

MODULE OUTLINE

1. GENERAL

UNIVERSITY	UNIVERSITY OF THESSALY		
SCHOOL	SCHOOL OF TECHNOLOGY		
DEPARTMENT	FORESTRY, WOOD SCIENCES & DESIGN		
LEVEL	UNDERGRADUATE		
MODULE'S CODE	KM621	SEMESTER	6 th
MODULE TITLE	Design of Products and Processes		
TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
THEORETICAL PART		2	3
TUTORIALS		1	2
LABORATORY			
TOTAL		3	5
TYPE OF MODULE	Scientific		
PREREQUISITE MODULES:	NO		
LANGUAGE OF TEACHING and EXAMINATIONS:	GREEK & ENGLISH		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES		
MODULE'S URL	https://eclass.uth.gr/courses/FWSD_U_138/		

2. LEARNING OUTCOMES

LEARNING OUTCOMES
<p>The purpose of the module is for students to get to know the principles of designing products and services based on sustainability and the circular economy. Sustainable design is the philosophy of designing physical objects as well as services that will comply with the principles of social, economic and ecological sustainability.</p> <p>Upon successful completion of the course, the student will be able:</p> <ul style="list-style-type: none"> • To know the role of design through the rational use of materials, to include in the design steps the possibilities of using and reusing materials and natural resources in a sustainable way and with respect for the planet. • To understand the importance of the life cycle of a product and the value it can give to the product, the consumer and the company that produces it. • Know the impact at all levels of sustainable and rational design of services and products. • To know the possibilities of using each resource separately and to be able to recognize and calculate the effect of each one on the energy footprint. • To know the existing legislation and the trends of international organisations, and states regarding the incentives to produce sustainable products. • To understand the value of planning with examples of "good practices" in Greece but mainly at an international level with the presentation of case studies.
General Skills
<ul style="list-style-type: none"> • Search, analyse and synthesis of data and information, using appropriate technologies • Design and management of products & services • Decision making • Teamwork, coordination of actions • Critical perception and flexibility of actions

- Promotion of free, creative and inductive thinking

3. MODULE CONTENT

In the theoretical part of the module, the structure is presented in detail.

A retrospective of the products and the way of design - production until the middle of the twenty-first century. Factors that led to the change in the manufacturing processes of the products. How waste creates added value that would have been foreseen by the original idea of creating both an object and a service. Maintaining quality and value even after the end of the product's life. Design based on disassembly and re-creation of new objects. Examples of applications in services and final products. Innovative modes of operation and creative redesign. Energy and natural resources, people and location, how can they balance these? The 4Rs of design: Reuse, repair, rebuild, recycle. Presentation of case studies, on products and services with benefit and creation of new opportunities and jobs.

Attending the laboratory part is mandatory for 80% of the delivered hours. Students in groups of 3-4 prepare coursework on one of the thematic units that they have discussed with the teacher. The oral support of the tasks is an element of the laboratory assessment.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY METHOD	In-class – physical presence	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	<ul style="list-style-type: none"> • Use of H/Y, ppt slides, projector, and video projection. • Learning process support through the e-class electronic platform 	
TEACHING ORGANISATION	ACTIVITY	Semester Workload
	Theory lectures, video screenings related to the subject	20
	Presentations of work - discussion	20
	Laboratory training	-
	Educational visits/ individual practice tasks	40
	Study	40
	Total Module (20 workload hours per credit unit)	120
EVALUATION OF STUDENTS	<p>I. Presentation and project exam (50%) which includes:</p> <ul style="list-style-type: none"> - Presentation of the project which has been assigned to the students <p>II. Written or oral final exam (50%) which includes:</p> <ul style="list-style-type: none"> - Short answer questions from all teaching material and carried out. 	

5. RECOMMENDED-BIBLIOGRAPHY

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<https://de.phaidon.com/store/architecture/vitamin-green-9780714862293/>

<https://www.degruyter.com/viewbooktoc/product/202505?rskey=26wrrG&result=3>

<https://www.circulardesignguide.com/>

<https://www.norton.com/books/Greening-Modernism/>

<http://www.designersandbooks.com/book/design-activism>

<http://www.designersandbooks.com/book/cause-and-effect>

<http://www.designersandbooks.com/book/design-living-world>

<http://www.designersandbooks.com/book/ecodesign>

<http://www.designersandbooks.com/book/material-revolution>

<http://www.designersandbooks.com/book/mid-course-correction-toward-sustainable-enterprise-interface-model>

<http://www.designersandbooks.com/book/sustainable-design>

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