Name: Robert Lefrandt	Grading Quarter: 3	Week Beginning: 03/03/2025
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 Mechtronic 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	**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 (2D/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, Claw 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 Manual/Traditional - Mill and Drill , CNC/G/M Code Raspberry Pi – Pico Kit -Bluetooth/WiFi, Python Precision Machining CAD/CAM : 3D Printing ***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	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: PhysComp Embedded smart, IIOT AI ,Data Collect Data Analyze Data MachinLearn Collaborate schools, Industry Community

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