PROGRAM INFORMATION

Program Name and Degree Awarded

Programme Name: Horticultural Production and Marketing
Degree Awarded: Master of Science in Horticultural Production and Marketing

Duration of Studies

Normal duration is 4 semesters
Extra 2 semesters can be given to students to finalize their thesis.

Total Credits / ECTS

21 credits / 120 ECTS

Language of Instruction

The language of programme is English.

Mission and Vision

Mission

The mission of the Master's Program in Horticultural Production and Marketing is to educate highly qualified professionals who possess advanced knowledge and practical skills in the cultivation, preservation, and marketing of horticultural crops. The program aims to train specialists capable of applying innovative techniques in greenhouse management, seed and seedling production, and sustainable crop systems. Through a combination of theoretical instruction, practical applications, seminars, and thesis research, the program equips graduates with the ability to design, implement, and evaluate production-oriented research and development projects that contribute to the advancement of horticultural science and industry.

Vision

The vision of the Master's Program in Horticultural Production and Marketing is to become a leading academic and research program in the region and beyond, recognized for excellence in horticultural education, innovation, and sustainability. The program aspires to produce graduates who are not only experts in horticultural production and marketing but also forward-thinking professionals who can address global challenges in food security, climate resilience, and sustainable agriculture. By fostering a culture of innovation, interdisciplinary collaboration, and ethical responsibility, the program seeks to shape future leaders who will contribute to the development of the horticultural sector at local, national, and international levels.

Program Objectives

The aim of the Master's Program in Horticultural Production and Marketing is to enable students to become proficient in the cultivation of fruits, vegetables and ornamental plants; to gain skills and specialize in areas such as greenhouse management, seed production, and seedling production, as well as product preservation and marketing; and to assist them in acquiring the ability to prepare, implement, and conclude production research and development projects. Within the thesis master's program, students take theoretical and practical courses; give a seminar and conduct thesis research on a topic of their choice.

Program Learning Outcomes

Graduates of the Master's Program in Horticultural Production and Marketing will be able to:

- Demonstrate advanced knowledge of horticultural science, including the cultivation of fruits, vegetables and ornamental plants, with emphasis on sustainable production systems.
- Apply innovative techniques in greenhouse management, seed and seedling production, crop protection, and postharvest handling to ensure high-quality and safe products.
- Integrate theoretical and practical expertise to design, implement, and evaluate research and development projects in horticultural production and marketing.
- Analyze and solve complex problems related to horticultural production systems by applying critical thinking, scientific methods, and interdisciplinary approaches.
- Evaluate market dynamics and develop strategies for effective preservation, processing, and marketing of horticultural products at local, regional, and international levels.
- Communicate scientific knowledge and research findings effectively in written, oral, and visual forms to both academic and professional audiences.
- Adhere to ethical, social, and environmental responsibilities in the practice of horticultural production, research, and business activities.

Curriculum

1st SEMESTER (FALL)					**2ND SEMESTER (SPRING)**				
Course Code	**Course Name**	**T**	**P**	**C**	**Course Code**	**Course Name**	**T**	**P**	**C**
CGRC501	Research Methods	3	0	3	AGRH503	Plant Growth Regulators in Horticulture	3	0	3
AGRH551	Sustainable Soil Management	3	0	3	CGRC502	Data Analysis	3	0	3
AGRH520	Integrated Pest Management	3	0	3	AGRH537	Soilless Culture in Horticulture	3	0	3
AGRH533	Biotechnology Applications in Horticulture	3	0	3	AGRH522	Seminar	0	2	0
3rd SEMESTER (FALL)					**4th SEMESTER (SPRING)**				
Course Code	**Course Name**	**T**	**P**	**C**	**Course Code**	**Course Name**	**T**	**P**	**C**
AGRH530	Thesis	0	2	0	AGRH530	Thesis	0	2	0

Laboratory and Equipment Capacity (if applicable)

Table 1. Laboratory and computer sources

Laboratory Name	Number of students	Area (m^2)
Chemistry Laboratory	30	100
Physics Laboratory	30	75
Horticulture Laboratory	20	100

Career Opportunities

Graduates of the Master's Program in Horticultural Production and Marketing acquire advanced knowledge and specialized skills that open up diverse career paths in both the public and private sectors, as well as in academia and international organizations. Typical career opportunities include:

