

## 230804 - AIR - Astronomy & Radioastronomy

Coordinating unit:	230 - ETSETB - Barcelona School of Telecommunications Engineering
Teaching unit:	748 - FIS - Department of Physics
Academic year:	2019
Degree:	BACHELOR'S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN ELECTRONIC SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING (Syllabus 2010). (Teaching unit Optional) BACHELOR'S DEGREE IN NETWORK ENGINEERING (Syllabus 2010). (Teaching unit Optional) BACHELOR'S DEGREE IN TELECOMMUNICATIONS SCIENCE AND TECHNOLOGY (Syllabus 2010). (Teaching unit Optional) BACHELOR'S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Teaching unit Optional)
ECTS credits:	6
Teaching languages:	English

### Teaching staff

Coordinator:	Garcia-Berro Montilla, Enrique
Others:	Garcia-Berro Montilla, Enrique Torres Gil, Santiago

### Prior skills

Basic Mathematics and Physics

### Requirements

None

### Learning objectives of the subject

- To provide an introduction to astronomy and astrophysics.
- To apply the basic concepts of physics to studying the universe.
- To provide an introduction to a general knowledge of astronomy and space science.
- Basic contents of the course are: Observational and computational techniques in astronomy.

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### Study load

Total learning time: 150h	Hours large group:	52h	34.67%
	Self study:	98h	65.33%

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### Content

#### 1. Spherical astronomy

Degree competences to which the content contributes:

#### 2. Observational techniques: optical and radioastronomy

Degree competences to which the content contributes:

#### 3. Celestial mechanics

Degree competences to which the content contributes:

#### 4. Observational properties of stars

Degree competences to which the content contributes:

#### 5. Stellar evolution

Degree competences to which the content contributes:

#### 6. Binary systems

Degree competences to which the content contributes:

#### 7. The Milky Way

Degree competences to which the content contributes:

#### 8. Galaxies

Degree competences to which the content contributes:

#### 9. Origin and evolution of the Universe: the Big Bang

Degree competences to which the content contributes:

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### Qualification system

- Final examination 80%
- Practical applications 20%

### Bibliography

#### Basic:

Karttunen, H. [et al.]. *Fundamental astronomy*. 5th ed. Berlin [etc.]: Springer, 2007. ISBN 978-3540341437.

Comins, N.F.; Kaufmann, W.J. *Discovering the universe*. 8th ed. New York, NY: W. H. Freeman and Co, 2008. ISBN 9781429205191.

Pasachoff, J.M. *Astronomy: from the earth to the universe*. 6th ed. Australia [etc.]: Brooks/Cole, 2002. ISBN 0030334888.

Galadí Enríquez, D.; Gutiérrez Cabello, J. *Astronomía general: teoría y práctica*. Barcelona: Omega, 2001. ISBN 842821168X.

#### Complementary:

Carroll, B.W.; Ostlie, D.A. *An introduction to modern astrophysics*. 2nd ed. San Francisco: Pearson Addison-Wesley, 2007. ISBN 0805304029.

#### Others resources: