

## Course guide

# 300301 - STCSC-OT - Systems and Technologies for Communications in Smart Cities

Last modified: 01/06/2023

**Unit in charge:** Castelldefels School of Telecommunications and Aerospace Engineering  
**Teaching unit:** 739 - TSC - Department of Signal Theory and Communications.

**Degree:** BACHELOR'S DEGREE IN NETWORK ENGINEERING (Syllabus 2009). (Optional subject).  
BACHELOR'S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING (Syllabus 2009). (Optional subject).

**Academic year:** 2023 **ECTS Credits:** 6.0 **Languages:** Catalan

## LECTURER

**Coordinating lecturer:** Definit a la infoweb de l'assignatura.

**Others:** Definit a la infoweb de l'assignatura.

## DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

### Transversal:

2. SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.

## TEACHING METHODOLOGY

## LEARNING OBJECTIVES OF THE SUBJECT

## STUDY LOAD

Type	Hours	Percentage
Guided activities	1,0	0.67
Self study	84,0	56.00
Hours large group	65,0	43.33

**Total learning time:** 150 h

## CONTENTS

### (ENG) 1-Introducció

**Description:**

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**Specific objectives:**

**Related activities:**

**Full-or-part-time:** 2h 30m

Theory classes: 2h 30m

### (ENG) 2-Disseny avançat de les etapes digitals d'un transmissor/receptor LTE de banda ampla

**Description:**

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**Related activities:**

- Practical demonstrators and lab visits
- Checkup activities

**Full-or-part-time:** 20h

Theory classes: 8h

Self study : 12h

### (ENG) 3-Tecnologies òptiques

**Description:**

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**Specific objectives:**

**Related activities:**

- Checkup activities

**Full-or-part-time:** 13h 30m

Theory classes: 5h 30m

Self study : 8h

### (ENG) 4-Wireles techniques for Smart Cities

**Description:**

.

**Related activities:**

- Checkup activities

**Full-or-part-time:** 34h 30m

Theory classes: 18h

Guided activities: 1h 30m

Self study : 15h

#### (ENG) 5-Unmanned vehicles Smart Cities

**Description:**

.

**Related activities:**

- Checkup activities

**Full-or-part-time:** 12h

Theory classes: 3h

Self study : 9h

#### (ENG) 6-Eficiència energètica en equips de comunicacions

**Description:**

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**Related activities:**

- Practical demonstrators and lab visits
- Checkup activities

**Full-or-part-time:** 24h 30m

Theory classes: 8h

Guided activities: 1h 30m

Self study : 15h

#### (ENG) 7-Processament de vídeo sensors

**Description:**

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**Related activities:**

- Checkup activities

**Full-or-part-time:** 28h

Theory classes: 13h

Self study : 15h

#### T8-Smart farming

**Description:**

One of the goals of sustainable development is to end hunger, achieve food security and improve nutrition, and promote sustainable agriculture. Taking on this challenge involves taking many different actions, but it certainly requires the application of ICTs to transform a strategic sector for our society. In these sessions we will deal with the new emerging model of agricultural management, the so-called "Smart Farm" or smart farm, which based on an intensive use of ICT and automatic systems, allows to increase the quality and quantity of production. , at the same time reducing the applied human effort, and making an optimal management of the resources for the improvement in the efficiency in the management of inputs (water, energy, fertilizers). In these sessions we will focus on the more technological aspects, which applied to the agricultural sector can generate more disruptive changes.

**Related activities:**

- Checkup activities

**Full-or-part-time:** 15h

Theory classes: 5h

Self study : 10h



## ACTIVITIES

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### Practical demonstrators and lab visits

**Full-or-part-time:** 3h

Guided activities: 3h

### Checkup activities

**Full-or-part-time:** 6h

Theory classes: 6h

## GRADING SYSTEM

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## BIBLIOGRAPHY

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### Basic:

- Bajpai, Ambar; Balodi, Arun. Applications of 5G and beyond in smart cities. Boca Raton: CRC Press, 2023. ISBN 9781032131429.
- Reichental, Jonathan. Smart cities [recurs electrònic] [on line]. ©2020 [Consultation: 22/11/2023]. Available on: <https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=6231644>. ISBN 9781119679967.