

## 230686 - EC - Earth and Cosmos

Coordinating unit: 230 - ETSETB - Barcelona School of Telecommunications Engineering  
 Teaching unit: 739 - TSC - Department of Signal Theory and Communications  
 Academic year: 2017  
 Degree: DEGREE IN ELECTRONIC ENGINEERING (Syllabus 1992). (Teaching unit Optional)  
 DEGREE IN TELECOMMUNICATIONS ENGINEERING (Syllabus 1992). (Teaching unit Optional)  
 MASTER'S DEGREE IN TELECOMMUNICATIONS ENGINEERING (Syllabus 2013). (Teaching unit Optional)  
 MASTER'S DEGREE IN ELECTRONIC ENGINEERING (Syllabus 2013). (Teaching unit Optional)  
 ECTS credits: 5 Teaching languages: English

### Teaching staff

Coordinator: 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

### 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

Total learning time: 125h	Hours large group:	39h	31.20%
	Self study:	86h	68.80%

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### Content

(ENG) CHAPTER 1 INTRODUCTION	Learning time: 1h Theory classes: 1h
(ENG) CHAPTER 2. FROM THE ORIGIN TO THE END OF THE UNIVERSE	Learning time: 5h Theory classes: 5h
(ENG) CHAPTER 3. THE ORIGIN OF MODERN ASTRONOMY	Learning time: 3h Theory classes: 3h
(ENG) CHAPTER 4. LOOKING AT THE UNIVERSE IN ALL WAVELENGTHS	Learning time: 3h Theory classes: 3h
(ENG) CHAPTER 5. COORDINATE SYSTEMS AND TIME MEASURE	Learning time: 3h Theory classes: 3h
(ENG) CHAPTER 6. THE SOLAR SYSTEM	Learning time: 3h Theory classes: 3h
(ENG) CHAPTER 7. THE EARTH AND ITS MOON	Learning time: 3h Theory classes: 3h
(ENG) CHAPTER 8. THE OTHER SOLAR PLANETS	Learning time: 3h Theory classes: 3h

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(ENG) CHAPTER 9. OUR STAR: THE SUN	Learning time: 3h Theory classes: 3h
(ENG) CHAPTER 10. STARS: DISTANT SUNS	Learning time: 3h Theory classes: 3h
(ENG) CHAPTER 11. HOW THE STARS SHINE	Learning time: 3h Theory classes: 3h
(ENG) CHAPTER 12. THE DEATH OF STARS: STELLAR RECYCLING	Learning time: 3h Theory classes: 3h
(ENG) CHAPTER 13. BLACK HOLES: THE END OF SPACE AND TIME	Learning time: 3h Theory classes: 3h
(ENG) CHAPTER 14. THE MILKY WAY: OUR HOME IN THE UNIVERSE	Learning time: 3h Theory classes: 3h
(ENG) CHAPTER 15. A UNIVERSE OF GALAXIES	Learning time: 3h Theory classes: 3h

### Qualification system

Exam1: 50%  
Exam 2: 50%

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### 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.

#### Others resources: