Course title	**Aromatic and Medicinal Plants**				
Course code	**GALA3603**				
Course type	**Lectures and practical application**				
Level	Higher Diploma				
Year / Semester	3rd Year / 6th Semester				
Teacher's name	Antonia Stelikou				
ECTS	6	**Lectures / week**	1	**Laboratories / week**	2
Course purpose and objectives	The goal of the course is to provide the students with the fundamental principles of aromatic and medicinal plants concerning their growth, development, propagation, and flowering, as well as their origin, morphology, physiology, and the production of essential oils from these plants.				
Learning outcomes	Upon completion of the course, the students are expected to: **Theoretical Learning Outcomes:** 1. **Explain** the various methods (stages) of harvesting, preserving, marketing, and storing aromatic and medicinal plants. 2. **Identify** the species and characteristics of aromatic and medicinal plants. 3. **Comprehend** the plants' water requirements for optimal quality in both biomass and essential oils. **Practical Learning Outcomes:** 4. **Manage** pests and diseases using appropriate treatments. 5. **Produce** essential oils using suitable distillation equipment. 6. **Adhere to regulations** for health and safety (e.g., distillation boilers).				
Prerequisites			**Required**		

Course content	**Weeks 1–2: Introduction & Identification**
	
	• **Lecture:**
	  ○ Historical overview of aromatic and medicinal plants
	  ○ Cultural and traditional uses
	  ○ Overview of essential oils and active compounds
	• **Practical (Lab):**
	  ○ Identification of common Mediterranean aromatic plants
	  ○ Introduction to distillation categories and classification of essential oils
	  ○ Microscopy introduction: Observing basic plant cell structures and oil glands on leaves (e.g., mint, rosemary)
	
	Week 3: Propagation & Basic Cultivation
	
	• **Lecture:**
	  ○ Propagation techniques (seed, cuttings, division)
	  ○ Growth conditions: soil, temperature, and humidity requirements
	• **Practical-Field:**
	  ○ Propagation exercises (hands-on: mint, lavender, sage)
	  ○ Setting up potted aromatic herbs
	
	Week 4–5: Citrus and Mediterranean Aromatics
	
	• **Lecture:**
	  ○ Botanical traits and care of citrus species: orange, lemon, bergamot, etc.
	  ○ Olive tree: aromatic uses and leaf compounds
	• **Field & Lab:**
	  ○ Leaf and flower harvesting
	  ○ Citrus peel oil extraction using mechanical press
	  ○ Preparation of infused oils
	
	Week 6–7: Annual and Biennial Herbaceous Plants
	
	• **Lecture:**
	  ○ Growth cycles and flowering: coriander, dill, fennel, cumin, anise
	  ○ Active compounds and traditional medicinal uses
	• **Practical:**
	  ○ Herb drying and preservation techniques
	  ○ Creation of a student herbarium and guide
	
	🔻 Microscopy session: Observation of leaf surface structures and oil gland patterns in dried herbs
	
	Week 8: Specialty Aromatic Plants
	
	• **Lecture:**
	  ○ Lesser-known aromatics: lemon balm, hyssop, bee balm, thyme, feverfew
	  ○ Ecological niches and harvesting methods
	• **Field & Lab:**
	  ○ Collection and drying of wild herbs
	  ○ Infusion and tincture making (introductory level)

Week 9: Harvest, Drying & Storage

- **Lecture:**
  - Best practices in harvesting, drying, and storage for quality preservation
  - Post-harvest processing and packaging for market
- **Practical-Lab:**
  - Comparative drying methods: sun, shade, and dehydrator
  - Storage container evaluation and essential oil retention testing

Week 10: Essential Oil Extraction & Analysis

- **Lecture:**
  - Biosynthesis and role of essential oils in plants
  - Distillation, solvent extraction, mechanical methods
  - Oil quality assessment and preservation
- **Lab:**
  - Steam distillation in small-scale apparatus
  - Oil separation and basic GC-MS introduction (demo or video if no equipment)

Week 11: Medicinal Use & Contemporary Applications

- **Lecture:**
  - Medicinal benefits and risks of herbal preparations
  - Herb-drug interactions
  - Regulations and safety in production and sale
- **Practical-Lab:**
  - Create sample herbal tea blends or ointments (non-ingestible)
  - Labeling and basic packaging mock-up

Week 12: Local Production & Sustainable Practices

- **Lecture:**
  - Growing aromatics in Cyprus: challenges and advantages
  - Organic vs conventional production
  - Economic potential and case studies of local producers

Course Breakdown

Week	Teaching Content	Teaching Process
Weeks 1–2	Historical overview of aromatic/medicinal plants, cultural uses, essential oils. Practical: Identification of Mediterranean aromatic plants, introduction to distillation categories. Microscopy introduction: Observing basic plant cell structures and oil glands on leaves (e.g., mint, rosemary)	Theory + Practical (T+P)

