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

02/19/2024 BRHS Robotics -Notes: Academic Standards: Notes: Academic Apply basic engineering principles and technical skills for... artificial intelligent management ...the principles Standards: of robotics, design, operational testing, system maintenance, repair procedures, robot computer systems, and control languages. Robotic Arizona Assemblies Department of (AZ CTE Automation & Robotics-Program Description) Mechtronics Education Website: PERFORM ELECTRICAL AND ELECTRONIC TASKS Engineering: ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS ReEngineering Program Reverse PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D and 3D) Description/Indust Engineering DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR ELECTRICAL MOTORS Credentials/Coher Explain the operation and use of DC motors in automation controls Structural ent Sequence/ Chassis frame PERFORM MECHANICAL SYSTEMS LINKAGES TASKS body APPLY SENSOR SOLUTIONS www.azed.gov/cte/ DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER LABORATORY EQUIPMENT, Mechanical TOOLS, AND MATERIALS (Motion) www.azed.gov/sites Gear: Box, train, Lesson Overview: Workflow Process: /default/files/2021/ parallel (linear) 1st Semester Students: 06/ProgramDescript stack (vertical), ion AutomationAnd Login to VEX Certification Accounts: ratio, torque Robotics.pdf VEX V5 ,Block Programming, Python Programming, Workcell speed RemoteCotrol and building VEX V5 Robots -Speedbot/Base Bot Arizona Career and **Technical Education** Coding-Block/Python/C/C++ Electrical (Ohm's **Professional Skills** Sensors :Bump/touch, Distance, Line Tracker, Camera, , AI, Data Analysis have 9 areas of Law, Industrial Internet of Things (IIOT) R-Pi & Arduino kits measurement: Parallel/Serial ***Customizing Robots and Parts: After Completing 1st Semester Skills Circuits) www.azed.gov/cte Chemical 2nd Semester Plus+ Students: /profskills/ electrochemical Custom: www.azed.gov/site Battlebots, solder Physical s/default/files/202 2/08/PrintablePrea Magnetism Flywheel ssessment.pdf **Batteries** Login to VEX Certification Accounts: (Complete Certifications) 1. Communication Tinkercade(Autodesk)/PHET(Physics-Engineering-Tech) Univ-Colorado 2. Collaboration / Software **Teaming Abilities Block** 3D Modeling, Electric circuits, Arduino IDE - C/Python Code 3. Thinking and PLC ladder logic, Innovation / Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing CNC, Python, **Problem Solving** C++, 4. Professionalism / Inkscape > Tinkercad > Ultimaker Cura > Ultimaker Formal Behavior 5. Initiative and Sensors *Autodesk Tinkercad Team Fusion 360/Solidworks: Combine 2d Sketch/3D Modeling Self-Direction / Bump/touchDista Leadership Raspberry Pi - Pico Bluetooth/WiFi nce 6. Intergenerational Light and Cross-Cultural Python Camera Competence / Precision Machining: Acceptance and Inclusion Manual/Traditional - Mill and Drill, Pen Kit 7. Organizational Physical Culture / Values Computing CNC -ComputerNumeric Control -G/M Code 8. Legal and Ethical Practices / Safety 9. Financial ΑI **Practices Data Collect** DataAnalyze Collaborate with schools, 'Industry ProfessionalCom munity NASA, Honeywell

