			T		
Name:		ne:	Grading Quarter:	Week Beginn	ing:
Robert Lefrandt			2	09/04/202	3
School Year: 2023-24			Subject: Robotics		
Notes:		***No School**	*	Academic	
	09/04/2023		09/04/2023		Standards:
	Robotic Assemblies Mechtronics Engineering:	Objective: Lesson Overview:	03/04/2023		
	Structural	****	<b>4</b>		
	Chassis frame	***No School	***		
	body	09/04/2023			
	Mechanical (Motion) Gear: Box, train, parallel (linear) stack (vertical), ratio, torque speed				
Mc	Electrical Chemical electrochemical				
Monday	Physical Magnetism Batteries				
	Software Block PLC ladder logic, CNC, Python, C++, Sensors				
	Bump/touchDis tance Light				
	Camera				
	Physical Computing				
	Al Data Collect DataAnalyze				

Ξ
es
da
<

Notes: Objective: Academic Standards: 09/05/2023 Apply basic engineering principles and technical skills for... artificial AZ CTE intelligent management ...the principles of robotics, design, operational Robotic testing, system maintenance, repair procedures, robot computer systems, Automation & Assemblies and control languages. **Robotics** Mechtronics Tech-Standards (AZ CTE Automation & Robotics-Program Description) Engineering: STANDARD 2.0 PERFORM ELECTRICAL AND ELECTRONIC TASKS Structural PERFORM ELECTRICAL ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS Chassis frame AND ELECTRONIC PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D and 3D) TASKS body DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR ELECTRICAL **MOTORS** STANDARD 4.0 Mechanical Explain the operation and use of DC motors in automation controls **ANALYZE** (Motion) PERFORM MECHANICAL SYSTEMS LINKAGES TASKS PROGRAMMABLE Gear: Box, LOGIC CONTROLLER APPLY SENSOR SOLUTIONS train, parallel (PLC) SYSTEMS DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER (linear) stack LABORATORY EQUIPMENT, TOOLS, AND MATERIALS (vertical), ratio, STANDARD 7.0 torque speed PERFORM DRAFTING **Lesson Overview: TASKS** 1st Semester Students: 7.5 Make dimensional Login to VEX Certification Accounts: Electrical CAD drawings (e.g., 2D VEX V5 Chemical and 3D) electrochemical Block Programming STANDARD 5.0 Python Programming Physical DESCRIBE THE Workcell Magnetism **OPERATION AND USE Batteries**  Continue building VEX V5 Robots OF VARIOUS FORMS Speedbot/Base Bot OR ELECTRICAL Software **MOTORS** Coding-Block/Python/C/C++ Block Sensors PLC ladder 5.2 Explain the Bump/touch, Distance, Line Tracker, Camera logic, CNC, operation and use of Python, C++, ΑI DC motors in automation controls Data Analysis Sensors 2nD Semester Plus+ Students: Bump/touchDis STANDARD 6.0 Login to VEX Certification Accounts: tance **PERFORM**  VEX V5 Light MECHANICAL Camera Block, Python Programming SYSTEMS LINKAGES **TASKS** Workcell **Physical** STANDARD 10.0 APPLY **Customizing Robots and Parts** Computing **SENSOR SOLUTIONS**  Tinkercade STANDARD 13.0 • 3D Modeling, Electric circuits, Arduino IDE – C/Python Code Data Collect **DEMONSTRATE SAFE** • Workflow Process: DataAnalyze AND PROPER USE OF Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing **ELECTRONIC AND**  Inkscape > Tinkercad > Ultimaker Cura > Ultimaker OTHER LABORATORY EQUIPMENT, TOOLS, \*Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D Modeling AND MATERIALS Raspberry Pi – Pico Bluetooth/WiFi Python **Precision Machining** Manual/Traditional - Mill and Drill

