

300264 - 5GPLAN - 5G Mobile Network Planning

Coordinating unit:	300 - EETAC - Castelldefels School of Telecommunications and Aerospace Engineering
Teaching unit:	739 - TSC - Department of Signal Theory and Communications
Academic year:	2019
Degree:	MASTER'S DEGREE IN ADVANCED TELECOMMUNICATION TECHNOLOGIES (Syllabus 2019). (Teaching unit Optional) MASTER'S DEGREE IN APPLIED TELECOMMUNICATIONS AND ENGINEERING MANAGEMENT (MASTEAM) (Syllabus 2015). (Teaching unit Optional)
ECTS credits:	3
Teaching languages:	English

Teaching staff

Coordinator: Joan Olmos Bonafé

Others: Sílvia Ruiz Boqué

Prior skills

Radio Communication. Digital Communication System.

Requirements

Next Generation WiCom and IoT

Degree competences to which the subject contributes

Basic:

CB6. (ENG) CB6 - Poseer y comprender conocimientos que aporten una base u oportunidad de ser originales en el desarrollo y/o aplicación de ideas, a menudo en un contexto de investigación.

CB7. (ENG) CB7 - Que los estudiantes sepan aplicar los conocimientos adquiridos y su capacidad de resolución de problemas en entornos nuevos o poco conocidos dentro de contextos más amplios (o multidisciplinares) relacionados con su área de estudio.

CB9. (ENG) CB9 - Que los estudiantes sepan comunicar sus conclusiones y los conocimientos y razones últimas que las sustentan a públicos especializados y no especializados de un modo claro y sin ambigüedades.

Generical:

05 COO. (ENG) Coordinar las tareas de un equipo multidisciplinar para completar las tareas de un proyecto tecnológico o de innovación basado en las TIC.

Transversal:

02 SCS. SUSTAINABILITY AND SOCIAL COMMITMENT. Being aware of and understanding the complexity of social and economic phenomena that characterize the welfare society. Having the ability to relate welfare to globalization and sustainability. Being able to make a balanced use of techniques, technology, the economy and sustainability.

05 TEQ. TEAMWORK. Being able to work as a team player, either as a member or as a leader. Contributing to projects pragmatically and responsibly, by reaching commitments in accordance to the resources that are available.

03 TLG. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.

Teaching methodology

Project Based Learning and Problem Solving

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Learning objectives of the subject

At the end of the course the student should be able to:

Understand the latest results, trends, activities and applications in future wireless networks.

Design and plan a realistic network or application.

Include Green Network aspects (spectrum and energy efficiency) in the design of a wireless network.

Define SON algorithms to optimize a wireless network.

Design realistic and multidisciplinary projects working in teams.

Study load

Total learning time: 75h	Hours large group:	0h	0.00%
	Hours medium group:	0h	0.00%
	Hours small group:	27h	36.00%
	Guided activities:	0h	0.00%
	Self study:	48h	64.00%

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Content

<p>Unit 1: Cellular Network Planning</p>	<p>Learning time: 10h Theory classes: 6h Self study : 4h</p>
<p>Description:</p> <ul style="list-style-type: none"> o mobile system planning: coverage and capacity optimization o main steps in 2G, 3G, 4G planning o Green networks: spectrum and energy efficiency o Self-Organizing Networks (SON) o Radio Resource Management and interference coordination. o 5G planning <p>Related activities: Problem solving related with these topics. Additional readings</p>	
<p>Unit 2: Project on 5G planning</p>	<p>Learning time: 65h Laboratory classes: 21h Self study : 44h</p>
<p>Description: Students working in teams do a real design or platform related with new technologies and experimenting with RRH, NFV, C-RAN, RANaaS, and load balancing.</p> <p>Related activities: Laboratory activities oriented to do the project.</p>	

Qualification system

Students have to deliver one or more reports regarding its progress on the project. Project will be evaluated according to technical solution (50%), quality of reports (20%), discussion (20%) and quality of the team (10%).

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Bibliography

Basic:

Holma, Harri; Toskala, Antti. LTE for UMTS : evolution to LTE-Advanced. 2nd ed. Chichester, UK: John Wiley, cop. 2011. ISBN 9780470660003.

Others resources:

Audiovisual material

Nom recurs

Resource