Notes: Academic 02/20/2024 -Standards: Objective: Robotic Arizona Apply basic engineering principles and technical skills for... artificial intelligent management ...the principles Assemblies Department of of robotics, design, operational testing, system maintenance, repair procedures, robot computer systems, Mechtronics Education and control languages. Website: Engineering: ReEngineering (AZ CTE Automation & Robotics-Program Description) Program Reverse Description/Indust PERFORM ELECTRICAL AND ELECTRONIC TASKS Engineering ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS Credentials/Coher Structural PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D and 3D) ent Sequence/ Chassis frame DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR ELECTRICAL MOTORS body www.azed.gov/cte/ Explain the operation and use of DC motors in automation controls ar/ Mechanical PERFORM MECHANICAL SYSTEMS LINKAGES TASKS (Motion) www.azed.gov/sites APPLY SENSOR SOLUTIONS Gear: Box, train, /default/files/2021/ parallel (linear) DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER LABORATORY EQUIPMENT, 06/ProgramDescript stack (vertical), TOOLS, AND MATERIALS ion_AutomationAnd ratio, torque Lesson Overview: Workflow Process: Robotics.pdf speed 1st Semester Students: Arizona Career and Login to VEX Certification Accounts: **Technical Education** Electrical (Ohm's VEX V5 ,Block Programming, Python Programming, Workcell **Professional Skills** have 9 areas of Law. RemoteCotrol and building VEX V5 Robots -Speedbot/Base Bot measurement: Parallel/Serial Coding-Block/Python/C/C++ Circuits) Sensors: Bump/touch, Distance, Line Tracker, Camera, , AI, Data Analysis www.azed.gov/cte Chemical /profskills/ Industrial Internet of Things (IIOT) R-Pi & Arduino kits electrochemical ***Customizing Robots and Parts: After Completing 1st Semester Skills www.azed.gov/site Physical s/default/files/202 2nd Semester Plus+ Students: Tuesday 2/08/PrintablePrea Magnetism Custom: ssessment.pdf **Batteries** Battlebots, solder 1. Communication Flywheel 2. Collaboration / Software **Teaming Abilities** Login to VEX Certification Accounts: (Complete Certifications) Block 3. Thinking and PLC ladder logic, Innovation / Tinkercade(Autodesk)/PHET(Physics-Engineering-Tech) Univ-Colorado CNC, Python, **Problem Solving** C++, 4. Professionalism / 3D Modeling, Electric circuits, Arduino IDE - C/Python Code Formal Behavior 5. Initiative and Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing Sensors Self-Direction / Bump/touchDista Inkscape > Tinkercad > Ultimaker Cura > Ultimaker Leadership nce 6. Intergenerational Light *Autodesk Tinkercad Team Fusion 360/Solidworks: Combine 2d Sketch/3D Modeling and Cross-Cultural Camera Competence / Raspberry Pi - Pico Bluetooth/WiFi Acceptance and Inclusion Python 7. Organizational Physical Culture / Values Computing Precision Machining: 8. Legal and Ethical Practices / Safety Manual/Traditional - Mill and Drill, Pen Kit 9. Financial Practices CNC -ComputerNumeric Control -G/M Code **Data Collect** DataAnalyze Collaborate with schools, 'Industry ProfessionalCom munity NASA, Honeywell

Academic Notes: 02/21/2024-Standards: Objective: Robotic Arizona Apply basic engineering principles and technical skills for... artificial intelligent management ...the principles Assemblies Department of of robotics, design, operational testing, system maintenance, repair procedures, robot computer systems, Mechtronics Education and control languages. Website: Engineering: ReEngineering (AZ CTE Automation & Robotics-Program Description) Program Reverse Description/Indust PERFORM ELECTRICAL AND ELECTRONIC TASKS Engineering ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS Credentials/Coher Structural PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D and 3D) ent Sequence/ Chassis frame DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR ELECTRICAL MOTORS body www.azed.gov/cte/ Explain the operation and use of DC motors in automation controls ar/ Mechanical PERFORM MECHANICAL SYSTEMS LINKAGES TASKS (Motion) www.azed.gov/sites APPLY SENSOR SOLUTIONS Gear: Box, train, /default/files/2021/ parallel (linear) DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER LABORATORY EQUIPMENT, 06/ProgramDescript stack (vertical), TOOLS, AND MATERIALS ion_AutomationAnd ratio, torque Lesson Overview: Workflow Process: Robotics.pdf speed 1st Semester Students: Arizona Career and Login to VEX Certification Accounts: **Technical Education** Electrical (Ohm's VEX V5 ,Block Programming, Python Programming, Workcell **Professional Skills** have 9 areas of Law. RemoteCotrol and building VEX V5 Robots -Speedbot/Base Bot measurement: Parallel/Serial Coding-Block/Python/C/C++ Circuits) Sensors: Bump/touch, Distance, Line Tracker, Camera, , AI, Data Analysis www.azed.gov/cte Chemical /profskills/ Industrial Internet of Things (IIOT) R-Pi & Arduino kits electrochemical ***Customizing Robots and Parts: After Completing 1st Semester Skills www.azed.gov/site Wednesday Physical s/default/files/202 2nd Semester Plus+ Students: 2/08/PrintablePrea Magnetism Custom: ssessment.pdf **Batteries** Battlebots, solder 1. Communication Flywheel 2. Collaboration / Software **Teaming Abilities** Block Login to VEX Certification Accounts: (Complete Certifications) 3. Thinking and PLC ladder logic, Innovation / Tinkercade(Autodesk)/PHET(Physics-Engineering-Tech) Univ-Colorado CNC, Python, **Problem Solving** C++, 4. Professionalism / 3D Modeling, Electric circuits, Arduino IDE - C/Python Code Formal Behavior 5. Initiative and Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing Sensors Self-Direction / Bump/touchDista Inkscape > Tinkercad > Ultimaker Cura > Ultimaker Leadership nce 6. Intergenerational Light *Autodesk Tinkercad Team Fusion 360/Solidworks: Combine 2d Sketch/3D Modeling and Cross-Cultural Camera Competence / Raspberry Pi - Pico Bluetooth/WiFi Acceptance and Inclusion Python 7. Organizational Physical Culture / Values Computing Precision Machining: 8. Legal and Ethical Practices / Safety Manual/Traditional - Mill and Drill, Pen Kit 9. Financial Practices CNC -ComputerNumeric Control -G/M Code **Data Collect** DataAnalyze Collaborate with schools, 'Industry ProfessionalCom munity NASA, Honeywell

