UNITED NATIONS
Office for Outer Space Affairs

مركز محمد بن راشد للفضاء
MOHAMMED BIN RASHID SPACE CENTRE

Access to Space for All
Payload Hosting Initiative (PHI)

2nd Round Announcement of Opportunity Webinar
1 November 2023

Access to Space for All

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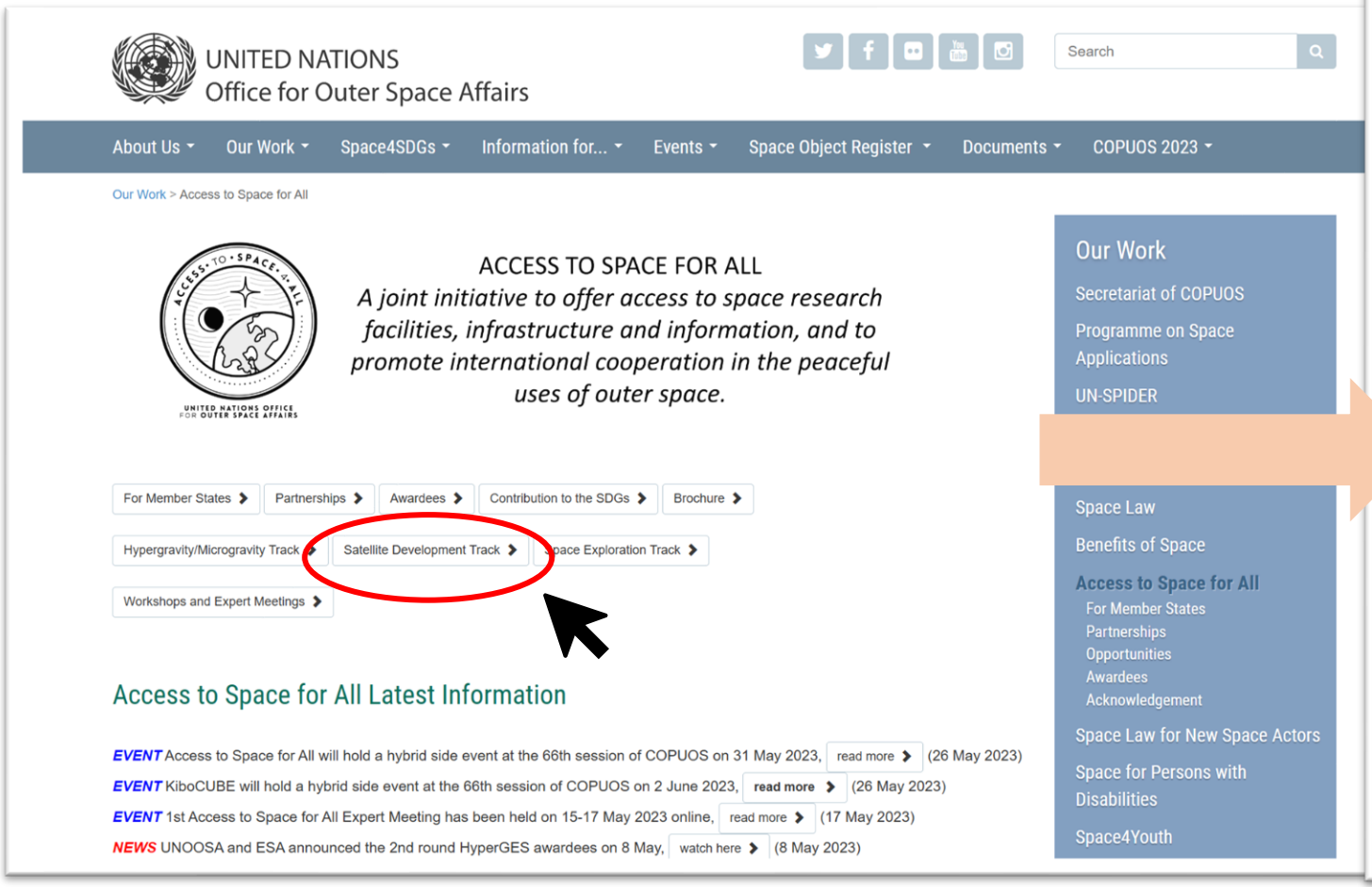
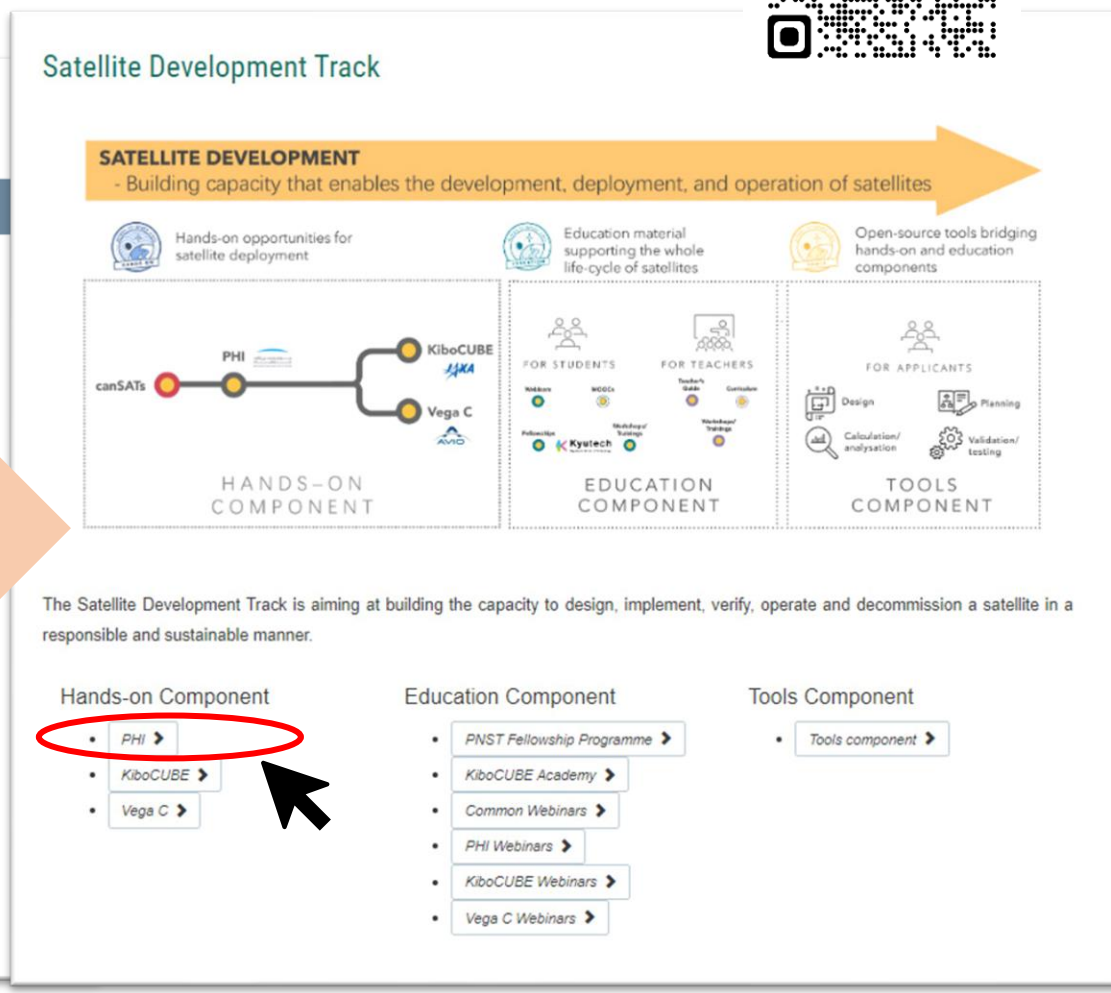
https://www.unoosa.org/oosa/en/ourwork/access2space4all/index.html





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United Nations/Mohammed Bin Rashid Space Centre Cooperation Programme on Payload Hosting Initiative "PHI"

PHI in partnership with the Mohammed Bin Rashid Space Centre provides opportunities of hosting a payload on a 12U PHI modular satellite platform. It fosters innovation in the space technologies sector and ensures the experience exchange between governmental entities, universities and start-up companies.

News

- Payload Hosting Initiative 2nd round is open for applications! Submit your application by 31 March 2023, start here.
- Press release: UNOOSA and Mohammed Bin Rashid Space Centre announce new opportunity under Access to Space for A umbrella.
- Read the Access to Space for All initiative for Sustainability: Interview Series Article #5 "PHI: The Platform to Realize Your D
- UNOOSA and Mohammed Bin Rashid Space Centre announce awardees of payload programme, read the press release he
- "Payload Hosting Initiative (PHI) Webinar - Deep dive into the opportunity" was held on 21 February. See the recording fr

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- UNOOSA and Mohammed Bin Rashid Space Centre announce awardees of payload programme, read the press release here.
- "Payload Hosting Initiative (PHI) Webinar - Deep dive into the opportunity" was held on 21 February. See the recording from here.

ROUNDS

The United Nations/Mohammed Bin Rashid Space Centre (MBRSC) Cooperation programme on Payload Hosting Initiative "PHI", is a joint programme of the United Nations Office for Outer Space Affairs (UNOOSA) in collaboration with MBRSC. The programme started in 2022. Through this opportunity, UNOOSA and MBRSC undertake to provide the opportunity of hosting a payload on the PHI mission and to select the hosted payloads. MBRSC will provide a 12U spacecraft platform, launch and ground station for the PHI mission, and the selected entities will provide tested payloads.

read more

AWARDEES

The first round awardees of PHI announced in September 2022 during the 73rd International Astronautical Congress. National Space Science Agency of the Kingdom of Bahrain and Antarikchya Pratisthan Nepal were selected as awardees of the first round. Congratulations to both team!

