Course title	**Garden Constructions I**				
Course code	**GALA2305**				
Course type	**Lectures and practical application**				
Level	Higher Diploma				
Year / Semester	2nd Year / 3rd Semester				
Teacher's name	Andreas Meneas Anagiotos				
ECTS	6	**Lectures / week**	1	**Laboratories / week**	2
Course purpose and objectives	This course provides students with the technical knowledge and practical skills necessary for the construction and implementation of various garden elements. This course emphasises the physical execution of landscape projects, including materials, structures, and techniques used in hardscape construction. Students will learn how to interpret design plans and translate them into functional and aesthetic garden structures..				
Learning outcomes	Upon completion of the course, the students are expected to: **Theoretical Learning Outcomes:** 1. **Identify** and **describe** construction materials used in garden projects, including types of stone, concrete, bricks, and metals. 2. **Understand** structural elements in garden construction, including entrances, gates, walls, pavements, and retaining structures. 3. **Recognise** the differences between garden design plans and on-site construction requirements. **Practical Learning Outcomes** 4. **Prepare** technical construction drawings using conventional drafting tools, including elevations and sections. 5. **Implement** garden construction techniques, such as laying paving, installing retaining walls, and constructing dry stone walls. 6. **Supervise** and **assess** garden construction projects to ensure they align with design specifications and quality standards. 7. **Apply** correct safety procedures when working with construction materials and tools.				
Prerequisites	**Introduction to Garden Design (GALA1101)**	**Required**			
Course content	**Week 1:** Introduction to the physical and aesthetic properties of materials in general. Understanding the characteristics and properties of materials helps designers and builders to appropriately arrange and combine different materials for optimal aesthetic and construction results in a garden. **Lecture** • Introduction • Properties of garden materials • Specific Gravity, Strength, Hardness				

- Material Deformation
- Density, Thermal Properties
- Electrical Conductivity
- Reflective Qualities of Materials

Weeks 2-3: Presentation of examples of design elements and garden constructions, both as parts of a general garden plan and as standalone technical drawings. Examination of various garden constructions that a student might encounter as a garden designer. Special focus on the design approach for garden entrances and the various design possibilities. Analysis of hard and soft materials in the garden. Examination of the ecological, functional, and aesthetic characteristics of materials like pebbles, mosaic, and compacted soil used for ground covers in the garden.

Lecture: Design Component: Perspective and Axonometric Drawing.

- Introduction to Technical Drawing
- Construction Elements of Gardens
- Types of Constructions and Materials in Garden Design
- Differentiation of Hard and Soft Materials
- Ground Covers - Soft Surfaces
- Gravel, Pebbles, Mosaic, Wood, Sawdust
- Compacted Soil, Glass
- Ground Cover Plants

Laboratory Work: Axonometric and Perspective Drawing

Week 4: Analysis of the ecological, functional, and aesthetic characteristics of materials like cork-wood, crushed glass, and various plant ground covers. How these materials are used and combined in a garden to create a well-designed and aesthetically interesting horticultural project.

Lecture:

- Hard Surfacing Materials - Floors - Paving
- Stone, Cement Tiles, Slate, Cobblestones
- Marbles/Granite, Pebble Pavings, Foundation Paving

Field Work: Embedding with Metal or Lattice. Exercise on how to construct areas in a garden covered with various ground cover materials (e.g., gravel, pebbles, grass). Embedding materials in the garden (e.g., detail of embedding gravel in a walkway bordered by curbstone).

Week 5: Presentation of different materials for flooring in the creation of hard surfaces in a garden. The two main categories of hard flooring: modular and monolithic. How to construct seating areas, walkways, entrances, and other garden points that need to maintain stability without being slippery or inclined for optimal space usage and user safety, which should

be a primary concern for the designer/builder.

Lecture:

- Fixed Paving
- Design of Paving, Section of Paving
- Assignment: Presentation of a Special Topic Related to Garden Constructions

Field Work: Construction of Porous Paving

Week 6:
Lecture

- Stones
- Structural Stone in Antiquity / Modern Construction Industry
- Rocks - Gravel
- Mediterranean Dry Stone Walls
- Dry Stone Walls as Cultural Elements - Types of Dry Stone Walls

Field Work: Design of a Dry Stone Wall Façade: Exercise on how to construct a walkway in a garden. The exercise involves constructing a walkway with cobblestones embedded in a layer of sand and bordered with a linear element (industrial curbstone).

Week 7: Presentation of different materials for flooring in the creation of hard surfaces in a garden. Presentation of monolithic outdoor floors.

Lecture:

- Concrete
- Reinforced Concrete - Eco-friendly Concrete
- Waterproof Concrete - Strength Categories
- Concrete Finishes

Field Work: Construction of a Concrete Wall

Week 8: Construction of dry stone walls and stone as a structural material. Various types of masonry and the importance of preserving dry stone walls as cultural and ecological elements in the Mediterranean region.

Lecture:

- Walls
- Materials for Wall Construction
- Retaining Walls
- Foundations and Construction - Moisture Proofing
- Expansion Joint - Contraction Joint

Field Work: Design and Section of Wall Foundations

Week 9: Retaining walls made from reinforced concrete or industrially processed materials. Retaining walls and terraces help designers manage slopes and embankments in a garden. They serve both structural and functional purposes and add aesthetic value to the garden design. Presentation of retaining wall construction using formwork.

Lectures:

- Supporting Structures
- Stairs and Landings

Field Work: Design of Stairs

Week 10: Presentation of various types of ramps and their typologies. Stairs and ramps are both functional and aesthetic elements in a garden. The ease of movement and safety for users is the primary concern of the designer.