NASA, Honeywell

Notes: 02/22/2024-Parent Teacher Conference (PTC) Shortened Day After School Academic Standards: Robotic Apply basic engineering principles and technical skills for... artificial intelligent management ...the principles Assemblies Arizona Mechtronics of robotics, design, operational testing, system maintenance, repair procedures, robot computer systems, Department of and control languages. Education Engineering: Website: ReEngineering (AZ CTE Automation & Robotics-Program Description) Reverse Program Engineering PERFORM ELECTRICAL AND ELECTRONIC TASKS Description/Indust ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS Structural PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D and 3D) Chassis frame Credentials/Coher body ent Sequence/ DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR ELECTRICAL MOTORS Explain the operation and use of DC motors in automation controls Mechanical www.azed.gov/cte/ PERFORM MECHANICAL SYSTEMS LINKAGES TASKS (Motion) ar/ Gear: Box, train, APPLY SENSOR SOLUTIONS parallel (linear) www.azed.gov/sites DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER LABORATORY EQUIPMENT, /default/files/2021/ stack (vertical), TOOLS, AND MATERIALS 06/ProgramDescript ratio, torque Lesson Overview: Workflow Process: ion AutomationAnd speed Robotics.pdf 1st Semester Students: Login to VEX Certification Accounts: **Arizona Career and** Electrical (Ohm's VEX V5 ,Block Programming, Python Programming, Workcell **Technical Education** Law, RemoteCotrol and building VEX V5 Robots -Speedbot/Base Bot **Professional Skills** Parallel/Serial have 9 areas of Coding-Block/Python/C/C++ Circuits) measurement: Sensors: Bump/touch, Distance, Line Tracker, Camera, , AI, Data Analysis Chemical Industrial Internet of Things (IIOT) R-Pi & Arduino kits www.azed.gov/cte electrochemical /profskills/ ***Customizing Robots and Parts: After Completing 1st Semester Skills Physical 2nd Semester Plus+ Students: www.azed.gov/site Magnetism s/default/files/202 Custom: **Batteries** 2/08/PrintablePrea ssessment.pdf Battlebots, solder Flywheel Software 1. Communication Block 2. Collaboration / Login to VEX Certification Accounts: (Complete Certifications) **Teaming Abilities** PLC ladder logic, 3. Thinking and Tinkercade(Autodesk)/PHET(Physics-Engineering-Tech) Univ-Colorado CNC, Python, Innovation / C++, **Problem Solving** 3D Modeling, Electric circuits, Arduino IDE - C/Python Code 4. Professionalism / Sensors Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing Formal Behavior Bump/touchDista 5. Initiative and Inkscape > Tinkercad > Ultimaker Cura > Ultimaker Self-Direction / nce Leadership Light *Autodesk Tinkercad Team Fusion 360/Solidworks: Combine 2d Sketch/3D Modeling 6. Intergenerational Camera and Cross-Cultural Raspberry Pi - Pico Bluetooth/WiFi Competence / Acceptance and Python Inclusion Physical 7. Organizational Computing Precision Machining: Culture / Values 8. Legal and Ethical Manual/Traditional - Mill and Drill, Pen Kit Practices / Safety 9. Financial CNC -ComputerNumeric Control -G/M Code **Data Collect Practices** DataAnalyze Collaborate with schools, 'Industry ProfessionalCom munity

