Certificate of Completion

This is to certify that

Krishna Gupta

Student

has completed the GLEE Remote Workshop

ARTEMIS

Great Lunar Expedition for Everyone
GLEE
CO Space Grant - NASA - Artemis

Team Mentor

COSGC Director

May 25th, 2023

Date

COSGC
COLORADO SPACE GRANT CONSORTIUM

Project Manager

May 25th, 2023

Date

Certificate of Completion

This is to certify that

TEAM 3314

Of the

Institute of Engineering, Pulchowk Campus

Tribhuvan University

has completed the GLEE Remote Workshop

COSGC Director

Team Mentor

Project Manager

Workshop Completion Certificate

THE GREAT LUNAR EXPEDITION FOR EVERYONE

This document recognizes Team 3314 at the Institute of Engineering, Pulchowk Campus for completing the Great Lunar Expedition for Everyone (GLEE) Workshop and all of their achievements. Although team members are not listed individually, GLEE and the assigned Team Mentor attests they completed the workshop.

The Great Lunar Expedition for Everyone is a catalyst for a new generation of space missions and explorers. This student-led, scientific and technological mission to the Moon is planning to deploy miniature spacecraft called LunaSats to the lunar surface to conduct local and distributed science missions.

During this workshop this team has successfully completed 10+ modules spanning different pieces of technical equipment and scientific processes. The modules in the workshop are as follows:

- Module 1: Understanding Your LunaSat
  - Understanding what sensors are on the LunaSat and where they are located.
- Module 2: Introduction to Arduino
  - Understanding Arduino on a basic level (How to execute commands, verify compiling, uploading, baud rate, setup and loop functions, and pinMode functions).
- Module 3: Solar Panels and Power Management
  - Understanding the given code, the conversion from analog readings to voltage, and how different environments affect the power on the LunaSat.
- Module 4: Temperature Sensor
  - Understanding the temperature sensor code, each corresponding pin and their functions, doing I2C checks and a basic understanding of heat transfer.
- Module 5: Accelerometer Sensor

- Understanding the accelerometer sensor code, using an accelerometer to orient the LunaSat, understanding seismometer readings, and why accelerometers are important for lunar science.

- Module 6: Magnetometer Sensor
  - Understanding the magnetometer sensor code along with conceptual knowledge of magnetic field interactions, drawing magnetic fields, and the importance of finding the magnetic field on the moon.
- Module 7: Capacitive Sensor
  - Understanding the capacitive sensor code, reading capacitance and understanding the significance of it.
- Module 8: Thermopile Sensor
  - Understanding the thermopile code, learning the difference between the thermopile sensor and temperature sensor, understanding emissivity and radiation.
- Module 9: Radio Frequency
  - Understanding the radio frequency code, understanding the importance of wireless communication on lunar missions, transmitting and receiving data using the Lunasat.
- Module 10: Final Simulation Testing
  - Working with multiple sensors at the same time, understanding test procedures and executing them, transmitting and receiving more than one type of data.
- Module 11: Your Mission to the Moon
  - Understand the planning that it takes to design a science case mission and/or study. Understanding the critical thinking that goes into creating effective case studies based on accessible equipment is tested along with evaluating the case study with the Planetary Science and Astrobiology 2023-2032 Decadal Strategy & Survey. The team is asked to write a mission proposal that reflects the above information along with information learned from previous modules.

Signatures

COSGC Director	Team Mentor	GLEE Project Manager