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Computer Networks

Academic Year: (2018 / 2019) **Review date: 11/12/2018 18:47:38**

Department assigned to the subject: Telematic Engineering Department

Coordinating teacher: BAGNULO BRAUN, MARCELO GABRIEL

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

OBJECTIVES

CB1: That students have demonstrated to possess and understand knowledge in an area of ¿¿study that starts from the base of general secondary education, and is usually found at a level that, although supported by advanced textbooks, also includes some aspects that they imply knowledge coming from the latest state of the art of their field of study.

CB2: That students know how to apply their knowledge to their work or vocation in a professional manner and possess the skills that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study

CE18: Ability to acquire basic and fundamental knowledge of network architectures.

CG2: Knowledge of basic scientific and technical subjects that enable the learning of new methods and technologies, as well as providing a great versatility to adapt to new situations.

CG4: Ability to solve technological, computer, mathematical and statistical problems that may arise in engineering and data science.

CT1: Ability to communicate knowledge orally and in writing, before a specialized and non-specialized public.

RA1: Have acquired advanced knowledge and demonstrated an understanding of the theoretical and practical aspects and the methodology of work in the field of science and data engineering with a depth that reaches the forefront of knowledge

RA2: The capability of, through arguments or procedures developed and supported by them, apply their knowledge, understanding of these and their problem solving abilities in complex or professional and specialized work environments that require the use of creative and innovative ideas

RA3: Have the ability to collect and interpret data and information on which to base their conclusions, including, when necessary and pertinent, reflection on matters of a social, scientific or ethical nature within the scope of their field of study.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction to packet networks
a. Layer model for communication systems
b. TCP/IP reference model (Internet)
2. Introduction to the application layer in the Internet
a. Example of application level protocols
3. Introduction to the Transport Layer in the Internet
4. UDP services
5. TCP services
6. Network layer in the Internet
7. The Internet Protocol
8. IP network design
9. NATs
10. Manual and automatic configuration
11. Link layer
a. Shared medium technologies
b. Addressing
c. Link layer topologies and devic

LEARNING ACTIVITIES AND METHODOLOGY

AF1: THEORETICAL-PRACTICAL CLASSES. In this classes, we will present the knowledge that students should acquire. Students will receive the class notes and will have basic texts of reference to facilitate the follow-up of the classes and the development of the subsequent work. Exercises, practical problems on the part of the student will be solved and workshops and evaluation test will be held to acquire the necessary skills.
AF3: INDIVIDUAL OR GROUP WORK.
AF8: WORKSHOPS AND LABORATORIES.
AF9: FINAL EXAM. In which the knowledge, skills and abilities acquired throughout the course will be assessed globally.
MD1: THEORY CLASS. Presentations in class with 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: PRACTICES. Resolution of practical cases, problems, etc. raised by the teacher individually or in groups.
MD3: TUTORIALS. Individualized assistance (individual tutorials) or group (collective tutorials) to students by the teacher.
MD6: LABORATORY PRACTICES. Applied / experimental teaching to workshops and laboratories under the supervision of a tutor.

ASSESSMENT SYSTEM

% end-of-term-examination/test:	60
% of continuous assessment (assigments, laboratory, practicals…):	40

SE1: FINAL EXAMINATION In which the knowledge, skills and abilities acquired throughout the course will be assessed globally.
SE2: CONTINUOUS EVALUATION. Work, presentations, debates, exhibitions in class, exercises, practices and work in the workshops throughout the course will be evaluated.

BASIC BIBLIOGRAPHY

- KUROSE, JAMES F., Keith W. Ross. Computer Networks, a top-down approach, Pearson, 2017

ADDITIONAL BIBLIOGRAPHY

- STEVENS,W.R. TCP/IP illustrated. Vol 1. The protocols , Addison. Wesley.

- TANENBAUM, ANDREW S. Computer Networks, Prentice Hall International. .