Notes: 02/23/2024-Parent Teacher Conference (PTC) after school Academic Standards: Robotic Apply basic engineering principles and technical skills for... artificial intelligent management ...the principles Assemblies Mechtronics of robotics, design, operational testing, system maintenance, repair procedures, robot computer systems, Arizona and control languages. Department of Engineering: ReEngineering Education (AZ CTE Automation & Robotics-Program Description) Reverse Website: Engineering PERFORM ELECTRICAL AND ELECTRONIC TASKS Program ANALYZE PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEMS Structural Description/Indust PERFORM DRAFTING TASKS-Make dimensional CAD drawings (e.g., 2D and 3D) Chassis frame body DESCRIBE THE OPERATION AND USE OF VARIOUS FORMS OR ELECTRICAL MOTORS Credentials/Coher ent Sequence/ Explain the operation and use of DC motors in automation controls Mechanical PERFORM MECHANICAL SYSTEMS LINKAGES TASKS (Motion) www.azed.gov/cte/ Gear: Box, train, APPLY SENSOR SOLUTIONS ar/ parallel (linear) DEMONSTRATE SAFE AND PROPER USE OF ELECTRONIC AND OTHER LABORATORY EQUIPMENT, stack (vertical), www.azed.gov/sites TOOLS, AND MATERIALS ratio, torque /default/files/2021/ Lesson Overview: Workflow Process: 06/ProgramDescript speed 1st Semester Students: ion AutomationAnd Robotics.pdf Login to VEX Certification Accounts: Electrical (Ohm's VEX V5 ,Block Programming, Python Programming, Workcell Arizona Career and Law, RemoteCotrol and building VEX V5 Robots -Speedbot/Base Bot **Technical Education** Parallel/Serial Coding-Block/Python/C/C++ **Professional Skills** Circuits) have 9 areas of Sensors: Bump/touch, Distance, Line Tracker, Camera, , AI, Data Analysis Chemical measurement: Friday Industrial Internet of Things (IIOT) R-Pi & Arduino kits electrochemical ***Customizing Robots and Parts: After Completing 1st Semester Skills www.azed.gov/cte /profskills/ Physical 2nd Semester Plus+ Students: Magnetism www.azed.gov/site Custom: **Batteries** s/default/files/202 Battlebots, solder 2/08/PrintablePrea ssessment.pdf Flywheel Software Block Login to VEX Certification Accounts: (Complete Certifications) 1. Communication PLC ladder logic, 2. Collaboration / Tinkercade(Autodesk)/PHET(Physics-Engineering-Tech) Univ-Colorado CNC, Python, C++, **Teaming Abilities** 3. Thinking and Sensors 3D Modeling, Electric circuits, Arduino IDE - C/Python Code Innovation / Bump/touch **Problem Solving** Distance Protyping: 2D Sketch > 3D Modeling > 3D Settings > 3D Printing 4. Professionalism / Light Formal Behavior Inkscape > Tinkercad > Ultimaker Cura > Ultimaker Camera 5. Initiative and Self-Direction / *Autodesk Tinkercad Team Fusion 360/Solidworks: Combine 2d Sketch/3D Modeling Physical Leadership Computing 6. Intergenerational Raspberry Pi – Pico Bluetooth/WiFi and Cross-Cultural Competence / Data Collect Python Acceptance and DataAnalyze Inclusion Precision Machining: 7. Organizational Collaborate with Manual/Traditional - Mill and Drill, Pen Kit Culture / Values 8. Legal and Ethical schools, 'Industry CNC -ComputerNumeric Control -G/M Code Practices / Safety ProfessionalCom 9. Financial munity

NASA, Honeywell

Practices