

COURSE NAME

Name: **PLANIFICATION AND MANAGEMENT OF HYDROLOGIC RESOURCE**

Code: 101152

Curriculum: **DEGREE IN CIVIL ENGINEERING**

Year: 4

Subject: DESIGN AND MANAGEMENT OF HYDRAULIC AND HYDROELECTRIC SYSTEMS

Nature: OBRIGATORY Duration: SECOND SEMESTER

ECTS Credits: 6

Classroom hours: 60

Face-to-face classroom percentage: 40%

Non-contact hours: 90

FACULTY DETAILS

Name: GARCÍA MORILLO, JORGE (Coordinator)

Department: AGRONOMY

Area: HYDRAULIC ENGINEERING

Location of the office: EPS Belmez

E-Mail: g62gamoj@uco.es

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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.
- CB5 Gather and interpret relevant civil engineering data to make judgements that include a reflection on relevant social, scientific or ethical issues.
- CB7 Possess the learning skills necessary to undertake studies with a high degree of autonomy.
- CU2 Know and refine the user level of ITs.
- CEH1 Knowledge of and ability to design and dimension hydraulic works and facilities, energy systems, hydroelectric facilities, and the planning and management of surface and groundwater hydraulic resources.

OBJECTIVES

1. Understand the problems and aims of water resource management and how this translates into criteria for planning, designing and operating the system.
2. Understand the basic institutional and legal framework through which water resource management is developed.
3. Understand the importance and casuistry of hydrological data, and the role of these in assessing and managing water resources.
4. Understand the socioeconomic and environmental variables involved in managing water resource systems.
5. Assess the severity of hydrological extremes, droughts and floods.
6. Analyse hydrological systems, using the mathematical models learnt and interpreting the results obtained.

CONTENTS:

1. Theoretical contents

I. INTRODUCTION

TOPIC 1. WATER RESOURCE PLANNING.

TOPIC 2. OBJECTIVES OF WATER RESOURCE PLANNING.

TOPIC 3. NATIONAL WATER MANAGEMENT PLAN. NATIONAL IRRIGATION PLAN.

II. EVALUATION OF RESOURCES AND DEMAND

TOPIC 4. WATER USES: DOMESTIC, INDUSTRIAL, AGRICULTURAL, HYDROELECTRIC, OTHER.

TOPIC 5. RESOURCES TO MEET DEMANDS: PLANNED WATER REUSE, WATER DESALINATION. WORKS AND HYDRAULIC INFRASTRUCTURES.

III. METHODS AND TOOLS

TOPIC 6. RECORDING AND MANAGING DATA.

TOPIC 7. AUTOMATIC INFORMATION SYSTEMS.

IV. SPECIFIC SITUATIONS, APPLICATIONS.

TOPIC 8. USING WATER RESOURCES.

TOPIC 9. FLOODS.

TOPIC 10. DROUGHTS

2. Practical contents.

METHODS AND TOOLS

1. There will be practical sessions in the computer classroom in which students will work with Geographic Information Systems (GIS) applied to environmental, hydrological and planning purposes.

2. We will work with rainfall-runoff models. Using these models and with the support of GIS programmes, the flood flow generated by a rainfall event in a basin will be calculated.