Name:	Grading Quarter:	Week Beginning:	
Robert Lefrandt	4	04/28/2025	
School Year: 2024-25	Subject: Automation & Robotics/Engineering		

M	Notes:	Monday:	Academic
Monday	Robotic	Apply basic engineering principles and technical skills for artificial	Standards:
ау	Assemblies Mechtronic	intelligent managementthe principles of robotics, design, operational	Arizona
	viechtronic	testing, system maintenance, repair procedures, robot computer	Department
	Engineer:	systems, and control languages.	of
	ReEngineer Reverse	(AZ CTE Automation & Robotics-Program Description)	Education
	Engineering	PERFORM ELECTRICAL AND ELECTRONIC TASKS	Website:
	Structural	ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS	
	Chassis	PERFORM DRAFTING TASKS-Make dimensional CAD drawings (2D/3D)	Program
	frame body	DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR	Description/
	Mechanical	ELECTRICAL MOTORS	Industry
	(Motion)	Explain the operation and use of DC motors in automation controls	Credentials/
	Gear: Box,	PERFORM MECHANICAL SYSTEMS LINKAGES TASKS	Coherent
	train,	APPLY SENSOR SOLUTIONS	Sequence/
	parallel	DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER	www.azed.g
	(linear)	LABORATORY EQUIPMENT, TOOLS, AND MATERIALS	ov/cte/ar/
	stack	Lesson Overview: Workflow Process:	
	(vertical),	Level 1 Students:	www.azed.g
	ratio,	Login to VEX Certification Accounts:	ov/sites/defa
	torque	VEX V5 ,Block Programming, Python Programming, Workcell	ult/files/202
	speed	RemoteCotrol and building VEX V5Robots -Speedbot/Base Bot, Claw	1/06/Progra mDescription
	Mechtronic	Coding-Block/Python/C/C++	_Automation
	Electrical (Sensors: Bump/touch, Distance, Line Tracker, Camera, AI, Data Analysis	AndRobotics.
	Ohm's Law,	***Customizing Robots and Parts: After Completing 1st Semester Skills	pdf
	Parallel/Seri	Level 2 Plus+ Students: Login to VEX Certification Accounts: (Complete	Az CTE Prof.
	al Circuits)	Certifications + Arduino/PCEP) Testing TSA/RECF	Skills have 9
	Chemical e-chem	*Tinkercade(Autodesk)/PHET(Physics-Engineering-Tech) Univ-Colorado	areas of measuremnt
	Physical	3D Modeling, Electric circuits, Arduino IDE – C/Python Code	
	Magnetism	Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing	Notes Conti: PhysComp
	Batteries	Inkscape > Tinkercad > Ultimaker Cura (Settings) > Ultimaker	Embedded
	Software	(Print)*Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D	smart, IIOT
	Block	Manual/Traditional - Mill and Drill , CNC/G/M Code	AI ,Data
	PLC ladder	Raspberry Pi – Pico Kit -Bluetooth/WiFi, Python Precision Machining	Collect Data
	logic, CNC,	CAD/CAM: 3D Printing	Analyze Data
	Python, C++		MachinLearn
	Sensors	Competitions: See Software App Design - FabLab/Engineering:	Collaborate
	touch, Dist	vr.vex.com-coding top6 in AZ	schools,
	Light,	vr.vex.com: virtual Robotics-Coding: Block/Python Text-High Stakes	Industry
	Camera	Other: Racing the Sun (RTS) *See FabLab-Maker Div.Awards: Rookie,	Community
		Endurance	

