

Language	Greek or English
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Course title	<b>Landscaping and Bioclimatic Design</b>				
Course code	<b>GALA3604</b>				
Course type	<b>Lectures and practical application</b>				
Level	Higher Diploma				
Year / Semester	3 <sup>rd</sup> Year / 6 <sup>th</sup> Semester				
Teacher's name	Demetris Tsimouris				
ECTS	6	<b>Lectures / week</b>	1	<b>Laboratories / week</b>	2
Course purpose and objectives	The aim of the course is to provide the students with the knowledge and skills to design and implement landscape architecture projects that respect and utilise the bioclimatic characteristics of the environment. The course focuses on understanding the principles of bioclimatic design, using environmentally friendly materials and practices, and integrating sustainable solutions that promote energy efficiency and biodiversity in gardens and outdoor spaces. Upon completion of the course, the students will be able to design aesthetically pleasing and functional spaces that contribute to environmental balance and sustainability.				
Learning outcomes	<p>Upon completion of the course, students are expected to:</p> <p><b>Theoretical Learning Outcomes:</b></p> <ol style="list-style-type: none"> <li><b>Recognise</b> the fundamental principles and techniques of landscape architecture, as well as the processes involved in the design and implementation of landscape projects.</li> <li><b>Comprehend</b> the principles of bioclimatic design and the importance of adapting design to the climatic and environmental conditions of the area.</li> <li><b>Identify</b> plant species suitable for bioclimatic gardens and appreciate the role of biodiversity in the design and maintenance of gardens.</li> </ol> <p><b>Practical Learning Outcomes:</b></p> <ol style="list-style-type: none"> <li><b>Design</b> and <b>analyse</b> landscape architecture projects that integrate bioclimatic principles, using appropriate design tools and methods.</li> <li><b>Select</b> and <b>utilise</b> suitable plant species for creating sustainable and climate-adapted gardens.</li> <li><b>Adapt</b> design proposals to local environmental and climatic conditions, ensuring the resilience and sustainability of the projects.</li> </ol>				
Prerequisites	<b>Garden/Landscaping Design Plan (GALA1202)</b>	<b>Required</b>			
Course content	<b>Week 1: Regulations and Legislation in Cyprus -Lectures</b>  Introduction: Landscape design in urban spaces Work Stages: Assignment details				

#### Introduction to Bioclimatic Design:

- Definition and Purpose: Understanding the basic principles of bioclimatic design and its importance for sustainability.
- Elements of Bioclimatic Design: Energy savings, use of natural resources, and improving quality of life.
- Applications and Examples: Successful examples of bioclimatic design in various climates.

#### Legislative Framework for Bioclimatic Design in Cyprus:

- General Overview: Review of legislation related to ecological and bioclimatic construction in Cyprus.
- Building Regulations: Regulations for energy efficiency and green building.
- Policies and Strategies: National strategies and policies on sustainability and renewable energy sources.
- Permits and Regulatory Requirements:
- Regulatory Standards: Analysis of standards and requirements for compliance with regulations.
- Comparison with Cypriot Legislation: Comparative analysis and evaluation of alignment with international practices and regulations.

#### **Week 2: Bioclimatic Design - Lectures**

##### Climatic Conditions and Design Principles:

- Analysis of Climatic Parameters: Temperature, humidity, solar radiation, wind.
- Design Strategies: Designing buildings and outdoor spaces based on climatic conditions.
- Tools and Techniques: Use of models and tools for bioclimatic design.

##### Application of Bioclimatic Strategies:

- Thermal Comfort Strategies: Thermal insulation materials, shading, natural ventilation.
- Energy Efficiency: Renewable energy sources, automated control systems.

#### **Week 3: Stage 1: Research – Analysis- Lab Work**

- Data Collection: Measurements
- Topographic Survey Plan: 1:500 @ A3
- Analysis Plan: Climatic data, shading, wind, temperature, soil, precipitation

#### **Week 4: Stage 1: Research – Analysis- Lab Work**

- Sun Path: 1:500 @ A3
- Study Site Location: Photographs. Traffic and Movement Plan: Main and secondary roads.
- Land Uses: Important buildings, services, green spaces. 1:500 @ A3
- Existing Flora on Study Site: 1:500 @ A3

#### **Week 5: Stage 2: Project Synthesis- Lab Work**

- Concept Plan: Composition diagrams

**Week 6: Stage 2: Project Synthesis- Lab Work**

- Sketches: Design zones

**Week 7: Stage 3: Project Design- Lab Work**

- Design of Study Area Layout

**Week 8: Stage 3: Project Design- Lab Work**

- Plant Palette/Plant List

**Week 9: Stage 3: Project Design- Lab Work**

- Photographs

**Week 10: Lab Work**

- Stage 4: Planting Plan. Sections.

