



## **Drones for stockpile audits**



Participants for the training pose for a photo outside the school of engineering Unza



Participants for the training pose for a photo on the site-Chunga dump site

| OVERVIEW                |                            |
|-------------------------|----------------------------|
| Flying Labs             | Zambia Flying Labs         |
| Location                | Lusaka, Zambia             |
| Date                    | 24 May 2021 to 28 May 2021 |
| Length (number of days) | 5 days                     |





| Sector program (optional) | YouthRobotics   |
|---------------------------|---|
| Format                    | Both (online and in-person)   |
| SDGs                      | GOAL 4: Quality Education GOAL 9: Industry, Innovation and Infrastructure GOAL 11: Sustainable Cities and Communities |

| SCOPE & OUTCOMES                  |   |  |
|-----------------------------------|---|--|
| Type of training                  | <ol> <li>Sector-specific training for students (Drones for stockpile Audits)</li> <li>Youth/STEM training</li> </ol>  |  |
| Goal of the training              | <ol> <li>Create drone awareness</li> <li>Develop drone data acquisition skills</li> <li>Develop drone data analysis skills</li> <li>Develop data literacy/interaction skills</li> <li>Train and empower youth and the workforce of the future</li> </ol>  |  |
| Expected outcome for participants | <ol> <li>Learn about drones and its applications</li> <li>Acquire skills in data processing &amp; analysis</li> <li>Rules &amp; Regulations about drone technologies</li> </ol>   |  |
| Confirmed outcome after training  | <ol> <li>Increased interest to learn more about drones.</li> <li>Acquired skills in Drone photogrammetry workflow.</li> <li>Students can apply the knowledge obtained for their undergraduate related field research topics</li> <li>Expressed interest in becoming permanent members of Zambia Flying Labs - Student Chapter working group.</li> </ol> |  |
| Eventual next steps               | <ol> <li>Recruit the students to be part of Zambia Flying Labs student-Chapter.</li> <li>Provide them with other drone application specific training.</li> <li>All Zambia Flying Labs projects should have a training &amp; capacity building in it.</li> </ol>   |  |





| PARTICIPANTS                         |   |
|--------------------------------------|---|
| Profiles and number of participants  | 1. University students (14)   |
| Name of participants' organizations  | <ol> <li>University of Zambia</li> <li>Copperbelt University</li> </ol> |
| Gender ratio                         | 10 Female : 4 Male  |
| Who paid for the training?           | Free Training as part of the project for Auditing Chunga Dump Site.     |
| Participant fee rate (if applicable) | Free  |
| Scholarships offered?                | Full  |

| CONTENT                     |  |  |
|-----------------------------|--|--|
| Training components         | <ul> <li>How to survey the site</li> <li>How to plan for a drone flight</li> <li>Drone market leading apps</li> <li>Processing Drone Data</li> <li>Best Drone to Use</li> <li>Output and best use (Orthomosaic, stockpile Volumetrics, Facade Inspection, Topographical Survey)</li> </ul>   |  |
| Training resources used     | <ul> <li>Apps/Software - DroneDeploy, PX4D, Google Earth</li> <li>Hardware - Phantom 4 RTK</li> </ul>  |  |
| Approaches and methods used | <ul> <li>5 Online sessions &amp; 1 Physical lesson to adhere to COVID-19 regulations.</li> <li>The approach that was used was to limit powerpoint presentation but through demonstration(Software/Apps used).</li> <li>All the participants were involved in the practical training. Opportunities for students to meet different stakeholders for the project from the industry were provided during the training.</li> </ul> |  |