



## Course guides

# 19394 - LSSS - Life-Support Systems in Space

**Last modified:** 27/05/2019

**Unit in charge:** Castelldefels School of Telecommunications and Aerospace Engineering  
**Teaching unit:** 1022 - UAB - (ANG) pendent.

**Degree:** MASTER'S DEGREE IN AEROSPACE SCIENCE AND TECHNOLOGY (Syllabus 2015). (Optional subject).

**Academic year:** 2019    **ECTS Credits:** 5.0    **Languages:** English

### LECTURER

**Coordinating lecturer:** Defined in the course webpage at the EETAC website

**Others:**

### 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

Type	Hours	Percentage
Self study	80,0	64.00
Hours large group	45,0	36.00

**Total learning time:** 125 h



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### Introduction

**Description:**

Introduction

**Specific objectives:**

Introduction to Life Support Systems. Needs. Exploration Escenarios

**Related activities:**

Lectures

**Full-or-part-time:** 14 h

Theory classes: 6h

Self study : 8h 20m

### Physico-chemical technologies for Life Support Systems

**Description:**

Physico-chemical technologies for Life Support Systems

**Specific objectives:**

To present the principles of the main Physico-chemical technologies for Life Support Systems and their integration. An special emphasis is given to the the systems developed for ISS and their operational data

**Related activities:**

Lectures

**Full-or-part-time:** 32 h

Theory classes: 12h

Self study : 20h

### Biological technologies for Life Support Systems

**Description:**

Biological technologies for Life Support Systems

**Specific objectives:**

To introduce the principles and characteristics of life support systems based on biological technologies and their development stage

An special emphasis is given to the MELiSSA project of the European Space Agency

**Related activities:**

Lectures

Visit to the MELiSSA Pilot Plant

**Full-or-part-time:** 32 h

Theory classes: 12h

Self study : 20h



### Project Development

**Description:**

Preparation and presentation of a personal project

**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

**Related activities:**

Personal work and oral presentation

**Full-or-part-time:** 46 h

Theory classes: 4h

Guided activities: 12h 40m

Self study : 30h

### GRADING SYSTEM

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Defined in the course webpage at the EETAC website