VNIVERSITAT ⓃDVALÈNCIA

COURSE DATA

Data Subject

Code	34902
Name	Advanced networks I
Cycle	Grade
ECTS Credits	6.0
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
1400 - Degree in Computer Engineering	School of Engineering	4	First term
1403 - Degree in Telematics Engineering	School of Engineering	4	First term

Subject-matter

Degree	Subject-matter	Character
1400 - Degree in Computer Engineering	16 - Optional subject	Optional
1403 - Degree in Telematics Engineering	19 - Optional subjects	Optional

Coordination

Name	Department
FELICI CASTELL, SANTIAGO	240 - Computer Science

SUMMARY

The subject of Advanced Networks 1 is framed within a subject group of networks, particularly in the degree of optionality.

The main objective of the course is to prepare students for high-demand certifications professional officers in the field of telecommunications. The certification opens the door to a strategic sector such as Internet in the corporate and business world. The course content covers four blocks both theoretical and practical: routing, switching, WAN connections and other complementary technologies such as wireless, VOIP and troubleshooting techniques.

The course has been designed following a methodology adapted to the new European Higher Education Area (EHEA), and intends to focus on student learning. This method improves student engagement and evaluation helps continuously, reinforcing and complementing the knowledge acquired in lectures.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

Having passed the skills of Fundamentals of Computer Networks and Computer Networks Architecture.

OUTCOMES

LEARNING OUTCOMES

The Student Must Acquire The Following Skills:

Ability To Perform The Planning, Design, Implementation, Maintenance And Troubleshooting Network Lan And Wan.

Ability To Prepare Federal Form Settings Network Equipment, Both Routers Switches As With The Ability To Detect The Wrong Settings And To Be Managed.
Ability To Overcome The Theory Test / Practice Of Official Certificates Granted By Leading Manufacturers Equipment Data Networks.

DESCRIPTION OF CONTENTS

1. ADVANCED NETWORKS 1

INTRODUCCUION
INTERNAL ARCHITECTURE NETWORK EQUIPMENT: ROUTERS AND SWITCHES.
BASIC CONFIGURATION MANAGEMENT AND NETWORK EQUIPMENT. REMOTE MANAGEMENT AND COMMAND LINE. OPERATING SYSTEMS MANAGEMENT OF THESE TEAMS.
CONFIGURING ROUTING PROTOCOLS: RIP (v1 and v2), EIGRP and OSPF (WITH 1 AREA OR WITH SEVERAL AREAS).
SET OF SWITCHES: CREATING VLANS, VTP (VLAN Trunking Protocol), STP and RSTP
SET POINT TO POINT CONNECTIONS (WAN TECHNOLOGIES): PPP, FRAME RELAY
BASIC SETUP OF WIRELESS NETWORKS, CENTRALIZED AND DISTRIBUTED VERSION.
NETWORK PLANNING SERVICES VOICE (VOIP)
TROUBLESHOOTING TECHNIQUES.

	Face	No face
Theory	30	45
Problems	10	15

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WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	30,00	100
Laboratory practices	20,00	100
Classroom practices	10,00	100
Development of individual work	15,00	0
Study and independent work	15,00	0
Readings supplementary material	15,00	0
Preparation of evaluation activities	15,00	0
Preparing lectures	15,00	0
Preparation of practical classes and problem	15,00	0
TOTAL	**150,00**	

TEACHING METHODOLOGY

The training activities are conducted in accordance with the following distribution:

40% of the hours of ECTS credits (1 credit is 25 hours) will go to the following sessions:

- Activities theory.

Description: The lectures will develop the issues by providing a global and inclusive vision, analyzing in detail the key issues and more complex, encouraging at all times, participation / student.

- Practical activities.

Description: Complementing theoretical activities in order to apply the basics and expand the knowledge and experience to be acquired in the course of the work proposed. They include the following types of classroom activities: Classes of problems and issues in classroom discussion sessions and problem-solving exercises and previously worked by students laboratory practice oral presentations, conferences, tutorials scheduled (individualized or group)

- Evaluation.

Description: Implementation of individual evaluation questionnaires in the classroom with the presence of teachers.

60% of the hours of ECTS (25 hours per ECTS) will be devoted to the following non-contact activities:

- Working staff / student.

Description: Realization (outside the classroom) of monographs, literature search directed, issues and problems as well as the preparation of classes and exams (study). This is done individually and tries to promote self-employment.

The platform of e-learning (virtual classroom) of the University of Valencia will be used in support of communication with students. Through it you will have access to course materials used in class as well as solve problems and exercises.

EVALUATION

The course will be evaluated as follows, in Continous Evaluation:

1) Theoretical (30%). Minimum grade 5. As an an alternative as continous evaluation, several theoretical exams will be done with the same weight.

2) Laboratory (45%)

2.1 Attendance, preparation and conduct of the practice being evaluated in the same laboratory (15%)

2.2 Written exam with command configuration (15%). Minimum grade 5. As an alternative as continous evaluation, several skill labs will be done with the same weight.

3) Exercises proposed by the teacher (25%)

REFERENCES

Basic

-       Apuntes de la asignatura en Aula Virtual
        -CCNA CERTIFICATION GUIDE
        -Texto referencia

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Additional

-   Tanenbaum, Andrew S.: Redes de Computadoras, Prentice-Hall
    -Stallings, William: Comunicaciones y Redes de Computadores, Prentice-Hall
    -Kurose, James F.: Redes de Computadores, Prentice Hall