Risk Assessment

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Equipment or Process | Hazard Identification | Consequence | Likelihood | Risk Rating | Engineering Measures | Procedures | Protective equipment |
| Battery Pack |  | | | | | | |
|  | Spark | Med | High | High | Male output used to combine wires | Make sure batteries are always out of the casing unless in use. | Not applicable |
|  | Electrical Fire | High | Low | Med | Male output used to combine wires. | Keep the battery pack on the table in case of spark, it will not light the carpet. | Fire extinguisher, Fire Blanket |
|  | Circuit Shortage/Burnt Fingers | High | High | High | Male output used to combine wires. | Keep fingers away from wires. Only load batteries into pack when circuit is connected. | Rubber gloves |
| Resistor**s** |  | | | | | | |
|  | Circuit Shortage | Med | High | Med | Regulate current with correct resistors | Make sure to use appropriate resistors where needed | Not applicable |
|  | Power Surge | Med | Low | Med | Use an Arduino Uno that has a maximum voltage of 5V and low current | Control and monitor current and voltage that is being put into the circuit. | Safety Glasses, Rubber Gloves (if working with high power) |
| 3D Printer |  | | | | | | |
|  | Skin burns | High | Low | Med | Glass shield to cover 3D printer, stopping human access. 3D printer will not operate if door is open. | Students must be supervised when near 3D printer. Only operator must interact with 3D printer | Tap with cold water |
|  | Physical Injury (Removing Excess Plastic) | Med | High | Med | Use necessary force with tools once 3D printed object is clamped to table. Use blunt chisel | Student must scrape away from themselves to avoid injury. | Safety Glasses, Pliers, Table Clamp, Chisel, Rubber Gloves |
| Laser Cutter |  | | | | | | |
|  | Fire | High | High | High | Glass shield to cover laser cutter when in use. Keep area clean and free of debris and flammable material | Operator must always be supervising the laser cutter when in use. The shield should be down | Properly maintained fire extinguisher should be present |
|  | Eye Damage | High | High | High | Glass shield diffuses the exposure which could cause severe eye damage | Operator must not look directly at the laser | Safety Glasses can diffuse the exposure |