Course name:
Principles of plant tissue cultures

ECTS	3
Course status	*facultative*
Course final assessment /evaluation of outcomes	*Exam*
Prerequisite	*knowledge on plant biology, middle school level*

***Main field of study**:*
Agriculture and Horticulture, Biology and Biotechnology (Erasmus+)

Educational profile	General academic
Code of studies and education level	***bachelor/engineer (SI) or master of science (SM)***
Semester of studies	Winter or summer
Language of instruction	English

Course offered by:

Name of faculty offering the course	Faculty of Biotechnology and Horticulture
Name of department offering the course	Department of Plant Biology and Biotechnology
Course coordinator	dr hab. Agnieszka Kiełkowska, prof. UR

Learning outcomes:

Symbol of outcome	Description of the learning outcome	Reference to main field of study outcomes	Area symbol*
KNOWLEDGE – student knows and understands			
PPTC_W1	cell totipotency, characterize selected plant in vitro techniques	BIOT1_W03 BIOT1_W11	R,P
PPTC_W2	defines basic (media, sterilization etc.) terms related to plants tissue cultures	BIOT1_W03 BIOT1_W11	R,P
SKILLS – student is able to			
PPTC_U1	work in tissue cultures lab, establish and maintain simple experiments	BIOT1_U06	R,P
SOCIAL COMPETENCIES – student is ready to:			
PPTC_K1	work in team, is aware of the responsibility for jointly planned and implemented tasks	BIOT1_K02	R,P

Teaching contents

Lectures	12 hours
Topics	1. Introduction, history, major concepts 2. Culture media composition and plant growth regulators 3. Tissue cultures applications 4. Contaminations, material preparation and disinfection 5. Micropropagation 6. Meristem culture

Accomplished learning outcomes	PPTC_W1-W2, PPTC_K1
Means of verification, rules and criteria of assessment	test (70% of share in final grade)

Laboratories:	18 hours
Topics	1. Laboratory facilities and equipment and media preparation 2. Material disinfection, seed germination in vitro 3. Callus tissue induction 4. Morphogenesis in *Nicotiana tabacum* 5. Micropropagation, axillary bud approach 6. Micropropagation, meristem cultures 7. Subculturing in vitro 8. Acclimatization to ex vitro conditions 9. Observations of established cultures and analysis of the results

Accomplished learning outcomes	*PPTC_U1, PPTC_K1*
Means of verification, rules and criteria of assessment	preparation of report covering conducted experiments and their results (30% of share in final grade)

References:

Basic

Sathyanarayana BN. 2007. Plant Tissue Culture: Practices and New Experimental Protocols I. K. International Pvt Ltd

Plant Propagation by Tissue Culture 2008. Edwin F. George, Michael A. Hall, Geert-Jan De Klerk (Ed.). Springer

Supplementary

http://www.springerlink.com/content/n5tm30/?p=b93c5ea7cf094758ba340e329c6dfa91&pi=1

http://www.springerlink.com/content/x57035/?p=b93c5ea7cf094758ba340e329c6dfa91&pi=2

Structure of learning outcomes

Area of academic study: R – Agricultural, forestry and veterinary sciences	1,0	ECTS**
Area of academic study: P – biological sciences	2,0	ECTS**

Structure of student activity

Contact hours		36	hrs.	1,4	ECTS**
Including:	lectures	12	hrs.		
	classes and seminars	18	hrs.		
	consultations	4	hrs.		
	participation in research	…	hrs.		
	obligatory traineeships	…	hrs.		
	participation in examination	2	hrs.		
e-learning			hrs.		ECTS**
student own work		40	hrs.	1,6	ECTS**

*Areas of academic study in the fields of: H- humanities; S - social studies; P – biological sciences; T – technological sciences; M- medical, sport and health sciences; R – Agricultural, forestry and veterinary sciences; A – the arts

** stated with an accuracy to 0.1 ECTS, where 1 ECTS = 25 - 30 hours of classes