# 68538 - Discipline content for Technology in the speciality subject of Technology at Secondary and VIth form level

**Información del Plan Docente**

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| **Academic Year** | 2017/18 |
| **Subject** | 68538 - Discipline content for Technology in the speciality subject of Technology at Secondary and VIth form level |
| **Faculty / School** | 107 - Facultad de Educación |
| **Degree** | 358 - University Master's in Secondary School Teaching: Technology and IT<br>415 - |
| **ECTS** | 4.0 |
| **Year** | XX |
| **Semester** | Indeterminate |
| **Subject Type** | Compulsory |
| **Module** | --- |

## 1.General information

## 1.1.Introduction

A brief review of the education policy from the point of view of Technology education will be performed. An analysis and description of the different topics of the discipline will be done and some teaching available resources and multimedia will be shown. The idea of constant knowledge updating of the Technology Teacher will be promoted since it is necessary for a good teaching work due to the fast evolution of Technology.

## 1.2.Recommendations to take this course

## 1.3.Context and importance of this course in the degree

## 1.4.Activities and key dates

## 2.Learning goals

## 2.1.Learning goals

In order to pass the course, the student should be able to:

1: select, prepare and develop contents for teaching units corresponding to subjects related with the matter of Technology (secondary and high school and A level Studies), built following a STSE Framework (Science-Technology- Society-Environment).

2: be aware about the Technology as a key discipline in our society which evolves very rapidly and that therefore the updating of knowledge is necessary to carry out a good teaching work.

3: progress and to increase his/her knowledge on Technology using available Internet information resources and data

from scientific and technological institutions.

4: analyze critically textbooks on Technology and possesses criteria for the choice of most appropriated textbook for his teaching work in line with his own approaches.

## 2.2.Importance of learning goals

## 3.Aims of the course and competences

## 3.1.Aims of the course

## 3.2.Competences

## 4.Assessment (1st and 2nd call)

## 4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

## 5.Methodology, learning tasks, syllabus and resources

## 5.1.Methodological overview

## 5.2.Learning tasks

The course includes the following learning tasks:

- Lectures
- Practice sessions

## 5.3.Syllabus

The course will address the following topics:

**Lectures**

Section 1. National and regional laws on compulsory and non-compulsory secondary education on Technology

1. Ley Orgánica de Mejora de la Calidad Educativa (LOMCE), BOE 9-12-2013
2. Real Decreto 1105/2014, Currículo básico de ESO y Bachillerato (26-12-2014)
3. BOA, Orden, Currículo ESO y Bachillerato y su aprobación (15-05-2015)
4. BOA, Orden 9-05-2015 (suspensión)
5. BOA, Instrucción, ordenación educativa del primer y tercer curso de Educación Secundaria Obligatoria y del primer curso de Bachillerato para el curso escolar 2015-2016. (26-08-2015)
6. BOA, Instrucciones complementarias ESO y Bachillerato, (4-09-2015)
7. BOA, Orden 26-05-2016, Currículo de ESO.

Section 2. Technology: Subject and contents

1. Concept of Technology and its importance in secondary and high school education.
2. Science, Technology, Society and Environment (STSE) view: A motivating tool and a working resource in the classroom.
3. Matter class: Materials, Structures, Mechanisms, Hydraulics, Pneumatics, Electricity, Electronic, Energy.

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4. Current textbooks for teaching Technology: Critical analysis of their contents.
5. Conceptual maps and examples.
6. Sources of Spanish multimedia resources; i.e. Techno 12-18.
7. Multimedia resources on Technology in other languages; English, French, etc.
8. Laboratory experiments and practice workshops.
9. Updating knowledge and research advances in Technology.
10. Government and other public centers: Ministry of Education, CIDE, ITE, etc.
11. Companies, schools, web pages of professional and technical associations.
12. Education and research journals and magazines, books, etc. for teacher training.
13. Material selection for basic component design: problem-solving and the use of CES database and program.
14. National and worldwide research centers for the scientific and technological dissemination.
15. Searching tools for scientific and technological information: (FECYT), ISI Web of Knowledge, madri+d, Scirus, etc.

**Laboratory sessions**

1. Material properties: Thermal expansion in metals. PMMA refraction index measurement. Dielectric constant determination of some materials. Non-destructive testing: ultrasonic test, liquid penetrant test, magnetic particles test.
2. Steels. Phase diagrams and heat treatments. Cold rolling and recrystallization annealing. Hardness and impact toughness. Optical microscopy and metallography.
3. Laboratory experiments: Life of a galvanized Steel sheet, Clean energy sources: the fuel cell, Miniaturization: advancements and risks.
4. How to test an electronic circuit: Is it working properly?
5. To load a phone battery from mains: How?
6. Analog power regulation: control and efficiency considerations.
7. Digital power regulation: overcoming analog age.

## 5.4.Course planning and calendar

## 5.5.Bibliography and recommended resources