Name:	Grading Quarter:	Week Beginning:
Robert Lefrandt	4	04/13/2025
School Year: 2024-25	Subject: Automation & Robotics/Engineering	

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Z	Notes:	Monday:	Academic
Monday	Robotic	Apply basic engineering principles and technical skills for artificial	Standards:
ay	Assemblies Mechtronic	intelligent managementthe principles of robotics, design, operational	Arizona
	Wiechtroffic	testing, system maintenance, repair procedures, robot computer	Department
	Engineer:	systems, and control languages.	of
	ReEngineer	(AZ CTE Automation & Robotics-Program Description)	Education
	Reverse		Website:
	Engineering	PERFORM ELECTRICAL AND ELECTRONIC TASKS	Website.
	Structural Chassis frame body Mechanical (Motion) Gear: Box,	ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS	Program
		PERFORM DRAFTING TASKS-Make dimensional CAD drawings (2D/3D)	Description/
		DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR	Industry
		ELECTRICAL MOTORS	Credentials/
		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),		
	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
	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		A- CTE Drof
	al Circuits) Chemical e-chem	Level 2 Plus+ Students: Login to VEX Certification Accounts: (Complete	Az CTE Prof. Skills have 9
		Certifications + Arduino/PCEP)	areas of
		*Tinkercade(Autodesk)/PHET(Physics-Engineering-Tech) Univ-Colorado	measuremnt
	Physical	3D Modeling, Electric circuits, Arduino IDE – C/Python Code	
	Magnetism Batteries		Notes Conti:
		Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing	PhysComp
	Software	Inkscape > Tinkercad > Ultimaker Cura (Settings) > Ultimaker	Embedded
	Software	(Print)*Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D	smart, IIOT
	Block PLC ladder logic, CNC, Python, C++ Sensors touch, Dist	Manual/Traditional - Mill and Drill , CNC/G/M Code	AI ,Data
		Raspberry Pi – Pico Kit -Bluetooth/WiFi, Python Precision Machining	Collect Data
		CAD/CAM: 3D Printing	Analyze Data
		CAD/CAIVI . 3D FIIIItilig	MachinLearn
		Competitions: See Software App Design - FabLab/Engineering:	Collaborate
		vr.vex.com-coding top6 in AZ	schools,
	Light,	vr.vex.com: virtual Robotics-Coding: Block/Python Text-High Stakes	Industry
	Camera		Community
		Other: Racing the Sun (RTS) *See FabLab	Community
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Tue	Notes:	Objective:	Academic
Tuesday	Robotic Assemblies	Apply basic engineering principles and technical skills for artificial	Standards:
γ	Mechtronic	intelligent managementthe principles of robotics, design, operational	Arizona
	Wicentionic	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	Dragram
	Chassis	PERFORM DRAFTING TASKS-Make dimensional CAD drawings (2D/3D)	Program
	frame body	DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR	Description/ Industry
	Mechanical	ELECTRICAL MOTORS	Credentials/
	(Motion) 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	004401100,
	(linear)	DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER	www.azed.g
	stack	LABORATORY EQUIPMENT, TOOLS, AND MATERIALS	ov/cte/ar/
	(vertical),	Lesson Overview: Workflow Process:	
	ratio,	Level 1 Students:	www.azed.g
	-	Login to VEX Certification Accounts:	ov/sites/defa
	torque speed	VEX V5 ,Block Programming, Python Programming, Workcell	ult/files/202 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)		A- CTE Duet
	Chemical	Level 2 Plus+ Students: Login to VEX Certification Accounts: (Complete	Az CTE Prof. Skills have 9
	e-chem	Certifications + Arduino/PCEP)	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	Al ,Data
	Block PLC ladder logic, CNC, Python, C++	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 Collaborate
		Raspberry Pi – Pico Kit -Bluetooth/WiFi, Python Precision Machining	schools,
	Sensors	CAD/CAM: 3D Printing	SCHOOIS,
	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	Other: Racing the Sun (RTS) *See FabLab	
	smart, IIOT		

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×e	Notes:	Objective:	Academic	
Wednesday	Robotic Assemblies	Apply basic engineering principles and technical skills for artificial	Standards:	
sda	Mechtronic	intelligent managementthe principles of robotics, design, operational	Arizona	
\ \ \		testing, system maintenance, repair procedures, robot computer	Department	
	Engineer:	systems, and control languages.	of	
	ReEngineer Reverse	(AZ CTE Automation & Robotics-Program Description)	Education Website:	
	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 LABORATORY EQUIPMENT, TOOLS, AND MATERIALS	www.azed.g	
	stack	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 (Ohm's Law, Parallel/Seri	Coding-Block/Python/C/C++	_Automation	
		Sensors :Bump/touch, Distance, Line Tracker, Camera, , AI, Data Analysis	AndRobotics.	
		***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)	areas of	
	Physical Magnetism Batteries Software	* <u>Tinkercade(Autodesk)/PHET(Physics-Engineering-Tech) Univ-Colorado</u>	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		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	Other: Racing the Sun (RTS) *See FabLab		
	smart, IIOT			

Thu	Notes:	Objective:	Academic
Thursday	Robotic Assemblies	Apply basic engineering principles and technical skills for artificial	Standards:
lay	Mechtronic	intelligent managementthe principles of robotics, design, operational	Arizona
	Wicemerorite	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	Drogram
	Chassis	PERFORM DRAFTING TASKS-Make dimensional CAD drawings (2D/3D)	Program Description/
	frame body	DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR	Industry
	Mechanical (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 (Ohm's Law, Parallel/Seri	Coding-Block/Python/C/C++	_Automation
		Sensors :Bump/touch, Distance, Line Tracker, Camera, , AI, Data Analysis	AndRobotics.
		***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)	areas of
	Physical Magnetism Batteries Software	* <u>Tinkercade(Autodesk)/PHET(Physics-Engineering-Tech) Univ-Colorado</u>	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, Python, C++ Sensors	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 Collaborate
		Raspberry Pi – Pico Kit -Bluetooth/WiFi, Python Precision Machining	
		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	Other: Racing the Sun (RTS) *See FabLab	
	smart, IIOT		

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

Academic Standards: , operational Arizona Department of Education Website: Program ngs (2D/3D) 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. **Data Analysis** pdf mester Skills Az CTE Prof. : (Complete Skills have 9 areas of Iniv-Colorado measuremnt Notes Conti: PhysComp Embedded smart, IIOT AI ,Data Collect Data Analyze Data MachinLearn Collaborate schools, Industry

Community