

Program	09TT- Engineering in Telecommunication Technologies and Services
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Course number and name	
Number	95000041
Name	Radiocommunications Radiocomunicaciones
Semester	Y4-S7

Credits and contact hours	
ECTS Credits	6
Contact hours	60

Coordinator's name	José Manuel Riera Salís
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Specific course information		
Description of course content		
The student is expected to learn a general understanding of the different terrestrial and satellite radiocommunication systems: principles, applications, design parameters and quality specifications, as well as the practical knowledge needed to develop projects and to study their feasibility.		
List of topics to be covered		
1. Introduction: Radiocommunication services and systems. 2. Radio Links Fundamentals. 3. Radio Propagation. 4. Terrestrial Fixed Links. 5 Wireless systems . Wi-Fi and WiMAX. 6. Satellite Communications. 7 Radio Broadcasting Systems.		
Prerequisites or co-requisites		
The following courses should have been completed previously: "Random Signals", "Communications Theory" and "Radiation and Wave Propagation"		
Course category in the program		
<input type="checkbox"/> R (required)	<input type="checkbox"/> E (elective)	<input checked="" type="checkbox"/> SE (selective elective)

Specific goals for the course
Specific outcomes of instruction
<p>RA1: To understand the fundamentals of radiocommunications systems, the places where they are deployed within telecommunications networks, the services provided by them and the national and international regulations.</p> <p>RA2: To understand the basic concepts about the different elements or radio links: Antennas, power budget, noise, interference and the orders of magnitude of the main technical parameters.</p> <p>RA3: To learn the different effects that influence radiowave propagation, ant to be able to quantify their effects, as well as their influence on radio system design and operation.</p> <p>RA4: To be able to evaluate radio system performance in terms of quality and coverage, and to relate them to the quality and availability objectives of the services provided by these systems.</p> <p>RA5: Design of radiocommunications systems using the previously studied concepts for link characterization, propagation and regulations.</p> <p>RA6: To know the main technical standards and technologies used in the fixed service, broadcasting systems and wireless access networks.</p> <p>RA7: To learn the general operation of radio planning tools, being able to work proficiently with a commercial one.</p>
Student outcomes addressed by the course
CE-ST 1, CE-ST 2, CE-ST 4, CE-ST 5

Bibliography and supplemental materials
<p>J.M. Hernando, J.M. Riera, L. Mendo, “Transmisión por radio”, Ed. Ramón Areces, 7^a Ed., 2013.</p> <p>ITU-R Recommendations, available at http://www.itu.int</p> <p>Andreas F. Molisch, “Wireless Communications”, Editorial John Wiley & Sons, 2006.</p> <p>Louis J. Ippolito, "Satellite Communications Systems Engineering", Editorial John Wiley & Sons, 2008.</p>

Teaching methodology			
<input checked="" type="checkbox"/> lectures	<input checked="" type="checkbox"/> problem solving sessions	<input checked="" type="checkbox"/> collaborative actions	<input checked="" type="checkbox"/> laboratory sessions
Other:	Project developed by groups of 6 students.		