Name:	Grading Quarter:	Week Beginning:
Robert Lefrandt	2	11/11/2024
School Year: 2024-25	Subject: Automation	& Robotics/Engineering

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

	*Competitions Prep, etc. See FabLab/Engineering 11/14-16/WRiv,		

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Tu	Notes:	Objective:	Academic
Tuesday	Robotic	Apply basic engineering principles and technical skills for artificial	Standards:
ay	Assemblies 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
	Engineering	PERFORM ELECTRICAL AND ELECTRONIC TASKS	Website:
	Structural	ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS	Droarom
	Chassis frame body	PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D and 3D)	Program Description/
	, 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	ov/cte/ar/
	(vertical),	Lesson Overview: Workflow Process:	www.azed.g
	ratio,	Level 1 Students:	ov/sites/defa
	torque	Login to VEX Certification Accounts:	ult/files/202
	speed	VEX V5 ,Block Programming, Python Programming, Workcell	1/06/Progra
	Electrical (RemoteCotrol and building VEX V5Robots -Speedbot/Base Bot, Claw	mDescription Automation
	Ohm's Law,	Coding-Block/Python/C/C++	AndRobotics.
	Parallel/Seri	Sensors :Bump/touch, Distance, Line Tracker, Camera, , AI, Data Analysis	pdf
	al Circuits)	***Customizing Robots and Parts: After Completing 1st Semester Skills	Az CTE Prof.
	Chemical	Level 2 Plus+ Students:	Skills have 9
	e-chem		areas of
	Physical Magnetism	Login to VEX Certification Accounts: (Complete Certifications + Arduino/PCEP)	measuremnt
	Batteries	Tinkercade(Autodesk)/PHET(Physics-Engineering-Tech) Univ-Colorado	Notes Conti:
	Software	3D Modeling, Electric circuits, Arduino IDE – C/Python Code	AI ,Data
	Block		Collect Data
	PLC ladder	Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing	Analyze Data
	logic, CNC,	Inkscape > Tinkercad > Ultimaker Cura (Settings) > Ultimaker	MachinLearn
	Python, C++	(Print)*Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D Modeling	Collaborate
	Sensors	_	schools,
	touch, Dist	Manual/Traditional - Mill and Drill , CNC –ComputerNumeric Control –	Industry
	Light,	G/M Code	Community
	Camera	Raspberry Pi – Pico Kit -Bluetooth/WiFi, Python Precision Machining	
	PhysComp	CAD/CAM: 3D Printing	
	Embedded	*Competitions Prep, etc. See FabLab/Engineering*11/14-16/24 WRiv	
	smart, IIOT		

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¥e	Notes:	Objective:	Academic
dne	Robotic Assemblies	Apply basic engineering principles and technical skills for artificial	Standards:
Wednesday	Mechtronic	achtronia	
Ye	Engineer: systems, and control languages.		Arizona Department
			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 frame body	PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D	Description/
	Mechanical	and 3D)	Industry
	(Motion)	DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR 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	ov/cte/ar/
	(vertical),	Lesson Overview: Workflow Process:	www.azed.g
	ratio,	Level 1 Students:	ov/sites/defa
	torque	Login to VEX Certification Accounts:	ult/files/202
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	Electrical (RemoteCotrol and building VEX V5Robots -Speedbot/Base Bot, Claw	mDescription Automation
	Ohm's Law, Parallel/Seri al Circuits) Chemical e-chem	Coding-Block/Python/C/C++	AndRobotics.
		Sensors :Bump/touch, Distance, Line Tracker, Camera, , AI, Data Analysis	pdf
			_
		***Customizing Robots and Parts : After Completing 1st Semester Skills	Az CTE Prof.
		Level 2 Plus+ Students:	Skills have 9 areas of
	Physical	Login to VEX Certification Accounts: (Complete Certifications +	measuremnt
	Magnetism Batteries Software	Arduino/PCEP)	
		Tinkercade(Autodesk)/PHET(Physics-Engineering-Tech) Univ-Colorado	Notes Conti:
		3D Modeling, Electric circuits, Arduino IDE – C/Python Code	AI ,Data Collect Data
	Block	Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing	Analyze Data
	PLC ladder	Inkscape > Tinkercad > Ultimaker Cura (Settings) > Ultimaker	MachinLearn
	logic, CNC,	(Print)*Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D	Collaborate
	Python, C++	Modeling	schools,
	Sensors	Manual/Traditional - Mill and Drill , CNC –ComputerNumeric Control –	Industry
	touch, Dist	G/M Code	Industry
	Light,	Raspberry Pi – Pico Kit -Bluetooth/WiFi, Python Precision Machining	Community
	Camera	CAD/CAM: 3D Printing	
	PhysComp		
	Embedded smart, IIOT	*Competitions Prep, etc. See FabLab/Engineering* 11/14-16/24 WRiv	
	Jiliai t, IIU I		

Th	Notes:	Objective:	Academic
Thursday	Robotic Assemblies	Apply basic engineering principles and technical skills for artificial	Standards:
lay	Mechtronic Engineer: ReEngineer Reverse Engineering Structural Chassis frame body Mechanical	intelligent managementthe principles of robotics, design, operational	Arizona
		testing, system maintenance, repair procedures, robot computer	Department
		systems, and control languages.	of
		(AZ CTE Automation & Robotics-Program Description)	Education Website:
		PERFORM ELECTRICAL AND ELECTRONIC TASKS	website.
		ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS	Program
		PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D	Description/
		and 3D)	Industry
	(Motion)	DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR	Credentials/
	Gear: Box,	ELECTRICAL MOTORS Explain the operation and use of DC motors in automation controls	Coherent
	train,	PERFORM MECHANICAL SYSTEMS LINKAGES TASKS	Sequence/
	parallel	APPLY SENSOR SOLUTIONS	
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	(vertical),	Lesson Overview: Workflow Process:	www.azed.g
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	Ohm's Law, Parallel/Seri al Circuits) Chemical e-chem Physical Magnetism Batteries Software	Coding-Block/Python/C/C++	_Automation AndRobotics.
			pdf
		Sensors :Bump/touch, Distance, Line Tracker, Camera, , AI, Data Analysis	pai
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		Level 2 Plus+ Students:	Skills have 9 areas of measuremnt Notes Conti: AI ,Data Collect Data
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		Arduino/PCEP)	
		Tinkercade(Autodesk)/PHET(Physics-Engineering-Tech) Univ-Colorado	
		3D Modeling, Electric circuits, Arduino IDE – C/Python Code	
	Block PLC ladder logic, CNC, Python, C++	Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing	Analyze Data
		Inkscape > Tinkercad > Ultimaker Cura (Settings) > Ultimaker (Print)*Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D	MachinLearn Collaborate
		Modeling	schools,
	Sensors	Manual/Traditional - Mill and Drill , CNC –ComputerNumeric Control –	lad ata
	touch, Dist Light,	G/M Code	Industry
		Raspberry Pi – Pico Kit -Bluetooth/WiFi, Python Precision Machining	Community
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	PhysComp	CAD/CAM: 3D Printing	
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		(linear)	DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER	ov/cte/ar/
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		Sensors	Modeling	Analyze Data
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		h DistLight, Camera	G/M Code	Collaborate
			Raspberry Pi – Pico Kit -Bluetooth/WiFi, Python Precision Machining	schools,
			CAD/CAM : 3D Printing	Industry
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			Competitions Prep, etc. See FabLab/Engineering 11/14-16/24 WRiv	