STANDARD 13.0 Computing • 3D Modeling, Electric circuits, Arduino IDE – C/Python Code **DEMONSTRATE SAFE** Workflow Process: AND PROPER USE OF ΑI **ELECTRONIC AND** Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing Data Collect OTHER LABORATORY Inkscape > Tinkercad > Ultimaker Cura > Ultimaker DataAnalyze EQUIPMENT, TOOLS, *Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D Modeling AND MATERIALS Collaborate Raspberry Pi – Pico Bluetooth/WiFi, Python with schools, **Precision Machining** 'Industry Manual/Traditional - Mill and Drill **Professionals**

CNC – ComputerNumeric Control –G/M Code

***Hold Robotics Team/Club Meeting this week to discuss Q2 purchases:

Academic Standards:

Tuesday

Community

Notes:

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	Notes: 10/25/2023	***Hold Robotics Team/Club Meeting this week to discuss Q2 purchases:	Academic Standards:
	10/23/2023	 VEX Prof+ Access Portable perimeter Field, Anti-Static Tiles, Bag 	AZ_CTE
	obotic Assemblies Mechtronics	 VEXV5 2023 Game Elements (Delay Shipping Added to purchase) VEX V5 Robotics 2023 Competition @ Whiteriver in November Battlebot Competition with Show Low High School 	Automation & Robotics Tech-Standards
	Engineering: ReEngineering	 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) 	STANDARD 2.0 PERFORM ELECTRICAL
	Reverse Engineering	Objective:	AND ELECTRONIC TASKS
		Apply basic engineering principles and technical skills for artificial	
	Structural	intelligent managementthe principles of robotics, design, operational	STANDARD 4.0 ANALYZE
	Chassis frame body	testing, system maintenance, repair procedures, robot computer systems, and control languages.	PROGRAMMABLE
	body	(AZ CTE Automation & Robotics-Program Description)	LOGIC CONTROLLER
	Mechanical	The state of the s	(PLC) SYSTEMS
	(Motion)	PERFORM ELECTRICAL AND ELECTRONIC TASKS	STANDARD 7.0
	Gear: Box,	ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS DEPLOPM DRAFTING TASKS Make dimensional CAD drawings (a.g., 2D and 2D)	PERFORM DRAFTING
	train, parallel (linear) stack	 PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D and 3D) DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR ELECTRICAL 	TASKS
	(vertical), ratio,	MOTORS	7.5 Make dimensional
	torque speed	Explain the operation and use of DC motors in automation controls	CAD drawings (e.g., 2D and 3D)
		PERFORM MECHANICAL SYSTEMS LINKAGES TASKS	aliu 3D)
	Electrical Chemical	APPLY SENSOR SOLUTIONS DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER	STANDARD 5.0
Wednesday	electrochemical	LABORATORY EQUIPMENT, TOOLS, AND MATERIALS	DESCRIBE THE
edr			OPERATION AND USE OF VARIOUS FORMS
les	Physical	Lesson Overview:	OR ELECTRICAL
da\	Magnetism Batteries	1st Semester Students:	MOTORS
	batteries	Login to VEX Certification Accounts: VEX.VEX.PLANT Programming Machaelle	
	Software	VEX V5, Block, Python Programming, Workcell Casting In It Is a NEX V5 B. It also	5.2 Explain the operation and use of
	Block	Continue building VEX V5 Robots	DC motors in
	PLC ladder logic, CNC,	Speedbot/Base Bot Speedbot/Base Bot	automation controls
	Python, C++,	Coding-Block/Python/C/C++	
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Sensors Research to the Richard Advantage of the Auditor Toucher Control of the Auditor Touc	STANDARD 6.0 PERFORM
	Sensors	Bump/touch, Distance, Line Tracker, Camera, AI, Data Analysis Description of the Lorentz Students.	MECHANICAL
	Bump/touchDis tance	2nD Semester Plus+ Students:Login to VEX Certification Accounts:	SYSTEMS LINKAGES
	Light	VEX V5, Block,Python Programming, Workcell	TASKS
	Camera	Customizing Robots and Parts	STANDARD 10.0 APPLY SENSOR SOLUTIONS
		Tinkercade	SENSON SOLOTIONS
	Physical Computing	3D Modeling, Electric circuits, Arduino IDE – C/Python Code	STANDARD 13.0
	Computing	Workflow Process:	DEMONSTRATE SAFE
	AI		AND PROPER USE OF ELECTRONIC AND
	Data Collect	Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing Integrand > Tinkerend > Ultimaker Cure > Ultimaker	OTHER LABORATORY
	DataAnalyze	Inkscape > Tinkercad > Ultimaker Cura > Ultimaker *Autodock Fusion 200/Solidusorks Combine 2d Skatch /2D Modeling **Autodock Fusion 2d Skatc	EQUIPMENT, TOOLS,
	Collaborate	*Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D Modeling	AND MATERIAL
	with schools,	Raspberry Pi – Pico Bluetooth/WiFi, Python Procision Machining	
	'Industry	Precision Machining	
	Professionals	Manual/Traditional - Mill and Drill CNG Communication Control - C/NA Code	
	Community	CNC – ComputerNumeric Control –G/M Code	

