COURSE NAME

Name: **HYDRAULIC ENGINEERING APPLIED TO DISTRIBUTION SYSTEMS**
Code: 101149
Curriculum: **DEGREE IN CIVIL ENGINEERING** Year: 3
Subject: DESIGN AND MANAGEMENT OF HYDRAULIC AND HYDROELECTRIC SYSTEMS
Nature: OBRIGATORY Duration: FIRST SEMESTER
ECTS Credits: 6 Classroom hours: 60
Face-to-face classroom percentage: 40% Non-contact hours: 90

FACULTY DETAILS

Name: MORENO PÉREZ, MARÍA FÁTIMA (Coordinator)
Department: AGRONOMY
Area: HYDRAULIC ENGINEERING
Location of the office: EPS Belmez
E-Mail: mfatima@uco.es Phone number: 957213025

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.
CB4	Solve problems within the study area 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.
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

- Knowledge of the main elements that make up water distribution networks as well as delivery systems.
- Knowledge of and ability to analyse pressurised and free-flowing water distribution systems.
- Knowledge of the fundamentals and main design criteria of water distribution networks.

CONTENTS:

1. Theoretical contents

I. PRESSURISED MAINS DISTRIBUTION SYSTEMS
Topic 1. GENERAL INFORMATION ABOUT DISTRIBUTION NETWORKS
Topic 2. PIPELINES IN PRESSURISED NETWORKS
Topic 3. VALVES IN DISTRIBUTION SYSTEMS

II. PUMPING AND DELIVERY SYSTEMS
Topic 4. PUMPS IN THE DISTRIBUTION SYSTEM
Topic 5. DELIVERY SYSTEMS

III. ANALYSIS AND DESIGN OF PRESSURISED WATER DISTRIBUTION NETWORKS
Topic 6. ANALYSIS OF PERMANENT DISTRIBUTION NETWORKS
Topic 7. INTRODUCTION TO DESIGNING WATER DISTRIBUTION NETWORKS

IV. FREE FLOWS
Topic 8. UNIFORM MOVEMENT
Topic 9. SPECIFIC ENERGY AND CRITICAL REGIME
Topic 10. GRADUALLY AND RAPIDLY VARYING MOVEMENT

2. Practical contents.

Solving problems in the classroom and completing exercises to be handed in, the aim of which is to show students how to apply the theoretical knowledge acquired to solving exercises or practical assumptions. These will mainly focus on the analysis of pressure distribution systems and the hydraulic design of free-flowing channels with uniform movement. Lab practicals. These will focus on the analysis of meshed pressure distribution networks and on obtaining characteristic curves for pumping systems.