Advanced Internet Networking Technologies

Academic Year: (2022 / 2023)   **Review date: 19-05-2022**

Department assigned to the subject: Telematic Engineering Department

Coordinating teacher: GARCIA MARTINEZ, ALBERTO

Type: Electives ECTS Credits : 6.0

Year : 4 Semester :

DESCRIPTION OF CONTENTS: PROGRAMME

1. IPv6
· Introduction
· Addressing model for IPv6.
· IPv6 Packet format
· ICMPv6
· Other layers and its relation with IPv6
· DNS in IPv6
· IPv4/IPv6 coexistence
2. Border Gateway Protocol (BGP)
· Introduction to interdomain routing.
· Business model of the Internet. Possible relationships among communication networks
· BGP route processing. BGP attributes. Route selection rules.
· Configuring BGP routers
· Traffic engineering for interdomain routing
3. Analysis of the current Internet: roles and strategies of Internet networks

LEARNING ACTIVITIES AND METHODOLOGY

AF1: THEORETICAL AND PRACTICAL CLASSES. They will present the knowledge that students must acquire. They will receive class notes and will have basic reference texts to facilitate the monitoring of the classes and the development of subsequent work. Exercises, practical problems will be solved by the student and workshops and evaluation tests will be carried out to acquire the necessary skills.
AF2: TUTORIALS. Individualized (individual tutoring) or group (group tutoring) assistance to students by from the professor.
AF3: INDIVIDUAL OR GROUP WORK OF THE STUDENT.
AF8: WORKSHOPS AND LABORATORIES.
F9: FINAL EXAM. In which the knowledge, skills and abilities acquired during the course will be evaluated in a global way.
MD1: THEORY CLASS. Lectures in class by the teacher with the support of computer and audiovisual media, in which the main concepts of the subject are developed and the materials and bibliography are provided to complement the students' learning.
MD2: PRACTICE. Resolution of practical cases, problems, etc. raised by the teacher individually or in group.
MD3: TUTORIALS. Individualized assistance (individual tutorials) or in group (group tutorials) to students by the teacher.
MD6: LABORATORY PRACTICES. Applied/experimental teaching in workshops and laboratories under the supervision of a tutor.

ASSESSMENT SYSTEM

Final exam 40%
Partial exam 40%
Laboratory evaluation 20%

% end-of-term-examination: 60

% of continuous assessment (assigments, laboratory, practicals…):   40

BASIC BIBLIOGRAPHY

- Iljitsch van Beijnum BGP. Building Reliable Networks with the Border Gateway Protocol. , O'Reilly Media, 2010

- Lawrence E. Hughes The second Internet, http://www.ipv6forum.com/dl/books/the_second_internet.pdf, 2010

- Silvia Hagen Planning for IPv6, O'Reilly Media, 2011