

 **4-DAY COURSE – MICROCREDENTIAL (MC)**

Space Sustainability

How to design more sustainable missions

TARGET AUDIENCE

Space stakeholders (engineers, scientists, non technical managers, policy practitioners, etc.) active in space agencies, aerospace industries or related fields and concerned about preserving the sustainability and safety of the space environment in the long-term

Participants should bring their own laptop (for hands-on experience).

ORGANIZATION

- EPFL Space Center (eSpace), EPFL (Swiss Federal Institute of Technology in Lausanne), Switzerland

In collaboration with :

- Karman Project
- European Space Agency (ESA)

OVERVIEW

In recent years, the exponential growth of spatial activities, driven in part by the expanding commercial use of space, has yielded promising business opportunities. However, this expansion has also left behind a significant challenge – an ever increasing population of space debris, with over 40,000 objects currently observable in Earth's orbit. With the number of satellite launches continuing to increase, ensuring the enduring viability of this vital frontier for future generations is critical.

As active participants in space agencies and aerospace industries, how can we secure the long-term usability of space? And, how can we design and operate missions and space businesses with a keen focus on sustainability?

OBJECTIVES

- Understand what space sustainability means (history, geopolitical challenges, latest research updates) and how to measure it from economic, societal and environmental perspectives
- Acquire tools and methodologies to develop more sustainable missions (ESA's MASTER and DRAMA suite, Space Sustainability Rating, Life Cycle Assessment & Environmental Impact Assessment, etc.)
- Grasp how the space sector can benefit from the adoption of Environmental Social Governance (ESG) and Corporate Social Responsibility (CSR) approaches
- Engage with space sustainability researchers, industry experts, and fellow members of the space community



Mon. March 16, 2026
1 pm to 6.30 pm

Tue. March 17, 2026
9 am to 5 pm

Wed. March 18, 2026
9 am to 5.30 pm

Thurs. March 19, 2026
8 am to 12 pm



Microcredential, 2 ECTS credits



CHF 2400.–

10% special discount for contributing members of EPFL Alumni & EPFL partners



On-line registration

Registration deadline : December 14, 2025
Number of participants is limited

LEARN MORE



EPFL, Lausanne, Switzerland

DAY 1: INTRODUCTION TO SPACE SUSTAINABILITY

- Introduction to Space Sustainability: What are the metrics or space sustainability, *Emmanuelle David*
- Space Sustainability History, Geopolitics, Challenges and Space Law, *Dr. Benjamin Guyot*
- Group Work
- Practitioner's Testimony: Swiss Space Diplomacy at the United Nations (UN)

DAY 2: TECHNOLOGIES AND TOOLS INCORPORATED IN SPACE SUSTAINABILITY

- The metrics of space sustainability and how to measure sustainability in the economic, societal, and environmental perspective, *Emmanuelle David*
- Technical Challenges and Enablers of Space Sustainability: Space Logistics, SSA, *Emmanuelle David & Dr. Stephan Hellmich*
- Space Sustainability Rating (SSR): How it works and how SSR can contribute to the development of more sustainable missions, *Emmanuelle David*
- Group work
- A vision on space sustainability from above and through time, *Prof. Claude Nicollier*

DAY 3: THE METRICS OF SUSTAINABILITY

- Life Cycle Assessment (LCA) & Environmental Impact Assessment (EIA) from an eco-design perspective during mission development, *Mathieu Udriot & Marnix Verkammen*
- Group Work
- ESA's tools to develop more sustainable missions : MASTER (Meteoroid and Space Debris Terrestrial Environment Reference) & DRAMA suite (Debris Risk Assessment and Mitigation Analysis), *Vitali Braun*
- Group work: Practical experimentation of tools and methods
- Practitioner's presentation, *Romain Buchs*

DAY 4: ESG/CSR AND ECONOMICS OF SPACE SUSTAINABILITY

- ESG/CSR and economics of space sustainability, *Sabrina Alam*
- Group Work
- Conclusion, *Emmanuelle David*

ASSESSMENT FORMAT: Short case study analysis

STEERING COMMITTEE

- **Emmanuelle David**,
Executive Director, EPFL Space Center (eSpace)
- **Prof. Jean-Paul Kneib**,
Academic Director, EPFL Space Center (eSpace) ; Director of the Laboratory of Astrophysics (LASTRO), School of Basic Sciences (SB), EPFL

INSTRUCTORS

- **Sabrina Alam**,
Director, Sustainability Services, KPMG Luxembourg
- **Vitali Braun**,
Space Debris Engineer, IMS Space Consultancy
- **Mathieu Udriot**,
Engineer, EPFL Space Center (eSpace)
- **Dr. Marnix Verkammen**,
EcoDeltaV
- **Dr Benjamin Guyot**,
Space Talk

GUEST LECTURERS

- **Prof. Claude Nicollier**,
Swiss Astronaut
- **Romain Buchs**, *Space Policy & Strategy, Clearspace*
- **Dr. Stephan Hellmich**,
Scientist, EPFL