Name: Robert Lefrandt	Grading Quarter: 1	Week Beginning: 08/19/2024
School Year: 2024-25	Subject: Automation & Robotics/Engineering	

Monday	Notes: Robotic Assemblies Mechtronic Engineer: ReEngineer 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 e-chem Physical Magnetism Batteries Software Block PLC ladder logic, CNC, Python, C++ Sensors touch, Dist Light, Camera PhysComp Embedded smart, IIOT	**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: Level 1 Students: Login to VEX Certification Accounts: VEX V5 ,Block Programming, Python Programming, Workcell RemoteCotrol and building VEX V5Robots -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 Level 2 Plus+ Students: Login to VEX Certification Accounts: (Complete Certifications + Arduino/PCEP) Tinkercade(Autodesk)/PHET(Physics-Engineering-Tech) Univ-Colorado 3D Modeling, Electric circuits, Arduino IDE – C/Python Code Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing Inkscape > Tinkercad > Ultimaker Cura (Settings) > Ultimaker (Print)*Autodesk Fusion 360/Solidworks: Combine 2d Sketch/3D Modeling Manual/Traditional - Mill and Drill , CNC –ComputerNumeric Control – G/M Code Raspberry Pi – Pico Kit -Bluetooth/WiFi, Python Precision Machining CAD/CAM : 3D Printing	Academic Standards: Arizona Department of Education Website: Program Description/ Industry Credentials/ Coherent Sequence/ www.azed.gov/cte/ar/ www.azed.gov/sites/default/files/2021/06/ProgramDescription_AutomationAndRobotics.pdf Az CTE Prof. Skills have 9 areas of measuremnt Notes Conti: AI ,Data Collect Data Analyze Data MachinLearn Collaborate schools, Industry Community

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