Name: Robert Lefrandt	Grading Quarter: 3	Week Beginning: wk 7 02/19/2024
School Year: 2023-24	Subject: Automation & Robotics	

Monday

Notes:

Notes:

Robotic Assemblies Mechtronics

Engineering: ReEngineering 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 electrochemical

Physical Magnetism Batteries

Software Block PLC ladder logic, CNC, Python, C++,

Sensors Bump/touchDistance Light Camera

Physical Computing

AI Data Collect DataAnalyze

Collaborate with schools, 'Industry ProfessionalCommunity

NASA, Honeywell

02/19/2024 BRHS Robotics –

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
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***Customizing Robots and Parts : After Completing 1st Semester Skills

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Academic Standards:

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02/20/2024 -

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Wednesday	Notes: Robotic Assemblies Mechtronics Engineering: ReEngineering 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 electrochemical Physical Magnetism Batteries Software Block PLC ladder logic, CNC, Python, C++, Sensors Bump/touchDistance Light Camera Physical Computing AI Data Collect DataAnalyze Collaborate with schools, 'Industry ProfessionalCommunity NASA, Honeywell	02/21/2024- **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: 1st Semester Students: • Login to VEX Certification Accounts: • VEX V5 ,Block Programming, Python Programming, Workcell • RemoteCotrol and building VEX V5 Robots -Speedbot/Base Bot • Coding-Block/Python/C/C++ • Sensors :Bump/touch, Distance, Line Tracker, Camera, , AI, Data Analysis • Industrial Internet of Things (IIOT) R-Pi & Arduino kits ***Customizing Robots and Parts : After Completing 1st Semester Skills 2nd Semester Plus+ Students: • Custom: ◦ Battlebots, solder ◦ Flywheel • Login to VEX Certification Accounts: (Complete Certifications) • 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 > Ultimaker ***Autodesk Tinkercad Team Fusion 360**/Solidworks: Combine 2d Sketch/3D Modeling • Raspberry Pi – Pico Bluetooth/WiFi • Python Precision Machining : • Manual/Traditional - Mill and Drill , **Pen Kit** • CNC –ComputerNumeric Control –G/M Code	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 **Arizona Career and Technical Education Professional Skills have 9 areas of measurement:** **www.azed.gov/cte/profskills/** **www.azed.gov/sites/default/files/2022/08/PrintablePreassessment.pdf** 1. Communication 2. Collaboration / Teaming Abilities 3. Thinking and Innovation / Problem Solving 4. Professionalism / Formal Behavior 5. Initiative and Self-Direction / Leadership 6. Intergenerational and Cross-Cultural Competence / Acceptance and Inclusion 7. Organizational Culture / Values 8. Legal and Ethical Practices / Safety 9. Financial Practices

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02/22/2024-Parent Teacher Conference (PTC) Shortened Day After School

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