Name: Robert Lefrandt	Grading Quarter: 1	Week Beginning: 01/22/2024
School Year: 2023-24	Subject: Automation & Robotics	

Monday	Notes:
	
	Notes:
	
	Robotic Assemblies Mechtronics
	
	Engineering: ReEngineering Reverse Engineering
	
	Structural Chassis frame body
	
	Mechanical (Motion) Gear: Box, train, parallel (linear) stack (vertical), ratio, torque speed
	
	Electrical (Ohm's Law, Parallel/Serial Circuits) 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 ProfessionalCommunity
	
	NASA, Honeywell
		01/22/2024 BRHS Robotics –
		
		Objective:
		Apply basic **engineering principles** and technical skills for... artificial intelligent management ...the principles of robotics, design, operational testing, system maintenance, repair procedures, robot computer systems, and control languages.
		
		(AZ CTE Automation & Robotics-Program Description)
		
		• 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: Workflow Process:
		1st Semester Students:
		• Login to VEX Certification Accounts:
		• VEX V5 ,Block Programming, Python Programming, Workcell
		  • RemoteCotrol and building VEX V5 Robots -Speedbot/Base Bot
		  • Coding-Block/Python/C/C++
		Sensors :Bump/touch, Distance, Line Tracker, Camera, , AI, Data Analysis
		***Customizing Robots and Parts : After Completing 1st Semester Skills
		2nd Semester Plus+ Students:
		• Login to VEX Certification Accounts: (Complete Certifications)
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		• Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing
		• Inkscape > Tinkercad > Ultimaker Cura > Ultimaker
		*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:
			Academic Standards:
			
			Arizona Department of Education Website:
			
			Program Description/Industry Credentials/Coherent Sequence/
			
			www.azed.gov/cte/ar/
			
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			1. Communication
			2. Collaboration / Teaming Abilities
			3. Thinking and Innovation / Problem Solving
			4. Professionalism / Formal Behavior
			5. Initiative and Self-Direction / Leadership
			6. Intergenerational and Cross-Cultural Competence / Acceptance and Inclusion
			7. Organizational Culture / Values
			8. Legal and Ethical Practices / Safety
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Tuesday	Notes:
	
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Wednesday

Notes:

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Sensors Bump/touchDistance Light Camera

Physical Computing

AI Data Collect DataAnalyze

Collaborate with schools, 'Industry ProfessionalCommunity

NASA, Honeywell

01/24/2024-

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Thursday

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01/25/2024-

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		01/26/2024-
		
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