Course title:	Pro-environmental aspects of the in vitro propagation - LED light and natural growth regulators
Course title in Polish:	Prośrodowiskowe aspekty rozmnażania in vitro - światło LED i naturalne rgulatory wzrostu
Course for discipline:	agriculture and horticulture, forest sciences

Semester:	4	**Status of course:**	faculty	**Language:**	english
Academic year:		**Catalog number:**			

Coordinator of course:	dr hab. Andrzej Pacholczak, prof. SGGW
Lecturer od course:	dr hab. Andrzej Pacholczak, prof. SGGW
Executing unit:	Department of Ornamental Plants
Ordering unit:	Doctoral School SGGW
Assumptions, goals and description of the course:	To introduce students to the basics of in vitro laboratories by practical activity in the laboratory belonging to the SZRO. To discuss the stages of micropropagation of herbaceous and woody ornamental plants using different types of explants. Characterization of natural growth regulators and their potential use in the in vitro cultures. Presentation of the possibility of using LED light in the in vitro laboratories. Setting up experiments.
Didactic form, number of hours:	Lecture 10 hours
Teaching methods:	Presentations, work in the in vitro laboratory of SZRO
Limit of people in the group:	6 persons

Learning outcomes

KNOWLEDGE - the graduate knows and understands:	**SKILLS - the graduate is able to:**	**COMPETENCES - the graduate is ready to:**
To the extent enabling to revise the existing pradigms in the field/discipline - the world achievments, gathering theoretical background as well as general and selected detailed issues	Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline	Critically evaluate the achievments in the field/discipline represented
Major general development trends in the field/discipline		Recognise knowledge in solving cognitive and practical problems characteristic for the area of research (field/discipline) and in an interdisciplinary aspect
		Support the ethos of scientific circles and conduct independent research

The method of verification of learning outcomes:	Effect SD1_KW01, SD1_KW02, SD1_KU05, SD1_KK01, SD1_KK03, SD1_KK08 – presentation by a PhD student Effect SD1_KU05, SD1_KK01, SD1_KK03 – activity/discussion during the class
Form of documentation of achieved learning outcomes:	presentation by a PhD student (case study)
Elements and weights of the final grade:	Presentation - 80%, activity/discussion during class - 20%. A maximum of 100 points can be obtained for each element. The condition for passing the course is to obtain from element 1 and 2 min. 51%.
Place of the course:	lecture classroom and laboratory of in vitro plant cultures SZRO

Basic and supplementary literature

Comments:	

Estimated number of hours of work of the doctoral student necessary to achieve the assumed learning outcomes:	8

Leraning outcomes reference to the second degree characteristics of the National Qualification Framework (level 8) covering doctoral competences:

Symbol:	**Learning outcomes:**	**8 level NQF**
SD1_KW01	To the extent enabling to revise the existing pradigms in the field/discipline - the world achievments, gathering theoretical background as well as general and selected detailed issues	P8S_WG
SD1_KW02	Major general development trends in the field/discipline	P8S_WG
SD1_KU05	Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline	P8S_UW
SD1_KK01	Critically evaluate the achievments in the field/discipline represented	P8S_KK
SD1_KK03	Recognise knowledge in solving cognitive and practical problems characteristic for the area of research (field/discipline) and in an interdisciplinary aspect	P8S_KK
SD1_KK08	Support the ethos of scientific circles and conduct independent research	P8S_KR