

<b>Name of the module (English):</b> Integrated Project 2					
<b>Module code (UP):</b> M25 (provisional)		<b>Name of the module (Portuguese):</b> Projeto Integrado 2			
<b>Module code (THM):</b> IMTM (provisional)		<b>Name of the module (German):</b> Integriertes Projekt 2			
<b>Module code (UC):</b> M25 (provisional)		<b>Name of the module (Spanish):</b> Proyecto Integrado 2			
<b>Credits:</b> 6 ECTS	<b>Module status:</b> Obligatory	<b>Duration:</b> 1 semester	<b>Semester:</b> 2	<b>Year:</b> 1	<b>Frequency:</b> Every year
<b>Type of tuition:</b> Classroom-based		<b>Workload:</b> 180 h	<b>Attendance time:</b> 60 h	<b>Self-study time:</b> 120 h	
<b>Usability:</b> Master (Degree in Sustainable Design, Construction and Management of the Built Environment)			<b>Classification:</b> Engineering / Architecture	<b>Teaching language:</b> English	
<b>Module responsibility:</b> Christian Karl Baier (THM)		<b>Lecturers:</b> Jens Minnert (THM) Julian Robert Walter Kümmerl (THM) Joaquin Antonio Diaz Pascual (THM) Maik Werner Neumann (THM)			
<b>Description / Observations:</b> Application-oriented, life-oriented and self-directed learning, whereby the integrated project implies the active participation as well as application of the knowledge provided in the other modules and seminars. With the content learned in the different modules theoretical and practical knowledge is given. Students should now be able to <ul style="list-style-type: none"> <li>• Define and understand the problem</li> <li>• Brainstorming for hypothesis generation</li> <li>• Systematic order and evaluation of the hypotheses</li> <li>• Objective formulation</li> <li>• Investigate</li> <li>• Apply</li> </ul>					
<b>Recommended Requirements:</b> Basic knowledge about sustainable concepts in design, construction and managements of buildings and infrastructures.					
<b>Basic competences:</b> <ul style="list-style-type: none"> <li>• Possess and understand knowledge that provides a basis or opportunity to be original in the development and/or application of ideas, often in a research context.</li> <li>• Students are able to apply their acquired knowledge and problem-solving skills in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their area of study.</li> <li>• Students are able to integrate knowledge and deal with the complexity of making judgments based on information that is incomplete or limited, including reflections on the social and ethical responsibilities associated with applying their knowledge and judgments.</li> <li>• Students are able to communicate their findings and the ultimate knowledge and reasons behind them to specialist and non-specialist audiences in a clear and unambiguous manner.</li> <li>• Students possess the learning skills to enable them to continue studying in a largely self-directed or autonomous manner.</li> </ul>					

**Transverse competences:**

Problem based learning distinguishes constructive, re-constructive, deconstructive, creative, social, emotional, individual and situational learning in terms of usual learning. These are perspectives on learning that complement each other. It is a highly socially constructivist perspective, stemming from recent learning research and developed in different approaches with different quality. Especially in heterogeneous groups the outcome is that members play a role which helps to solve problems and facilitate skills for future practice in the construction industry.

**Specific competences:**

To be able to develop the integrated design of the urban environment applying the BIM methodology.

**Learning outcomes:**

On successful completion of this module, the students will be able:

- To apply the concept of “problem based-learning”
- To work in teams
- To fulfil a certain role similar to stakeholders in practice
- To integrate different aspects of the building and planning process in the project.
- To analyse the performance level of sustainable options in real case applications.

**Content:**

1. Application and integration of the know-how acquired in the modules
  - Sustainable Cities,
  - Thermal and Acoustic Comfort,
  - ICT for Construction Projects and BIM
  - Engineering Methods in Fire Protection
2. Integration of IT tools for expertise coordination
  - Detailed Design
  - Virtual Modelling
  - Design drawings/Management tools
  - Concurrence with the constructive process
3. Assessment of the performance of the designed solutions
  - Energy efficiency
  - Indoor environment efficiency
  - Fire Safety efficiency
  - Space modelling efficiency
  - Durability of Construction elements’ efficiency
  - Overall efficiency of the requirements under Sustainable perspectives
4. Additional lectures from company experts depending on the project.

**Teaching methodology:**

Students do independent, self-directed study before returning to larger group. The learning is done in small groups of 8–10 people after define the problem and clarify unknown terms. Different materials and sources can be used. The responsibility enhances teamwork and communication. Due to different group members and roles the outcome will be sharpened. Evaluation will be done during and at the end of the module. The Assessment will be given by the lecture and as well by the students.

**Training activities:**

	Number of hours	% Attendance
Theory	20	100
Classroom practice	40	100
Tutorials	5	100
Evaluation	5	100
Group work	60	0
Self-directed work	20	0

**Assessment method:**

	Minimum weighting	Maximum weight
Continuous classroom evaluation	10%	20%
Final written work	40%	60%
Oral presentation	10%	20%
Practical exercises	0%	30%

**Grading system:**

U.PORTO	20	19	18	17	16	15	14	13	12	11	10	9	...	0
Portugal	Very Good with distinction			Good with distinction		Good		Sufficient				Fail		
U.CANTABRIA	10.0	9.9	9.0	8.9	...		7.0	6.9	...		5.0	4.9	...	0.0
Spain	Sobresaliente			Notable				Aprobado				Suspenso		
THM	100	...	88	87	73	72	58	57	...		50	49	...	0
Germany	Excellent			Good with distinction		Satisfactory		Sufficient				Fail		

**Bibliography:**

Different literature depending on the project

Current Status: 20200717