



1. **Code:** 35481 **Name:** Software Defined Networks

2. **Credits:** 6,00 **–Lecture:** 3,00 **–Practice:** 3,00 **Type of Course:** Compulsory

Degree: 2314-Master's Degree in Telecommunication Engineering

Module: 1-Telecommunication Technologies Module **Subject:** 2-Telematics

University Center: SCHOOL OF TELECOMMUNICATIONS ENGINEERING

3. **Coordinator:** Romero Martínez, José Oscar

Departament: COMMUNICATIONS

4. References

5. Course Outline

Course objectives

This course will provide the necessary contents for the student to acquire the following skills:

- Ability to model, design, implement, manage, operate, administer and maintain networks, services and content.
- Ability to carry out the planning, decision making and development of networks, considering the quality of service, direct and operating costs, the implementation plan, supervision, security procedures, scaling and maintenance, as well how to manage and ensure quality in the development process.
- Ability to manage innovative network implementation projects and services with IPv6 and Software Defined Networks.
- Ability to apply international standards in the implementation of networks and services.

Contextualization of the course

The subject is part of the networking content of the Master's Degree in Telecommunication Engineering and contributes substantially to the acquisition of knowledge for the design and implementation of modern networks, including IPv6, Software Defined Networks, quality of service and security.

6. Recommended Prior Knowledge

Basic networking knowledge is recommended.

7. Results

Fundamental results

G12(GE) Capacity for continued learning, teaching oneself and independent learning.

T09(ES) The ability to solve convergence, interoperability and design of heterogeneous networks with local networks, access and bandwidth such as the integration of telephone, data, television and interactive services.

T08(ES) The ability to understand and know how to apply the operation and organisation of the internet, the latest-generation internet technology and protocols, component models, intermediary software and services.

T07(ES) The ability to carry out planning, decision-making, and packaging of network, services and applications while considering service quality, direct and operational costs, plans for implementation, supervision, security processes, scaling and maintenance, as well as managing and ensuring quality in the development process.

UPV-Generic Student Outcomes

(3) Teamwork and leadership

- Activities carried out to achieve the student outcome
Group project to design a network proposal in the laboratory that must meet a set of requirements.
- Assessment criteria
Evaluation of the implemented design, taking into account that it meets the objectives and that the design is optimized.

Specific Learning Outcomes

RA3.1 - Functioning effectively in a team whose members jointly provide leadership and create a collaborative and inclusive environment in the organisation and coordination of work.

(4) Effective communication

- Activities carried out to achieve the student outcome
Completion of a project on a current topic related to modern networking.
- Assessment criteria
Presentation, content, and analysis of the work.

Specific Learning Outcomes





7. Results

UPV-Generic Student Outcomes

RA4.4 - Demonstrating proficiency in digital communication using a variety of support media adapted to the situation and audience.

8. Syllabus

1. Networking
2. IPv6 Networks
3. Software Defined Networks
4. MPLS and VPN
5. Laboratory
 1. Lab 1: Basic Network Configuration (2h)
 2. Lab 2: IPv6 Network Interconnection (5h)
 3. Lab 3: Network Security (3h)
 4. Lab 4: SDN (4h)
 5. Lab 5: QoS in MPLS (4h)

9. Teaching and Learning Methodologies

<u>UN</u>	<u>LE</u>	<u>SE</u>	<u>PS</u>	<u>LS</u>	<u>FW</u>	<u>CP</u>	<u>AA</u>	<u>CH</u>	<u>NCH</u>	<u>TOTAL HOURS</u>
1	4,00	--	2,00	0,00	--	--	--	6,00	10,00	16,00
2	8,00	--	3,00	0,00	--	--	0,00	11,00	20,00	31,00
3	8,00	--	3,00	0,00	--	--	0,00	11,00	40,00	51,00
4	10,00	--	4,00	0,00	--	--	--	14,00	20,00	34,00
5	0,00	--	0,00	18,00	--	--	--	18,00	10,00	28,00
TOTAL HOURS	30,00	--	12,00	18,00	--	--	0,00	60,00	100,00	160,00

UN: Unit. LE: Lecture. SE: Seminar. PS: Practical session. LS: Lab sessions. FW: Field work. CP: Computer-mediated practice. AA: Assessment activities. CH: Contact hours. NCH: Non contact hours.

10. Assessment

Outline

- (05) Academic work
(15) Practical laboratory/field/computing/classroom test
(14) Written test

<u>Num. Acts</u>	<u>Weight (%)</u>
1	25
1	25
2	50

Two theory exams (50%).

One laboratory exam (25%).

Academic work (25%).

Part of the exams will be multiple choice.

There is not alternative assessment system for students with attendance waiver. Students with attendance waiver will take the same exam than students attending class. There is a retake exam for students who failed the course.

11. Absence threshold

<u>Activity</u>	<u>Percentage</u>	<u>Observations</u>
Lecture Theory	20	
Seminar Theory	0	
Lecture Practice	0	
Laboratory Practical	20	
Computer Practice	20	
Field Practice	0	

