

<b>Program</b>	<b>09TT- Engineering in Telecommunication Technologies and Services</b>
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<b>Course number and name</b>	
<b>Number</b>	95000046
<b>Name</b>	Telecommunication Systems Sistemas de Telecomunicación
<b>Semester</b>	Y4 – S7

<b>Credits and contact hours</b>	
<b>ECTS Credits</b>	6
<b>Contact hours</b>	60

<b>Coordinator's name</b>	Federico Alvarez
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<b>Specific course information</b>	
<b>Description of course content</b>	
<p>The objective is the subject is to offer the student the necessary knowledge to develop complete communication systems, from the design to the implementation and deployment involving technical and economical dimensions.</p> <p>In the subject, different communication systems will be explained in deep detail, especially those currently used by the telecommunication operators but the mobile systems, which are covered in other subjects.</p>	
<b>List of topics to be covered</b>	
<p>1. Telecommunication systems services 2. xDSL 3. FTTH / GPON 4. HFC (Hybrid Fiber Networks) 5. Cable networks information delivery 6. Satellite systems 7. Building communications</p>	
<b>Prerequisites or co-requisites</b>	
None	
<b>Course category in the program</b>	
<input type="checkbox"/> R (required)	<input type="checkbox"/> E (elective) <input checked="" type="checkbox"/> SE (selective elective)

<b>Specific goals for the course</b>	
<b>Specific outcomes of instruction</b>	
<p>RA1: Knowledge on the digital signal processing for analysing, coding, processing and transmitting multimedia information</p> <p>RA2: Knowledge on the selection of the equipment and transmission systems, wave</p>	

propagation (guided and non-guided), with electromagnetic means, radio frequency or optical.

RA3: Knowledge on the backbone, metropolitan, and access networks and the technologies involved.

RA4: Acquire the capabilities to carry out a complete communication systems Project involving market study, economical viability, network dimensioning, network design and the different phases.

RA5: Capabilities for developing telecommunication projects in teams and presenting the outcomes in public.

**Student outcomes addressed by the course**

CE-ST1, CE-ST2, CE-ST3  
 CG4, CG7, CG8, CG10, CG11

**Bibliography and supplemental materials**

R. Steinmetz and K.Narhsted, "Multimedia Systems: Computing, Communications and Applications", Prentice Hall.  
 J.Nielsen, "Hypertext and Hypermedia", Academic Press.  
 M.Schwartz, "Telecommunication Networks", Addison Wesley.  
 W.Stallings, "Data and Computer Communications", McMillan Pub.  
 R.L.Freeman, "Telecommunication Systems Engineering", Wiley Inters.  
 J.M.Hernando, "Sistemas de Telecomunicación por línea, Vol.1", ETSIT.  
 J.M.Hernando, "Transmisión por Radio", Ed. Ramón Areces.  
 UIT Recommendations

**Teaching methodology**

<input checked="" type="checkbox"/> lectures	<input checked="" type="checkbox"/> problem solving sessions	<input checked="" type="checkbox"/> collaborative actions	<input type="checkbox"/> laboratory sessions
<b>Other:</b> Project Based Learning			