



Agricultural University of Athens

School of Environment and Agricultural Engineering

Department of Natural Resources Management and
Agricultural Engineering

MSc: Greenhouses – New Technologies and Sustainable Cultivation
Practices

STUDY GUIDE

2026-27

Appendix A8

Abbreviations

AUA	Agricultural University of Athens
NRDAE	Natural Resources Development and Agricultural Engineering
MSc Program	Master of Science Program
MSc Degree	Master of Science Degree
MSc Thesis	Master's Dissertation
QAU	Quality Assurance Unit
IQAS	Internal Quality Assurance System
HAHE	Hellenic Authority for Higher Education

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2 Presentation of the Department of Natural Resources Management and Agricultural Engineering

The Department of Natural Resources Management and Agricultural Engineering (NRDAE) is part of the School of Environment and Agricultural Engineering of the Agricultural University of Athens (AUA).

It was established in 1989 by Presidential Decree 377/Government Gazette 166/A'/1989 under the original name 'Department of Land Reclamation and Agricultural Engineering', and in 1997, by Presidential Decree 16 150/Government Gazette 128/23-06-1997, it was renamed to the Department of Natural Resources Management and Agricultural Engineering.

It is the only Department in Greece that creatively combines primary production with the management of soil and water resources, environmental protection, technology, and Agricultural Engineering. It constitutes the principal body for the planning and implementation of land reclamation projects in the country, with a longstanding and decisive contribution to the development of Greek agriculture. At the same time, it develops innovative methods and tools for the sustainable utilisation of natural resources, the management of natural and anthropogenic environmental hazards, as well as the optimal use of mechanical systems and agricultural infrastructure.

It possesses notable infrastructure and a particularly active academic staff with a distinguished research output and a strong record of attracting competitive research programs.

The Department of NRDAE offers a five-year Undergraduate Program, Master of Science Programs, and a Doctoral Program, while it is also active in providing Lifelong Learning and Training programs through the Centre for Continuing Education and Lifelong Learning (KEDIVIM) of AUA.

3 Presentation of the MSc Program 'Greenhouses – New Technologies and Sustainable Cultivation Practices'

3.1 Objective of the MSc Program

The Master of Science Program (MSc) 'Greenhouses – New Technologies and Sustainable Cultivation Practices' is a new program offered by the Department of Natural Resources Management and Agricultural Engineering of the Agricultural University of Athens.

Its primary objective is to provide specialised knowledge and skills to graduates of agricultural, polytechnic, and related scientific fields, in order to meet the contemporary demands of greenhouse agriculture and the green transition of agricultural production.

Studies on greenhouses focus particularly on the integration of innovative technologies such as hydroponics, aeroponics, and vertical farming systems, which enable the optimal use of water and nutrients. At the same time, advanced automation systems and sensor technologies allow for the continuous monitoring and real-time regulation of cultivation conditions. The application of machine learning and artificial intelligence techniques enables the development of intelligent decision-support algorithms, improving input management and crop efficiency.

At the global level, greenhouse technology is closely linked to the need for sustainable agricultural intensification, climate change mitigation, and food security. The capacity to produce high-quality agricultural products with a controlled environmental footprint and reduced resource consumption renders greenhouses a key strategic tool for agricultural development.

Consequently, studies focused on greenhouses are not confined to traditional agronomy but extend into the domains of high technology and innovation. Graduates acquire specialised knowledge and skills that render them competitive in both the domestic and international labour market, while simultaneously contributing actively to the shaping of a more sustainable and technologically advanced agri-food system.

The establishment of the MSc Program 'Greenhouses – New Technologies and Sustainable Cultivation Practices' falls within the strategic objectives of AUA for the provision of high-level postgraduate education and the cultivation of specialised knowledge addressing the contemporary challenges of the agri-food sector. The MSc Program aspires to serve as an interdisciplinary platform for education and research, combining elements of agronomy, engineering, informatics, energy technologies, and economic management. This synthesis is essential for the understanding, design, and operation of modern, efficient, and environmentally sustainable greenhouse units.

At the core of the program lies the advancement of scientific knowledge and innovation through:

- the application of Smart Greenhouse Technologies for the control of climate, irrigation, nutrition, and energy,
- the use of sensor technologies, automation, IoT (Internet of Things), and artificial intelligence (AI) systems for the optimisation of production,
- the integration of circular economy principles (water and nutrient recycling, utilisation of biomass residues),
- the energy upgrading of greenhouse facilities based on the principles of energy efficiency and renewable energy sources, and

- the promotion of integrated and sustainable plant protection systems (IPM), aiming at the reduction of chemical burden and the production of safe, high-quality products.

