

## Course guide

# 240627 - 240627 - Culture, Technology and History in China and Japan

**Last modified:** 13/03/2025

**Unit in charge:** Barcelona School of Industrial Engineering  
**Teaching unit:** 749 - MAT - Department of Mathematics.

**Degree:** BACHELOR'S DEGREE IN INDUSTRIAL TECHNOLOGY ENGINEERING (Syllabus 2010). (Optional subject).

**Academic year:** 2025    **ECTS Credits:** 3.0    **Languages:** Catalan, Spanish

### LECTURER

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**Coordinating lecturer:** Carles Puig Pla

**Others:** Carles Puig Pla

### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

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**Transversal:**

1. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.
2. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
3. TEAMWORK. Being able to work as a team player, either as a member or as a leader. Contributing to projects pragmatically and responsibly, by reaching commitments in accordance to the resources that are available.

### TEACHING METHODOLOGY

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Presentation sessions of different topics, supplemented by the use of ICT and audiovisual resources.

Cooperative learning based on case studies; oral presentations and delivering papers by students.

Case studies preparation, based on library resources and web resources .

### LEARNING OBJECTIVES OF THE SUBJECT

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**Overall Objective**

Evaluating the history of technological development in the Far East

**Specific Objectives**

Analyze the fundamental historical and cultural elements of Chinese and Japanese societies .

Identify the different processes that led to China's progress in different fields of technology before the arrival of Westerners ( Jesuits, sixteenth century ) .

Recognize the historical and cultural context of the development of inventions and technological advances at Imperial China and modern Japan.

Describe the arrival of Japan in the modern world during the Meiji era (1868-1912)

Identify the main contributions of modern China and Japan technology.

## STUDY LOAD

Type	Hours	Percentage
Hours medium group	30,0	40.00
Self study	45,0	60.00

**Total learning time:** 75 h

## CONTENTS

### 1 Chinese civilization. Introductory study to China: territory, history and culture.

**Description:**

Brief introduction to traditional Chinese civilization. Geography , population area, climatic conditions , administrative divisions, ethnic majority. Distinctive cultural traits, language, writing. artistic expressions, medicine. History, characteristics of different dynastic periods and forms of organization of the Empire. Philosophical thought (Confucianism, Taoism, Buddhism ... ).

**Full-or-part-time:** 20h

Theory classes: 8h

Self study : 12h

### 2 Traditional Chinese technological progress and the emergence in the modern technological world

**Description:**

Main fields of traditional scientific and technical innovations before the arrival of the Jesuits in China in the sixteenth century . Printing (paper, wood engraving , typography) or proto-chemistry explosive chemistry (Chinese alchemy, gunpowder ...) Magnetic Physics (the Sinan , the compass needle ...). The use of animal power ( stirrup , equine tack ...). Iron and steel technology; nautical inventions, astronomical instruments. Mechanical watches , the use of and hydraulic force; domestic technology . Technological achievements of Modern China.

**Full-or-part-time:** 25h

Theory classes: 10h

Self study : 15h

### 3 Japanese world . Introductory study to Japan: territory, history and culture

**Description:**

The islands of Japan, demography, land and topography, climate, language, writing, cultural traditions . The different historical periods: unification and Nara, Heian , Kamakura , Ashikaga , Azuchi - Momoyama and Edo periods . Religious and philosophical beliefs (Shinto , Buddhism ) .

**Full-or-part-time:** 10h

Theory classes: 4h

Self study : 6h



#### 4 The entry of Japan into the world of technology and industrialization

**Description:**

The end of "Tokugawa" shogunate and the reforms of Meiji period ( 1868-1912 ) . Technology and industrialization in the Meiji era. The structure behind the science and innovation system in the industry. Science and Technology during the wars ( 1937-1945 ). Technological changes prominent post-war Japan.

**Full-or-part-time:** 20h

Theory classes: 8h

Self study : 12h

## ACTIVITIES

(ENG) EXPOSICIÓ ORAL I PRESENTACIÓ DEL CORRESPONENT TREBALL ESCRIT EFECTUAT EN GRUP.

(ENG) AVALUACIÓ CONTINUADA

## GRADING SYSTEM

The final mark will be the result of 3 tests or evaluations. Their respective weightings are:

Issues 1 and 2 (40%)

Issues 3 and 4 (30%)

Oral presentation and written work group (30%)

## EXAMINATION RULES.

Compulsory oral presentation in class.

## BIBLIOGRAPHY

**Basic:**

- Masahide, B.; Akio, W. Esbozo cronológico de la historia del Japón. Tokyo: International Society for Educational Information, 1984. ISBN 051040394.
- Hobson, J. M. The Eastern Origins of Western Civilisation. Cambridge: Cambridge University Press, 2004. ISBN 9780521547246.
- Morris-Suzuki, Tessa. The technological transformation of Japan: from the seventeenth to the twenty-first century. Cambridge: Cambridge University Press, 1994. ISBN 0521424925.
- Ho, Peng Yoke. Li, Qi and Shu: an introduction to science and civilization in China. New York: Dover Publications, Incorporated, 2000. ISBN 0486414450.
- Bray, Francesca. Technology and society in ming china (1368-1644). Washington: Society for the History of Technology, 2000.

**Complementary:**

- Bodde, Derk. Chinese thought, society, and science : the intellectual and social background of science and technology in pre-modern China. Honolulu [T.H.]: University of Hawaii Press, cop. 1991. ISBN 0824813340.
- Udías, Agustín. Searching the heavens and the earth : the history of Jesuit observatories. Dordrecht: Kluwer Academic Publishers, 2003. ISBN 140201189X.
- Gernet, Jacques. El mundo chino. Barcelona: Editorial Crítica, 1999. ISBN 8484320073.
- Ronan, Colin A. The shorter science and civilisation in China: Vol. 5: civil engineering. New York: Cambridge University Press, 1995. ISBN 0521338735.