



**Education for zero
energy Buildings using
Building Information
Modelling**

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Learning Unit 7



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BIM MODEL USES FOR SPECIFICATION AND QUANTIFICATION

EQF	6	Target	Project manager Consultants Designers Site engineers Construction managers Site supervisors Specialists in green building Quantity surveyors
Description			

The following learning unit is intended for the model data exploitation through cost extraction, site planning and material listing. Furthermore, you will acquire knowledge in the design of a construction model considering time (4D) (construction planning, tasks management...), cost (5D) (budgeting, cost efficiency...) and environmental aspects (6D) (bill of materials, LCA...).

Objectives

- Design construction models based on the effectiveness and efficiency provided by the BIM methodology.
- Analyse model data to minimize costs, time and clashes in site planning.
- Conceptualize and apply the BIM dimensions (4D, 5D and 6D).

Generic competence

- Ability to apply construction procedures, methodology and planning techniques.
- Apply critical and problem-solving skills.
- Discipline following the project's workflow.
- Self-management and/or management and supervision of work patterns.
- Proactive, anticipatory and change-oriented behaviour.
- Spatial vision skills and knowledge of graphic representation techniques through computer-aided design applications.
- Knowledge of the design, calculation, construction and maintenance of building works.



Specific competence

- Validate the model changes or differences that effect pricing based on combining information from the model and the attached databases.
- Define program breakdown structure and trade breakdown structure to define the program forecasting.
- Requirements of each formal cost plan to interpret the modelling and information requirements at each stage.
- Measurement rules definition for all stakeholders to apply within the project to ensure cost control is maintained.
- Technology utilized to complement and assist in the quality checking of model information and elements with existing cost planner's data schemas or ERP systems.
- Link modelling data to validate trade / construction costs.
- Material and element tracking during site construction.
- Apply construction progress tracking to monitor from cost control to defects and safety.
- Utilize the technology to drive sustainability reporting and testing.
- Illustrate the use of information modelling in design teams and management of information modelling within the nZEB design.

Recommended learning methodology

Methodology

The recommended methodology for the course would be Design thinking. A methodology that considers innovation as a holistic approach, where students through technology and their own interests or training needs converge through an action plan designed by themselves. It is based on finding the most original solution to a real problem given by the teacher, and for which the students will have to analyse the situation, stablish hypotheses, and foresee possible impacts of the action.



In addition, another recommended methodology would be Problem Based Learning, is based on group learning that uses real problems as a stimulus to develop skills in problem solving and acquire specific knowledge.

Method

Use of simulation-oriented learning method, group work and group dynamics for the acquisition of the ability to create a good workflow.

Recommended assessment methodology

The recommended evaluation will be the creation of a portfolio with the projects worked on during the course and the completion of written tests.