At the same time, the program aims at cultivating research skills through the completion of an MSc dissertation in contemporary fields, such as:

- the design of next-generation greenhouses (bioclimatic greenhouses),
- energy and climate management with intelligent systems,
- the utilisation of digital data (data-driven agriculture), and
- the economic sustainability of greenhouse enterprises.

Furthermore, the MSc Program seeks to strengthen the links between the Department of NRDAE and the Agricultural University of Athens with the productive sector and society, by promoting collaborations with research institutions, regional authorities, greenhouse enterprises, and international organisations.

The education provided within the framework of the program will have a strongly practical and applied character, utilising existing experimental facilities, pilot greenhouses, and laboratories of the Department of NRDAE.

3.2 Learning Outcomes of the MSc Program 'Greenhouses – New Technologies and Sustainable Cultivation Practices'

The graduates of the MSc Program are expected to acquire knowledge and to have further developed competences and skills corresponding to Level 7 of the National and European Qualifications Framework.

Specifically, the expected learning outcomes of the MSc Program are described in the following table:

Category	Learning Outcomes
<i>Knowledge</i>	1. They explain the principles of design, operation, and energy management of greenhouse systems. 2. They analyse the technologies of hydroponics, aeroponics, and closed cultivation systems. 3. They document the fundamental principles of microclimate, sensors, automation, and control systems in greenhouse environments. 4. They possess an in-depth understanding of sustainable cultivation practices and energy-saving and renewable energy technologies in greenhouses. 5. They describe applications of artificial intelligence, big data, and precision agriculture in protected cultivation.
<i>Skills (Scientific & Technological)</i>	1. They design and operate greenhouse facilities utilising modern materials, technologies, and automation systems. 2. They apply sustainable and energy-efficient cultivation practices. 3. They use hydroponics, aeroponics, and closed-loop nutrient systems. 4. They manage greenhouse microclimate using sensors, IoT applications, and automated systems. 5. They integrate renewable energy technologies and energy-saving systems into greenhouse operations. 6. They apply artificial intelligence, big data analytics, and precision agriculture techniques for production optimisation.

Skills (Research & Analytical)

1. They design, execute, and evaluate experimental applications in greenhouse environments.
2. They analyse sensor and IoT system data for evidence-based decision-making.
3. They conduct nutrient analyses in plant tissues and nutrient solutions.
4. They prepare nutrient solutions and design nutrition programs for hydroponic systems.
5. They develop innovative techniques and methodologies to increase productivity.
6. They compile scientific reports, studies, and articles in accordance with international standards.

Competences

1. They combine technological and scientific knowledge for complex decision-making in greenhouse management.
2. They solve technical and production problems utilising data and technological tools.
3. They design and support the implementation of innovative projects in protected production units.
4. They collaborate and communicate effectively with scientists, producers, and technical bodies. 22. They continue their studies at the doctoral level, utilising the research background they have acquired.

3.3 Language of Instruction

The language of instruction of the MSc Program is Greek, while English will be used by invited professors from abroad. The MSc Dissertation may be prepared in English, upon decision of the Departmental Assembly.

3.4 Duration of the MSc Program and Total ECTS

The MSc Program 'Greenhouses – New Technologies and Sustainable Cultivation Practices' has a duration of three (3) academic semesters. The taught courses correspond to ninety (90) credit units of the ECTS (European Credit Transfer System) and are distributed across 3 semesters with a total of 30 ECTS per semester.

3.5 Tuition Fees and Exemptions

For their enrolment in the MSc Program 'Greenhouses – New Technologies and Sustainable Cultivation Practices', postgraduate students do not pay tuition fees.

3.6 Conferral of the MSc Degree and Awarded Qualification

The MSc Program entitled: 'Greenhouses – New Technologies and Sustainable Cultivation Practices' confers a Master of Science Degree (MSc) entitled:

'Greenhouses – New Technologies and Sustainable Cultivation Practices'

and corresponds to Level 7 of the National and European Qualifications Framework.

The conferral of the MSc Degree requires the successful completion of all required courses and the MSc Dissertation with a minimum passing grade of six (6.0) on a scale of 0-10.

Upon the completion of all obligations by the postgraduate student and the successful examination of the dissertation, the MSc Degree 'Greenhouses – New Technologies and Sustainable Cultivation Practices' is conferred.

The MSc Degree states the final grade classification:

- α) From 6 to 6.49: Good.
- β) From 6.50 to 8.49: Very Good.
- γ) From 8.50 to 10: Excellent.

3.7 Career Prospects

The MSc Program will contribute to the training of a new generation of scientists capable of designing, managing, and evaluating innovative greenhouse production systems.

