

Program	09TT- Engineering in Telecommunication Technologies and Services
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Course number and name	
Number	95000056
Name	Network Dimensioning & Operation Dimensionado y operación de redes
Semester	Y4-S8

Credits and contact hours	
ECTS Credits	6
Contact hours	64

Coordinator's name	Andrés González Lanceros
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Specific course information

Description of course content

The course aims to show the planning and development of a Triple-Play (Voice + Internet + TV) telecom operator.
 Along the course the students will know which are the key factors (market, service offering, network technologies and regulation) in the design of a telecom operator. In parallel to the lectures, the students in work groups (of 4/5 students) will apply the concepts learnt to design their own operator in a specific assigned region. They will develop three studies (Market Study, Service Offering/Commercial Plan and Network Design) to estimate the investments, revenue and associated costs to elaborate a Business Plan that allow us to know the profitability (NAV, IIR) of the operator.

List of topics to be covered

1. Markets & Regulation
 - 1.1. Spanish Telecom Services Market
 - 1.2. Spanish Digital Contents Market
 - 1.3. European and Spanish Regulation on Next Generation Networks (NGN)
2. Services Offering
 - 2.1. Triple-Play Offering
 - 2.2. Triple Play Offering in Spanish Telco Operators
 - 2.3. Design of a Telecom Service
3. Multiservice Networks
 - 3.1. General Architecture of a Multiservice Network
 - 3.2. ADSL & FTTH Access Networks
 - 3.3. Metropolitan Ethernet Network
 - 3.4. IP network
 - 3.5. IP Telephony Networks
 - 3.6. Services Platforms (IPTV, VoD and VoIP)
4. Planning and Business Plan

4.1. Planning a Triple Play Operator		
4.2. Business Plan Analysis		
Prerequisites or co-requisites		
There are no prerequisites for this course. Previous recommended courses: Telecommunication Networks and Services; and Computer Networks		
Course category in the program		
<input type="checkbox"/> R (required)	<input checked="" type="checkbox"/> E (elective)	<input type="checkbox"/> SE (selective elective)

Specific goals for the course
Specific outcomes of instruction
RA388: to know the evolution of the markets for telecommunications services and digital contents and the Spanish & EU regulations for next generation networks (NGN). RA389: to know the offering of triple-play services (Telephony + Internet + TV) that can be offered on top of the next generation networks (NGN) RA390: to understand the general principles, architecture and components of a NGN RA391: to understand the technology, architecture and components of ADSL/FFTH access networks RA392: to understand the technology, architecture and components of metropolitan Ethernet networks RA393: to understand the technology, architecture and components of IP networks RA394: to understand the technology, architecture and components of IP telephony RA395: to understand the technology, architecture and components of IP service platforms (IPTV, VoD, VoIP) RA396: to understand the planning process of a triple-play operator
Student outcomes addressed by the course
CG1, CG2, CG3, CG4, CG5, CG6, CG7, CG8, CG9, CG10, CG11, CG12, CE-TL1, CE-TL2, CE-TL3, CE-TL4, CE-TL5, CE-TL6

Bibliography and supplemental materials
-Annual Report of CNMC about the Spanish Telecommunication Services Market -Annual Report of ONTSI about the Spanish Digital Content Services Market -European Directives and Spanish Regulation on NGN and Telecom Services -Web of the Spanish Telecom Operators -Course notes available in the moodle of the Telematics Engineering Department (DIT)

Teaching methodology			
<input checked="" type="checkbox"/> lectures	<input checked="" type="checkbox"/> problem solving sessions	<input type="checkbox"/> collaborative actions	<input type="checkbox"/> laboratory sessions

Other: Work groups (of 4/5 students) to design their own operator in a specific assigned region.