SUBJECT TEACHING GUIDE

G849 - Trunk Networks

Degree in Telecommunication Technologies Engineering

Academic year 2023-2024

1. IDENTIFYING DATA					
Degree	Degree in Telecommunication Technologies Engineering			Type and Year	Optional. Year 4
Faculty	School of Industrial Engineering and Telecommunications				
Discipline	Subject Area: Communications Network Architecture				
Course unit title and code	G849 - Trunk Networks				
Number of ECTS credits allocated	6	Term		Semester based (1)	
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	ALBERTO ELOY GARCIA GUTIERREZ

3.1 LEARNING OUTCOMES
- The student identifies and interprets the most important network backbone architectures .
- Students learn to use generic models that analyze and evaluate network architectures systematically

4. OBJECTIVES

In this course all concepts related to the more important core network architectures are covered . We tackle the systems currently implemented for telecommunications services in both public networks and private networks. We also present generic models that allow the description of the different architectures from a spatial , functional and temporal perspective. Special point of interes is given to emerging architectures both logic level (switching, routing) as a physical level (SONET and optical networks)

In all, the main objective is to provide students a global perspective on the evolution of the current scenario we call as Internet best effort, to the Next Generation Network concept, from the point of view of transportation and platforms for the provision of the corresponding services. The presentation of the topics is performed from the point of view of the Service Provider (ISP) and the operators of transport networks.

6. COURSE ORGANIZATION

CONTENTS	
1	Part 1: Introduction to backbone networks. Structure. Logic Layer, Physical Layer, Layer Control. Commutation. Routing.
2	Part 2: Logic Layer backbones. Frame Relay. ATM. IP
3	Part 3: Physical Layer backbones. SDH / SONET. WDM. OTN. GMPLS. MetroEthernet
4	Part 4: Next Generation Networks (NGN / NGI)
5	Ordinary Final Examination

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Continuous evaluation: Three or four individual (per lesson) evaluation per term.	Written exam	No	Yes	30,00
Lab assignment evaluation	Laboratory evaluation	No	Yes	20,00
Ordinary Final exam	Written exam	Yes	Yes	40,00
Assignment in group	Work	No	No	10,00
TOTAL				100,00

Observations

During the course, subtests of monitoring the various theoretical issues will be undertaken: (Eval_Continuous_Mark).
During the course, laboratory practices will be evaluated : (Practices_Mark).
During the course, an assignment taken in group will be held: (Assignment_Group_Mark).
In the period fixed by the center, a final exam will be performed, which should be done by all students, in which both theoretical and practical content will be evaluated (Final_Examination_Mark).
Calculating FINAL_MARK follows two different modes:
Final Evaluation Mode: For those students who have not obtained a minimum of 5 in follow-up tests conducted during the course (Eval_Continuous_Mark < = 5 or Practices_Mark < = 5)
Continuous Assessment Mode: For students who have more than 5 points in follow-up testing, ie. Eval_Continuous_Mark > = 5 and Practices_Mark > = 5

Calculation FINAL MARK:
A) FINAL EVALUATION METHOD
Mode to follow those students whose Eval_Continuous_Mark <5 or Practices_Mark <5
FINAL_Eval-Final_MARK = Final_Examination_Mark * 0.9 + Assignment_Group_Mark *0.1

B) CONTINUOUS ASSESSMENT METHOD
Modality to be followed by those students whose Eval_Continuous_Mark > = 5 and Practices_Mark > = 5, but may opt for category A if that is most advantageous (*). It is also required that the Final Examination_Mark will be greater than 4

FINAL_Eval-Continuous_MARK = Final_Examination_Mark * 0.4 + Eval_Continuous_Mark* 0.3 + Practices_Mark * 0.2 + Assignment_Group_Mark * 0.1

(*) FINALMARK = MAX [FINAL_Eval-Continuous_MARK; FINAL_Eval-Final_MARK]

ADENDA COVID-19:
The remote evaluation of assignments, laboratory practical exercises and written tests is foreseen in the event that a new health alert by COVID-19 makes it impossible to carry out a presential evaluation

Observations for part-time students

They may only choose the FINAL EVALUATION METHOD

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Händler/Huber: ATM Networks, Concepts, Protocols, Applications, Addision Wesley, 3ºed. 1997

W. Stallings, Redes y Internet de Alta Velocidad Prentic Hall 2º ed. 2004

Hardy, Malléus, Méreur: Networks, Internet, Telephony, Multimedia, Springer, de Boeck, Berlin-Paris, seg. Ed. 2006

S. Kartalopoulos, Next Generation Optical Networks, ed. Springer 2008