**Week 11: Lab Work**

- Stage 5: Model Construction

**Week 12: Lab Work**

- Completion of Work – Presentation

**Course Breakdown**

Week	Content	Teaching Process
Week 1	Introduction to Landscape Design and Bioclimatic Principles: Definition, purpose, applications, and legislation in Cyprus.	Theory (Lecture)
Week 2	Climatic Conditions & Bioclimatic Design Strategies: Analysis of temperature, solar radiation, wind, and humidity.	Theory (Lecture)

Week 3	Stage 1 – Research & Analysis: Data collection, measurements, topographic survey (1:500), initial climate-related analysis.	Practical (Lab Work)
Week 4	Stage 1 Continued – Analysis: Sun path diagram, photographic survey, traffic and land use maps, existing flora mapping (1:500).	Practical (Lab Work)
Week 5	Stage 2 – Project Synthesis: Concept plan development, composition diagrams.	Practical (Lab Work)
Week 6	Stage 2 Continued – Project Synthesis: Development of preliminary design sketches and zoning.	Practical (Lab Work)
Week 7	Stage 3 – Project Design: Initial layout design of the study area.	Practical (Lab Work)
Week 8	Stage 3 Continued – Project Design: Selection and documentation of plant palette and plant list.	Practical (Lab Work)
Week 9	Stage 3 Continued – Project Design: Photographic documentation for visual presentation.	Practical (Lab Work)
Week 10	Stage 4 – Planting Plan Development: Preparation of planting plan and sectional drawings.	Practical (Lab Work)
Week 11	Stage 5 – Model Construction: Construction of scale model based on the final design.	Practical (Lab Work)
Week 12	Final Presentation: Completion and presentation of final design project.	Practical (Lab Work)

<p><b>Teaching methodology</b></p>	<p><b>Theoretical Instruction</b> The theoretical component is delivered through lectures focused on the principles and applications of bioclimatic landscape design. Students are introduced to concepts such as climate-responsive planning, thermal comfort, energy efficiency, and sustainable development. The course also includes analysis of the legislative framework and policies related to ecological design in Cyprus, helping students understand both the scientific and regulatory context of bioclimatic approaches.</p> <p><b>Practical Instruction</b> The practical component is carried out through a structured, studio-based sequence of design exercises. Students engage in hands-on work, including site analysis, climate mapping, sun path diagrams, plant selection, conceptual sketches, detailed planting plans, and scale model construction.</p>
<p><b>Bibliography</b></p>	<p><b>Greek Bibliography</b></p> <ul style="list-style-type: none"> <li>• Ανανιάδου-Τζημπούλου, Μαίρη (2018). Αρχιτεκτονική τοπίου σχεδιασμός αστικών χώρων : Αρχιτεκτονική αστικού τοπίου. Volume B. Ζήτη. ISBN: 9789604565016</li> <li>• Χριστοδούλου, Χ., Βαρθολομαίος, Α., Οικονόμου Μ. (2024). Βιώσιμος (;) Αστικός Σχεδιασμός. [Laboratory Guide]. Kallipos, Open Academic Editions. <a href="https://dx.doi.org/10.57713/kallipos-418">https://dx.doi.org/10.57713/kallipos-418</a></li> </ul> <p><b>English Bibliography</b></p> <ul style="list-style-type: none"> <li>• Margie Ruddick (2016). Wild By Design : Strategies for Creating Life-Enhancing Landscapes. Washington, DC : Island Press. 2016. <b>EBSCOHost</b></li> <li>• Holden, Robert, Liversedge, Jamie (2014). Landscape architecture : An introduction.</li> <li>• Reid, Grant W. (2002). Landscape graphics : Plan, section and perspective drawing of landscape spaces. Watson - Guptill Publication. ISBN: 0823073335</li> </ul>
<p><b>Assessment</b></p>	<ul style="list-style-type: none"> <li>• Attendance and course participation: 10%</li> <li>• Final Landscaping and Bioclimatic Design Assignment 90%</li> </ul> <p><b>Deliverables 1-5</b></p> <p style="text-align: right;"><b>Stage 1 25%</b> <b>Stage 2 15%</b> <b>Stage 3 15%</b> <b>Stage 4 20%</b> <b>Stage 5 15%</b></p>
	<p>The progression of the course's laboratory sessions leads to a comprehensive landscape design project that integrates bioclimatic principles, encouraging critical thinking, spatial planning, and creative problem-solving in real-world environmental contexts. The final assignment accounts for the 90% of the course's overall grade.</p>
<p><b>Language</b></p>	<p>Greek or English</p>