SUBJECT TEACHING GUIDE

G843 - Management and Network Operation

Degree in Telecommunication Technologies Engineering

Academic year 2025-2026

1. IDENTIFYING DATA						
Degree	Degree in Telecommunication Technologies Engineering				Type and Year	Optional. Year 3
Faculty	School of Industrial Engineering and Telecommunications					
Discipline	Subject Area: Telematic Applications and Services					
Course unit title and code	G843 - Management and Network Operation					
Number of ECTS credits allocated	6	Term		Semester based (2)		
Web						
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face	

Department	DPTO. INGENIERIA DE COMUNICACIONES
Name of lecturer	JOSE ANGEL IRASTORZA TEJA
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Other lecturers	

3.1 LEARNING OUTCOMES

- The student will obtain the skills associated with the task of managing and operating networks. This requires to fulfill two main objectives: firstly, to familiarize students with the abstract problem of managing a telecommunications network and on the other hand, become familiar with generic management systems, particularly with Management Platforms, ASN.1, CMIS/CMIP, SNMP and RMON.

4. OBJECTIVES
The main objective of the course is to provide the necessary professional skills to students who engage in network management and operation of both a telecommunications operator as an organization with a private network.
Acquaint students with the abstract problem of managing a telecommunication network regardless of technologies (protocols, electronics, architecture, etc ..) used or the type of network (data, voice, mobile, etc ...)
Familiarize yourself with generic management systems, particularly with Management Platforms, ASN.1, CMIS/CMIP, SNMP and RMON

6. SUBJECT PROGRAM	
	CONTENTS
1	Part 1: Introduction to the management and operation of networks
2	Part 2: OSI and TMN Management Architectures
3	Part 3: Abstract Syntax Notation: ASN.1
4	Part 4: Management Internet Architecture: SNMP V1, V2, V3
5	Part 5: RMON 1 Y RMON 2
6	Evaluation

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Midterm Exemption Exam: First individual evaluation covering parts 1 and 2.	Written exam	No	Yes	25,00
Practical Exam: Lab assignment evaluation	Laboratory evaluation	No	Yes	25,00
Final Exam: Ordinary final exam	Written exam	Yes	Yes	50,00
TOTAL				100,00

Observations

Ordinary Call (Regular Examination Period)

The Ordinary Call, with its date set by the center, will consist of two phases:

- Mandatory Phase: This will coincide with the Final Exam assessment item, which all students must take.
- Optional Phase: This covers retakes for the Midterm Exemption Exam and/or the Practical Exam. Only students with scores below 4.00 in either of these two assessment items can opt for this phase.

Regarding the Optional Phase of the Ordinary Call
If a student obtains a score lower than 4.00 in either the 'Midterm Exemption Exam' and/or the 'Practical Exam,' and given that there is no minimum passing score for these assessment items, they may choose to either keep these scores (below 4) or, during this optional phase, take a retake exam for the assessment items where they did not achieve a score of 4 at the time of their original taking. The score obtained in the retake exam for these items will be used to calculate the FINAL_Grade. Other students who achieved a score of 4 or higher in any of these assessment items do not need to take a retake, and their already obtained scores will be used in the calculation of the FINAL_Grade. This optional phase will take place once the student has submitted the mandatory phase exam.

Regarding the Mandatory Part of the Ordinary Call
This will coincide with the Final Exam assessment item, and all students of the course must take it. A minimum score of 4 is required to pass the course, regardless of other scores obtained (Midterm Exemption Exam or Practical Exam). Students will have the opportunity to retake the course by presenting themselves for the extraordinary call.

Final Grade Calculation
The FINAL_Grade for the course will be obtained using the following formula:
FINAL_Grade = THEORY_Grade + PRACTICALS_Grade
Where:

- THEORY_Grade = 'Final Exam' Score x 0.5 + 'Midterm Exemption Exam' Score x 0.25
- PRACTICALS_Grade = 'Practical Exam' Score x 0.25

The 'Practical Exam' score is the average of the grades from the evaluation of each laboratory practice and complementary activity performed.
If a student does not obtain a FINAL_Grade equal to or greater than 5, they may retake the course in the Extraordinary Call.

Extraordinary Call
The Extraordinary Call will be held on the date indicated by the center and will be governed by the following rules:
FINAL_Grade = THEORY_Grade + PRACTICALS_Grade
Where:

- THEORY_Grade = 'Final Exam' Score x 0.5 + 'Midterm Exemption Exam' Score x 0.25
- PRACTICALS_Grade = 'Practical Exam' Score x 0.25

Students can choose to keep only their most recent scores from the 'Midterm Exemption Exam' and/or the 'Practical Exam.' If they opt not to, they'll need to retake these assessments. The 'Final Exam' however, must always be retaken.

Observations for part-time students

Part-time students will take both the compulsory section (“Final Exam”) and the optional sections (“Midterm Exemption Exam” and “Practical Exam”) of the final assessment.
The Final Grade will be calculated as follows:
Final Grade = (“Final Exam” Grade × 0.5) + (“Midterm Exemption Exam” Grade × 0.25) + (“Practical Exam” Grade × 0.25)

8. BIBLIOGRAPHY AND TEACHING MATERIALS
BASIC
William Stallings: “SNMP, SNMPv2, and RMON: Practical Network Management, Second Edition”; Ed. Addison Wesley,1996;
William Stallings: “SNMP, SNMPv2, and CMIP:The Practical Guide to Network-Management Standards”; Ed. Addison Wesley,1993.
Franz-Joachim Kauffels: ”Network Management : Problems, Standards and Strategies” Ed. Addison Wesley, 1992;