Name: Robert Lefrandt	Grading Quarter: 4	Week Beginning: 05/12/2025
School Year: 2024-25	Subject: Fab Lab/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	**Fab Lab/Engineering – Last Week BRHS 2024-2025** **Objective:** The Fab Lab/Engineering instructional program prepares students to apply basic engineering principles and technical skills in support of engineers engaged in a wide variety of projects. **Lesson Overview:** Students learn to apply Science Technology Engineering Math (STEM) concepts to current technologies and tools as they learn about the different disciplines and opportunities within the fields of engineering. **Blueprint for Instruction and Assessment** Engineering Math and Science Principles, Tools, Project Management, Address Needs in Global Society VersCAMM SP-300i 30" Eco-Solvent Injet PrinterCutter • Teacher Print/Senior Grad 10% (30-40 prints) Laser Engraving/Cutting: Cups, other….Ethan Gonzales(Stu. Council) Competitions Prep: Robotics: Dback – 9/16/25-Competition kit, $500 + Participation (5/9/25 agrmt) ***vr.vex.com: virtual Robotics-Coding: Block/Python Text-High Stakes*** Solar Go-kart: "Racing to the Sun" (Tuscon, AZ) Kayla Miranda (kayla@sarsef.org) 2025: April 25-26-Tuscon Competition-Maker Div. Awards: Rookie, Endurance *Purchase Roll-up, Coil, Door(s): BR Maint., Mr. Blake, Johnny Walker • TableSaw Donation 5/9-Reinforce more room ◦ Move EV -Solar Go Kart, Millennial Falcon, Scooter/motorocycle out of CNC Room Dan Grubner/Fish & Game FabLab – Wolf/Lobo-Done, Nxt ◦ Creating IOT devices, Started—RFID tags ◦ 3D print- Skulls for Nature Center-Received Filament 2.85mm ▪ *FabLab Filament needed: 2.85mm PLA/not 1.75mm WorkForce Service -Webpage BRHS Students Code • Sponsors-Solar & other companies, etc. Federal Grant- Courtney Hoffmeyer & Sarah Bromke 5/12/25	Academic Standards: Arizona Department of Education Website: Program Description/ Industry Credentials/ Coherent Sequence/ https://www.azed.gov/cte/es/

Tuesday	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	**Fab Lab/Engineering – Last Week BRHS 2024-2025** **Objective:** The Fab Lab/Engineering instructional program prepares students to apply basic engineering principles and technical skills in support of engineers engaged in a wide variety of projects. **Lesson Overview:** Students learn to apply Science Technology Engineering Math (STEM) concepts to current technologies and tools as they learn about the different disciplines and opportunities within the fields of engineering. **Blueprint for Instruction and Assessment** Engineering Math and Science Principles, Tools, Project Management, Address Needs in Global Society VersCAMM SP-300i 30" Eco-Solvent Injet PrinterCutter • Teacher Print/Senior Grad 10% (30-40 prints) Laser Engraving/Cutting: Cups, other….Ethan Gonzales(Stu. Council) Competitions Prep: Robotics: Dback – 9/16/25-Competition kit, $500 + Participation (5/9/25 agrmt) ***vr.vex.com: virtual Robotics-Coding: Block/Python Text-High Stakes*** Solar Go-kart: "Racing to the Sun" (Tuscon, AZ) Kayla Miranda (kayla@sarsef.org) 2025: April 25-26-Tuscon Competition-Maker Div. Awards: Rookie, Endurance *Purchase Roll-up, Coil, Door(s): BR Maint., Mr. Blake, Johnny Walker • TableSaw Donation 5/9-Reinforce more room ◦ Move EV -Solar Go Kart, Millennial Falcon, Scooter/motorocycle out of CNC Room Dan Grubner/Fish & Game FabLab – Wolf/Lobo-Done, Nxt ◦ Creating IOT devices, Started—RFID tags ◦ 3D print- Skulls for Nature Center-Received Filament 2.85mm ▪ *FabLab Filament needed: 2.85mm PLA/not 1.75mm WorkForce Service -Webpage BRHS Students Code • Sponsors-Solar & other companies, etc. 2. Federal Grant- Courtney Hoffmeyer & Sarah Bromke 5/12/25	Academic Standards: Arizona Department of Education Website: Program Description/ Industry Credentials/ Coherent Sequence/ https://www.azed.gov/cte/es/ Notes Conti: PhysComp Embedded smart, IIOT AI ,Data Collect Data Analyze Data MachinLearn Collaborate schools, Industry Community