10/26/2023 Standards: **VEX Prof+ Access** AZ_CTE Portable perimeter Field, Anti-Static Tiles, Bag obotic **VEXV5 2023 Game Elements (Delay Shipping Added to purchase)** Assemblies Automation & **VEX V5 Robotics 2023 Competition @ Whiteriver in November** • Robotics Mechtronics **Battlebot Competition with Show Low High School** Tech-Standards Engineering: SunFounder Raspberry Pi Pico W Ultimate Starter Kit with Online Tutorials, 450+ Items, 117 STANDARD 2.0 Projects, MicroPython, Piper Make and C/C++ (Compatible with Arduino IDE) ReEngineering PERFORM ELECTRICAL Reverse AND ELECTRONIC Objective: Engineering **TASKS** Apply basic engineering principles and technical skills for... artificial intelligent management ...the principles of robotics, design, operational Structural STANDARD 4.0 testing, system maintenance, repair procedures, robot computer systems, Chassis frame ANALYZE and control languages. body **PROGRAMMABLE** (AZ CTE Automation & Robotics-Program Description) LOGIC CONTROLLER Mechanical (PLC) SYSTEMS (Motion) PERFORM ELECTRICAL AND ELECTRONIC TASKS Gear: Box, ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS STANDARD 7.0 PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D and 3D) train, parallel PERFORM DRAFTING DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR ELECTRICAL (linear) stack **TASKS MOTORS** (vertical), ratio, 7.5 Make dimensional torque speed Explain the operation and use of DC motors in automation controls CAD drawings (e.g., 2D PERFORM MECHANICAL SYSTEMS LINKAGES TASKS and 3D) APPLY SENSOR SOLUTIONS Electrical DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER STANDARD 5.0 Chemical DESCRIBE THE LABORATORY EQUIPMENT, TOOLS, AND MATERIALS electrochemical **OPERATION AND USE** OF VARIOUS FORMS Physical **Lesson Overview:** OR ELECTRICAL Magnetism 1st Semester Students: **MOTORS Batteries** Login to VEX Certification Accounts: VEX V5, Block, Python Programming, Workcell 5.2 Explain the Software Continue building VEX V5 Robots operation and use of Block DC motors in Speedbot/Base Bot **PLC ladder** automation controls logic, CNC, Coding-Block/Python/C/C++ Python, C++, Sensors STANDARD 6.0 Bump/touch, Distance, Line Tracker, Camera, AI, Data Analysis **PERFORM** Sensors MECHANICAL 2nD Semester Plus+ Students: Bump/touchDis SYSTEMS LINKAGES tance Login to VEX Certification Accounts: **TASKS** Light VEX V5, Block, Python Programming, Workcell STANDARD 10.0 APPLY Camera **Customizing Robots and Parts** SENSOR SOLUTIONS Tinkercade **Physical** STANDARD 13.0 Computing • 3D Modeling, Electric circuits, Arduino IDE – C/Python Code **DEMONSTRATE SAFE** Workflow Process: AND PROPER USE OF ΑI Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing **ELECTRONIC AND** Data Collect Inkscape > Tinkercad > Ultimaker Cura > Ultimaker OTHER LABORATORY DataAnalyze EQUIPMENT, TOOLS, *Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D Modeling AND MATERIAL Collaborate Raspberry Pi – Pico Bluetooth/WiFi, Python with schools, **Precision Machining** 'Industry Manual/Traditional - Mill and Drill **Professionals**

CNC - ComputerNumeric Control -G/M Code

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Academic

Notes:

Thursday

Community

obotic Portable perimeter Field, Anti-Static Tiles, Bag Assemblies **VEXV5 2023 Game Elements (Delay Shipping Added to purchase)** Mechtronics **VEX V5 Robotics 2023 Competition @ Whiteriver in November** • Engineering: **Battlebot Competition with Show Low High School** ReEngineering 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) Reverse Engineering **Objective:** Apply basic engineering principles and technical skills for... artificial Structural intelligent management ...the principles of robotics, design, operational Chassis frame body testing, system maintenance, repair procedures, robot computer systems, and control languages. Mechanical (AZ CTE Automation & Robotics-Program Description) (Motion) Gear: Box, PERFORM ELECTRICAL AND ELECTRONIC TASKS train, parallel ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS (linear) stack PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D and 3D) (vertical), ratio, DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR ELECTRICAL torque speed **MOTORS** Explain the operation and use of DC motors in automation controls PERFORM MECHANICAL SYSTEMS LINKAGES TASKS APPLY SENSOR SOLUTIONS Electrical DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER Chemical LABORATORY EQUIPMENT, TOOLS, AND MATERIALS electrochemical **Lesson Overview: Physical** 1st Semester Students: Magnetism **Batteries** Login to VEX Certification Accounts: VEX V5, Block, Python Programming, Workcell Software Continue building VEX V5 Robots Block Speedbot/Base Bot PLC ladder logic, CNC, Coding-Block/Python/C/C++ Python, C++, Sensors STANDARD 6.0 Bump/touch, Distance, Line Tracker, Camera, AI, Data Analysis **PERFORM** Sensors MECHANICAL 2nD Semester Plus+ Students: Bump/touchDis SYSTEMS LINKAGES Login to VEX Certification Accounts: tance **TASKS** Light VEX V5, Block, Python Programming, Workcell STANDARD 10.0 APPLY Camera **Customizing Robots and Parts** SENSOR SOLUTIONS Tinkercade **Physical** STANDARD 13.0 • 3D Modeling, Electric circuits, Arduino IDE – C/Python Code Computing **DEMONSTRATE SAFE** Workflow Process: AND PROPER USE OF Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing **ELECTRONIC AND Data Collect** Inkscape > Tinkercad > Ultimaker Cura > Ultimaker OTHER LABORATORY DataAnalyze EQUIPMENT, TOOLS, *Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D Modeling AND MATERIAL Raspberry Pi – Pico Bluetooth/WiFi, Python Collaborate with schools, **Precision Machining** 'Industry

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VEX Prof+ Access

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** 7.5 Make dimensional CAD drawings (e.g., 2D and 3D)

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

Professionals

Community

Notes: 10/27/2023

Friday

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