- **Specialists in Horticultural Production.** Serving as experts in the cultivation and management of fruits, vegetables and ornamental plants, with emphasis on greenhouse systems, seed production, and nursery management.
- **Marketing and Agribusiness Professionals.** Working in agribusiness companies, cooperatives, and export firms to develop strategies for product preservation, processing, branding, and global market access.
- **Research and Development Experts.** Conducting applied and advanced research in universities, research institutes, and private companies on sustainable production, biotechnology, crop protection, and postharvest technologies.
- **Consultants and Advisors.** Providing technical, managerial, and marketing consultancy to farmers, producer organizations, agribusiness enterprises, and development projects.
- **Public Sector Positions.** Working as agricultural engineers, inspectors, or policy advisors in ministries of agriculture, food safety authorities, rural development agencies, and municipalities.
- **Project Managers and Coordinators.** Leading or contributing to international projects, NGOs, and development agencies in areas of food security, climate-smart agriculture, and rural development.
- **Academic and Teaching Careers.** Pursuing doctoral studies (PhD) and building careers in academia as lecturers, researchers, or trainers in horticulture and related fields.
- **Entrepreneurship.** Establishing innovative enterprises in horticultural production, agribusiness, or marketing, particularly in greenhouse technology, seedling production, organic farming, and value-added processing.

With this qualification, graduates are positioned to respond to global challenges in sustainable agriculture and to contribute to the modernization and competitiveness of the horticultural sector at local, national, and international levels.

Contact Information

Head of Department
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COURSE CATALOGUE DESCRIPTIONS

AGRH551 Sustainable Soil Management

Soil is a material composed of mineral particles, soil organic matter (including living organisms), water and atmospheric gaseous; and had crucial roles in plant growth and development. Since the development of 1 cm of soil requires about 500 years, the sustainable management of soil is so crucial for ensuring sustainable life on earth.

The topics of this course are divided into two main parts. i) is the description of soil, soil forming process, physical and chemical properties of soil, essential plant nutrients, soil pH and its alteration; and ii) is the sustainable management practices for soil in horticulture (including soil water management, tillage and compaction management, soil organisms and soil ecology, and guidelines for sustainable soil management). Both subjects are very important for the sustainable horticultural production. Moreover, it is highly important for MSc students to understand the basics of soil science and soil management practices which would support them in their research studies. Purpose of the course can be summarized as below:

1) to introduce those with little or no familiarity to the discipline of Soil Science in a broad survey.

2) to improve students' understandings about soil and its importance in plant science.

3) to improve students ability and knowledge to be able to correctly manage soil for better growing conditions.

AGRH520 Integrated Pest Management

Agricultural pest control strategies are presented. The topics will include life cycles of pests and their interaction with the environment, action threshold, monitoring and identify pests, prevention and control tactics of pests.

AGRH533 Biotechnology Applications in Horticulture

After the definition of biotechnology and general application areas of plant biotechnologies, basic biotechnological methods as plant tissue cultures, molecular markers, recombinant DNA technologies and gene transfer in plants are revised. Application of these techniques and technologies in horticulture, especially use in germplasm storage and cryopreservation, in plant breeding and variety development, in seed and virus free seedling production, in variety registration and seed certification, in disease diagnostic and disease control are discussed.

AGRH503 Plant Growth Regulators in Horticulture

Different natural and synthetic plant growth regulators will be presented. The effects of the plant growth regulators (auxins, gibberellins, abscisic acid cytokines and ethylene) on germination, rooting in cuttings, fruit thinning and the effect on flowering and their use will be will be discussed.

AGRH537 Soilless Culture in Horticulture

The significance of soilless culture in horticulture and advantages of soilless culture vs. cultivation on soil are explained. Classification of soilless cultivation systems is presented. Open and closed-substrate systems are compared. Physical and chemical characteristics of soilless media, technical

equipments in soilless production systems, irrigation and nutrition of substrate-grown plants in soilless culture, analytical methods used in soilless cultivation, pathogen detection and management strategies in soilless plant growing systems are discussed. Organic, inorganic and synthetic components of soilless culture and specifics nutrition solution formula suitable for major vegetables as tomato, pepper, eggplant, cucumber and melon, and some ornamental plants are presented.

CGCR502 Data Analysis
This course covers a description of the research process in general and each of the steps involved in more detail. The course focuses on alternative ways of carrying out each step and guidelines for selecting among these alternatives according to the needs of a specific research problem. The course also describes using software packages like SPSS and interpretation of the results of data analysis.

CGRC501 Research Methods
To establish their understanding of research through critical exploration of research and ethics. The course introduces the language of research, ethical principles and challenges, and the elements of the research process within quantitative, qualitative, and mixed methods approaches. The students will use these to critically review literature relevant to their field or interests and determine how research findings are useful in forming their understanding of their work and environment.

AGRH522 Seminar
The seminar coures is given after the completion of the credit courses. It is evaluated as successful or unsuccessful at the end of the semester

AGRH530 Thesis
The thesis must be orginal and should reveal the research and analysis ability of the student. Also, the practical application issues must be covered in the thesis. The topic of the thesis can be determined betweern the thesis advisor and the student. The thesis will be defended by the student in fornat of the jury. The thesis can be valuated as successsful or unsuccessful.