Robotics and Electronics

Curriculum Timeline

1. Day 1 – Syllabus, Course Explanation, CTE Portfolio
2. Electricity
   1. Day 1: Snap Circuits Exploration
   2. Day 2: Voltmeter Voltage Lab
   3. Day 3: Voltmeter Resistance and Amperage
3. Mechanical and Electrical Systems
   1. Day 4-5: STEM Kit Construction
   2. Day 6-8: Canva How It’s Made Poster
   3. Day 6-8: Electrical Components Diagrams
   4. Day 6-8: Hold to Solder Electrical Wires
4. Engineering Design Process
   1. Day 9: Engineering Design Process
   2. Day 10: Research and Imagine
   3. Day 11: Build Day
   4. Day 12: Reflection
5. Marty the Robot
   1. Day 13: Meet Marty the Robot
   2. Day 14: Walking Accuracy Challenge
   3. Day 15: Marty Color Sensor – Dance Dance Marty
   4. Day 16: Marty Infrared Sensor – Soccer Marty
   5. Day 17: Marty Servo Position – Posing Marty
   6. Day 18: Marty Expressions – Emotional Marty
   7. Day 19: Marty Logic – ChatBot Marty
   8. Day 20: Marty Balance – Obstacle Course Challenge
   9. Day 21: Marty Machine Learning – Apple Challenge
   10. Day 22: Compare Fictional and Real Robots (unplugged substitute plans)
   11. Day 23: Job Outlook in Robotics (unplugged substitute plans)
6. Mechatronics – curriculum presented by Brian Bond. Curriculum resources are not allowed to be posted online as part of the licensing agreement.
7. Maker Faire
   1. Day 34: Generate Maker Faire Ideas
   2. Day 35: Malheur Maker Faire Application
   3. Day 36-38: Maker Faire Project Documentation
   4. Day 39-42: Complete Maker Faire Project
   5. Day 43: Maker Faire Project Retrospective
8. EarSketch – Electronic Music
   1. Day 44: EarSketch User Interface
   2. Day 45: EarSketch Beats and Effects
   3. Day 46: EarSketch Effects
9. Arduino
   1. Day 47: Introduction to Breadboards and LEDs
   2. Day 48: Arduino Blinking LED Tutorial
   3. Day 49: Control a Positional Servo Motor
   4. Day 50: Arduino Knob Circuit for Servo Motor
   5. Day 51-Day 53: Robotic Arm Construction
   6. Day 54: Servo Wiring for Robotic Arm
   7. Day 55-57: Coding Servos for Robotic Arms
10. Amusement Park Engineering (substitute unit)
    1. Day 58: Amusement Park Design
    2. Day 59: Theme Park Ride Systems
    3. Day 60: Ride Layout
    4. Day 61: Knex Model of Ride
11. Battle Bots
    1. Day 62- remainder of semester: Build Battle Bots