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	Tu	Notes:	Objective:	Academic
	Tuesday	Robotic	Apply basic engineering principles and technical skills for artificial	Standards:
	ау	Assemblies Mechtronic Engineer:	intelligent managementthe principles of robotics, design, operational	Arizona
			testing, system maintenance, repair procedures, robot computer	Department
			systems, and control languages.	of
		ReEngineer Reverse	(AZ CTE Automation & Robotics-Program Description)	Education
		Engineering	PERFORM ELECTRICAL AND ELECTRONIC TASKS	Website:
		Structural	ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS	Program
		Chassis	PERFORM DRAFTING TASKS-Make dimensional CAD drawings (2D/3D)	Description/
		frame body Mechanical	DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR	Industry
		(Motion)	ELECTRICAL MOTORS	Credentials/
		Gear: Box,	Explain the operation and use of DC motors in automation controls	Coherent
		train,	PERFORM MECHANICAL SYSTEMS LINKAGES TASKS	Sequence/
		parallel	APPLY SENSOR SOLUTIONS	•
		(linear)	DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER	www.azed.g
		stack	LABORATORY EQUIPMENT, TOOLS, AND MATERIALS Lesson Overview: Workflow Process:	ov/cte/ar/
		(vertical),		
		ratio,	Level 1 Students:	www.azed.g ov/sites/defa
		torque	Login to VEX Certification Accounts:	ult/files/202
		speed	VEX V5 ,Block Programming, Python Programming, Workcell	1/06/Progra
		-	RemoteCotrol and building VEX V5Robots -Speedbot/Base Bot, Claw	mDescription
		Electrical (Coding-Block/Python/C/C++	_Automation
		Ohm's Law,	Sensors :Bump/touch, Distance, Line Tracker, Camera, , AI, Data Analysis	AndRobotics.
		Parallel/Seri	***Customizing Robots and Parts: After Completing 1st Semester Skills	pdf
		al Circuits)		Az CTE Prof.
		Chemical	Level 2 Plus+ Students: Login to VEX Certification Accounts: (Complete	Skills have 9
		e-chem	Certifications + Arduino/PCEP)-Testing TSA/RECF	areas of
		Physical Magnetism Batteries Software	*Tinkercade(Autodesk)/PHET(Physics-Engineering-Tech) Univ-Colorado	measuremnt
			3D Modeling, Electric circuits, Arduino IDE – C/Python Code	Notes Conti:
			Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing	AI ,Data
		Block PLC ladder logic, CNC,	Inkscape > Tinkercad > Ultimaker Cura (Settings) > Ultimaker	Collect Data
			(Print)*Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D	Analyze Data
			Manual/Traditional - Mill and Drill , CNC/G/M Code	MachinLearn
		Python, C++	Raspberry Pi – Pico Kit -Bluetooth/WiFi, Python Precision Machining	Collaborate
		Sensors	CAD/CAM: 3D Printing	schools,
		touch, Dist	Competitions: See Software App Design - FabLab/Engineering:	Industry
		Light,		Community
		Camera	vr.vex.com-coding top6 in AZ	
		PhysComp	vr.vex.com: virtual Robotics-Coding: Block/Python Text-High Stakes	
		Embedded smart, IIOT	Other: Racing the Sun (RTS) *See FabLab-Maker Div.Awards: Rookie, Endurance	
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	Wednesday	Robotic	Apply basic engineering principles and technical skills for artificial	Standards:
	esd	Assemblies Mechtronic	intelligent managementthe principles of robotics, design, operational	Arizona
	ау	Mechtronic	testing, system maintenance, repair procedures, robot computer	Department
		Engineer:	systems, and control languages.	of
		ReEngineer Reverse	(AZ CTE Automation & Robotics-Program Description)	Education
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		Structural	ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS	Program
		Chassis	PERFORM DRAFTING TASKS-Make dimensional CAD drawings (2D/3D)	Description/
		frame body Mechanical	DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR	Industry
		(Motion)	ELECTRICAL MOTORS	Credentials/
		Gear: Box,	Explain the operation and use of DC motors in automation controls	Coherent
		train,	PERFORM MECHANICAL SYSTEMS LINKAGES TASKS	Sequence/
		parallel	APPLY SENSOR SOLUTIONS	
		(linear)	DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER LABORATORY EQUIPMENT, TOOLS, AND MATERIALS	www.azed.g
		stack	Lesson Overview: Workflow Process:	ov/cte/ar/
		(vertical),	Level 1 Students:	
		ratio,		www.azed.g ov/sites/defa
		torque	Login to VEX Certification Accounts:	ult/files/202
		speed	VEX V5 ,Block Programming, Python Programming, Workcell	1/06/Progra