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PARTNER

مركز محمد بن راشد للفضاء
MOHAMMED BIN RASHID SPACE CENTRE

This opportunity is in collaboration with the Mohammed Bin Rashid Space Centre (MBRSC), a research institute in the United Arab Emirates and home to the UAE National Space Programme. MBRSC builds and operates earth observation satellites, offering imaging and data analysis services to clients around the world. It has launched the DubaiSat-1, DubaiSat-2 and the KhalifaSat, which was developed 100% in the UAE by a team of highly qualified Emirati engineers. The Centre also launched the Emirates Mars Mission "Hope Probe", which became the first Arab interplanetary mission to reach the Martian orbit on 9 February 2021.

read more

Disabilities
Space4Youth
Space4Water
Space4Women
World Space For
Worldwide Space
Capacity Building

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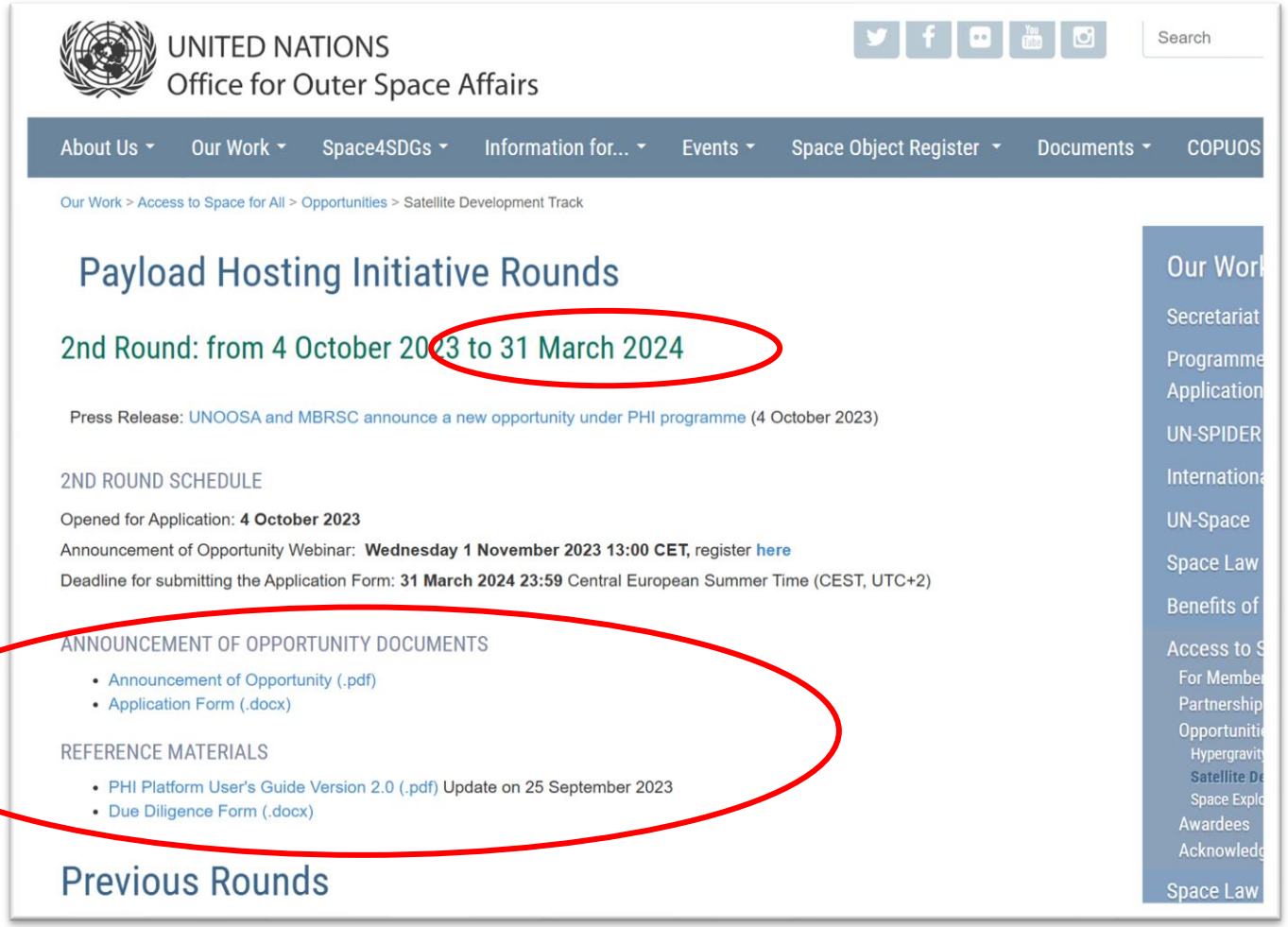

READ all documents carefully

ASK questions today or send them to us by email

WATCH the related webinars and KiboCUBE Academy Webinars

SUBMIT the documents on time
DEADLINE: 31 March 2024

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PHI - Announcement of Opportunity

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Announcement of Opportunity!
4 Oct 2023

Announcement of Opportunity Webinar: Ask your question!
1 Nov 2023

Submit the completed Application Form!
31 March 2024

Notification Of the Short-listed Applicants
April 2024

Assessment of additional information and selection
31 May 2024

Announcement of the Awardee
June 2024

2023 2024

October November December January February March April May June

Outreach & Publication Phase

Development Phase

Handover & Transportation
July 2025

Integration and Final Tests

Launch
Early 2026

Post-Launch Phase Reporting

2024 2025 2026

July October January April July October January April

Access to Space for All

Webinars to help you - KiboCUBE Academy

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KiboCUBE Academy is an online educational series that aims to provide **theoretical knowledge to develop, operate and utilize small satellites.**
https://www.unoosa.org/oosa/en/ourwork/access2space4all/KiboCUBE_Academy_Webinars.html

Schedule for 2023

- **7 November Tuesday** [Online]
- 1 PM CET (UTC +1)
  Topics: Systems Engineering for Micro/Nano/Pico-satellites
  Register from here: https://forms.office.com/e/G3cP5PytZ0

JAXA

UNISEC
University Space Engineering Consortium

No.	Contents of Pre-Recorded Lectures
1	Introduction to Small satellite mission and Utilization
2	CubeSat for Capacity Building
3	Introduction to CubeSat Project Management
4	System Engineering for CubeSat
5	Introduction of J-SSOD and Safety Review process
6	CubeSat design for safety requirements
7	Introduction to CubeSat technologies
8	Subsystem Lecture for CubeSat (Power control system)
9	Subsystem Lecture for CubeSat (Communication system)
10	Subsystem Lecture for CubeSat (Command and Data Handling system)
11	Subsystem Lecture for CubeSat (Structure system)
12	Subsystem Lecture for CubeSat (Mechanism system)
13	Subsystem Lecture for CubeSat (Thermal control system)
14	Subsystem Lecture for CubeSat (Attitude Control System)
15	Introduction to CubeSat Environmental Testing
16	Orbit Dynamics of CubeSat
17	Introduction Operation technics and ground system
18	Introduction Payload for CubeSat
19	Satellite operation and Related Regulations (ITU etc.)
20	Space debris problem and Countermeasures
21	Lessons & Learned for CubeSat mission
22	Propulsion Systems for Microsatellite
23	CubeSat Mission Assurance
24	Optical Earth Observation with Microsatellites

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PHI - Announcement of Opportunity

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12. Eligibility Criteria

This Opportunity is open to entities located in developing economies and economies in transition that are Member States of the United Nations:

- Government organisations;
- Research institutes;
- Universities;
- Public and not-for-profit organisations;
- Private companies with an annual turnover, in U.S. dollar terms, of between 10 and 1000 times the mean per capita gross national income, at purchasing power parity, of the country in which it operates.

Entities located in countries which do not have satellites in orbit at the time of the opening of this application (according to the information on the United Nations Register of Objects Launched into Outer Space) are particularly encouraged to apply.

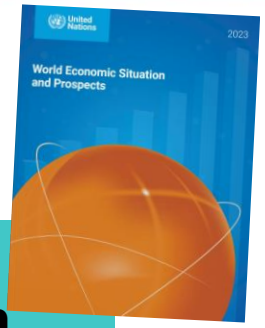
To assess eligibility, UNOOSA will use the country classification list of developing economies and economies in transition indicated in the joint report, World Economic and Situation Prospects published by the United Nations Department of Economic and Social Affairs and other related organisations: https://desapublications.un.org/file/1098/download

Entities applying for this Opportunity are responsible for the development of their payload including the design, manufacturing, testing and verification of their payload, as well as the coordinating with MBRSC for operations and utilization after the launch. Therefore, to be eligible for this Opportunity, applying entities must have sufficient capability in space system engineering, including preparation and implementation of reviews, and be able to deliver the payload to MBRSC (budget, export/import control etc.)

If necessary, applying entities shall provide information to support the radio frequency-related matters in full compliance with the applicable International Telecommunication Union radio regulations.

Changes to the composition of the team are NOT allowed once the application has been submitted. If, for exceptional reasons, changes are absolutely necessary, they will be subject to the approval of the Selection Board.

Teams are allowed and encouraged to partner with external entities that can support their development, even if those entities are not eligible themselves. These partnerships should be clearly written as "External Support" in the Application Form and external partners shall not be included in the team.



