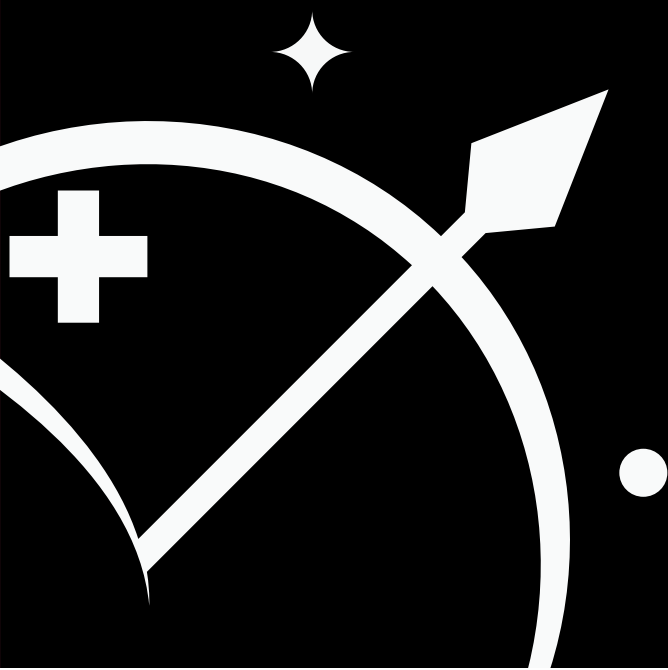


HELVETI SPACE



COURSES CATALOG



Who are we ?

HelvetiSpace is a company founded by two military officers of the Swiss Space Domain. Our goal is to provide high quality tailored courses and instructions to companies and governmental institutions who need to acquire a better understanding of space. Courses range from basic notions all the way to advanced topics such as the analysis of satellite maneuvers or a case study of commercial activities in space. Our products are fit to both, experts in space-related topics and general public. They are inspired by the Swiss Space Domain novel method to swiftly teach young recruits to become able to understand space and to accomplish highly technical missions.

Our courses enable anyone not just to understand space experts, but also to genuinely engage with them and make well-informed decisions. We also provide an opportunity to the professionals in the field to extend their knowledge across related disciplines and enhance their career prospects.

Who should be interested ?

In 2023, the leader of a private investment fund stated : "Space is becoming a non-sector". What does this mean ? Space is now embedded in every segment of the economy. This omnipresence makes it a non-sector, not due to its highly specialized nature, but precisely because it is everywhere. Everybody is connected to space, making our products a great solution to any company desiring to grow their business by leveraging existing space services or any military aware of the critical impact of the space sphere of operations.

How does it work ?

This catalog presents a list of modules teaching specific topics throughout several courses. You will find the objectives and a brief description of every module so that you can choose to:

- Order a desired set of modules.
- Order a custom module precisely tailored to your needs.
- Request on-demand courses or training.

The courses can be delivered in person (ex cathedra) or online. Our expertise shows that in-person training yields the best return on investment. However, knowing that in-person teaching is not always an option, we happily offer online courses fitted to your needs and ensure the highest quality of our services.

Upon successful learning of a module, the attendees will receive an official certification.

Content

The modules are sorted according to the themes they belong to.

Space techniques	page 3
Military applications	page 6

Contact us

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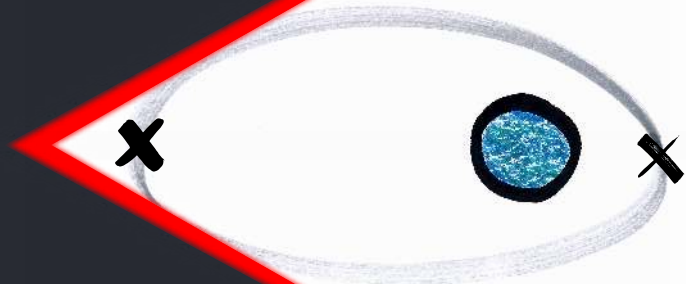
www.helveti.space

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ST-1. Space basics and definitions

It all starts by sketching an orbit. This module provides the very basics to efficiently apprehend and understand space in a short time. At the end of these courses, the attendees will be able to:

- Correctly represent and describes orbits.
- Understand orbit categories, their effect and applications.
- Identify orbital maneuvers and their consequences.
- Interpret several orbital data formats.



