Course guide
205200 - BIM - BIM for Engineers

Last modified: 11/04/2025

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: 2025 **ECTS Credits:** 3.0 **Languages:** English

LECTURER

Coordinating lecturer: Núria Forcada

Others: Gordo Gregorio, Paula

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

BIM is a method of creating and managing digital models that capture the physical and functional characteristics of the building elements and it relies on various tools to support its implementation. In this course students will learn basic knowledge about Revit, a BIM tool developed by Autodesk. This course is meant to prepare students for modeling buildings geometry. The course is structured as a series of individual and group-based projects in which students apply the principles of BIM modeling. The objectives of this course are to produce 3D computer models using established standards, understand the transition from 2D to 3D representations and interoperability. This course aims to equip students with an understanding of the best practices in BIM modeling. Furthermore, the course places significant emphasis on overcoming interoperability obstacles and facilitating collaboration among diverse BIM tools.

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: BIM terminology and methodology

Description:
In this module, students will be introduced to the terminology and methodology of Building Information Modeling (BIM). Throughout these sessions, students will gain practical knowledge on navigating the Revit environment, understanding the structure of a BIM model, and performing tasks like importing or exporting data from the model.

Related activities:
Distance and in-class activities
Individual work
Group work

Full-or-part-time: 25h
Theory classes: 10h
Self study : 15h

Module 2. BIM 3D modelling

Description:
This module places its focus on creating 3D models. It covers the basic knowledge of component modeling, and the concepts of level of detail (LOD) and level of information (LOI) in BIM projects. This module also includes how to systematically assemble BIM components to create a BIM model that follows the BuildingSmart Standards supported by the European Union.
In this module, students will:
• Design basic building elements like levels, floors, roofs, and more.
• Use parametric modeling techniques for 3D design.
• Learn how to generate BIM documentation such as plans, sections or schedules.

Related activities:
Distance and in-class activities
Individual work
Group work

Full-or-part-time: 25h
Theory classes: 10h
Self study : 15h

Module 3: BIM collaboration and interoperability

Description:
This module of the course focus on concepts such as collaboration, interoperability, and Industry Foundation Classes (IFC) in the context of architectural and construction practices. Students will learn how to work with central and local BIM models and explore the interaction with collaborative platforms to enhance teamwork and communication. Additionally, students will explore the role of IFC mapping in facilitating data exchange and integration between different software tools.

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% partial project delivery
40% final project delivery
40% in-class activities