- Entities located in **developing economies and economies in transition**
- Entities = **Government organisations, research institutes, universities, other public organisations, and private sectors**
- Team = as many members as deemed necessary
- Partnerships = Include in team if the partner is also an eligible entity, if not put them under "External Support"

13. Selection Criteria

The Selection Board consists of members nominated by UNOOSA and MBRSC and will review the incoming applications according to the following criteria:

(i) Scientific and technical feasibility of the Payload, as determined by either:

a. The payload's expected contribution to developing human knowledge and capacity to undertake activities in the field of space science and technology in the applying entity's home country or abroad; or

b. The payload's expected contribution to enhancing research and development through the technological demonstration of deploying and operating the payload in the applying entity's home country or abroad.

(ii) Team Composition:
The skills set, organization, and composition of the team to successfully deliver the payload to MBRSC. The team shall demonstrate competence in scientific and technological research or in education as well as in project management. The team composition of proposals with the same score will be compared and the proposal with a larger number of women will be ranked higher.

(iii) Feasibility:

- Compliance with the Programme Schedule, general feasibility of the proposed payload design and development, including the work breakdown structure, overall schedule credibility, and risk analysis.
- Budget plan to support the development, preparation, transportation, and shipping of the payload, as well as the availability of funds.

(iv) Outreach:
The communication and dissemination plan for outreach activities to promote capacity-building and STEM education, clearly linking the project with the Sustainable Development Goals of the United Nations 2030 Agenda on Sustainable Development.
For more information about the SDGs: https://sdgs.un.org/

14. Roles and Responsibilities

The Awardee(s) will conduct the following activities:

- Submit the overall schedule/timeline for the payload development to MBRSC.
- Design, analyze, manufacture and test the payload and its supporting systems against the technical requirements.
- Provide information for radio frequency coordination in full compliance with the applicable International Telecommunication Union radio regulations (if applicable).
- Implement and prepare the reviews defined in the contract with MBRSC (indication of milestones is provided in section 11(B) of this document.
- Attend the technical coordination meetings which are to be arranged by MBRSC.
- Deliver the payload to the location specified by MBRSC.
- Conduct outreach activities to promote capacity-building and STEM education related to the payload project.
- Contribute to the public relations and promotion activities of UNOOSA and MBRSC including responding to press inquiries about the payload and preparing information materials upon request from UNOOSA and MBRSC.
- Publish results in journals, proceedings, conferences, workshops, Bachelor, Master and PhD theses, etc., if possible.

Please note that any cost associated with the activities above, including employment costs, travel expenses and transportation fees shall be borne by the Awardee(s).

UNOOSA will consider publishing the payload data (e.g. pictures or other data), subject to consultation with MBRSC and the Awardee(s).

16. Terms and Conditions:

By submitting a completed Application, the applicant agrees to the following:

- The Awardee(s) will enter into an arrangement (contract) with MBRSC to resolve any and all practical, logistical, technical and/or legal issues related to the deployment of the hosting of the payload that may arise between MBRSC and the Awardee(s). The arrangement (contract) will contain terms to define, *inter alia,* scope of work, the necessary conditions for the deployment, allocation of costs, compliance rules, handling of technical information and test results, confidentiality, security issues of MBRSC facilities, declarations of immunity and hold harmless on the part of MBRSC, cross-waivers of liability for damages sustained by either party, third party liability claims and apportionment of other responsibilities arising under United Nations treaties on outer space, and dispute resolution procedures.
- MBRSC will not cover any insurance related to the payloads. MBRSC will cover only the third-party liability of this mission.
- MBRSC does not in any way guarantee the launch date, the launch success or operational success, nor will MBRSC be in any way responsible for the overall success of the mission. The specific date of the launch will be fixed by negotiation between MBRSC with the Awardee(s) after assignment of the launch.
- MBRSC may terminate the provision of the payload hosting opportunity at any time, should the Awardee(s) violate the terms and conditions described in this Announcement of Opportunity or the separate arrangement (contract) or when the Awardee(s) cannot meet the Programme Schedule.

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Chapter 1: Team Composition

1.1 Project Title **[Mandatory]**

1.2 Executive Summary: (no more than 150 words) **[Mandatory]**

1.3 Certificate **[Mandatory]**

1.4 Head of Applying Organization Information **[Mandatory]**

Summarize
- why you chose to develop this payload
- what are the expected outcomes
- why your payload is unique
- your plan

Besides the Certificate, a Letter of Endorsement is also required from each applying entity.
There is no template for the letter.

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Chapter 2: Team Composition

2.1 Description of Cooperation **[Optional]**

If it is a joint proposal from several entities, please describe the role and responsibilities of each one.

2.2 Project Coordinator **[Mandatory]**

2.3 Team Member(s) **[Mandatory]**

Please note that **all team members must belong to applying organizations that are eligible**, as specified in Section 12 of the Announcement of Opportunity.

2.4 External Support **[Optional]**

If you have support during the project from external organizations or individuals, please list them here.

The difference between 2.1 and 2.4

- 2.1 is the roles & responsibilities **within the team**
- 2.4 is the roles & responsibilities **of external organizations/individuals**

Chapter 3: Technical Abstract

3 Proposal Technical Abstract **[Mandatory]**

Please insert a brief description of the proposed payload, starting with the **objectives and aim of the proposal, including the scientific or technical value, design of the payload**. (Maximum 300 words)

Summarize
- What your Payload aims to do
- What kind of value will it bring
- Overview of the design

Chapter 4: Mission Objectives and Requirements

4.1 Mission Statement **[Mandatory]**

Please include a mission statement (one or two sentences maximum) and **how the development and launch of the payload could contribute to capacity-building in your country**.

4.2 Mission Objectives **[Mandatory]**

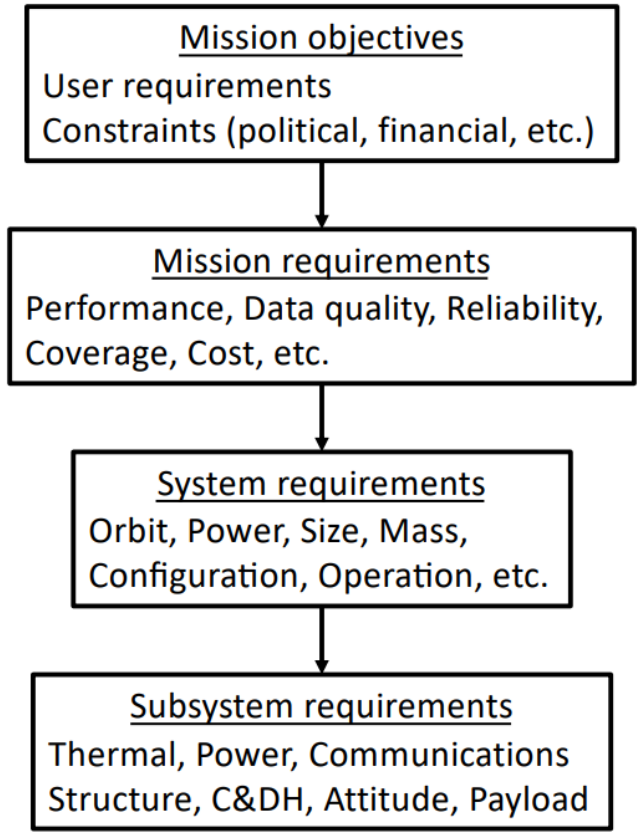
Please list the objectives of the proposed project.
Please use SMART criteria (Specific, Measurable, Achievable, Realistic, Time-bounded) to define **what you want to achieve through the project**.

Check out KiboCUBE Academy On-site Event Introduction to Mission Definition
https://www.unoosa.org/documents/pdf/Access2Space4All/KiboCUBE/KiboCUBEAcademy/OnsiteBaku/KiboCUBE_Academy_2023_10_IAC_Mission_v3.pdf

3. Mission Definition

3.3 Mission objectives

- Statement of what we achieve using the space systems
  - Derived from stakeholder (user, customer) requirements under constraints (political, financial, others)
- Qualitative
- General enough to remain intact during the design phase
- Example 1:
  - Provide secure and robust three-dimensional position and velocity determination to surface and airborne military users
- Example 2:
  - Provide a worldwide mobile communication



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4.3 Foreseen Outcomes and Deliverables **[Mandatory]**

Please insert a description of the specific outcomes of the payload.

4.4 Novelty and Uniqueness **[Mandatory]**

Describe why the proposed payload is **new and unique**, including **how it differs from similar payloads**.

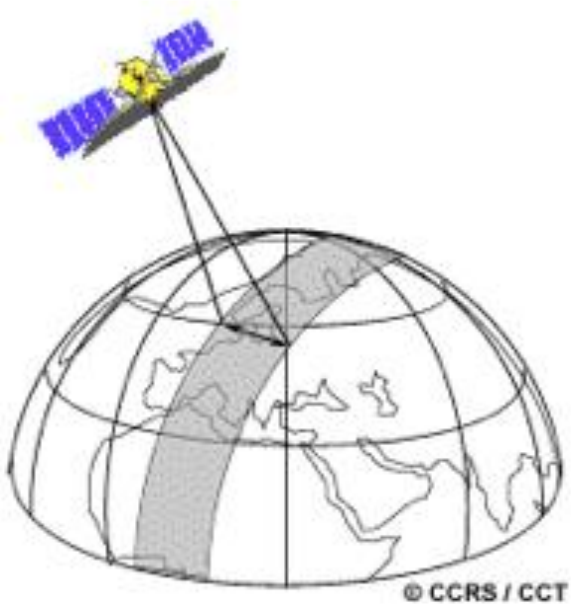
There are many different types of space applications and payloads. Why is your experiment special?

4.5.1 Mission Requirements **[Mandatory]**

Please insert a list requirements needed to accomplish the mission objectives. Mission requirements shall be numbered as Req-XXX (e.g. Req-001, Req-002…).