CNC –ComputerNumeric Control	I –G/M Code

	NOLES.	Objective.	/ todaee etaaa. ae.
	09/06/2023	Apply basic engineering principles and technical skills for artificial	AZ_CTE
		intelligent managementthe principles of robotics, design, operational	AZ_CIL
	obotic Assemblies	testing, system maintenance, repair procedures, robot computer systems,	Automation &
	Mechtronics	and control languages.	Robotics
		(AZ CTE Automation & Robotics-Program Description)	Tech-Standards
	Engineering:		STANDARD 2.0
	Structural	PERFORM ELECTRICAL AND ELECTRONIC TASKS	PERFORM ELECTRICAL
	Chassis frame	ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS  PERSONA PRAETING TASKS Males discussional SAP descriptor (A.D. 20 and 20).	AND ELECTRONIC
	body	<ul> <li>PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D and 3D)</li> <li>DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR ELECTRICAL</li> </ul>	TASKS
		MOTORS	STANDARD 4.0
	Mechanical	Explain the operation and use of DC motors in automation controls	ANALYZE
	(Motion) Gear: Box,	PERFORM MECHANICAL SYSTEMS LINKAGES TASKS	PROGRAMMABLE
	train, parallel	APPLY SENSOR SOLUTIONS	LOGIC CONTROLLER
	(linear) stack	DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER	(PLC) SYSTEMS
	(vertical), ratio,	LABORATORY EQUIPMENT, TOOLS, AND MATERIALS	
	torque speed		STANDARD 7.0
		Lesson Overview:	PERFORM DRAFTING
		11st Semester Students:	TASKS
	Electrical	Login to VEX Certification Accounts:	7.5 Make dimensional CAD drawings (e.g., 2D
	Chemical	• VEX V5	and 3D)
	electrochemical	Block Programming	
		Python Programming	STANDARD 5.0
<	Physical Magnetism Batteries Software Block	Workcell	DESCRIBE THE
/ec			OPERATION AND USE
θη		Continue building VEX V5 Robots	OF VARIOUS FORMS
Wednesday		Speedbot/Base Bot	OR ELECTRICAL MOTORS
lay		Coding-Block/Python/C/C++	WOTOKS
	PLC ladder	Sensors	5.2 Explain the
	logic, CNC,	Bump/touch, Distance, Line Tracker, Camera	operation and use of
	Python, C++,	• AI	DC motors in
	C	Data Analysis	automation controls
	Sensors Bump/touchDis	2nD Semester Plus+ Students:	
	tance	Login to VEX Certification Accounts:	STANDARD 6.0
	Light	VEX V5	PERFORM MECHANICAL
	Camera	Block,Python Programming	SYSTEMS LINKAGES
		Workcell	TASKS
	Physical		STANDARD 10.0 APPLY
	Computing	Customizing Robots and Parts	SENSOR SOLUTIONS
	Al	Tinkercade	
	Data Collect	3D Modeling, Electric circuits, Arduino IDE – C/Python Code	STANDARD 13.0
	DataAnalyze	Workflow Process:	DEMONSTRATE SAFE AND PROPER USE OF
	,	<ul> <li>Protyping: 2D Sketch &gt; 3D Modeling &gt; 3D Settings &gt; 3D Printing</li> </ul>	ELECTRONIC AND
		Inkscape > Tinkercad > Ultimaker Cura > Ultimaker	OTHER LABORATORY
		*Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D Modeling	EQUIPMENT, TOOLS,
		Raspberry Pi – Pico Bluetooth/WiFi	AND MATERIAL
		• Python	
		,	
		Precision Machining	
		Manual/Traditional - Mill and Drill	
		<u>CNC –ComputerNumeric Control –G/M Code</u>	

Notes:

**Objective:** 

Academic Standards:

•	-	Н
	Ξ	2
9		=
	v	Š
(	C	)
9	۵	)
•	<	

Notes: Objective: Academic 09/07/2023 Apply basic engineering principles and technical skills for... artificial Standards: AZ\_CTE intelligent management ...the principles of robotics, design, operational obotic testing, system maintenance, repair procedures, robot computer systems, Assemblies Automation & and control languages. Mechtronics Robotics (AZ CTE Automation & Robotics-Program Description) Tech-Standards Engineering: STANDARD 2.0 PERFORM ELECTRICAL AND ELECTRONIC TASKS Structural PERFORM ELECTRICAL ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS Chassis frame AND ELECTRONIC PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D and 3D) body **TASKS** DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR ELECTRICAL **MOTORS** Mechanical STANDARD 4.0 Explain the operation and use of DC motors in automation controls (Motion) ANALYZE PERFORM MECHANICAL SYSTEMS LINKAGES TASKS Gear: Box, **PROGRAMMABLE** APPLY SENSOR SOLUTIONS train, parallel LOGIC CONTROLLER DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER (linear) stack (PLC) SYSTEMS LABORATORY EQUIPMENT, TOOLS, AND MATERIALS (vertical), ratio, torque speed STANDARD 7.0 Lesson Overview: PERFORM DRAFTING **TASKS** 1st Semester Students: 7.5 Make dimensional Electrical Login to VEX Certification Accounts: CAD drawings (e.g., 2D Chemical and 3D) electrochemical VEX V5 Block Programming STANDARD 5.0 Physical Python Programming DESCRIBE THE Magnetism **OPERATION AND USE** Workcell **Batteries** OF VARIOUS FORMS Continue building VEX V5 Robots OR ELECTRICAL Software • Speedbot/Base Bot **MOTORS** Block Coding-Block/Python/C/C++ PLC ladder 5.2 Explain the Sensors logic, CNC, operation and use of Python, C++, Bump/touch, Distance, Line Tracker, Camera DC motors in automation controls Sensors Data Analysis Bump/touchDis STANDARD 6.0 2nD Semester Plus+ Students: tance **PERFORM**  Login to VEX Certification Accounts: Light MECHANICAL Camera VEX V5 SYSTEMS LINKAGES Block, Python Programming **TASKS Physical** STANDARD 10.0 APPLY Workcell Computing SENSOR SOLUTIONS **Customizing Robots and Parts** Tinkercade STANDARD 13.0 Data Collect • 3D Modeling, Electric circuits, Arduino IDE – C/Python Code **DEMONSTRATE SAFE** DataAnalyze AND PROPER USE OF Workflow Process: **ELECTRONIC AND** • Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing OTHER LABORATORY Inkscape > Tinkercad > Ultimaker Cura > Ultimaker EQUIPMENT, TOOLS, \*Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D Modeling AND MATERIAL Raspberry Pi – Pico Bluetooth/WiFi Python **Precision Machining** 