			RemoteCotrol and building VEX V5Robots -Speedbot/Base Bot, Claw	mDescription
		Electrical (Coding-Block/Python/C/C++	_Automation
		Ohm's Law,	Sensors :Bump/touch, Distance, Line Tracker, Camera, , AI, Data Analysis	AndRobotics.
		Parallel/Seri	***Customizing Robots and Parts: After Completing 1st Semester Skills	pdf
		al Circuits)	Level 2 Plus+ Students: Login to VEX Certification Accounts: (Complete	Az CTE Prof.
		Chemical e-chem	Certifications + Arduino/PCEP) Testing TSA/RECF	Skills have 9
				areas of
		Physical Magnetism	* <u>Tinkercade(Autodesk)/</u> PHET(Physics-Engineering-Tech) Univ-Colorado	measuremnt
		Batteries	3D Modeling, Electric circuits, Arduino IDE – C/Python Code	Notes Conti:
		Software	Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing	Al ,Data
		Block	Inkscape > Tinkercad > Ultimaker Cura (Settings) > Ultimaker	Collect Data
		PLC ladder	(Print)*Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D	Analyze Data
		logic, CNC,	Manual/Traditional - Mill and Drill , CNC/G/M Code	MachinLearn
		Python, C++	Raspberry Pi – Pico Kit -Bluetooth/WiFi, Python Precision Machining	Collaborate
		Sensors	CAD/CAM: 3D Printing	schools,
		touch, Dist	Competitions Co. Coftware Ann Design Fublab/Fusingsvings	Industry
		Light,	Competitions: See Software App Design - FabLab/Engineering:	Community
		Camera	vr.vex.com-coding top6 in AZ	
		PhysComp	vr.vex.com: virtual Robotics-Coding: Block/Python Text-High Stakes	
		Embedded smart, IIOT	Other: Racing the Sun (RTS) *See FabLab-Maker Div.Awards: Rookie, Endurance	
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Objective: Academic Notes: Robotic Apply basic engineering principles and technical skills for... artificial Standards: Assemblies intelligent management ...the principles of robotics, design, operational Arizona Mechtronic testing, system maintenance, repair procedures, robot computer Department systems, and control languages. Engineer: of ReEngineer (AZ CTE Automation & Robotics-Program Description) Education Reverse Website: Engineering PERFORM ELECTRICAL AND ELECTRONIC TASKS Structural ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS Program Chassis PERFORM DRAFTING TASKS-Make dimensional CAD drawings (2D/3D) Description/ frame body DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR Industry Mechanical **ELECTRICAL MOTORS** Credentials/ (Motion) Explain the operation and use of DC motors in automation controls Coherent Gear: Box, PERFORM MECHANICAL SYSTEMS LINKAGES TASKS Sequence/ train. **APPLY SENSOR SOLUTIONS** parallel DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER www.azed.g (linear) LABORATORY EQUIPMENT, TOOLS, AND MATERIALS ov/cte/ar/ stack **Lesson Overview:** Workflow Process: (vertical), Level 1 Students: www.azed.g ratio, ov/sites/defa Login to VEX Certification Accounts: torque ult/files/202 VEX V5 ,Block Programming, Python Programming, Workcell 1/06/Progra speed RemoteCotrol and building VEX V5Robots -Speedbot/Base Bot, Claw mDescription Electrical (Coding-Block/Python/C/C++ Automation Ohm's Law. AndRobotics. Sensors: Bump/touch, Distance, Line Tracker, Camera, , AI, Data Analysis Parallel/Seri pdf ***Customizing Robots and Parts : After Completing 1st Semester Skills al Circuits) Az CTE Prof. Level 2 Plus+ Students: Login to VEX Certification Accounts: (Complete Chemical Skills have 9 Certifications + Arduino/PCEP) Testing TSA/RECF e-chem areas of **Physical** *Tinkercade(Autodesk)/PHET(Physics-Engineering-Tech) Univ-Colorado measuremnt Magnetism 3D Modeling, Electric circuits, Arduino IDE – C/Python Code **Batteries** Notes Conti: Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing AI ,Data Software Collect Data Inkscape > Tinkercad > Ultimaker Cura (Settings) > Ultimaker Block (Print)*Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D Analyze Data PLC ladder MachinLearn Manual/Traditional - Mill and Drill , CNC/G/M Code logic, CNC, Collaborate Raspberry Pi – Pico Kit -Bluetooth/WiFi, Python Precision Machining Python, C++ schools, Sensors CAD/CAM: 3D Printing Industry touch, Dist Competitions: See Software App Design - FabLab/Engineering: Community Light, vr.vex.com-coding top6 in AZ Camera vr.vex.com: virtual Robotics-Coding: Block/Python Text-High Stakes PhysComp Embedded Other: Racing the Sun (RTS) *See FabLab-Maker Div.Awards: Rookie, smart, IIOT **Endurance**

