SPACEHACK

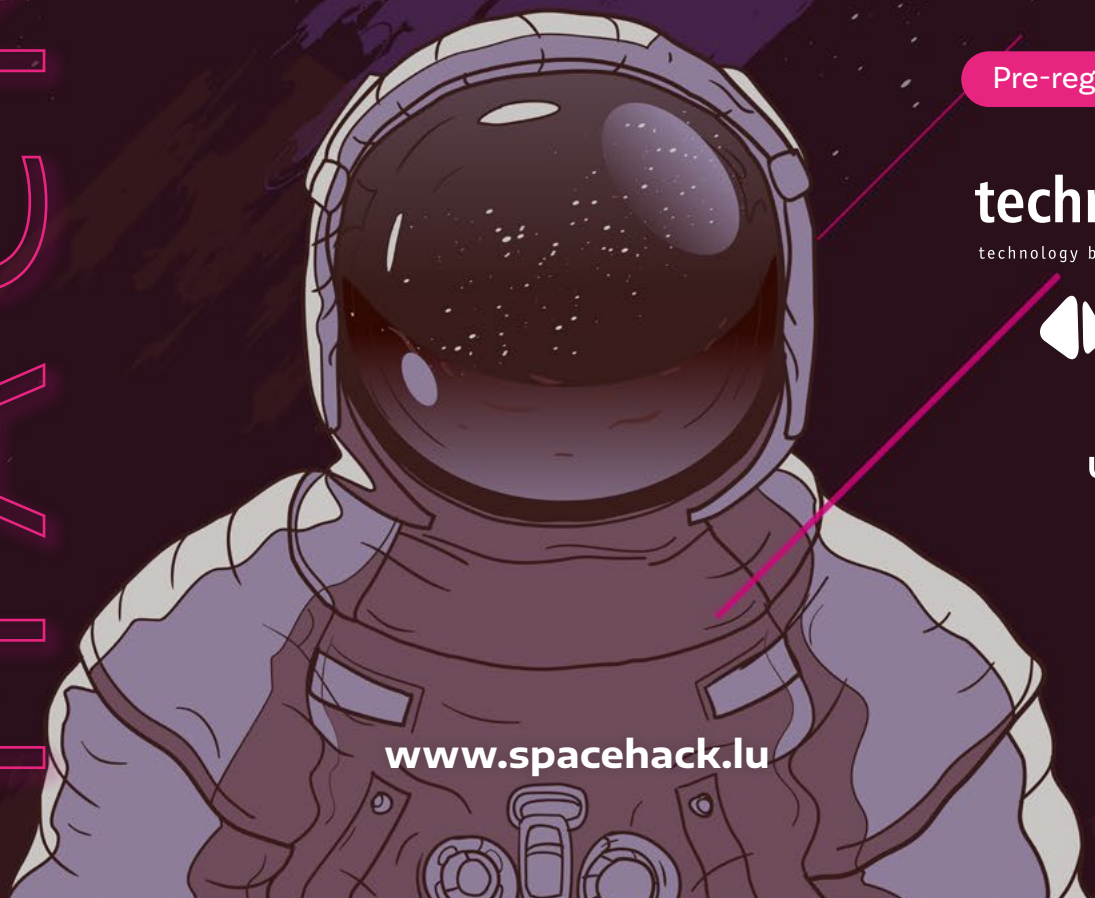
LUXEMBOURG 2023

APRIL 14TH, 15TH & 16TH

HACKATHON

SpaceHack is a hackathon, a collaborative event meant to combine the expertise and skills of space and non-space talents in a collective entrepreneurial action. The scope of participating teams is to design innovative concepts that explore the near future potentials of the new space industry.

1. The hackathon is structured as a team competition of **24hours over three days (3x8hrs)** under a hybrid model, **both on-site in Luxembourg-belval and online for remote participants** and all participants will receive the support of domain experts and coaches. It is open to international university/doctoral students, professionals, researchers.
2. Contribute to designing the next generation space resources utilization **with innovative product concepts, software/hardware proposals.** Foster your entrepreneurial and innovation management practices. Meet the newspace players from the Greater Region



Pre-register here !

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THE TIMELINE

PRE-EVENT WEBINARS

- Get to know the hackathon process and rules
- Explore space topics and challenges with experts
- Meet previous SpaceHack winners
- Create your team

1st Webinar:

week of March 13th
(date to be confirmed)

2nd Webinar:

week of March 27th
(date to be confirmed)

3rd Webinar:

week of April 3rd
(date to be confirmed)

HACKATHON

24hours teamwork to design a project concept solution addressing a concrete space challenge, supported by operating players of the New Space sector and recognised experts in space, technology, design, business and intellectual property.

Start time:

Friday April 14th
at 1PM

End time
(deadline to deliver your project):

Sunday April 16th
at 5PM

CEREMONY

- Pitch your project to a jury of experts
- Meet and network with the event supporting partners - players from the Greater Region space and innovation scene (startups, corporates, research centers, universities, innovation support institutions)
- Winners announcement and award ceremony

April 16th from 5:30PM to 8:00PM
Maison du Savoir, Belval Campus
2, Avenue de l'Université, Esch-sur-Alzette (Luxembourg)

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THE THEME

Next Generation Space Resources Utilization

It is 2035, demonstration missions have shown the potential of Space Resources Utilisation to enable space exploration. Missions to show the small-scale extraction of oxygen and water on the Moon, together with construction of infrastructure (e.g. habitation) have been successful, providing invaluable data and experience for larger scale operations and for space resources operations beyond the Moon. For these post-demonstration mission operations, sustainability is critical in order to secure the future of large-scale operations.

The objective: **Design a sustainable approach to the extraction and use of space resources**

The concept of sustainability for space resources is broad and can be defined in several ways. For example, sustainability can be achieved by minimizing the need for providing new materials from Earth, or it can be defined by minimizing environmental legacy for future generations. In this challenge, you will need to address a specific challenge for Space Resource Utilization beyond demonstration missions, and to demonstrate how your proposed concept will contribute to a sustainable approach to space resource utilization.

THE CHALLENGES

Theme challenges for Next Generation Space Resources Utilization:

1. Infrastructure

- Landing pad construction
- Habitation for astronautes
- Storage, airlocks and maintenance areas

2. Extraction of water/oxygen

- Excavation of lunar soil
- Handling and loading into reactors
- Product handling and storage

3. Energy

- Energy production and storage
- Lunar night survival
- Energy infrastructure

4. Operations

- Maintenance and reliability
- Operating strategy (e.g. for ensuring continuous production/construction in a given time)
- Data and communications
- Lunar environment constraints (based on location on the Moon or any other celestial body); Shielding (micro-impacts, radiation, etc)

5. Sustainability

- Recycling
- Re-use and repurposing of equipment and resources
- Reduction in materials required from earth