ST-2. Spacesituation monitoring

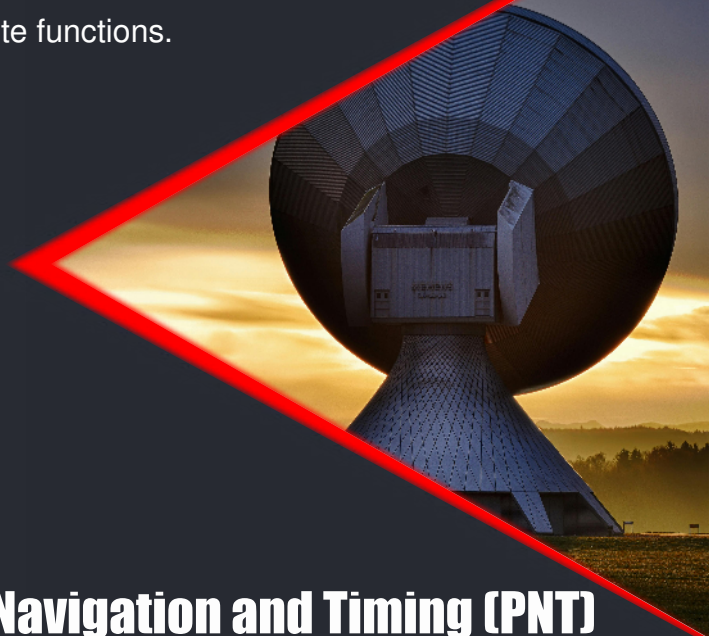
Events in space occur perpetually and impact us even right now. Very few actors have the capability to genuinely follow the evolution of the situation. To do anything related to space, it is crucial to understand and predict the situation in orbit. This is exactly what this module teaches. Upon completion, attendees will be able to:

- Understand the life-cycle of a satellite.
- Find reliable orbital data sources and analyze them.
- Perform simple Open Source Intelligence (OSINT).
- Understand the required ground infrastructure to track satellites.

ST-3. Tasking and operation planning

Space operations planning is a discipline constrained by space and ground assets alike. This module teaches the complete process space operators follow from receiving a product inquiry to delivery passing by satellite piloting. At the end of the courses, the attendees will be able to:

- Understand Telemetry, Tracking and Control (TT&C).
- Define the structure of a space Mission Control Center (MCC).
- Understand the military applications of satellite functions.



ST-4. Positioning, Navigation and Timing (PNT)

Acronyms such as GPS are anchored in our culture. But Positioning, Navigation and Timing (PNT) goes well beyond planning one's route. In this module, a complete technical and historical background is given on the Global Navigation Satellite System (GNSS). The many existing and future applications of PNT are also addressed. After these courses, the attendees will be able to:

- Know the technical backbone of GNSS systems and their critical points.
- Have a wider view of the applications of PNT.
- Understand the notions of reliability and integrity for GNSS signals.
- Understand the future opportunities offered by coming PNT constellations.
- Understand the strategic interests in cislunar PNT.

And many more to come...

