

Guia docent

300101 - STCNEXTG - Estàndards Ieee 802.11 de Nova Generació

Última modificació: 04/07/2026

Unitat responsable: Escola d'Enginyeria de Telecomunicació i Aeroespacial de Castelldefels
Unitat que imparteix: **Titulació:** MÀSTER UNIVERSITARI EN INTEL·LIGÈNCIA ARTIFICIAL PER A INDÚSTRIES CONNECTADES (AI4CI) (Pla 2025). (Assignatura optativa).

Curs: 2026 **Crèdits ECTS:** 3.0 **Idiomes:** Anglès

PROFESSORAT

Professorat responsable: Athanasios Iossifides (International Hellenic University), Periklis Chatzimisios (International Hellenic University)

Altres: Athanasios Iossifides (International Hellenic University), Periklis Chatzimisios (International Hellenic University)

CAPACITATS PRÈVIES

MOBCOMM

Basic knowledge of wireless communications, including radio-wave propagation, modulation/coding, MIMO, multiplexing, and multiple access techniques.

REQUISITS

MOBCOMM

Basic knowledge of wireless communications, including radio-wave propagation, modulation/coding, MIMO, multiplexing, and multiple access techniques.

METODOLOGIES DOCENTS

Lectures, assignments, labs, project

OBJECTIUS D'APRENTATGE DE L'ASSIGNATURA

The purpose of this course is to bridge the gap between the widely adopted IEEE 802.11 variants and the recently developed or under development amendments, focusing on three major technical aspects, i.e., the Physical layer (PHY), the Medium Access Control (MAC) layer, and the new usage models and applications in the coming years.

HORES TOTS DE DEDICACIÓ DE L'ESTUDIANTAT

Tipus	Hores	Percentatge
Hores aprenentatge autònom	48,0	64.00
Hores grup gran	27,0	36.00

Dedicació total: 75 h

CONTINGUTS

Next-Generation IEEE 802.11 standards

Descripció:

The course presents the fundamental characteristics of recently released and forthcoming new IEEE 802.11 standards. It starts with an introduction to the IEEE standardization procedure, followed by a review of the 802.11 MAC layer basics and a short description of current 802.11 amendments (PHY and MAC). Next, it focuses on the most significant new amendments, their features, and the corresponding use cases in future wireless communications.

Topics:

Introduction to IEEE 802.11.

IEEE 802.11 basics.

IEEE 802.11be – Enhancements for Extremely High Throughput (Wi-Fi 7).

IEEE 802.11bn – Ultra High Reliability (Wi-Fi 8).

IEEE 802.11bd – Enhancements for Next Generation V2X.

IEEE 802.11bb – Light Communications.

IEEE 802.11bf – Enhancements for Wireless LAN Sensing.

Future directions and conclusion.

Dedicació: 75h

Grup gran/Teoria: 27h

Aprenentatge autònom: 48h

SISTEMA DE QUALIFICACIÓ

Written exams, project/lab reports, and short in-class quizzes. A project assignment to perform after the STC execution will also be evaluated.