Course guide
230686 - EC - Earth and Cosmos

Last modified: 14/06/2017

Unit in charge: Barcelona School of Telecommunications Engineering
Teaching unit: 739 - TSC - Department of Signal Theory and Communications.

Degree: **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. Physices 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

Type	Hours	Percentage
Hours large group	39,0	31.20
Self study	86,0	68.80

Total learning time: 125 h

CONTENTS

(ENG) CHAPTER 1 INTRODUCTION

Full-or-part-time: 1h
Theory classes: 1h

(ENG) CHAPTER 2. FROM THE ORIGIN TO THE END OF THE UNIVERSE

Full-or-part-time: 5h
Theory classes: 5h

(ENG) CHAPTER 3. THE ORIGIN OF MODERN ASTRONOMY

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

(ENG) CHAPTER 4. LOOKING AT THE UNIVERSE IN ALL WAVELENGTHS

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

(ENG) CHAPTER 5. COORDINATE SYSTEMS AND TIME MEASURE

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

(ENG) CHAPTER 6. THE SOLAR SYSTEM

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

(ENG) CHAPTER 7. THE EARTH AND ITS MOON

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

(ENG) CHAPTER 8. THE OTHER SOLAR PLANETS

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

(ENG) CHAPTER 9. OUR STAR: THE SUN

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

(ENG) CHAPTER 10. STARS: DISTANT SUNS

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

(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

Exam1: 50%
Exam 2: 50%

BIBLIOGRAPHY

Basic:

- Lowrie, W. Fundamentals of geophysics. 2nd ed. Cambridge [etc.]: Cambridge University Press, 2007. ISBN 9780521675963.
- Hester, J. [et al.]. 21st century astronomy. 3rd ed. New York ; London: Norton, 2010. ISBN 9780393931983.
- Waller, W.H.; Hodge, P.W. Galaxies and the cosmic frontier. Cambridge ; London: Harvard University Press, 2003. ISBN 0674010795.
- Zeilik, M.; Gregory, S.A. Introductory astronomy & astrophysics. 4th ed. Fort Worth: Saunders College, 1998. ISBN 0030062284.