We constantly work to enhance our offer in high-end space instructions and training. These new modules will soon be available:

ST-5. Fundamentals of spacecraft design

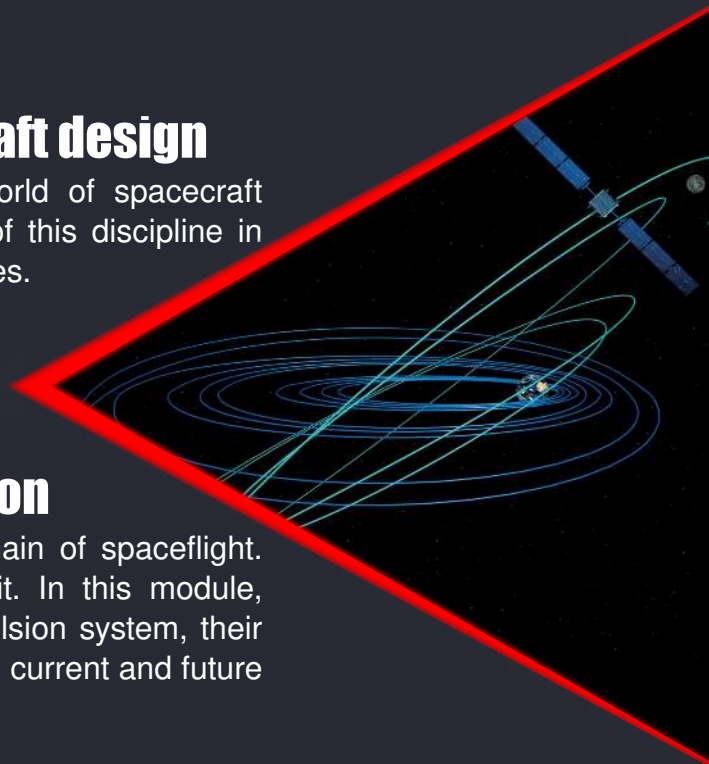
A first and firm step into the challenging world of spacecraft design. This module will cover every aspect of this discipline in both classical space and new space perspectives.

ST-6. Fundamentals of propulsion

Propulsion is certainly the most complex domain of spaceflight. Yet it is also the most fundamental part of it. In this module, attendees will learn about every existing propulsion system, their strength and weaknesses, key design concepts, current and future applications.

ST-7. Advanced orbital dynamics

An in-depth module on orbital dynamics making the attendees able to autonomously carry out high value analysis of objects in space by using existing tools for space experts or by developing their own tools with open-source software.



M-1. Space as an Operational Domain

How to create a space operations command ? Space is critical for modern military operations. Recent conflicts showed that although space assets do not guarantee victory, the absence of a space capability will guarantee defeat. In this module, the space Operational Domain is introduced through five aspects : Space Situational Awareness (SSA), intelligence, telecommunications, navigation and countermeasures. After following these courses, attendees will be able to :

- Link space with other spheres of operations.
- Know the military counterpart of orbits and satellite functions.
- Know how space electronic warfare is carried out.
- Have an up-to-date view on space warfare.



M-2. Adversary possibilities

This module is a large review of space-enabled adversary possibilities that institutional actors may face. Attendees will be introduced to both optical and radar image intelligence (IMINT), signal intelligence (SIGINT), early warning (EW), inspection satellites and anti-satellite capabilities (ASAT) as well as how space impacts the unfolding of warfare in the information sphere of operation.

M-3. Cartography of space actors capabilities

Many nations seek to enhance or create their space capabilities. Yet, space is a constant chessboard for potent states and any wrong move can lead to serious political troubles. This module provides a comprehensive overview of the military and dual capabilities that the largest states have. At the end of these courses, attendees will have an overview of the launch, ground and space segments of the following countries :

- USA.
- Russia.
- China.

Upcoming modules...

We constantly strengthen our experience as military officers in the Swiss Space Domain to deliver high quality courses. These new modules will soon be available:

M-4. AGILE methodology for armed forces

Military doctrine and AGILE methodology seem irreconcilable. But the unique history of the Swiss Space Domain proves that their symbiosis is possible and it yields great results. This module introduces the attendees to what AGILE is, beyond being a buzzword, and how to implement it to fit military decision-making process.

M-5. A case study of military New Space

New Space is not new anymore, it is common. Yet, military satellites often remain in Classical Space due to their critical nature. This module teaches the attendees how the military can take advantage of New Space with dual applications or Public-Private Partnerships (PPP) to maximize their effects at low cost and to develop new capabilities or renew existing ones.

