

## The scientific, technical and industrial heritage

Academic Year: ( 2023 / 2024 )

Review date: 06-05-2023

Department assigned to the subject: Humanities: History, Geography and Art Department

Coordinating teacher: FRIAS NUÑEZ, MARCELO

Type: Electives ECTS Credits : 6.0

Year : 1 Semester : 1

## OBJECTIVES

1. Acquire basic knowledge of the history of science and technique, and its involvement in contemporary history.
2. Know the sources and documentation for the analysis of the scientific, technical and industrial heritage: scientific and technical areas as witness to the development of the society.
3. Capture elements and precise criteria to address the bases and realizations of scientific, technical and industrial heritage and their social applications.
4. Obtain practical abilities in the construction, development, study and cataloguing of scientific, industrial and technical heritage.
5. Acquire advanced knowledge about the various legacies that have reached our days related to the history of science and technique.

## DESCRIPTION OF CONTENTS: PROGRAMME

The subject gives attention to the scientific, technical and industrial heritage in the Hispanic world -preferably in Spain and Latin America-. It provides scientific and technical activity considering not only the research and teaching, but also industrial applications. An introduction to the history of science and technology is included, looking at, especially, the contemporary world and reviewed scientific collections, by comparing the model of cabinet with the virtual possibilities (Prof. Marcelo Frías). At the same time deals with the study of heritage response to the issues raised by engineering, especially telecommunication and industrial, and its presence in the public works and transport, as well as new computer applications (Prof. Emilio Olías). The characteristics of scientific collections and their classification criteria of conservation and restoration of collections, within the framework of the work of the Cultural Heritage Institute of Spain and the guidelines followed by Corps Upper Scientific of Conservative of Heritage (Prof. María José Suárez) are also studied.

Block I: History of science and technology in the Hispanic world. Historical basis: methodology, documentary models.

- Session 1 - History, method, concepts: introduction to the history of science and technology: Spain and Latin America.
- Session 2 - Scientific collections: Cabinet model.
- Session 3 - Documentary sources: the virtual possibilities.
- Session 4 and 5 ¿ Practical Session: Original or replica on the scientific heritage? Debate. Process of reproduction and product obtained - fossils, rocks and minerals-.

Block II: Industrial heritage in the Hispanic world.

- Session 1 - Engineering: history and heritage (I)
- Session 2 - Engineering: history and heritage (II)
- Session 3 - Transportation: public works and telecommunications
- Session 4 - Practical Session: The Academies of Engineering and Industrial Heritage: Industrial Engineering and Telecommunication Engineering (19th and 20th centuries). Publications and congresses on Industrial heritage and history of engineering
- Session 5 - Practical Session: Technological heritage and new media: software and social networks

Block III: Scientific and technical heritage: Hispanic world.

- Session 1 - Legal status. Classification. Scientific principle. Scientific collections and museums.
- Session 2 - Conservation and restoration of collections. Methodology. Criteria of preventive conservation, intervention, exposure, transportation and storage.
- Session 3 - Types of museums and collections: astronomical, natural sciences, industrial.
- Session 4 and 5 - Practical Sessions: Data sheet catalogue. Study of real catalogues and museum pieces. Mounting an exhibition.

## LEARNING ACTIVITIES AND METHODOLOGY

1. Keynote lectures, where will be the knowledge that students need to acquire. They will be given to the basic texts of reference students enabling them to understand and deepen the contents of the given subject.
2. Practical classes, in which they work with specific documentation that allows students a more precise approach to the contents of the field.
3. Discussion groups, on specific issues to fix in the students specific capabilities that should be acquired in the course, fostering critical analysis and the examination of the sources.
4. Exhibitions, where are presented the results and materials worked, aiming to encourage learning and the acquisition of skills in the domain of the filing and public dissemination of the work carried out.

## ASSESSMENT SYSTEM

Follows the process of continuous evaluation and evaluative proportion of tests or work conforms to the ECTS weight of the activities, allowing a flexible assessment margin teachers.

- a) Attendance and active participation in class: 25%
- b) Presentations and work and practice of class: 25%
- c) Work: 50%

(Option A) Elaboration of a project of work of research individual, from any of the topics addressed in the course. It is not, therefore, the students can develop a theme, but to develop and prepare a project on a topic, which you can apply or develop in the future. It will assess the suitability and originality of the chosen topic, delineation of objectives, methodology and work plan as well as the study of the possible benefits of the proposed project.

(Option B) Elaboration of a scientific article, in relation to any of the topics addressed in the course. Is titrated with commonly used standards and requirements in scientific publications. (The exam is substituted by the final work)

In the extraordinary call, students must present a Final Paper: 100%

<b>% end-of-term-examination:</b>	50
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	50

## BASIC BIBLIOGRAPHY

- ALVAREZ ARECES, M. A Arqueología industrial. El pasado por venir, CICEES Colección La Herencia Recuperada, 2007
- BARATAS DÍAZ, A Colecciones, patrimonio historicocientífico y estrategias de difusión, Universidad de Valencia, Metode, Anuario 2000/52.
- BARONA, J. LI Ciencia e historia. Debates y tendencias en la historiografía de la ciencia, Godella, Seminari d"Estudis sobre la Ciencia, 1994.
- CERDÁ, M Arqueología industrial, teoría y práctica , Universitat de València, 2008
- EGIDO, M. Del; JIMENEZ, M.J; BAEZA, E Consideraciones para la conservación de las colecciones del patrimonio científico y técnico, Revista de Museología, 27-28, pp. 96-104, 2003
- GIATTI, A., MINIATI, M Il restauro degli strumenti scientifici, Florencia: Alinea, 1998
- GOLINSKI, J Making natural knowledge. Constructivism and the history of science, Cambridge University Press, 1998
- KHUN, T La estructura de las revoluciones científicas, FCE , 2006 (1 ed. 1962).
- MANETTI, L. (ed.) The Restoration of Scientific Instruments , Florencia. Istituto e Museo di Storia della Scienza, 2000.