

COURSE NAME

Name: **CIVIL ENGINEERING IN SANITARY ENGINEERING**

Code: 101148

Curriculum: **DEGREE IN CIVIL ENGINEERING**

Year: 4

Subject: CIVIL CONSTRUCTION IN SANITARY ENGINEERING

Nature: OBRIGATORY Duration: FIRST SEMESTER

ECTS Credits: 4.5

Classroom hours: 45

Face-to-face classroom percentage: 40%

Non-contact hours: 68

FACULTY DETAILS

Name: LOPEZ MUÑOZ, ANTONIO CLEOFE (Coordinator)

Department: RURAL ENGINEERING

Area: CONSTRUCTION ENGINEERING

Location of the office: EPS Belmez

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SKILLS

- CB1 Have and understand specific knowledge of the field of study of mining engineering.
- CB2 Have and understand current and cutting-edge knowledge of the field of mining engineering.
- CB3 Be able to apply the knowledge acquired in professional contexts and to elaborate and defend arguments in the field of knowledge of mining engineering.
- CB7 Possess the learning skills necessary to undertake studies with a high degree of autonomy.
- CU2 Know and refine the user level of ITs.
- CECC8 Knowledge and understanding of supply and sanitation systems, their sizing, construction and maintenance

OBJECTIVES

General understanding and more specific approaches to the following blocks; both from a construction perspective and from the point of view of calculations to be applied in the design and execution of projects.

- I. TYPOLOGY, CALCULATIONS AND CONSTRUCTION PROCEDURES FOR CONCRETE DAMS, ROLLER-COMPACTED CONCRETE AND CONVENTIONAL VIBRATED CONCRETE.
- II. TYPOLOGY, CALCULATIONS AND CONSTRUCTION PROCEDURES FOR MATERIAL PONDS AND LOOSE MATERIAL DAMS.
- III. TYPOLOGY, CALCULATIONS AND CONSTRUCTION PROCEDURES FOR CONSTRUCTING SUPPLY AND REGULATION TANKS
- IV. CHARACTERISTICS OF CONCRETE FOR HYDRAULIC WORKS, THEORY AND LAYING

CONTENTS:

1. Theoretical contents

- I. TYPOLOGY, CALCULATIONS AND CONSTRUCTION PROCEDURES FOR CONCRETE DAMS.
 - TOPIC 1: GUIDE TO DAMS.
 - TOPIC 2: DAM TYPOLOGY.
 - TOPIC 3: PRACTICAL EXAMPLES OF DAM CONSTRUCTION
 - TOPIC 4: DIVERSION OF DAM CHANNELS DURING CONSTRUCTION
 - TOPIC 5: CONCRETE DAM PATHOLOGIES
 - TOPIC 6: CONSERVATION OF CONCRETE DAMS.

II. TYPOLOGY, CALCULATIONS AND CONSTRUCTION PROCEDURES FOR MATERIAL PONDS AND LOOSE MATERIAL DAMS.

TOPIC 7: SITE SELECTION AND TYPOLOGY CRITERIA

TOPIC 8: CEDEX POND GUIDE

TOPIC 9: THE POND PROJECT

TOPIC 10: PARTS OF A POND

TOPIC 11: EXAMPLES OF CONSTRUCTION PROCEDURES

TOPIC 12: PATHOLOGIES, CONSERVATION AND MAINTENANCE OF LOOSE MATERIAL PONDS.

III. TYPOLOGY, CALCULATIONS AND CONSTRUCTION PROCEDURES FOR CONSTRUCTING SUPPLY AND REGULATION TANKS

TOPIC 13: TYPES OF TANKS.

TOPIC 14: CEDEX TANK GUIDE.

TOPIC 15: CRITERIA FOR CHOOSING THE TYPE OF TANK.

TOPIC 16: PARTS OF A TANK

TOPIC 17: TANK CONSTRUCTION PROCEDURES. PRACTICAL EXAMPLES

TOPIC 18: WATERPROOFING TANKS.

TOPIC 19: TANK CRACKING. TREATING CRACKS.

IV. CONCRETE. CRACKING, LAYING, TYPES OF CONCRETE FOR HYDRAULIC WORKS. LAYING. DURABILITY. CONSTRUCTION PROCEDURES. CONCRETES MANUFACTURED ON SITE. CONCRETES FOR LARGE VOLUMES OF WORK. CONCRETE FOR DAMS. CONCRETE FOR TANKS.

2. Practical contents.

DESIGNING, CALCULATING AND PROGRAMMING THE IMPLEMENTATION OF AN IRRIGATION POND. BASIC PROJECT