Graduates will possess:

- cutting-edge knowledge in automation technologies, informatics, and environmental engineering,
- experience in the analysis of production data and energy performance of greenhouses,
- competence in the design of sustainable business models,
- and skills in writing research proposals and in project management.

Graduates of the MSc Program will be in a position to operate as highly specialised professionals, capable of being employed in:

- public and private agricultural development agencies,
- research centres and universities,
- greenhouse equipment and technology companies,
- agricultural holdings and agri-food enterprises, as well as
- consultancy services supporting the green and digital transition of agriculture.

3.8 Teaching Staff of the MSc Program

A significant number of faculty members of AUA participate in the MSc Program, with recognised research and published work in the relevant scientific fields. At the same time, external collaborators from other Higher Education Institutions and research centres are expected to participate.

The teaching staff of the MSc Program are as follows:

Department of Natural Resources Management and Agricultural Engineering

1. Thomas Bartzanas, Professor
2. Dimitrios Manolakos, Associate Professor
3. Chrysanthos Maraveas, Assistant Professor
4. Anastasios Giannoulis, Laboratory Teaching Staff Member
5. Konstantinos Arvanitis, Professor
6. Dimitrios Loukatos, Laboratory Teaching Staff Member
7. Georgios Xanthopoulos, Associate Professor
8. Vasileios Anestis, Postdoctoral Researcher
9. Dafni Avgoustaki, Postdoctoral Researcher

Department of Crop Science

10. Georgia Ntatsi, Associate Professor

11. Dimitrios Savvas, Professor
12. Andreas Ropokis, Laboratory Teaching Staff Member
13. Chrysi Papadimitriou, Assistant Professor
14. Dimitrios Tsitsigiannis, Professor
15. Konstantinos Aliferis, Assistant Professor

Department of Agricultural Economics and Development

16. Achilleas Vasilopoulos, Assistant Professor
17. Konstantinos Tsimboukas, Professor
18. Sofia Angelidou, Assistant Professor

3.9 Contact Information of the MSc Program

e-mail: grammateiaafp-gm@aua.gr

website: <https://w1.aua.gr/afp/>

3.10 Quality Assurance

The MSc Program 'Greenhouses – New Technologies and Sustainable Cultivation Practices' implements a Quality Policy that is aligned with the Quality Policy of the Department of NRDAE and the Institution, and contributes to the promotion of their mission and strategy.

Specifically:

1. It establishes objectives for quality assurance
2. It proceeds with the rational management of its resources
3. It conducts the annual internal evaluation of its curriculum and revises it whenever the need arises
4. It collects, analyses, and utilises data within the framework of its annual internal evaluation and in the establishment of new quality objectives
5. It monitors the teaching, research, and administrative work of the MSc Program
6. It publishes information related to the activities of the MSc Program
7. It proceeds with the processes of external evaluation, in accordance with the standards of the Hellenic Authority for Higher Education

The MSc Program is evaluated annually by the Quality Assurance Unit (QAU) of the Institution, in accordance with the Internal Quality Assurance System (IQAS), and periodically by the Hellenic Authority for Higher Education (HAHE). Within this framework, the overall assessment of the work accomplished by the MSc Program is evaluated, including the degree of fulfilment of the objectives set at its establishment, its sustainability, the absorption of graduates into the labour market, its contribution to research, its internal evaluation by postgraduate students, the expediency of extending its operation, as well as other elements relating to the quality of the work produced and its contribution to the national strategy for higher education.

4 Structure of the Master of Science Program

The Master of Science Program (MSc) has a duration of three (3) academic semesters and awards a total of ninety (90) Credit Units (ECTS), which are distributed equally across the individual semesters. The structure of the curriculum has been designed in a coherent and progressive manner, so as to ensure the systematic deepening of students' knowledge in the subject area and the gradual development of specialised competences and skills.

The course program is structured as follows:

1st Semester: The first semester includes the attendance of the following five (5) compulsory courses, which in total correspond to thirty (30) ECTS.

1st SEMESTER: TOTAL SEMESTER CREDIT UNITS (ECTS) 30

No.	Courses	ECTS
1	Greenhouse Construction.	6
2	Greenhouse Environment.	6
3	Climate Control, Irrigation, Nutrition, Automation and IoT Technologies.	6
4	Energy Systems – Energy Savings.	6
5	Circular Economy and Environmental Impact.	6
	Total	30

2nd Semester: The second semester includes the attendance of the following five (5) compulsory courses, which in total correspond to thirty (30) ECTS.

