Course guides
230686 - EC - Earth and Cosmos

Unit in charge: Barcelona School of Telecommunications Engineering
Teaching unit: 739 - TSC - Department of Signal Theory and Communications.
Degree: MASTER'S DEGREE IN TELECOMMUNICATIONS ENGINEERING (Syllabus 2013). (Optional subject).
DEGREE IN ELECTRONIC ENGINEERING (Syllabus 1992). (Optional subject).
DEGREE IN TELECOMMUNICATIONS ENGINEERING (Syllabus 1992). (Optional subject).
MASTER'S DEGREE IN ELECTRONIC ENGINEERING (Syllabus 2013). (Optional subject).

Academic year: 2017 ECTS Credits: 5.0 Languages: English

LECTURER
Coordinating lecturer: Garcia Mateos, Jorge
Others: Garcia Mateos, Jorge

PRIOR SKILLS
English, from intermediate level onwards. Physics and Mathematics, at the level of a Bachelor’s degree in Science or Engineering

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

Nowadays, many engineers (in telecommunications, electronics, mechanics, etc.) often participate in research projects related to outer space. For example, satellite communications, studies of the Earth’s surface and interior using orbiting devices, interplanetary research, development of new technologies to explore the Universe at different wavelengths of the electromagnetic spectrum, etc. However, it is quite normal that the curricula, do not have room for subjects such as Geophysics, Astronomy or Astrophysics. Therefore, the main aim of this course is to fill up some of these gaps, which possess, by themselves, an intrinsic interest. Throughout this course attention will also be given to the technological developments that are contributing to rapid advances in these sciences.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self study</td>
<td>86,0</td>
<td>68.80</td>
</tr>
<tr>
<td>Hours large group</td>
<td>39,0</td>
<td>31.20</td>
</tr>
</tbody>
</table>

Total learning time: 125 h

CONTENTS

(ENG) CHAPTER 1 INTRODUCTION

Full-or-part-time: 1h
Theory classes: 1h
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Full-or-part-time:</th>
<th>Theory classes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>From the Origin to the End of the Universe</td>
<td>5h</td>
<td>5h</td>
</tr>
<tr>
<td>The Origin of Modern Astronomy</td>
<td>3h</td>
<td>3h</td>
</tr>
<tr>
<td>Looking at the Universe in All Wavelengths</td>
<td>3h</td>
<td>3h</td>
</tr>
<tr>
<td>Coordinate Systems and Time Measure</td>
<td>3h</td>
<td>3h</td>
</tr>
<tr>
<td>The Solar System</td>
<td>3h</td>
<td>3h</td>
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<tr>
<td>The Earth and Its Moon</td>
<td>3h</td>
<td>3h</td>
</tr>
<tr>
<td>The Other Solar Planets</td>
<td>3h</td>
<td>3h</td>
</tr>
<tr>
<td>Our Star: The Sun</td>
<td>3h</td>
<td>3h</td>
</tr>
<tr>
<td>Stars: Distant Suns</td>
<td>3h</td>
<td>3h</td>
</tr>
</tbody>
</table>
(ENG) CHAPTER 11. HOW THE STARS SHINE

Full-or-part-time: 3h
Theory classes: 3h

(ENG) CHAPTER 12. THE DEATH OF STARS: STELLAR RECYCLING

Full-or-part-time: 3h
Theory classes: 3h

(ENG) CHAPTER 13. BLACK HOLES: THE END OF SPACE AND TIME

Full-or-part-time: 3h
Theory classes: 3h

(ENG) CHAPTER 14. THE MILKY WAY: OUR HOME IN THE UNIVERSE

Full-or-part-time: 3h
Theory classes: 3h

(ENG) CHAPTER 15. A UNIVERSE OF GALAXIES

Full-or-part-time: 3h
Theory classes: 3h

GRADING SYSTEM

Exam 1: 50%
Exam 2: 50%

BIBLIOGRAPHY

Basic: