

COURSE OUTLINE

1. GENERAL

SCHOOL	AGRICULTURAL SCIENCES		
ACADEMIC UNIT	AGRICULTURE		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	AGR_701	SEMESTER OF STUDIES	7 th
COURSE TITLE	Plant Propagating Material		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>	WEEKLY TEACHING HOURS	CREDITS	
Lectures	3		
Laboratory exercises	2		
Total	5	5	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	specialised general knowledge, skills development		
PREREQUISITE COURSES:	Typically, there are no prerequisite courses.		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek.		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBPAGE (URL)			

2. LEARNING OUTCOMES

<p>Learning outcomes <i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i>
<p>The course aims at introducing the students to the basic concepts of plant propagation material production and evaluation of its characteristics.</p> <p>By completing this course, the students are expected to have achieved the following skills and capabilities.:</p> <ul style="list-style-type: none"> • Understand seed metabolism and seed quality through the analysis of specific indicators and scientific literature usage. • Setup and perform the research of germinability, vigor and chemical analyses of seed independently. • Organize and conduct seed and clonal propagating material production of important cultivated plants. • Choose methods for laboratory seed analysis. • Recommend the relevant method for seed production. • Conduct the process of inspection during field seed production.
<p>General Competences <i>Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear</i></p>

below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
 Adapting to new situations
 Decision-making
 Working independently
 Teamwork
 Working in an international environment
 Working in an interdisciplinary environment
 Production of new research ideas

Project planning and management
 Respect for difference and multiculturalism
 Respect for the natural environment
 Showing social, professional and ethical responsibility and sensitivity to gender issues
 Criticism and self-criticism
 Production of free, creative and inductive thinking

 Others...

Generally, by the end of this course the student will, furthermore, have developed the following general abilities (from the list above):

- Searching, analysis and synthesis of facts and information, as well as using the necessary technologies
- Decision making
- Independent work
- Teamwork
- Production of new research ideas
- Promotion of free, creative and inductive thinking

3. SYLLABUS

1. Introduction to propagating material. Domestic and International Production
2. Vegetative propagation in Plants. Vegetative structures
3. Propagation of Plants from cuttings, routings, offsets, tubers, tuberous roots and rhizomes, bulbs etc.
4. Seed reproduction Type of flowers, formation of gametes, Pollination and fertilization. Self-incompatibility.
5. Seed growth. Fruit development. Tissue and embryo formation, differentiation, organogenesis.
6. Seed Production. Seed categories. Seed maintenance and quality control. Harvesting, storage and processing of seeds and bulbs.
7. Dormancy, aging and seed viability.
8. Sampling, analysis and determination of seed quality. Seed physical purity, and varietal authentication.
9. Germination and vigor test. Seed health testing.
10. Seed treatment, drying, sorting and processing. Treatment of different crops' seeds. Seed disinfection and coating.
11. Seed hardening. Seed production design.
12. Production of seedlings. Grafting.
13. Plant tissue culture. Laboratory equipment and nutrient solutions. Plant micropropagation, basic principles and methods.

Laboratory exercises:

- Seed germination testing.
- Seed viability and vigor testing.
- Varietal identification and certification
- Plant tissue culture
- Plant micropropagation
- Grafting and seedlings production

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face to face lectures in the classroom and laboratory.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use of Information and Communication Technologies (ICTs) (e.g. Microsoft PowerPoint) in teaching. The contents of the course of each chapter are uploaded on the internet, that the students can freely download using a

	password which is provided to them at the beginning of the course.	
<p>TEACHING METHODS</p> <p><i>The manner and methods of teaching are described in detail.</i></p> <p><i>Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.</i></p> <p><i>The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i></p>	Activity	Semester workload
	Lectures (3 contact hours per week x 13 weeks)	39
	Laboratory exercises (2 contact hours per week x 6 weeks)	12
	Writing reports - solving of representative problems	6
	Hours for private study of the student, preparation and attendance mid-term or/and final examinations.	68
	Total number of hours for the Course (25 hours of workload per ECTS credit)	125 hours (total student workload)
<p>STUDENT PERFORMANCE EVALUATION</p> <p><i>Description of the evaluation procedure</i></p> <p><i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other.</i></p> <p><i>Specifically, defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	<p>Final mandatory written examination, full length questions and / or multiple-choice questions, as well as questions based on the laboratory work. Minimum pass grade= 5, scale 0-10.</p> <p>All the above are taking place in Greek.</p>	

5. ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

1. Agricultural Seed Production, 2011, George, R. A.T., CABI Publication.
2. Principles of Seed Science and Technology, 2001. Copeland, L. O. And McDonald, M. B., Kluwer academic publishers, USA.

- Related academic journals:

- Seed Science Research
- Journal of Seed Science
- Seed Science and Technology