



## Winter 2023 Workshop Agenda: New Mexico

### **Outcomes: Participants will be able to...**

assemble an Arduino microcontroller and sensors.

program an Arduino and collect data from the sensors.

assemble a Cubesat frame with an Arduino microcontroller and sensors.

collect, present, and disseminate data collected from Cubesat missions.

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### **Day 0 - 1/19 - Thurs - Meet & Greet 5 - 8 pm @ Ardivino's Desert Crossing**

### **Day 1 - 1/20 - Fri - Microcontrollers & Sensors**

Breakfast/Pre Survey	8:30 am
TIS & Partner Introductions	9:00 am
Intro to Working with Arduino	9:30 am
• Arduino Board Parts & Variations	30 min.
• Breadboard & Connections	15 min.
• Arduino IDE	30 min.
Arduino Programming Language	10:45 am
• LED Wiring & Programming	15 min.
• Arduino Libraries & Where to Find Them	30 min.
Sensor Install & Programming	11:30 am
• Photosensor	15 min.
Lunch	11:45 pm
Sensor Install & Programming	12:45 pm
• Soldering Components	60 min.
• Temperature/Pressure Sensor	60 min.

● I2C Protocol & Sensor Conflicts	30 min.
Q&A/Wrap-up	3:30 pm

## **Day 2 - 1/21 - Sat - Cubesats & Classroom Integration**

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Breakfast	8:30 am
Sensor Install, Programming, & Soldering	9:00 am
● Accelerometer/Gyroscope	45 min.
● Real-time Clock	60 min.
● SD Module & Data Collection	45 min.
Lunch	11:30 pm
Sensor Install, Programming & Soldering	12:30 pm
● Cube Frame Build	45 min.
● Working with Cubesat Data	60 min.
● Cubesat Experiments in the Classroom	30 min.
● The Growing Commercial Space Industry	30 min.
Q&A/Post Survey/Wrap-up	3:15 pm