

INTERFACULTY GRADUATION

CIEM0500: LUNAR ARCHITECTURE & INFRASTRUCTURE



Source: European Space Agency (<https://www.esa.int>)

Tutors

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<u>Code</u>	<u>CIEM0500</u>
<u>Credits</u>	<u>30</u>
<u>Location</u>	<u>Moon</u>
<u>Excursion</u>	<u>-</u>
<u>Costs</u>	<u>-</u>

Mirroring the interdisciplinary nature of space colonization projects where engineers, architects, roboticists, and space scientists work together to achieve common goals, the interfaculty graduation is designed to foster collaboration and shared objectives among students from various faculties.

From the various environmental conditions, actions, and loads to the constraints of autonomous robotic modular construction, building inhabited structures on the Moon raises several novel engineering challenges. These aspects must inform the design and construction process of building structural forms and configurations.

Building partially or completely submerged structures in underground provides protection from radiation and temperature fluctuation, as well as new possibilities for underground structures. Equilibrium takes a new meaning, as material economy dictates the design of the structure itself and of the temporary construction work too, while an autonomous system assembles the structure.

The pressurization of the habitats creates drastically different loading conditions before and after building completion to be reckoned with. Structural engineers and designers are essential actors to contribute to the interdisciplinary teams required to build in such extreme environments. By identifying the conditions of this new context, integrating its constraints, and leveraging its potential, novel structural and constructive systems will arise.

[Additional info available on 29th April, 12:45, room C, Faculty of Architecture and the Built Environment and on the Robotic Building website \(<http://www.roboticbuilding.eu/project/moonshot/>\).](http://www.roboticbuilding.eu/project/moonshot/)