2nd SEMESTER: TOTAL SEMESTER CREDIT UNITS (ECTS) 30

No.	Courses	ECTS
1	Nutrition of Greenhouse Crops.	6
2	Sustainable and Innovative Production Systems.	6
3	Plant Protection and Integrated Pest Management (IPM).	6
4	Postharvest Handling of Products.	6
5	Management and Financial Administration of Greenhouse Enterprises and Marketing.	6
	Total	30

3rd Semester: The 3rd Semester of studies includes the compulsory completion of the MSc Dissertation (28 ECTS) and the compulsory practical training (2 ECTS), which in total correspond to thirty (30) ECTS.

3rd SEMESTER: TOTAL SEMESTER CREDIT UNITS (ECTS) 30

No.	Courses	ECTS
1	MSc Dissertation	28
2	Practical Training.	2
	Total	30

4.1 Brief Description of Courses per Semester

A concise presentation of the courses of the MSc Program is provided below. It is noted that the detailed Course Outlines include more extensive information regarding the teaching methodology, the assessment method, the learning outcomes, the expected workload, the lecture topics, and the recommended bibliography.

4.1.1 1st SEMESTER

All courses of the 1st semester are compulsory.

No.	Courses	ECTS
1	Greenhouse Construction.	6
	The course focuses on the advanced understanding and application of greenhouse construction and equipment technologies, with emphasis on the optimisation of production and environmental conditions. The course provides theoretical and practical knowledge on the design, site selection, examination of the climatic suitability and infrastructure of an area for greenhouse installation, construction, and equipment. Students will gain in-depth knowledge of the technical, physical, and energy characteristics of greenhouse infrastructure, as well as automation technologies, microclimate management, and energy efficiency. The course includes analyses of CAD/BIM systems, energy modelling, and evaluation of construction sustainability from the perspective of the circular economy and climate change, with the possibility of adaptation according to each case and the business plan to be implemented.	
2	Greenhouse Environment.	6
	The course focuses on a holistic and interdisciplinary understanding of the physical, technical, and biological parameters that shape the microclimate of a greenhouse and their effect on cultivation. The course provides theoretical and practical knowledge on greenhouse microclimate, namely the conditions of temperature, humidity, radiation, ventilation, and carbon dioxide concentration, and their interaction with crop growth and development, environmental management and control techniques (e.g. ventilation, heating, cooling, shading, lighting), as well as the selection of appropriate equipment, aiming at the optimisation of production and resource conservation. The fundamental principles governing energy flows and heat and mass transfer within the greenhouse are analysed through quantitative and qualitative approaches, and the principles of design and decision-making for the formation and management of suitable microclimatic conditions are presented, according to the requirements of the crop, the greenhouse structure, and the characteristics of the installation area (external climatic conditions, terrain, access network, resources).	
3	Climate Control, Irrigation, Nutrition, Automation and IoT Technologies.	6
	The course focuses on the advanced understanding and application of monitoring technologies and automatic regulation of critical operational parameters in the greenhouse environment, aiming at the qualitative and quantitative optimisation of production and environmental conditions. The course provides theoretical and	

	practical knowledge on the design, implementation, supervision, and evaluation of a typical control system in the aforementioned field of application. Accordingly, students will gain in-depth knowledge of the technical characteristics of support and monitoring infrastructure for modern greenhouse units, with emphasis on automation and networking issues. Emphasis is placed on developing the ability to select the most suitable solutions in terms of performance and cost, based on the specifications set by the client-producer and the requirement for sustainable development.	
4	Energy Systems – Energy Savings.	6
	The course focuses on the advanced understanding and application of Renewable Energy Source (RES) technologies and energy efficiency, as well as the corresponding greenhouse equipment. It provides theoretical and practical knowledge on the design of energy systems suitable for meeting both the electrical and thermal needs of greenhouses. Students will gain in-depth knowledge of the technical, physical, and energy characteristics of greenhouse infrastructure, as well as the automation technologies for energy systems, microclimate management, and energy efficiency. The course includes analyses of energy systems with the aid of digital energy modelling tools, and evaluation of the sustainability of investments entailed by the adoption of these systems.	
5	Circular Economy and Environmental Impact.	6
	The course focuses on the application of circular economy principles and environmental assessment in the context of greenhouse systems. It provides students with theoretical training and practical exercise in Life Cycle Assessment (LCA) methodology, aiming at the systematic evaluation of environmental impacts arising from the operation, construction, and inputs/outputs of greenhouses. The course covers tools, software, and standards for the quantitative estimation of environmental indicators (such as carbon footprint, energy consumption, and water resources), enhancing the possibilities for optimising circular efficiency. It includes case studies and laboratory applications with real or hypothetical scenarios, supporting sustainable design and the environmental and strategic upgrading of agri-technological units.	
	Total	30

4.1.2 2nd SEMESTER

All courses of the 2nd semester are compulsory.