Lectures:

- Supporting Structures
- Ramps

Field Work: Design of Ramps. Important design elements for stairs and ramps include elevations and cross-sections of the construction. Presentation of design details regarding the combination of walls with stairs.

Weeks 11-12 :

Lectures:

- Supporting Structures
- Trenches - Design of Supporting Structures
- Presentation of Individual Project in Class

Field Work:

- **Workshop 9: Design of Drainage Trench**

Course Breakdown

Week	Teaching Content	Teaching Process
Week 1	Introduction to physical and aesthetic properties of garden materials (specific gravity, strength, deformation, etc.)	Lecture
Weeks 2-3	Design elements and garden constructions; soft and hard materials; ground covers (gravel, mosaic, soil, etc.); introduction to technical drawing (perspective, axonometric) Lab: Perspective and Axonometric Drawing	Lecture + Laboratory Work

	Week 4	Hard surfacing materials: stone, cement tiles, pebbles, etc.; embedding methods for materials Field Work: Embedding with Metal or Lattice for ground covers	Lecture + Field Work
	Week 5	Fixed paving designs; safety and functionality in flooring for garden spaces Field Work: Construction of Porous Paving	Lecture + Field Work
	Week 6	Use of stones and dry stone walls as structural/cultural garden elements Field Work: Design of Dry Stone Wall Façade and Walkway Construction	Lecture + Field Work
	Week 7	Concrete in garden constructions; types and finishes of outdoor concrete flooring Field Work: Construction of a Concrete Wall	Lecture + Field Work
	Week 8	Wall construction materials; moisture-proofing; foundations for garden walls Field Work: Design and Section of Wall Foundations	Lecture + Field Work
	Week 9	Retaining walls, terraces, and supporting structures; stairs and landings in gardens Field Work: Design of Stairs	Lecture + Field Work
	Week 10	Functional and aesthetic design of ramps in garden landscapes Field Work: Design of Ramps	Lecture + Field Work
	Weeks 11-12	Trenches and other supporting structures in gardens; student project presentations Field Work: Design of Drainage Trench	Lecture + Field Work

Teaching methodology	**<u>Theoretical Instruction</u>** The theoretical component is delivered through lectures that introduce students to the fundamental properties of materials used in garden construction and landscaping. Teaching emphasises conceptual understanding of structural, aesthetic, and functional aspects of garden elements such as paving, walls, ramps, and stairways. Lectures integrate case studies, material analysis, and technical drawing principles to build the necessary foundational knowledge for practical application. **<u>Practical Instruction</u>** The practical component is conducted through hands-on laboratory and field work where students apply theoretical knowledge to real-world tasks. Activities include technical

	drawing exercises, material installation, construction of garden elements like dry stone walls, porous pavements, and concrete structures. Field work emphasises collaborative problem-solving, craftsmanship, and site-based design adaptation to help students develop essential technical and professional skills.
Bibliography	**Greek Bibliography** • Συλλογικό έργο (2012). Τα πάντα για την κηπουρική (Σχεδιασμός και στίλ κήπου, καλλωπιστικά δέντρα) : Δέντρα, λουλούδια, θάμνοι, οπωρολαχανικά, κήποι, καλλιεργητικές εργασίες, φυτοπροστασία, εξοπλισμός (Η πρακτική εγκυκλοπαίδεια της γεωπονίας). Τέσσερα ΠΙ Α.Ε. ISBN: 9789605610029 • McHoy, Peter (2003), Κατασκευές και γρήγοροι κήποι: Εύκολες, πρακτικές, γρήγορες κατασκευές, Αθήνα, Ίριδα, ISBN 960-7926-34-X • Ingels, Jack E. (2008), Κατασκευές και συντήρηση κήπων, 1η έκδ., Ίων, τ.2, ISBN:978-960-411-352-1. • Braun, Harald (2011), Η διαμόρφωση του κήπου, Μαλλιάρης Παιδεία, ISBN: 9789604574292. **English Bibliography** • Holden, Robert, Liversedge, Jamie (2014). Landscape architecture : An introduction. Laurence King Publishing. ISBN: 9781780672700 • Booth, Norman K., Hiss, James E. (2012). Residential lanscape architecture : Design process for the private residence. 6th Edition. ISBN: 9780132376198
Assessment	• Attendance and course participation: 10% • Practical activities 40% • Final drawing activity: 40% • Presentation of drawing activity: 10%
	The final practical examination consists of a comprehensive technical drawing exercise where students are required to design and detail a selected garden construction element (e.g., pavement, wall, ramp, or stairway). Students will apply the principles learned throughout the course, demonstrating accuracy in measurements, material selection, construction techniques, and graphical representation. The exercise assesses their ability to integrate both functional and aesthetic considerations into a professional-quality landscape construction drawing. The duration of the final practical examination is two academic periods and accounts for the 40% of the final grade. The final drawing activity is accompanied by a presentation that would help the students to develop communication skills, which are critical for real-world landscaping, garden construction, and design work, and to justify their design choices (plant selection, layout, aesthetics, functionality). The presentation would be short (5–7 minutes) and informal but structured — for example: Project title and objective Key design decisions Special features (sustainability, biodiversity, etc.) Challenges faced during the drawing The presentation will end with a brief Q&A. The presentation accounts for the 10% of the overall course grade. Student performance is evaluated on a scale of 0 to 100, with a minimum overall passing grade of 60. The final grade is calculated as a weighted average of the assessment components disclosed above.
Language	Greek or English