Wednesday	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	**Fab Lab/Engineering – Last Week BRHS 2024-2025** **Objective:** The Fab Lab/Engineering instructional program prepares students to apply basic engineering principles and technical skills in support of engineers engaged in a wide variety of projects. **Lesson Overview:** Students learn to apply Science Technology Engineering Math (STEM) concepts to current technologies and tools as they learn about the different disciplines and opportunities within the fields of engineering. **Blueprint for Instruction and Assessment** Engineering Math and Science Principles, Tools, Project Management, Address Needs in Global Society VersCAMM SP-300i 30" Eco-Solvent Injet PrinterCutter • Teacher Print/Senior Grad 10% (30-40 prints) Laser Engraving/Cutting: Cups, other….Ethan Gonzales(Stu. Council) Competitions Prep: Robotics: Dback – 9/16/25-Competition kit, $500 + Participation (5/9/25 agrmt) ***vr.vex.com: virtual Robotics-Coding: Block/Python Text-High Stakes*** Solar Go-kart: "Racing to the Sun" (Tuscon, AZ) Kayla Miranda (kayla@sarsef.org) 2025: April 25-26-Tuscon Competition-Maker Div. Awards: Rookie, Endurance *Purchase Roll-up, Coil, Door(s): BR Maint., Mr. Blake, Johnny Walker • TableSaw Donation 5/9-Reinforce more room ◦ Move EV -Solar Go Kart, Millennial Falcon, Scooter/motorocycle out of CNC Room Dan Grubner/Fish & Game FabLab – Wolf/Lobo-Done, Nxt ◦ Creating IOT devices, Started—RFID tags ◦ 3D print- Skulls for Nature Center-Received Filament 2.85mm ▪ *FabLab Filament needed: 2.85mm PLA/not 1.75mm WorkForce Service -Webpage BRHS Students Code • Sponsors-Solar & other companies, etc. 3. Federal Grant- Courtney Hoffmeyer & Sarah Bromke 5/12/25	Academic Standards: Arizona Department of Education Website: Program Description/ Industry Credentials/ Coherent Sequence/ https://www.azed.gov/cte/es/ Notes Conti: PhysComp Embedded smart, IIOT AI ,Data Collect Data Analyze Data MachinLearn Collaborate schools, Industry Community

Thursday	Notes: 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	**Fab Lab/Engineering -Graduation** **Objective:** The Fab Lab/Engineering instructional program prepares students to apply basic engineering principles and technical skills in support of engineers engaged in a wide variety of projects. **Lesson Overview:** Students learn to apply Science Technology Engineering Math (STEM) concepts to current technologies and tools as they learn about the different disciplines and opportunities within the fields of engineering. **Blueprint for Instruction and Assessment** Engineering Math and Science Principles, Tools, Project Management, Address Needs in Global Society VersCAMM SP-300i 30" Eco-Solvent Injet PrinterCutter • Teacher Print – … Laser Engraving/Cutting: Cups, other….Ethan Gonzales(Stu. Council) 3D Printing- Competitions Prep: Robotics: • ***vr.vex.com: virtual Robotics-Coding: Block/Python Text-High Stakes*** Solar Go-kart: "Racing to the Sun" (Tuscon, AZ) 11/19 (Tues) sarsef.org/racing-the-sun/ sarsef.org/racing-the-sun/important-dates/ Kayla Miranda (kayla@sarsef.org) 4. 2025 ▪ April 25-26-Tuscon CompetitionApril 25-26-Tuscon Competition-Maker Div. Awards: Rookie, Endurance ▪ Working on-Motorcycle from Automotive/convert to EV Purchase Roll-up, Coil, Door(s): BR Maint., Mr. Blake, Johnny Walker ◦ Move EV -Solar Go Kart, Millennial Falcon, Scooter/motorocycle out of CNC Room 5. Dan Grubner/Fish & Game visit FabLab – Wolf/Lobo-Done, Nxt ◦ Creating IOT devices, Started—RFID tags ◦ 3D print- Skulls for Nature Center-Received Filament ▪ *FabLab Filament needed: 2.85mm PLA/not 1.75mm WorkForce Service -Webpage BRHS Students Code	Academic Standards: Arizona Department of Education Website: Program Description/ Industry Credentials/ Coherent Sequence/ https://www.azed.gov/cte/es/ https://www.azed.gov/cte/es/ Notes Conti: PhysComp Embedded smart, IIOT AI ,Data Collect Data Analyze Data MachinLearn Collaborate schools, Industry Community

Friday	Notes: 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	**Fab Lab/Engineering – No School** **Objective:** The Fab Lab/Engineering instructional program prepares students to apply basic engineering principles and technical skills in support of engineers engaged in a wide variety of projects. **Lesson Overview:** Students learn to apply Science Technology Engineering Math (STEM) concepts to current technologies and tools as they learn about the different disciplines and opportunities within the fields of engineering. **Blueprint for Instruction and Assessment** Engineering Math and Science Principles, Tools, Project Management, Address Needs in Global Society VersCAMM SP-300i 30" Eco-Solvent Injet PrinterCutter • Teacher Print – … Laser Engraving/Cutting: Cups, other….Ethan Gonzales(Stu. Council) 3D Printing- Competitions Prep: Robotics: • ***vr.vex.com: virtual Robotics-Coding: Block/Python Text-High Stakes*** Solar Go-kart: "Racing to the Sun" (Tuscon, AZ) 11/19 (Tues) sarsef.org/racing-the-sun/ sarsef.org/racing-the-sun/important-dates/ Kayla Miranda (kayla@sarsef.org) 6. 2025 ▪ April 25-26-Tuscon CompetitionApril 25-26-Tuscon Competition-Maker Div. Awards: Rookie, Endurance ▪ Working on-Motorcycle from Automotive/convert to EV Purchase Roll-up, Coil, Door(s): BR Maint., Mr. Blake, Johnny Walker ◦ Move EV -Solar Go Kart, Millennial Falcon, Scooter/motorocycle out of CNC Room 7. Dan Grubner/Fish & Game visit FabLab - Started ◦ Creating IOT devices, Started ◦ 3D print- Skulls for Nature Center-Received Filament ▪ *FabLab Filament needed: 2.85mm PLA/not 1.75mm 8. WorkForce Service -Webpage BRHS Students Code Code	Academic Standards: Arizona Department of Education Website: Program Description/ Industry Credentials/ Coherent Sequence/ https://www.azed.gov/cte/es/ <u>Notes Conti:</u> PhysComp Embedded smart, IIOT AI ,Data Collect Data Analyze Data MachinLearn Collaborate schools, Industry Community