No.	Courses	ECTS
1	Nutrition of Greenhouse Crops.	6
	The course focuses on the nutrition of greenhouse crops, with emphasis on plant nutrition physiology, the macro- and micronutrient requirements of greenhouse vegetables, and their relationship with growth and production quality. The course presents modern technologies and strategies for rational fertilisation, focusing on precision fertilisation technologies, the use of sensors, software, and data-driven	

	decision-making systems. Particular emphasis is placed on nitrogen and nitrate management, the use of biostimulants, the diagnosis and treatment of nutritional disorders, salinity, as well as nutrient solution management in hydroponic systems. Furthermore, the particularities of nutrition in organic crops and the appropriate selection of fertilisers based on effectiveness and cost are examined. Students will gain in-depth knowledge in the analysis of hydroponic solutions and plant samples and in decision-making for sustainable and efficient nutrition, utilising precision agriculture tools and solution recycling technologies. The focus will be on hydroponic crops.	
2	Sustainable and Innovative Production Systems.	6
	The course focuses on the study and application of modern technologies and sustainable vegetable cultivation practices, with applications in hydroponics, vertical farming, and organic production. Particular emphasis is placed on the root and atmospheric environment, substrates and their disinfection, intelligent irrigation systems, as well as practices that enhance organic agriculture, such as the utilisation of beneficial microorganisms, biological nitrogen fixation, and the use of legumes for intercropping or green manuring. Students will gain in-depth knowledge in the design and management of modern high-performance production units, with respect for the environment and the principles of sustainability, will become familiar at both theoretical and practical levels with the systems, equipment, and substrates of hydroponic cultivation, and will be trained in nursery techniques, propagation, and grafting. The course combines scientific knowledge and applied training, cultivating skills that lead to innovative, productive, and environmentally responsible agricultural practices in the greenhouse.	
3	Plant Protection and Integrated Pest Management (IPM).	6
	The course aims at the understanding of plant protection problems faced by greenhouse crops, the correct identification of harmful organisms, and the application of integrated and sustainable management strategies, with emphasis on biological control and the safety of the environment and the consumer. It provides theoretical and practical knowledge on monitoring methods and early diagnosis of pests and diseases in greenhouse crops, the selection and design of appropriate control measures (chemical, biological, cultural) based on scientific data and environmental conditions, the correct and safe handling of plant protection products and evaluation of their effectiveness, and the design of plant protection strategies based on the principles of sustainability and good agricultural practice.	
4	Postharvest Handling of Products.	6
	The course offers specialised knowledge in the field of postharvest technology and physiology as well as cold storage management of fresh produce. Within the framework of the course, students become familiar with the postharvest physiology of harvested products and their management during sorting, grading, and cold storage. The factors that affect postharvest metabolism (temperature, humidity, O ₂ , CO ₂ , C ₂ H ₄) and how they influence respiration, transpiration, and overall quality are analysed. The course analyses the term 'quality' and how it is perceived commercially, as well as the harvest	

	maturity criteria that determine the commercial value of the product and its storability. Particular emphasis is placed on modern trends in pre-cooling, cooling, controlled and modified atmosphere of whole and fresh-cut vegetables, and refrigerated and cooled transport (road, maritime, rail, and air).	
5	Management and Financial Administration of Greenhouse Enterprises and Marketing.	6
	The course focuses on management, financial administration, and marketing of greenhouse enterprises, aiming at the understanding and application of tools and strategies that enhance the sustainability and competitiveness of the business model in the agri-food sector. Theoretical knowledge and practical skills are provided in relation to business planning, cost and investment management, economic efficiency analysis, risk management, and the financial strategy of greenhouse units. At the same time, the course integrates marketing concepts, with emphasis on the identification of target markets, the development of value-added products, and the formulation of market positioning strategy.	
	Total	30

4.1.3 3rd SEMESTER (Winter)

All courses of the 3rd semester are compulsory.

