

Course guide

220307 - 220307 - Radio Frequency and Communication Systems

Last modified: 29/07/2025

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 710 - EEL - Department of Electronic Engineering.

Degree: MASTER'S DEGREE IN AERONAUTICAL ENGINEERING (Syllabus 2014). (Compulsory subject).

Academic year: 2025 **ECTS Credits:** 5.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: Ignacio Gil

Others:

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

CE21. MUEA/MASE: Sufficient knowledge of avionics, onboard software and simulation and control techniques used in air navigation.

CE22. MUEA/MASE: Sufficient knowledge of wave propagation and problems involving ground station links.

CE23. MUEA/MASE: The ability to design radar systems and air navigation aids.

CE24. MUEA/MASE: Sufficient knowledge of aeronautical information and communication technologies.

CG06-MUEA. (ENG) Capacitat per a l'anàlisi i la resolució de problemes aeroespacials en entorns nous o desconeguts, dins de contextos amplis i complexos.

CG07-MUEA. (ENG) Competència per a planificar, projectar, gestionar i certificar els procediments, infraestructures i sistemes que suporten l'activitat aeroespacial, incloent els sistemes de navegació aèria.

CG08-MUEA. (ENG) Competència per al projecte de construccions i instal·lacions aeronàutiques i espacials, que requereixin un projecte integrat de conjunt, per la diversitat de les seves tecnologies, la seva complexitat o pels amplis coneixements tècnics necessaris.

CG09-MUEA. Competence in all areas related to airport, aeronautical, or space technologies that, by their nature, are not exclusive to other branches of engineering.

CG10-MUEA. (ENG) Coneixement, comprensió i capacitat per aplicar la legislació necessària en l'exercici de la professió d'Enginyer Aeronàutic.

Basic:

CB06. Manage original concepts in research projects.

CB07. Student capacity to use their knowledge in new and multidisciplinary situations.

CB10. Improve self-learning capacity

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT



STUDY LOAD

Type	Hours	Percentage
Self study	80,0	64.00
Hours large group	30,0	24.00
Hours small group	15,0	12.00

Total learning time: 125 h

CONTENTS

title english

Description:

content english

Full-or-part-time: 15h

Theory classes: 4h

Laboratory classes: 2h

Self study : 9h

title english

Description:

content english

Full-or-part-time: 43h

Theory classes: 10h

Laboratory classes: 5h

Self study : 28h

title english

Description:

content english

Full-or-part-time: 43h

Theory classes: 10h

Laboratory classes: 5h

Self study : 28h

title english

Description:

content english

Full-or-part-time: 24h

Theory classes: 6h

Laboratory classes: 3h

Self study : 15h

ACTIVITIES

name english

Full-or-part-time: 50h

Theory classes: 20h

Self study: 30h

name english

Full-or-part-time: 35h

Theory classes: 10h

Self study: 25h

name english

Full-or-part-time: 40h

Laboratory classes: 15h

Self study: 25h

GRADING SYSTEM

BIBLIOGRAPHY

Basic:

- Martínez Rueda, J. Sistemas eléctricos y electrónicos de las aeronaves. Madrid: Thomson Paraninfo, cop. 2007. ISBN 8428329281.
- Tooley, M.; Wyatt, D. Aircraft communications and navigation systems: principles, maintenance and operation [on line]. New York: Routledge, 2011 [Consultation: 14/07/2025]. Available on: <https://doi-org.recursos.biblioteca.upc.edu/10.4324/9780080941523>. ISBN 9781136079023.
- Eismín, Thomas K. Aircraft electricity and electronics. 6th ed. New York: Mc Graw-Hill, 2014. ISBN 9780071799157.
- Pozar, David M. Microwave engineering [on line]. 4th ed. Hoboken: John Wiley & Sons, 2012 [Consultation: 07/10/2022]. Available on: <https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=2064708>. ISBN 9780470631553.
- Mendizabal, J.; Berenguer, R.; Meléndez, J. GPS and Galileo: dual RF front-end receiver design, fabrication, and test. Nova York: McGraw-Hill, 2009. ISBN 9780071598699.

Complementary:

- Tomasi, W.; Mata Hernández, G. Sistemas de comunicaciones electrónicas [on line]. 4ª ed. México [etc.]: Pearson Educación, 2003 [Consultation: 03/05/2022]. Available on: https://www-ingebook-com.recursos.biblioteca.upc.edu/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=3801. ISBN 9702603161.
- Davies, Mark. The standard handbook for aeronautical and astronautical engineers. New York: McGraw-Hill, cop. 2003. ISBN 0071362290.
- Skolnik, Merrill I. Introduction to radar systems. 3rd. ed. Boston (Mass.) [etc.]: McGraw-Hill, cop. 2001. ISBN 007118189X.