Example:

Req-001: The payload shall take images of (target) (number) times a day with a definition of (resolution).



Mission Requirements= requirements related to a task, a function, a constraint, or an action induced by the mission scenario (ECSS-E-ST-10-06C)

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4.5.2 Design Requirements **[Mandatory]**

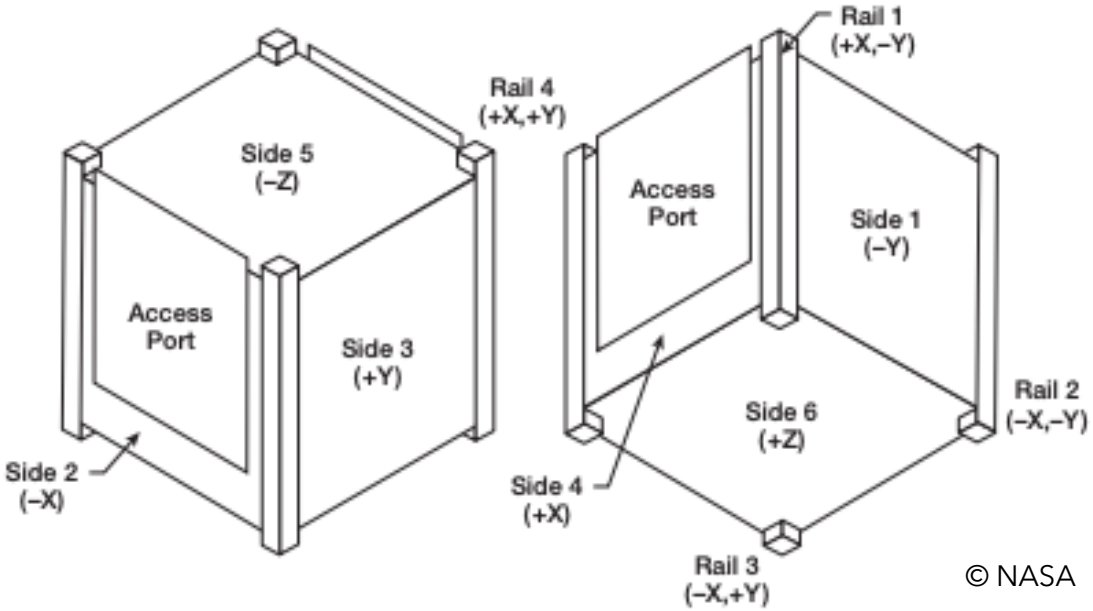
Please include also in this section all applicable and relevant design requirements available in the PHI Platform User Guide. Requirements shall be numbered as Des-XXX (e.g. Des-001, Des-002…).

Design Requirements= requirements related to the imposed design and construction standards such as design standard, selection list of component or materials, interchangeability, safety or margins. (ECSS-E-ST-10-06C)

Example:

Des-001: The receiver shall use a phase-lock loop.

Des-002: The Payload shall be compatible with a 1U payload size on the PHI-2 platform.



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4.5.3 Operational Requirements **[Mandatory]**

List your operational requirements (include here requirements related to the operations of the payload, including, but not limited to, orbit range, pointing accuracy, etc). Requirements shall be numbered as Ope-XXX.

Let the platform know how your payload works!

Example:

Ope-001: Switch on the payload after the PHI-2 satellite enters the illuminated area.

Check out KiboCUBE Academy Pre-Recorded On-Demand Lecture 17
Introduction to CubeSat Operation and Ground System
https://www.unoosa.org/documents/pdf/psa/access2space4all/KiboCUBE/AcademySeason2/On-demand_Pre-recorded_Lectures/KiboCUBE_Academy_2022_OPL17.pdf

Operation Requirements= requirements related to the system operability (ECSS-E-ST-10-06C)

Include operation requirements for both **early orbit phase and normal phase.**

Chapter 5: Payload Specifications and Detailed Description

5.1.1 Main Specifications **[Mandatory]**

You can use graphs and tables for some items such as Table 5.1 provided as an example.)

Table 5.1. Payload main specifications

Parameter	Values	Units
Mass	[1U: less than 1.33]	kg
Dimensions	[1U: 100×100×113.5]	mm
Dimensions (deployed)		cm
Expected position		mm

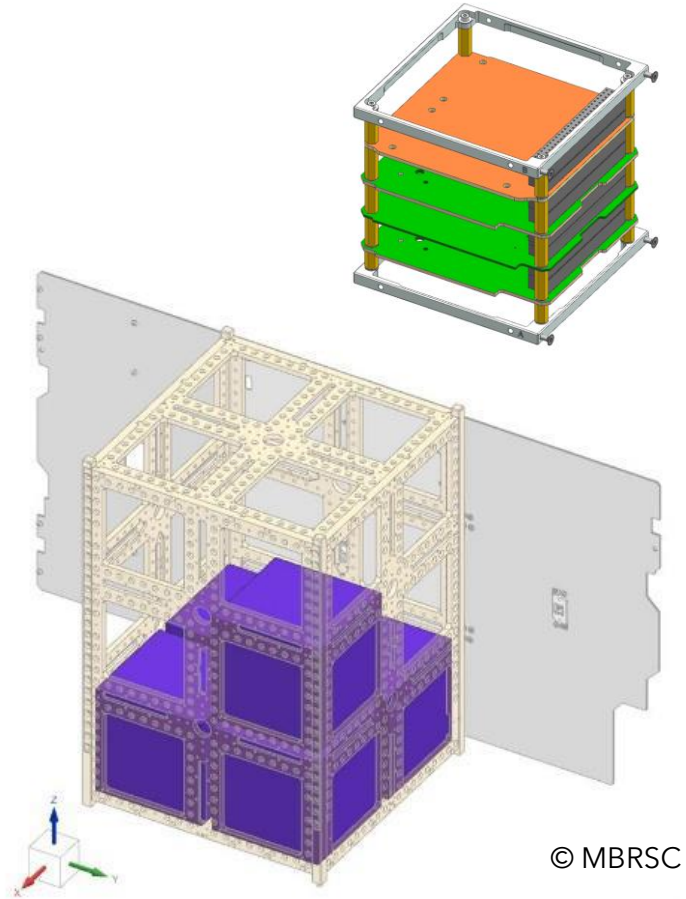
5.1.2 3D View**[Mandatory]**

Please provide the front-view, side-view, bird's view, and deployed configuration.

5.1.3 External Dimensions **[Optional]**

Please provide the size of any protruding objects, if any.

The mechanical structure is designed to host the payload in both forms electronic PCB and mechanical box.



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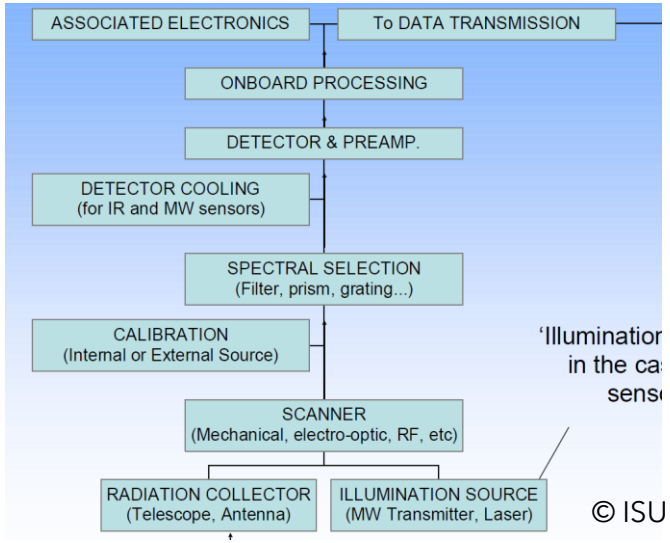
5.2 Payload Block Diagram and List of Components

5.2.1 Payload Block Diagram **[Mandatory]**

Please include information on all subsystems and how they are related.)



5.2.2 List of Components **[Mandatory]**

Please provide a list of components, **up to the lowest level available**. For custom-made components, please provide the name, 3D view (as Section 5.1.2), and describe the main features of the component (mass, location of center of gravity, and functionality). **Include whether the item is going to be made in-house or purchased**, please include the vendor's name if purchased. **A Product Breakdown Structure** will be highly appreciated.

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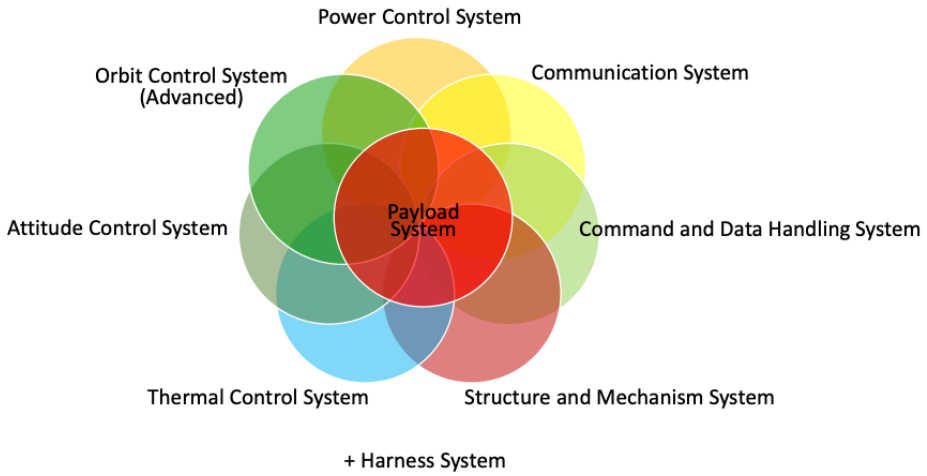
5.2.3 Description of Interfaces

3. Definition of Satellite Subsystems

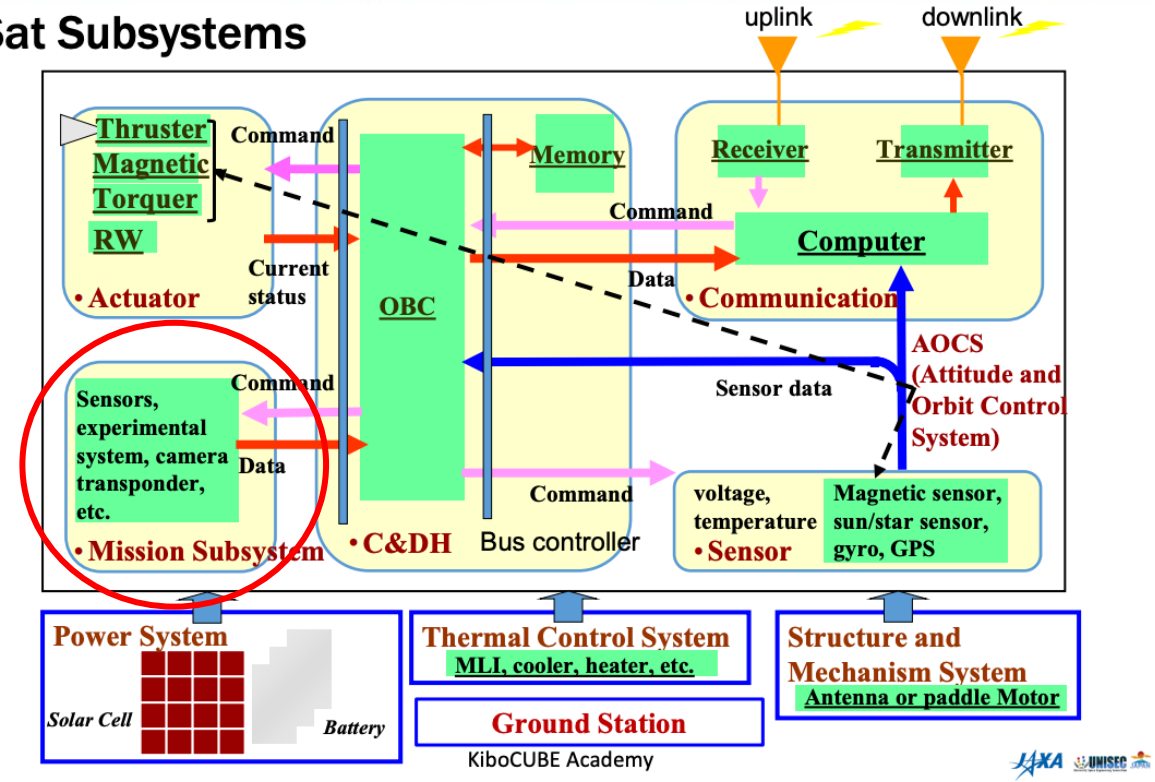
3.1. Satellite Subsystems

A satellite system consists of several subsystems. Typical categorization is as follows:



KiboCUBE Academy 16

CubeSat Subsystems



Check out KiboCUBE Academy Pre-Recorded On-Demand Lecture 18 Introduction to CubeSat Payload System
https://www.unoosa.org/documents/pdf/psa/access2space4all/KiboCUBE/AcademySeason2/On-demand_Pre-recorded_Lectures/KiboCUBE_Academy_2022_OPL18.pdf

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5.2.3.1 Mechanical Interface **[Mandatory]**

Please provide information on the mechanical interface between payload and bus. Provide as much detail as possible. Please read the PHI Platform User Guide at its latest version in detail to see the parameters available.

5.2.3.2 Electrical Interface **[Mandatory]**

Please provide information on the electrical interface between payload and bus. Provide as much detail as possible. Please read the PHI Platform User Guide at its latest version in detail to see the parameters available.

Check out KiboCUBE Academy Pre-Recorded On-Demand Lecture 11
Introduction to Nano-Satellite Technologies
https://www.unoosa.org/documents/pdf/psa/access2space4all/KiboCUBE/AcademySeason2/On-demand_Pre-recorded_Lectures/KiboCUBE_Academy_2021_OPL11.pdf

PHI Platform User's Guide
Version 2.0
https://www.unoosa.org/documents/pdf/Access2Space4All/PHI/PHI_Platform_User_Guide_for_PHI-2-Final.pdf
4.6 Mechanical Interface
4.1 Electrical Power Interface &
4.2 Grounding Interface

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5.2.3.3 Thermal Interface **[Mandatory]**

Please provide information on the thermal interface between the payload and the bus. Provide as much detail as possible (e.g. how the components are kept inside their temperature operational range and which are the elements part of the interface).

5.2.3.4 Command and Data Handling Interface **[Mandatory]**

Please provide information on the C&DH interface between payload and bus. Provide as much detail as possible (e.g. which are the signals sent and received, how are they processed, which is the data rate (peak, nominal) and data cycles with the bus…).

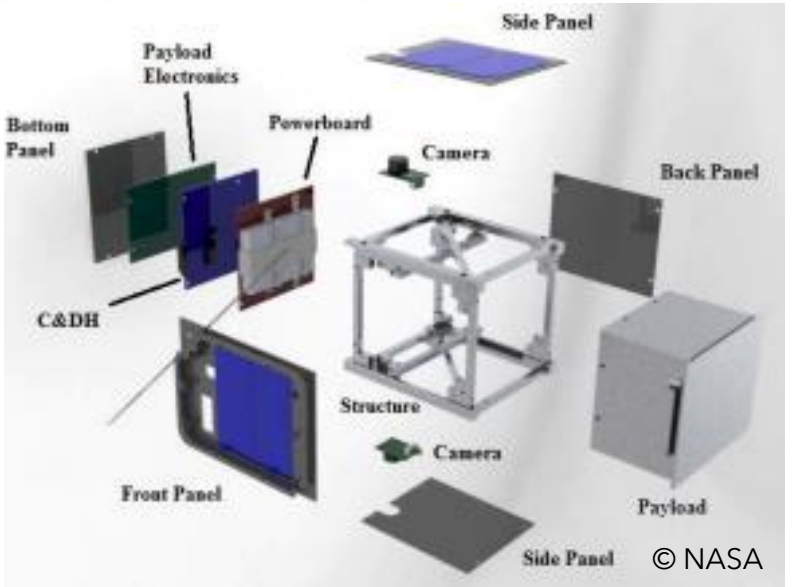
Check out KiboCUBE Academy Pre-Recorded On-Demand Lecture 13
Introduction to CubeSat Thermal Control System
https://www.unoosa.org/documents/pdf/psa/access2space4all/KiboCUBE/AcademySeason2/On-demand_Pre-recorded_Lectures/KiboCUBE_Academy_2021_OPL13.pdf

PHI Platform User's Guide Version 2.0
https://www.unoosa.org/documents/pdf/Access2Space4All/PHI/PHI_Platform_User_Guide_for_PHI-2-Final.pdf
4.7 Thermal Interface
4.3 Data Interface

5.2.4 **Payload Design**

5.2.4.1 Payload Structural and Mechanical Subsystems **[Mandatory]**

Design of payload primary structure and materials for primary structure. Please provide as much detail as possible, please provide 3D drawing and STEP file, please include also an expanded view).



5.2.4.2. Payload Electrical Power Scheme and power duty cycle information **[Mandatory]**

Please indicate how the power is distributed among the payload, also indicate the power duty cycle, average power, peak power, and typical operations cycle. List of components, and schematic of the electronics. Please provide as much detail as possible.

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5.2.4.3 Payload Thermal Subsystems **[Mandatory]**

List of components and type control system (passive/active) to keep the payload within its thermal operational range. Please provide as much detail as possible.

5.2.4.4 Communications Subsystems **[Optional]**

Optional, only applicable if the payload is a communications payload. List of components and description of the communications system (passive/active). Please provide as much detail as possible.

Check out KiboCUBE Academy Pre-Recorded On-Demand Lecture 13
Introduction to CubeSat Thermal Control System
https://www.unoosa.org/documents/pdf/psa/access2space4all/KiboCUBE/AcademySeason2/On-demand_Pre-recorded_Lectures/KiboCUBE_Academy_2021_OPL13.pdf

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5.2.4.5 Payload Command and Data Handling (C&DM)

[Mandatory]

List of components, and if applicable, data compression method, data recorder, multiplexing schematics and description of the subsystem. Please provide as much detail as possible.

5.2.4.6 Attitude Determination and Orbit Control System (AOCS)

[Optional]

Optional, only in case the payload is an ADCS. List of components, redundancy, and schematics and description of the ADCS. Please provide as much detail as possible.

Check out KiboCUBE Academy Pre-Recorded On-Demand

Lecture 10
Introduction to CubeSat Command and Data Handling System
https://www.unoosa.org/documents/pdf/Access2Space4All/KiboCUBE/KiboCUBEAcademy/2023/KiboCUBE_Academy_2023_OPL10.pdf

Lecture 14
Introduction to CubeSat Attitude Control System
https://www.unoosa.org/documents/pdf/Access2Space4All/KiboCUBE/KiboCUBEAcademy/2023/KiboCUBE_Academy_2023_OPL10.pdf

5.2.4.7 Propulsion or Deorbiting Subsystems **[Optional]**

Optional, only if the payload is a propulsion system. If this subsystem is different from the Attitude and Orbit Control, please provide a list of components, and deorbiting mechanism to be used, including redundancy if any. Please provide as much detail as possible.

5.2.4.8 Additional Technical Features of the Payload **[Optional]**

Please insert a description of any unique equipment used in the Payload, and specifications of unique equipment.

5.3 Concept of Operations **[Mandatory]**

Please insert a description of how the Payload will be operated (e.g. operational constraints: operations only during illuminated, when passing over certain regions of the Earth, type of operations: autonomous operations, controlled operations…). Please also include any activation/deactivation procedures, and end-of-life procedures **consider breaking it down into several sections**.

5.4 Communications Links **[Optional]**

Optional, only in case the payload is a communications payload. Please insert a description of the communication link budget(s) (frequencies and data rate) used by the Payload and how they are used.

Check out KiboCUBE Academy Pre-Recorded On-Demand Lecture 17
Introduction to CubeSat Operation and Ground System
https://www.unoosa.org/documents/pdf/psa/access2space4all/KiboCUBE/AcademySeason2/On-demand_Pre-recorded_Lectures/KiboCUBE_Academy_2022_OPL17.pdf

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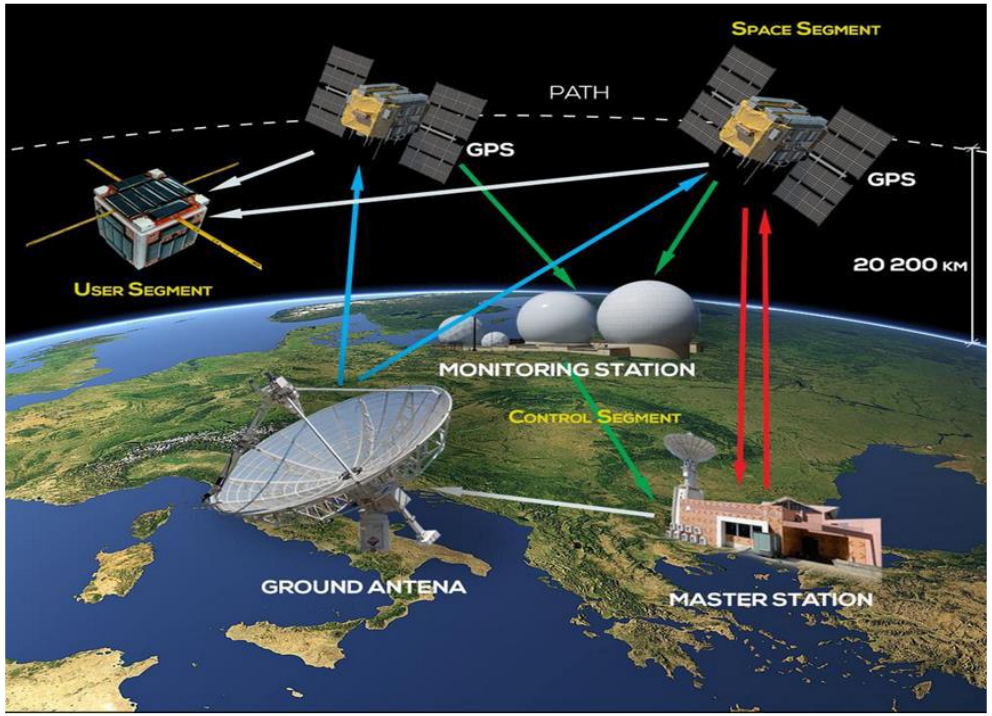
5.5 Ground Segment **[Mandatory]**

Please indicate how MBRSC Ground Segment is intended to be interfaced and refer to the PHI Platform User Guide whenever applicable.

- Supports the spacecraft + payload (space segment)
- Relays mission data generated by spacecraft to users
- Performs other functions as required

PHI Platform User's Guide
Version 2.0
https://www.unoosa.org/documents/pdf/Access2Space4All/PHI/PHI_Platform_User_Guide_for_PHI-2-Final.pdf
5.0 Ground Station



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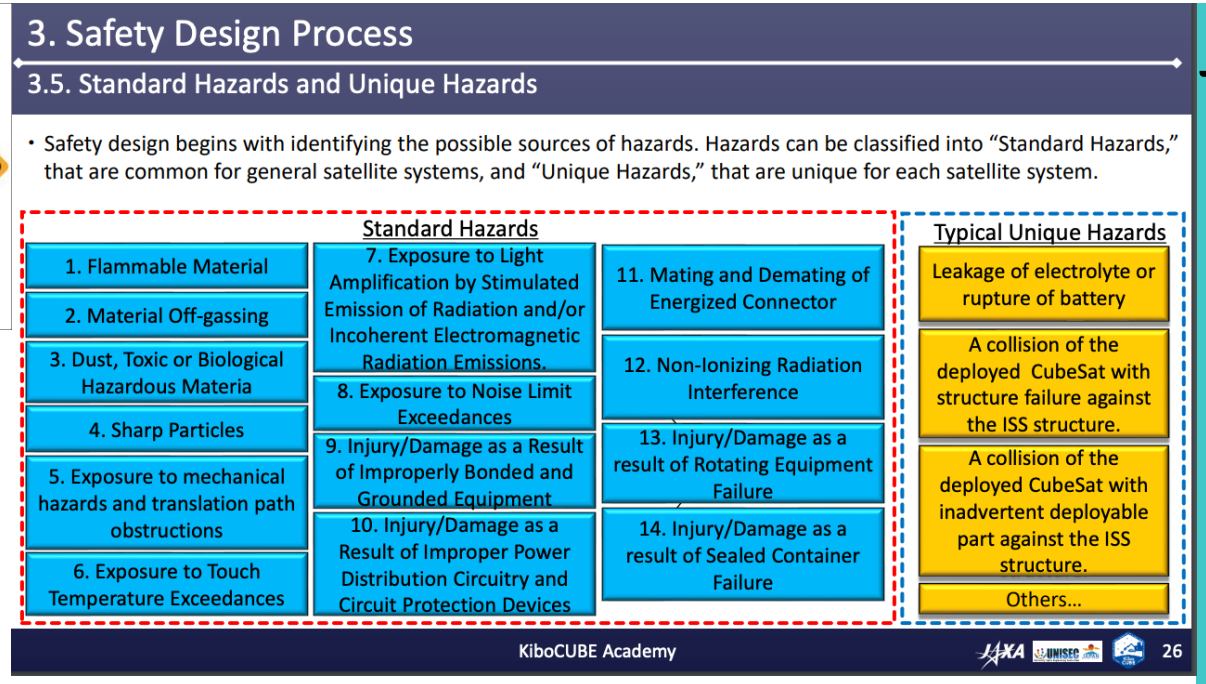
5.6 Safety **[Mandatory]**

Please refer to the PHI Platform User Guide to include any relevant information regarding the safety considerations for your Payload. In case of any safety hazard, please describe the control mechanisms.

PHI Platform User's Guide
Version 2.0
https://www.unoosa.org/documents/pdf/Access2Space4All/PHI/PHI_Platform_User_Guide_for_PHI-2-Final.pdf
6.0 Safety and Quality



Check out KiboCUBE Academy Pre-Recorded On-Demand Lecture 5
Introduction of Safety Review Process
https://www.unoosa.org/documents/pdf/psa/access2space4all/KiboCUBE/AcademySeason2/On-demand_Pre-recorded_Lectures/KiboCUBE_Academy_2021_OPL05rev.pdf
Lecture 6
CubeSat Design for Safety Requirements
https://www.unoosa.org/documents/pdf/psa/access2space4all/KiboCUBE/AcademySeason2/On-demand_Pre-recorded_Lectures/KiboCUBE_Academy_2021_OPL05rev.pdf

5.7 Technical Heritage **[Optional]**

Optional, Include any previously related work you have performed and any relevant scientific/engineering background supporting your experiment.

Chapter 6: Assembly, Integration and Testing

6.1 Facilities

6.1.1 Description of the assembly facilities **[Mandatory]**

Please describe the facilities that can be accessed for the assembly of the Payload. In case the facilities do not belong to the institution submitting the application, please also include a letter from other institution(s) authorizing the use of their facilities.

6.1.2 Description of the testing facilities **[Mandatory]**

Please describe the facilities that can be accessed for the testing of the Payload. In case the facilities do not belong to the institution submitting the application, please also include a letter from other institution(s) authorizing the use of their facilities.

Check out KiboCUBE Academy Pre-Recorded On-Demand

Lecture 19
Introduction to CubeSat System Integration and Electrical Testing
https://www.unoosa.org/documents/pdf/psa/access2space4all/KiboCUBE/AcademySeason2/On-demand_Pre-recorded_Lectures/KiboCUBE_Academy_2021_OPL19.pdf

Lecture 15
Introduction of Satellite Testing
https://www.unoosa.org/documents/pdf/psa/access2space4all/KiboCUBE/AcademySeason2/On-demand_Pre-recorded_Lectures/KiboCUBE_Academy_2021_OPL15.pdf

6.2.1 Verification Plan for Mission Requirements **[Mandatory]**

Please explain how you will test the payload against each of the mission requirements and what facilities you would need for the tests.

6.2.2 Verification Plan for Design Requirements **[Mandatory]**

Please explain how you will test the payload against each of the design requirements and what facilities you would need for the tests.

6.2.3 Validation Plan for Operational Requirements **[Mandatory]**

Please explain how you will test the operations against the requirements.

Refer to

4.5.1 Mission Requirements

4.5.2 Design Requirements

4.5.3 Operational Requirements

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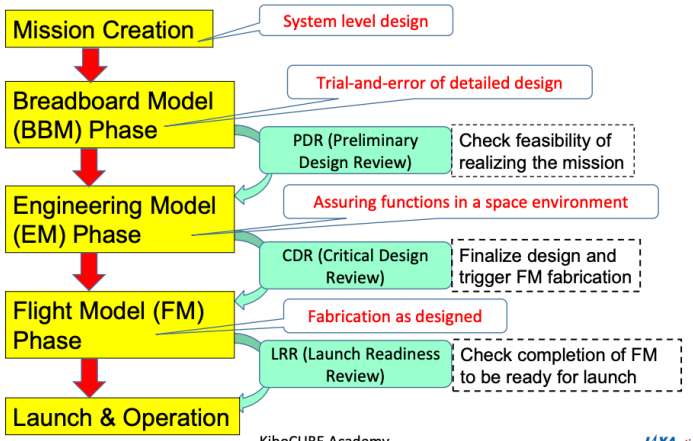
Chapter 7: Planning

7.1 Development schedule **[Mandatory]**

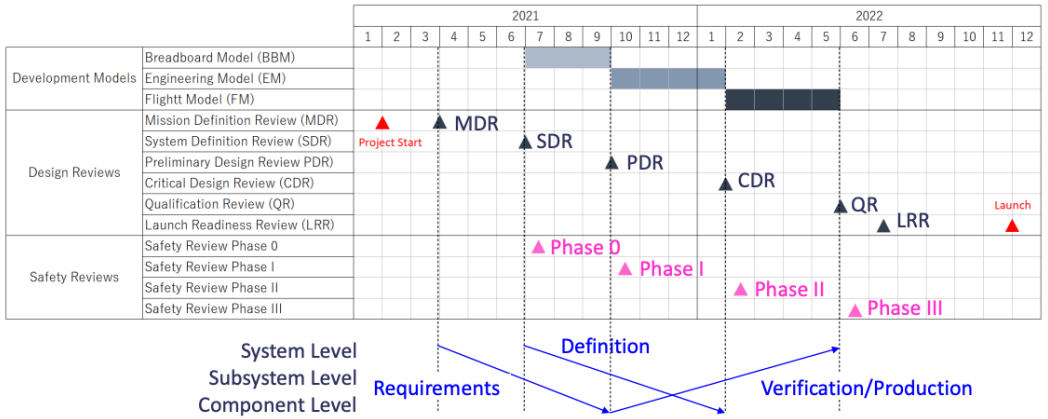
Please provide a schedule of the development phases of your Payload, including milestones and pass/fail criteria for each one. Include the milestones described in the AO and any other intermediate milestone that it is needed. Please note that the number and schedule of reviews shall be agreed with MBRSC. The final milestone of the engineering schedule should be the delivery to MBRSC. A Gantt chart and its description shall be included.

Water Flow Project Management



KiboCUBE Academy 35

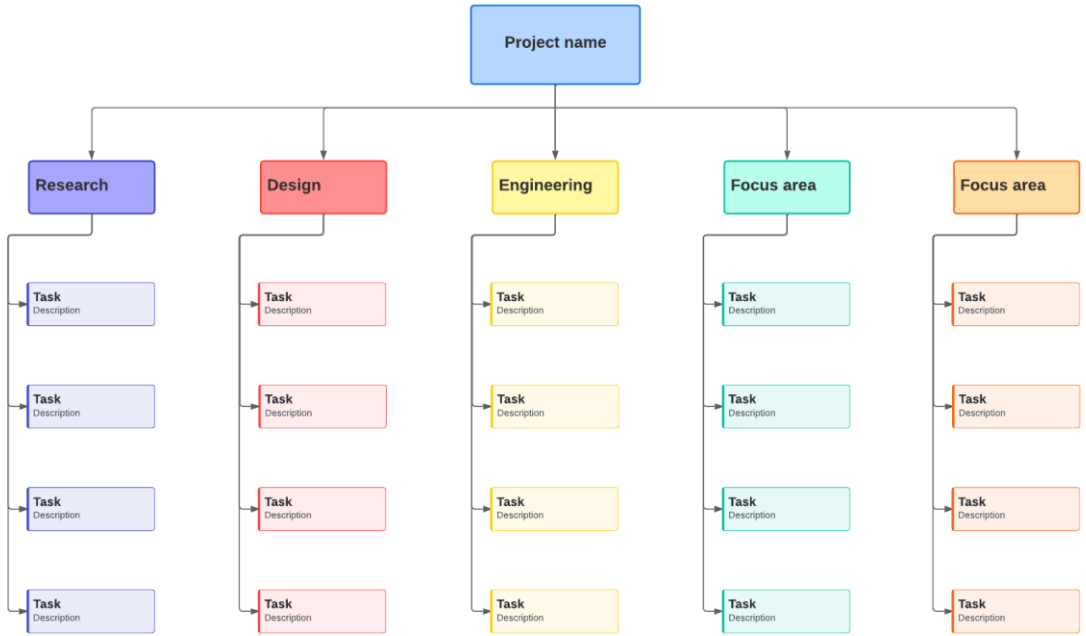
Relationship between Satellite Development Schedule, Design Reviews, and Safety Reviews



Check out KiboCUBE Academy Pre-Recorded On-Demand Lecture 3
Overview of Project Management of Satellite Development
https://www.unoosa.org/documents/pdf/psa/access2space4all/KiboCUBE/AcademySeason2/On-demand_Pre-recorded_Lectures/KiboCUBE_Academy_2021_OPL03.pdf

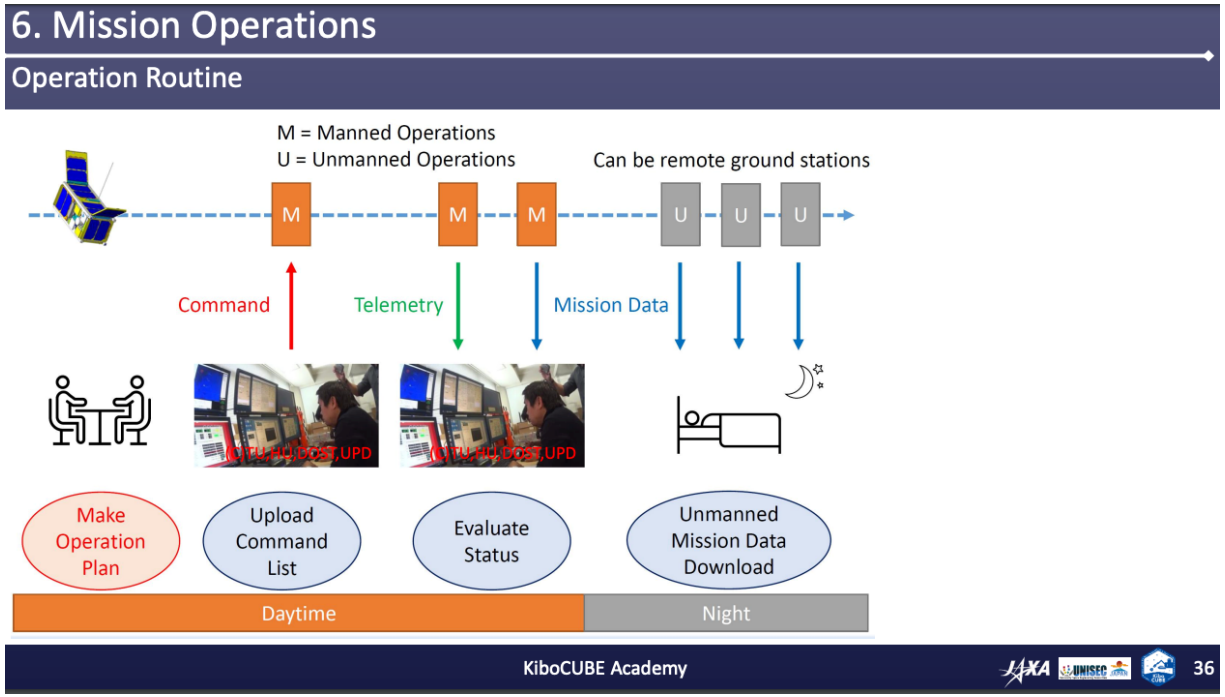
7.2 Work Breakdown Structure **[Mandatory]**

Please include the Work Breakdown Structure for the design, development, testing, and all other activities required until the experiment has been completed, including the outreach activities. In case of partnerships, please indicate the share of the work among the partners/team members for the different work packages.



7.3 Operations Schedule **[Mandatory]**

Although at this stage it might be difficult to provide a complete schedule for the operations, please provide as much detail about the schedule as possible (e.g. initial system checkout phase, payload activation phase, steady operation phase or end of mission etc.). A Gantt chart and its description shall be included.



Check out KiboCUBE Academy Pre-Recorded On-Demand Lecture 17
Introduction to CubeSat Operation and Ground System
https://www.unoosa.org/documents/pdf/psa/access2space4all/KiboCUBE/AcademySeason2/On-demand_Pre-recorded_Lectures/KiboCUBE_Academy_2022_OPL17.pdf

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7.4 End of Life Schedule **[Optional]**

Optional, although at this stage it might be difficult to provide a complete schedule for disposal, please provide as much detail about the application of end-of-life procedures and associated schedule as possible, if applicable. A Gantt chart and its description shall be included.

Check out KiboCUBE Academy Pre-Recorded On-Demand Lecture 20
Introduction to Space Debris Problem and Countermeasures
https://www.unoosa.org/documents/pdf/psa/access2space4all/KiboCUBE/AcademySeason2/On-demand_Pre-recorded_Lectures/KiboCUBE_Academy_2022_OPL17.pdf

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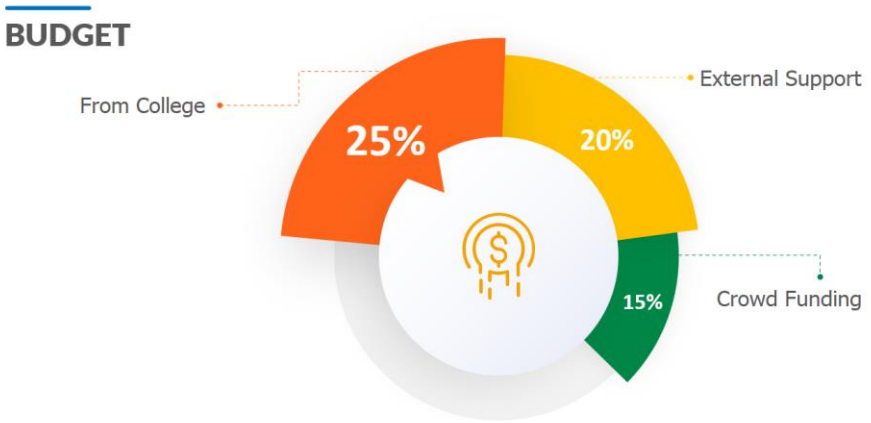
Chapter 8: Budget

8.1 Budget Plan **[Mandatory]**

Please provide information on the cost, **including the price of the parts, personnel costs, facilities costs, operation costs, travel expenses, shipment of the Payload, dissemination activities etc. = Everything**



8.2 Budget Source and **Expected** Budget Source **[Mandatory]**

Please provide information on the secured budget (committed budget), **specifying the funding source, and information on the envisaged funding sources of any remaining non-secured budget**.

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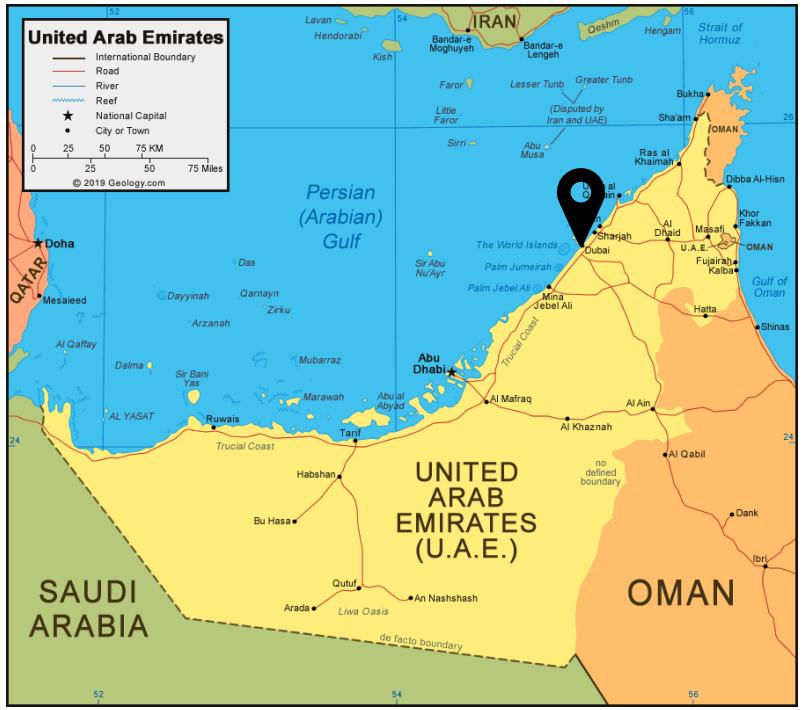
Chapter 9: Transportation to UAE

9. Transportation to UAE **[Mandatory]**

Please provide information concerning the transport, customs arrangements… Handover is usually taking place in MBRSC, Dubai, UAE.



- Sending equipment is more complicated than you think… **Check customs and export control regulations for both your country and UAE**
- What documents do you need to prepare?
- How long will it take?

Plan the shipment in advance!

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Chapter 10: Licensing and Compliance with International Guidelines and Regulations

10.1 Frequency Allocation **[Optional]**

Optional, only if payload is a communications payload. Please provide information concerning the frequencies to be used and the plan to obtain the license (timeline, entity(ies) involved.

10.2 Earth Observation License **[Optional]**

Optional, please provide information concerning the license to be requested and the plan to obtain the license (timeline, entity(ies) involved etc.

10.3 Other Compliance Required **[Optional]**

Check out the International Telecommunications Union (ITU) websites
Small Satellites Support
https://www.itu.int/en/ITU-R/space/support/smallsat/Pages/default.aspx
Small Satellite Handbook
https://www.itu.int/en/ITU-R/space/support/smallsat/sshandbook/Pages/default.aspx

Check out the KiboCUBE Regulatory Webinar
https://www.unoosa.org/oosa/en/ourwork/access2space4all/KiboCUBE_Academy_Webinars.html#Tag1

Chapter 11: Feasibility and Risk Analysis

11.1 Feasibility Analysis **[Mandatory]**

Provide arguments on the feasibility of your project in its technical specifications and research contents, including research and technical base, maturity of the project, availability of necessary resources on the ground, and technical conditions that could be capitalized on.

11.2 Risk Analysis **[Mandatory]**

Provide a description of the risks that you might face, their likelihood (1 (not likely) 3 (very likely) and impact (1 (minor impact) to 3 (catastrophic)) and mitigation actions for each of them).

3x3 RISK MATRIX

LIKELIHOOD ↓ / SEVERITY →	1	2	3
1	LOW -1-	LOW -2-	MEDIUM -3-
2	LOW -2-	MEDIUM -4-	HIGH -6-
3	MEDIUM -3-	HIGH -6-	HIGH -9-

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Chapter 12: Communications and Dissemination Plan

12.1 Communications and Dissemination Plan **[Mandatory]**

Provide the plan (e.g. scope, schedule, resources, means) that will be used to promote the experiment and its results, as well as communication towards the general public. Specific activities shall be organised within the applicant country(ies).

Summarize
- What kind of outreach activity you will do to enhance the outcomes of your project?
- Who is your target audience?
- What is the timeframe for the different outreach activities you have planned
- What resources/platforms will you use?

Session 4: Effective Outreach
Presentations on successful examples and discussion on how to conduct effective outreach activities
Presentations and Videos are available!

https://www.unoosa.org/oosa/en/ourwork/psa/schedule/2023/accspace4all-expert-meeting.html

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12.2 Relevance to the Sustainable Development Goals **[Mandatory]**

Please describe what Sustainable Development Goals (SDGs) are supported by the experiment and its associated results. Please indicate how the participation in the AO and its related activities contribute to progress on one or several Sustainable Development Goals in your country(ies) and the expected social impact. Note that PHI contributes to SDG 4 "Quality Education"; SDG 8 "Decent Work and Economic Growth" and SDG 9 "Industry, Innovation and Infrastructure".

All of the 17 Goals each have
- Targets
- Indicators

https://sdgs.un.org/

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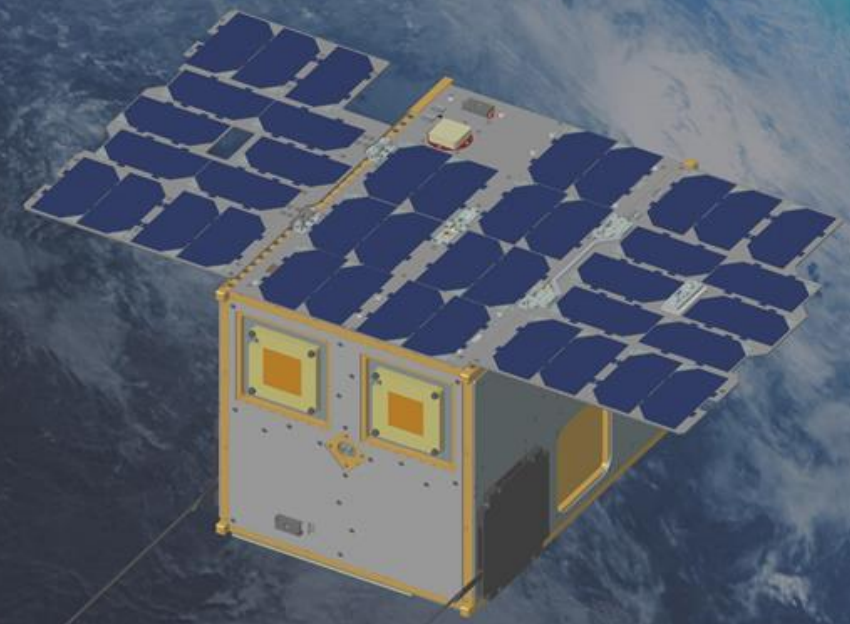
Q and A



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Opportunities

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HANDS-ON

Open for Applications

HYPERGRAVITY/ MICROGRAVITY

- DLR ZARM DropTES
- esa HyperGES

→ Suborbital and parabolic flights

- Bartolomeo — AIRBUS
- China Space Station — CMS
- Dream Chaser — SIERRA SPACE

SATELLITE DEVELOPMENT

- canSATs — PHI
- KiboCUBE — JAXA
- Vega-C — AVIO

SPACE EXPLORATION

- ISONscope
- Ground Analogues

→ Beyond GEO

EDUCATION

- Systems Engineering Webinar Series — NASA
- Kibo-RPC — JAXA
- PNST — MEXT — Kyutech
- KiboCUBE Academy — JAXA
- UNISEC

Any questions?

Contact us

✉ unoosa-access-to-space@un.org

Help us help
#AccSpace4All

For more stats and information, check out the brochure!

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