No.	Courses	ECTS
1	MSc Dissertation	28
	The MSc dissertation involves the preparation of an original research or applied study in the field of greenhouse technologies. The student selects a topic related to microclimate control systems, energy management, hydroponic cultivation, automation, sensors, or smart agriculture technologies, in collaboration with the Supervising Professor. The successful completion of the MSc Degree includes the writing of the dissertation, plagiarism check, correction/approval by the supervisor, submission of the dissertation to the three-member committee, and the public oral defence of the dissertation. Detailed information is included in the MSc Dissertation Regulations.	
2	Practical Training.	2
	The Practical Training aims at linking theoretical knowledge with professional application in the field of modern greenhouse technologies. It is carried out in cooperating enterprises, research institutions, or model greenhouse cultivation units. Indicatively, the Practical Training positions pertain to: • Modern greenhouse production units. • Greenhouse equipment design and installation companies. • Automation, sensor, and microclimate control system enterprises. • Research and development bodies in the agri-technology sector. During the training, students participate in activities such as: • Monitoring and regulation of climate control systems (heating, ventilation, shading, CO₂). • Management of hydroponic or other innovative cultivation systems. • Collection and analysis of data from sensors and automation systems. • Estimation of energy consumption and application of conservation practices. • Support for quality control and sustainable production processes. Detailed information is included in the Practical Training Regulations.	
	Total	30

5 Enrolment, Attendance, Rights of Postgraduate Students

5.1 Enrolment in the MSc Program

Admission to the MSc Program is conducted in accordance with the terms and criteria set forth in the Internal Regulations of the MSc Program (Senate decision: session 633/23.12.2025).

The MSc Program admits graduates of Agronomy, Forestry, Natural Sciences, Polytechnic Schools, Informatics, or related University Departments from domestic institutions or recognised equivalent Departments of foreign institutions in related specialisations, provided that they have obtained recognition from DOATAP. Additionally, graduates of related Departments of Higher Technological Educational Institutions (ATEI) are admitted.

Following the publication of the call for applications, interested candidates submit all the required documents specified therein.

The evaluation of candidates is conducted by the special evaluation committee of the Department, which is constituted by decision of the Assembly and in accordance with the terms and criteria described in the Internal Regulations.

The number of admitted students to the MSc Program per year is determined in accordance with Law 4957/2022, Chapter Theta, Article 79, paragraph 4a, as follows: a minimum of four (4) students and a maximum of twenty (20) students, determined annually by the competent body. In the event that the admitted students per year do not exceed four (4), the Departmental Assembly decides whether the MSc Program will operate, upon the recommendation of the Coordinating Committee (CC) of the MSc Program. The Departmental Assembly determines, by its decision, the details of implementation of the selection criteria, the designation of supplementary criteria, or the conduct of examinations and interviews, the results of which are taken into account during the selection process.

In the event that the Departmental Assembly decides to conduct entrance examinations, the selection of admitted students to the MSc Program is carried out under the responsibility of the CC, which proposes to the Assembly committees for examinations, interviews, and the proclamation of candidate postgraduate students. The results are ratified by the Departmental Assembly.

In the event of a tie between candidates, all tied candidates are admitted, with the last one as supernumerary.

The list of successful candidates is published no later than within twenty (20) calendar days from the deadline for the submission of candidates' documents. Following the publication of results, successful candidates must communicate any possible non-acceptance of their selection. The enrolment of successful candidates takes place within the dates determined by the Assembly.

The selection of candidate postgraduate students and the following documents is carried out by the CC, on the basis of the provisions of Law 4957/2022, taking into account the following criteria:

- a) Printed application form.
- b) Copy of Degree/Diploma.
- c) Copy of Detailed Transcript of Records.
- d) The degree grade, which must be at least 6.5.
- e) Detailed curriculum vitae.
- f) Photocopy of both sides of the identity card.

- α) Personal interview by the Special Committee.
- β) The relevance of the topic of the undergraduate thesis and its grade. The existence of a relevant undergraduate thesis strengthens the candidacy, without being compulsory.
- γ) The level of English language proficiency, supported by a duly certified diploma.
- δ) The content of two letters of recommendation.
- ε) The possession of another postgraduate degree or a five-year degree.
- στ) The possession of a doctoral degree.
- ζ) Prior research activity, as evidenced by publications or presentations at scientific conferences.
- η) Other relevant scientific or professional qualifications.

The grading limits and the weighting of selection criteria are defined in the following table, while the details of implementation may be modified by the Departmental Assembly.

CRITERION		GRADING LIMITS	WEIGHTING
C1.	DEGREE GRADE	6.5 – 10	20%
C2.	PERSONAL INTERVIEW	3 – 10	20%
C3.	RELEVANCE OF UNDERGRADUATE THESIS	0 – 10	5%
C4.	ENGLISH LANGUAGE PROFICIENCY LEVEL	0 – 5	10%
	In case of examination	5	
	LOWER	8	
	ADVANCED PROFICIENCY	10	
C5.	LETTERS OF RECOMMENDATION	0 – 10	5%
C6.	OTHER MSc OR FIVE-YEAR DEGREE	10	10%
C7.	DOCTORAL DEGREE	10	15%
C8.	PUBLICATIONS	0 – 10	5%
C9.	OTHER PRIOR RESEARCH ACTIVITY	Based on years (0- 10)	5%
	RELEVANT PROFESSIONAL EXPERIENCE	Based on years (0-10)	5%

