



Course guide

205200 - BIM - Bim for Engineers

Last modified: 15/07/2024

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 758 - EPC - Department of Project and Construction Engineering.

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

Academic year: 2024 **ECTS Credits:** 3.0 **Languages:** English

LECTURER

Coordinating lecturer: Núria Forcada

Others: Pedro Júdez

TEACHING METHODOLOGY

Lecture: Lecturers present concepts, principles and techniques, with the active participation of students.

Problem Based Learning: Lecturers and students resolve exercises and standard problems through specific techniques related to the theoretical contents and principles of the course.

Project Based learning: Students resolve complex problems through specific techniques related to the theoretical contents and principles of the course.

Self-study: Students diagnose their learning needs, in collaboration with the lecturers, and plan their own learning process.

LEARNING OBJECTIVES OF THE SUBJECT

This course provides an overview of Building Information Modelling (BIM) terminology and practices while introducing important concepts necessary to understand how BIM is changing the construction process. This course takes a holistic approach to the building life cycle, including design, construction, management, maintenance, and sustainability emphasizing collaborative practices in BIM and management. Students will have the opportunity to examine a range of existing and emerging BIM issues and use a range of BIM related applications, such as modelling, management, analysis and visualization.

STUDY LOAD

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

Total learning time: 75 h



CONTENTS

Module 1: Construction Project Management

Description:

This module covers the key principles of construction projects, the types of construction firms, the processes and phases in a construction project, and the role of the main stakeholders from initial briefing to managing the construction process.

Related activities:

Distance and in-class activities
Individual work
Group work

Full-or-part-time: 8h

Theory classes: 4h
Self study : 4h

Module 2: BIM terminology and methodology

Description:

This module introduces the BIM terminology and methodology taking into account the policies, strategies, technologies and infrastructures.

Concepts such as parametric modeling, collaboration, interoperability, Industry Foundation Classes (IFC) will be presented.

This module also focuses on the BIM manager functions: the production of a BIM organizational strategic plan to ensure that BIM is aligned with a business strategy and the creation of a BIM organizational execution plan to implement BIM in accordance with detailed business operations.

Related activities:

Distance and in-class activities
Individual work
Group work

Full-or-part-time: 12h

Theory classes: 6h
Self study : 6h

Module 3: BIM 3D modelling

Description:

This module focuses on how to build the 3D model, exploring the principles of component modelling, levels of detail (LOD), the process of assembling those components to produce a design model and the audit of the model.

Related activities:

Distance and in-class activities
Individual work
Group work

Full-or-part-time: 30h

Theory classes: 10h
Self study : 20h



Module 4: BIM nD Benefits

Description:

This module presents the benefits of using BIM in building projects, beyond the 3D presentation. The module will explain how to take the most of the model along the phases of the project, focusing on clash detection, time and cost management, bill of quantities, As-Built information, energy simulations, Facility Management and, especially, the collaboration between all the stakeholders.

Related activities:

Distance and in-class activities
Individual work
Group work

Full-or-part-time: 25h

Theory classes: 10h
Self study : 15h

GRADING SYSTEM

The final grade depends on the following three elements:

- * 20%, Distance and in-class activities
- * 40%, Individual work
- * 40%, Group work