Optical Communications

Academic Year: (2019 / 2020) **Review date: 30/04/2019 15:27:04**

Department assigned to the subject: Electronic Technology Department

Coordinating teacher: LAMELA RIVERA, HORACIO

Type: Electives ECTS Credits : 3.0

Year : 2 Semester : 1

OBJECTIVES

- Ability to design and analyze point-to-point optical communication systems, both guided or free space links, considering the maximum value of the parameter L x BW (channel length per transmission bandwidth).
- Analysis of optical communication systems, both guided and unguided, taking into account the design of high speed optical transmitters and receivers
- Design, specifications, analysis and evaluation of current and advanced Optical Communicacion Systems.

DESCRIPTION OF CONTENTS: PROGRAMME

1.-Introduction to optical communication systems.
2.-Study of fast optical emitters: Light Emitting Diodes: LED´s and Laser Diodes.
3.-Study of fast optical detectots: PIN Photodiodes and Acalanche Photodiodes: APDs
4.-Study of High Speed Optical Transmitters and Receivers.
5.-Characteristics of the Optical Transmission Channel: Evaluation of the LxBW Product (Channel Length per Transmission Bandwidth) .
6.-Study of the Advanced Optical Communicaciones Systems: Guided and Unguided.

LEARNING ACTIVITIES AND METHODOLOGY

- The teaching methodology will include:
o Lectures in which the fundamental concepts of the subject will be presented. The students will have the material used in the classroom, and an indicated reference text for the course indicated.
o Practical classes in which students will be motivated to solve practical exercises. Students can evaluate their level of understanding of course concepts
o Analysis, development and discussion in groups of an Optical Communication Project developed during the course.

ASSESSMENT SYSTEM

% end-of-term-examination/test:	0
% of continuous assessment (assigments, laboratory, practicals…):	100

- The assessment will be based on the following criteria:
o Resolution of problems and exercises
o Final exam in which the knowledge acquired will be performed through an Optical Communication Work by the Students.

BASIC BIBLIOGRAPHY

- H. Lamela Optical Communications, Notes of the Course, 2014-15