	Week 3	Propagation techniques (seeds, cuttings, division), soil and climate conditions. Practical: Propagation exercises (mint, lavender, sage), potted herb setup.	Theory + Field/Lab (T+P)
	Weeks 4–5	Botanical traits of citrus and olive, aromatic uses. Practical: Leaf/flower harvesting, citrus peel oil extraction, infused oil preparation.	Theory + Field/Lab (T+P)
	Weeks 6–7	Growth cycles of herbaceous plants (e.g., coriander, fennel), active compounds. Practical: Drying and preservation, creation of herbarium and guide. Microscopy session: Observation of leaf surface structures and oil gland patterns in dried herbs	Theory + Practical (T+P)
	Week 8	Lesser-known aromatics, ecological niches, harvesting. Practical:*Collection and drying of wild herbs, infusion and tincture preparation.	Theory + Field/Lab (T+P)
	Week 9	Harvesting, drying, and storage methods. Practical: Drying comparisons (sun/shade/dehydrator), storage container evaluation, oil retention testing.	Theory + Lab (T+P)
	Week 10	Essential oil biosynthesis, extraction methods, quality analysis. Practical: Steam distillation, oil separation, basic GC-MS introduction.	Theory + Lab (T+P)
	Week 11	|Medicinal use, risks, regulations, herb-drug interactions. Practical: Create herbal teas or ointments, labeling and mock packaging.	Theory + Lab (T+P)
	Week 12	Local production in Cyprus, organic vs. conventional, economic potential.	Theory (Lecture)
Teaching methodology	**Theoretical Instruction** The theoretical component is delivered through structured lectures that explore the historical, botanical, and scientific aspects of aromatic and medicinal plants. Topics include plant propagation, growth requirements, essential oil biosynthesis, medicinal applications, and		

	sustainable production practices. Instruction is supported by case studies, local examples, and discussions to help students understand the ecological, cultural, and economic value of these plants in both traditional and modern contexts. **Practical Instruction** The practical component consists of field-based and laboratory activities designed to reinforce theoretical knowledge through hands-on experience. Students engage in tasks such as plant identification, propagation techniques (e.g., cutting, grafting), harvesting, oil extraction, herb drying, infusion preparation, and basic packaging. Each session is aimed at developing technical skills, observation abilities, and familiarity with tools and methods used in the production, processing, and application of aromatic and medicinal plants.
Bibliography	**Greek Bibliography** • Βογιατζή - Καμβούκου, Ε. Κ. (2018). *Επιλογή αρωματικών και φαρμακευτικών φυτών*. 2ηΈκδοση. Σύγχρονη Παιδεία. ISBN: 978-960-357- 130-8 • Κατσιώτης, Σ. (2015). *Αρωματικά φαρμακευτικά φυτά και αιθέρια έλαια: Παραγωγή, επεξεργασία, μεταποίηση, αξιοποίηση, διεθνείς αγορές, αρωματοθεραπεία, αρωματοποιία*. 3η Έκδοση. Κυριακίδη Αφοί. ISBN: 9786185105891. • Κουτσός, Θ. Β. (2006). *Αρωματικά και φαρμακευτικά φυτά: Βοτανική ταξινόμηση, Οικολογία, Καλλιεργητικές οδηγίες Χρήσεις*. 2η Έκδοση. Ζήτη. ISBN: 9604319922. • Συλλογικό έργο (2001). *Φαρμακευτικά και αρωματικά φυτά: Παραδοσιακές χρήσεις και δυνατότητες αξιοποίησής τους*. Πολιτιστικό Τεχνολογικό Ίδρυμα ETBA. ISBN: 978-960-244-061-2 **English Bibliography** • van Wyk, B., and Wink, M. (2004). *Medicinal Plants of the World: An illustrated scientific guide to important medicinal plants and their uses*. 5th Edition. Timber Press. ISBN: 978-0881926026. • Arraiza, M. P. (2017). *Medicinal and Aromatic Plants. Sharjah : Bentham Science Publishers Ltd*. ISBN:9781681085517. EBSCOHost
Assessment	• Attendance and course participation: 10% • Written individual assignments/reports related to the nature of the Practical/Lab training: 30% • Group Assignment: 20% • Final Practical Evaluation: 40%
	Students are required to submit written assignments or reports that reflect their engagement with the practical and laboratory activities. These may include plant identification records, propagation journals, herbarium documentation, or oil extraction analyses, encouraging reflection and consolidation of hands-on learning. The practical component of the course is also evaluated with a final practical evaluation. This assessment focuses on the students' ability to apply practical skills acquired during the course. Tasks may include plant propagation, oil extraction, herb preparation, and correct use of lab equipment. Evaluation is based on accuracy, technique, safety, and completion of required steps. The duration of the evaluation is two academic periods and accounts for the 40% of the overall course grade. Group assignments assess the students on a formative level and are meant to encourage critical thinking collaboration and reflection upon the course's theoretical components. 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.