Manual/Traditional - Mill and Drill

	CNC –ComputerNumeric Control –G/M Code	
	Raspberry Pi – Pico Bluetooth/WiFi	
	Python	
	Precision Machining	
	Manual/Traditional - Mill and Drill	
	CNC –ComputerNumeric Control –G/M Code	
	Building VEX V5 Robots and customizing robots	
	VEX V5 Parts (3D Print)	

Ξ	
=	֡
0	۱
₹	•

## Notes: Objective: Academic 09/08/2023 Apply basic engineering principles and technical skills for... artificial Standards: obotic AZ\_CTE intelligent management ...the principles of robotics, design, operational Assemblies testing, system maintenance, repair procedures, robot computer systems, Mechtronics Automation & and control languages. Robotics (AZ CTE Automation & Robotics-Program Description) Engineering: Tech-Standards Structural STANDARD 2.0 PERFORM ELECTRICAL AND ELECTRONIC TASKS Chassis frame PERFORM ELECTRICAL ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS body AND ELECTRONIC PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D and 3D) **TASKS** DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR ELECTRICAL Mechanical **MOTORS** (Motion) STANDARD 4.0 Explain the operation and use of DC motors in automation controls Gear: Box, ANALYZE PERFORM MECHANICAL SYSTEMS LINKAGES TASKS train, parallel PROGRAMMABLE APPLY SENSOR SOLUTIONS (linear) stack LOGIC CONTROLLER DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER (vertical), ratio, (PLC) SYSTEMS LABORATORY EQUIPMENT, TOOLS, AND MATERIALS torque speed **Lesson Overview:** STANDARD 7.0 11st Semester Students: PERFORM DRAFTING Login to VEX Certification Accounts: **TASKS** Electrical 7.5 Make dimensional Chemical VEX V5 CAD drawings (e.g., 2D electrochemical • Block Programming and 3D) • Python Programming Physical Workcell STANDARD 5.0 Magnetism DESCRIBE THE • Continue building VEX V5 Robots **Batteries OPERATION AND USE** П • Speedbot/Base Bot OF VARIOUS FORMS Software Coding-Block/Python/C/C++ OR ELECTRICAL Block **MOTORS** Sensors PLC ladder Bump/touch, Distance, Line Tracker, Camera logic, CNC, 5.2 Explain the Python, C++, operation and use of Data Analysis DC motors in Sensors 2nD Semester Plus+ Students: automation controls Bump/touchDis Login to VEX Certification Accounts: tance STANDARD 6.0 Light VEX V5 **PERFORM** Camera Block, Python Programming MECHANICAL Workcell SYSTEMS LINKAGES Physical **TASKS Customizing Robots and Parts** Computing STANDARD 10.0 APPLY Tinkercade SENSOR SOLUTIONS • 3D Modeling, Electric circuits, Arduino IDE – C/Python Code Data Collect • Workflow Process: STANDARD 13.0 DataAnalyze **DEMONSTRATE SAFE** • Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing AND PROPER USE OF Inkscape > Tinkercad > Ultimaker Cura > Ultimaker **ELECTRONIC AND** \*Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D Modeling OTHER LABORATORY Raspberry Pi – Pico Bluetooth/WiFi EQUIPMENT, TOOLS, AND MATERIAL Python **Precision Machining** Manual/Traditional - Mill and Drill

CNC -ComputerNumeric Control -G/M Code