

## 19394 - LSSS - Life-Support Systems in Space

Coordinating unit: 300 - EETAC - Castelldefels School of Telecommunications and Aerospace Engineering  
 Teaching unit: 1022 - UAB - (ANG) pendent  
 Academic year: 2018  
 Degree: MASTER'S DEGREE IN AEROSPACE SCIENCE AND TECHNOLOGY (Syllabus 2015). (Teaching unit Optional)  
 MASTER'S DEGREE IN AEROSPACE SCIENCE AND TECHNOLOGY (Syllabus 2009). (Teaching unit Optional)  
 ECTS credits: 5 Teaching languages: English

### Teaching staff

Coordinator: Defined in the course webpage at the EETAC website

### Opening hours

Timetable: At the end of the regular lectures days, or by fixing a date by e-mail

### Prior skills

The students should have a general knowledge on chemistry, physics and biology, at a basic level.

### Requirements

None

### Teaching methodology

A series of lectures will present the different existing technologies for Life Support in Space.  
 The material presented in the lectures will be available as a course material  
 The students will prepare a specific topic, to be presented to the rest of the class, in groups of two students

### Learning objectives of the subject

To understand the relevance and singularity of Life Support in the context of Human Space Exploration  
 To know the different technologies in development for Life Support in Space and how they are tested.  
 To know what are the main elements to consider when designing a Life Support System;

### Study load

Total learning time: 125h	Hours large group:	45h	36.00%
	Hours medium group:	0h	0.00%
	Hours small group:	0h	0.00%
	Guided activities:	0h	0.00%
	Self study:	80h	64.00%

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### Content

<p>Introduction</p>	<p>Learning time: 14h 20m Theory classes: 6h Self study : 8h 20m</p>
<p>Description: Introduction</p> <p>Related activities: Lectures</p> <p>Specific objectives: Introduction to Life Support Systems. Needs. Exploration Escenarios</p>	
<p>Physico-chemical technologies for Life Support Systems</p>	<p>Learning time: 32h Theory classes: 12h Self study : 20h</p>
<p>Description: Physico-chemical technologies for Life Support Systems</p> <p>Related activities: Lectures</p> <p>Specific objectives: To present the principles of the main Physico-chemical technologies for Life Support Systems and their integration. An special emphasys is given to the the systems developed for ISS and their operational data</p>	
<p>Biological technologies for Life Support Systems</p>	<p>Learning time: 32h Theory classes: 12h Self study : 20h</p>
<p>Description: Biological technologies for Life Support Systems</p> <p>Related activities: Lectures Visit to the MELiSSA Pilot Plant</p> <p>Specific objectives: To introduce the principles and characteristics of life support systems based on biological technologies and their development stage An special emphasys is given to the MELiSSA project of the European Space Agency</p>	

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Project Development	Learning time: 46h 40m Theory classes: 4h Guided activities: 12h 40m Self study : 30h
<p>Description: Preparation and presentation of a personal project</p> <p>Related activities: Personal work and oral presentation</p> <p>Specific objectives: Preparing and presenting a personal project by groups of two students in any of the topics of the Course creating particular interest to them and on which they want to deep in their knowledge Presenting the performed project to the rest of students</p>	

### Qualification system

Defined in the course webpage at the EETAC website

### Bibliography