ORBITAL

Spacestation

Life, Space, and Everyday Living in Orbit

credits: Thomas Pesquet ESA

Point of Departure and Theme

Based on the novel Orbital by Samantha Harvey, this design studio revolves around the design of a space station. The focus is particularly on a module with a diameter of approximately 8 meters and a length of approximately 12 meters, which serves as the central architectural and spatial object of investigation.

The novel describes a space station that completes 16 orbits around Earth within 24 hours. Each orbit is characterized by the continuous alternation of day and night. These extreme conditions—weightlessness, permanent technical maintenance of life-support systems, and cohabitation of up to eight people in extremely confined spaces—form the basic scenario of the design studio.

download-link book

Content-related question

Orbital does not tell a conventional story. Instead, the thoughts, conversations, and emotions of the astronauts are at the centre: reflections on the beauty and fragility of Earth, on loss, longing, fear, and insight—embedded within a highly functionalized, technological living environment.

Precisely this connection between

- spatial confinement,
- technical dependency,
- weightlessness, and
- emotional and social experience

serves as the starting point for the design studio. The goal is to examine architecture as a medium of everyday life, perception, and the relationship between humans, technology, and the biosphere.

Methodology

The studio works in a research-based and experimental manner. Through exercises in

- model making,
- film and video (self-produced and edited), and
- classical design work,

life in a completely different world—without gravity, in an artificial biosphere—is spatially explored. Students develop scenarios, atmospheres, and concepts that go beyond purely functional solutions.

Introduction

The introductory lecture will be given by René Waclavicek, Managing Director of LIQUIFER (Vienna/Bremen). He is currently working on several space station projects for ESA and NASA and provides insights into real design and research processes in the context of space architecture.

First Assignment

The first exercise consists of reading the novel (provided as PDF) and creating a mood board (A1 format). This should:

- capture central themes and atmospheres of the book,
- elaborate visual and spatial motifs,
- contain a personal reflection on the book and the studio's research question.

Developed through images, sketches, and text including references (citation rules apply).

Semester structure & dates

Wednesday 04.03.2026 – KICK-OFF / INTRO LECTURE
Wednesday 05.03.2026 – Excursion to Airbus in Friedrichshafen – Human Spaceflight Tour
Wednesday 11.03.2026 – Desk Crit (1st Exercise)
Wednesday 18.03.2026 – Desk Crit (2nd Exercise)
Wednesday 25.03.2026 – Desk Crit (Research booklet submission)
Wednesday 15.04.2026 – MID REVIEW
Wednesday 22.04.2026 – Desk Crit (Project – Feedback session)
Wednesday 29.04.2026 – Desk Crit
Wednesday 06.05.2026 – Desk Crit (Project)
Wednesday 13.05.2026 – Desk Crit (PechaKucha, online)
Wednesday 20.05.2026 – Desk Crit (online)
Wednesday 27.05.2026 – Online work (Development & Production)
Wednesday 03.06.2026 – Pin-Up
Wednesday 10.06.2026 – Desk Crit (Development & Production)
Wednesday 17.06.2026 – Desk Crit (Development & Production)
Wednesday 24.06.2026 – FINAL REVIEW

Informationen und Literatur

LIQUIFER https://www.youtube.com/@liquifer7453/videos
AIRBUS https://www.airbus.com/en/airbus-loop
SPACE ARCHITECT http://spacearchitect.org/
PAPERS http://spacearchitect.org/pubs/pub-biblio.htm
PODCAST
Sue Fairburn https://cba.media/282431 (Designing from the unfamiliar)
Virginia Wotring https://cba.media/510309 (Human Performance)
Christina Ciardullo, Marc Cohen https://cba.media/499937 (Space-Eaerth-Continuum)
Julie Patarin-Jossec and Georgi Petrov https://cba.media/527310 (Space Exploration through the lens of human activity and design for habitability)
Gene Giacomelli https://cba.media/376828 (Greenhouses)