The oral interview is conducted on topics of broader pedagogical, scientific, and social interest and aims at:

- a) ascertaining the candidate's general scientific training and the formation of their personality,
- b) identifying special qualifications and other characteristics and activities of the candidate,
- c) identifying possible deficiencies of the candidate that would lead to the candidate attending supplementary undergraduate courses, laboratory exercises, or practical training,
- d) identifying difficulties that the candidate may have in the uninterrupted attendance of courses and other obligations of the MSc Program, and
- e) ascertaining particularities and other elements pertaining to the candidate that may play a role in their smooth integration into the MSc Program

The committee members evaluate each candidate individually and assign a specific number of points, which may not exceed 10 Evaluation Units (EU). The number of EU ultimately credited to the candidate from their performance in the oral interview is the average of the EU assigned to the candidate by all committee members.

The EU credited to the candidate from their special qualifications and their performance in the oral interview are summed up and constitute the candidate's total EU. This total determines the order of success of each

candidate. Based on the total EU accumulated by each candidate, the competent examination committees compile an evaluation table of candidates for each Specialisation of the MSc Program. The evaluation table includes, in order of success, all candidates of each Specialisation who attain a minimum EU score of 4, and the successful candidates are declared. Subsequently, these tables are transmitted to the CC for review and submission to the Departmental Assembly for approval.

In the event that two candidates accumulate the same total number of EU, priority is given to the candidate with the higher grade in their primary degree.

The lists of successful candidates, following their ratification by the Departmental Assembly, are announced by the secretariat on the notice boards and on the Department's website, in order to inform the successful postgraduate students and for them to proceed with enrolment in the MSc Program, within a specific time period determined by the CC. A candidate who does not enrol within the predetermined time period forfeits the right to enrol in the MSc Program, unless they invoke documented reasons of force majeure or serious illness. The lists of successful candidates, ratified by the Departmental Assembly, must be announced no later than 10 days prior to the commencement of the MSc Program courses.

An objection against the success lists may be filed within 10 days from the date of announcement of the lists. The objection, which must be specific, is submitted to the secretariat and is adjudicated definitively by the Departmental Assembly.

5.2 Course Attendance,

The educational work of each academic year is structured into two (2) semesters of studies, the winter and the spring semester, each of which includes at least thirteen (13) weeks of instruction and two (2) weeks of examinations.

In the event of an impediment to the delivery of a course, make-up sessions are provided. The date and time of the make-up session are posted on the MSc Program website.

Attendance of courses/laboratories etc. is compulsory and is verified under the responsibility of the instructor. The number of absences per course may not exceed three (3), of which two (2) may be unjustified. Exceeding the above number of absences in one or more courses, whether compulsory or elective, results in removal from the MSc Program, by decision of the Assembly, upon recommendation of the CC.

Courses and their possible make-up sessions will be conducted in the most suitable manner, including the possibility of holding them on a consolidated basis.

5.3 Assessment and Examination Procedures

The examination of each course may be conducted orally, in writing, through coursework, studies, design proposals, or by any other means determined by the instructor. The assessment terms for each course are communicated at the commencement of the course instruction and are stated in the Course Outline.

All courses as well as the MSc Dissertation are graded on a scale of 0-10.

The passing grade for each of the ten (10) compulsory courses is set at six (6.0).

The MSc Dissertation is considered successful when it receives a grade of at least six point fifty (6.50), taking into account the content of the work, the knowledge of the postgraduate student, and the quality of the presentation. The successful completion of all courses is required.

The results of course grading are communicated, under the responsibility of the course coordinator, to the postgraduate students fifteen (15) days after the examination date or, in the case of assessment based on coursework, twenty (20) days after the coursework submission date. No repeat examination is provided for the purpose of improving the student's grade.

Examinations are held twice a year, during the 2 weeks following the end of courses of each academic semester. The CC may modify or postpone the examination period or designate a third examination period during the first fortnight of September of the following academic year.

Each postgraduate student may be examined in each course a maximum of two times. The first (1st) examination period for each semester is designated immediately after the end of courses, while the second (2nd) examination opportunity for a course is set 10-15 days after the date of the first examination. If the student fails the second time as well, the postgraduate student is referred to the CC, which, after examining the overall performance of the postgraduate student, recommends to the Departmental Assembly the removal of the student from the MSc Program or the possibility of an additional examination, provided that exceptional circumstances exist that justify the reduced performance, or the repetition of the course by the postgraduate student in a subsequent semester.