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Notes: Robotic Assemblies	Objective: No School Apply basic engineering principles and technical skills for artificial	
Mechtronic	intelligent managementthe principles of robotics, design, operational testing, system maintenance, repair procedures, robot computer	
Engineer: ReEngineer	systems, and control languages. (AZ CTE Automation & Robotics-Program Description)	
Reverse Engineering Structural	PERFORM ELECTRICAL AND ELECTRONIC TASKS ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS	
Chassis frame body Mechanical	PERFORM DRAFTING TASKS-Make dimensional CAD drawings (2D/3D) DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR ELECTRICAL MOTORS	
(Motion) Gear: Box, train,	Explain the operation and use of DC motors in automation controls PERFORM MECHANICAL SYSTEMS LINKAGES TASKS	
parallel (linear)	APPLY SENSOR SOLUTIONS DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER LABORATORY EQUIPMENT, TOOLS, AND MATERIALS	
stack (vertical),	Lesson Overview: Workflow Process: Level 1 Students:	,
ratio, torque	Login to VEX Certification Accounts: VEX V5 ,Block Programming, Python Programming, Workcell	(
speed	RemoteCotrol and building VEX V5Robots -Speedbot/Base Bot, Claw	
Electrical (Ohm's Law,	Coding-Block/Python/C/C++ Sensors :Bump/touch, Distance, Line Tracker, Camera, , AI, Data Analysis	-
Parallel/Seri al Circuits)	***Customizing Robots and Parts : After Completing 1st Semester Skills	
Chemical e-chem	Level 2 Plus+ Students: Login to VEX Certification Accounts: (Complete Certifications + Arduino/PCEP) Testing TSA/RECF	
Physical Magnetism	* <u>Tinkercade(Autodesk)/PHET(Physics-Engineering-Tech) Univ-Colorado</u> 3D Modeling, <u>Electric circuits</u> , <u>Arduino IDE – C/Python Code</u>	
Batteries Software	Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing	
Block/PLC ladder	Inkscape > Tinkercad > Ultimaker Cura (Settings) > Ultimaker (Print)*Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D	
logic, CNC,	Manual/Traditional - Mill and Drill , CNC/G/M Code	
Python, C++ Sensors	Raspberry Pi – Pico Kit -Bluetooth/WiFi, Python Precision Machining CAD/CAM: 3D Printing	4
bump/touc h DistLight, Camera	Competitions: See Software App Design - FabLab/Engineering: vr.vex.com-coding top6 in AZ	
	vr.vex.com: virtual Robotics-Coding: Block/Python Text-High Stakes	

Other: Racing the Sun (RTS) *See FabLab-Maker Div.Awards: Rookie,

Endurance

Academic Standards: Arizona Department of Education Website: Program Description/ Industry Credentials/ Coherent Sequence/ www.azed.g ov/cte/ar/ www.azed.g ov/sites/defa ult/files/202 1/06/Progra mDescription _Automation AndRobotics. pdf Az CTE Prof. Skills have 9 areas of measuremnt Notes Conti: PhysComp Embedded smart, IIOT AI ,Data Collect Data Analyze Data MachinLearn Collaborate schools, Industry

Community