All postgraduate students are required to comply with the fundamental principles of the Code of Ethics during their participation in examinations, as described below. Any deviations from the Code of Ethics will be reported by the respective instructor to the CC of the MSc Program and will be handled in accordance with Article 18 Grounds and Procedure for Removal of the present Internal Regulations.

5.4 Rights of Postgraduate Students

1. The rights of postgraduate students are provided for in Law 4957/2022. Specifically, postgraduate students have all the rights and benefits provided for first-cycle students, with the exception of the right to free textbooks.
 - a) Indicatively, postgraduate students are entitled to:
 - b) Academic identity card (student pass).
 - c) An AUA electronic mail account.
 - d) Access to the AUA libraries.
 - e) Access to electronic databases to which AUA subscribes (Hellenic Academic Libraries Link).
 - f) They have the right to broader collaboration for their educational and examination needs with the teaching staff of the MSc Program, on days and hours announced at the beginning of each semester.
 - g) They have the right to submit queries and applications, which will be answered within a reasonable time, by the MSc Program Secretariat.
 - h) They have the right to be served by the structures of the Institution and the Department.
2. The Department is obliged to ensure that postgraduate students with disabilities and/or special educational needs have accessibility to the recommended textbooks and instruction, or other accommodations.

5.5 Obligations of Postgraduate Students

Postgraduate students have the following obligations:

- a) To attend courses of the program of studies without interruption and to sign the attendance registers.

- b) To submit the prescribed coursework within the stipulated deadlines.
- c) To attend examinations.
- d) To submit to the Secretariat, prior to the assessment of the MSc dissertation, a sworn statement that their work does not constitute a product of plagiarism, either in its entirety or in its individual parts.
- e) To respect and observe the Postgraduate Studies Regulations, the decisions of the MSc Program bodies, as well as the Academic Code of Ethics.

5.6 Extension and Suspension of Studies

The duration of full-time study for the conferral of the Master of Science Degree (MSc) in the MSc Program is set at three (3) academic semesters.

In justified exceptional cases, this period may be extended by one (1) academic semester, upon the recommendation of the Coordinating Committee (CC) or upon application by the postgraduate student and approval by the Departmental Assembly. In the event that the aforementioned maximum time limit is exceeded without the fulfilment of the educational obligations for the conferral of the postgraduate degree, the postgraduate student is removed by a declaratory act of the Assembly.

The Departmental Assembly, upon application by the interested postgraduate student and recommendation of the CC, in fully justified cases, may decide to accept the suspension of their studies for up to twelve (12) months. The suspension period is not counted towards the duration of studies.

In any case, the total time for the conferral of the MSc Degree may not exceed six (6) semesters, including any twelve-month suspension of studies.

5.7 Removal of Postgraduate Students

The Departmental Assembly, upon the recommendation of the CC, may decide to remove postgraduate students if:

- a) they have failed the examination of a course or courses or the dissertation and have not successfully completed the program, in accordance with the provisions of the present Regulations,
- b) they exceed the maximum duration of study in the MSc Program, as defined in the Internal Regulations of the MSc Program,
- c) inadequate fulfilment of other obligations, as defined by the Internal Regulations of the MSc Program,
- d) conduct that violates the Academic Code of Ethics Regulations (e.g. plagiarism), and
- e) they submit a request for their own removal.

5.8 Academic Study Advisor

The CC designates on an annual basis an Academic Study Advisor for each newly admitted student, in accordance with the provisions of the Academic Advisor Regulations.

The role of the Academic Advisor is to provide guidance to students regarding the organisation and successful completion of their studies.

Further information is available on the MSc Program website.

5.9 Complaints Management Regulations

The complaints and objections management regulations aim at addressing complaints that AUA students may have during the course of their studies and which can be resolved within the Academic Department or the School.

The Application Form and the Regulations are available on the MSc Program website.

5.10 Evaluation of Courses and Instructors

At the end of each academic semester, under the responsibility of the CC of the MSc Program and in cooperation with the Quality Assurance Unit of AUA (QAU-AUA), the evaluation of each course and each instructor is conducted by the postgraduate students who attended the respective courses.

The evaluation is anonymous and postgraduate students are informed in a timely manner of the method and time at which it will take place, so that each postgraduate student has the opportunity to participate actively and responsibly in the process.

The evaluation results are collected, analysed, and utilised by the competent bodies of the MSc Program with the aim of continuously improving the quality of the educational work provided, enhancing the effectiveness of instruction, and upgrading the overall learning experience. At the same time, the confidentiality of the data and their use exclusively for academic and improvement purposes are ensured.



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Department of Natural Resources Management and Agricultural Engineering

MSc Program: Greenhouses – New Technologies and Sustainable Cultivation Practices

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