Module name	**Methods of in vitro tissue culture**
Module code	B-BC.BE.220
ISCED code	0511: Biology
Study cycle	I^{o}
Semester	winter
Responsible for this module	Kinga Lewtak Department of Cell Biology email: kinga.lewtak@poczta.umcs.lublin.pl
Language of instruction	English
Website	
Prerequisites	botany, plant physiology
ECTS	3,5
ECTS points hour equivalents	Contact hours (work with an academic teacher) –- 30 hrs - labs: - 30 hrs Non-contact hours (students' own work) – 60 - preparation for the exam: 20 - preparation for labs: 10 - preparation of reports from laboratory exercises: 10 - literature study: 20 **Total number of ECTS points for the module -** 3,5
Learning outcomes verification methods	continuous assessment of laboratory, written test
Course full description	Organization and equipment of the laboratory of plant cultures in vitro. Safety principles of work in sterile conditions. Stages of preparation of sterile media for plant propagation. Totipotency of plant cells, regeneration ability of plants from primary explants, processes of plant morphogenesis in vitro; hormonal orientation of development (direct and indirect organogenesis). Micropropagation methods. Introduction to basic plant in vitro tissue cultures (callus culture, plant organ and suspension cultures) and their use in plant biotechnology.
Bibliography	1. Pollard J.W., WalkerJ. M. *„Plant Cell and Tissue Culture*". 2. Trigiano R.N., Gray D.J. *„Plant Tissue Culture, Development, and Biotechnology".* 3. Dodds J.H. *„Experiments in Plant Tissue Culture".* 4. George E.F *„Plant propagation by tissue culture"* 5. Loyola -Vargas V. M. *„Plan tCcell Culture Protocols"* 6. Smith R.H. *„Plant tissue culture. Technics and Experiments*"
Learning outcomes	**KNOWLEDGE**

	• Student knows the principles of directed culturing of plant cells and tissue using methods of in vitro culture; • Student knows the principles of preparation of sterile media, proliferation of cell mass and carrying out different types of plant cultures in sterile conditions. **SKILLS** • Student has the ability of directed regeneration of plants from primary explants; • Student is able to initiate and conduct cultures of plant organs, microspores, callus tissue, embryos; • Student recognizes changes in plant tissue during in vitro culture. **SOCIAL COMPETENCES** • Student understands the need of constant updating the knowledge and the possibility of its practical applications; • Student sees social and ethical issues arising from the implementation of methods for plant tissue culture.
Practice	-
Teaching methods	multimedia presentation, laboratory experiments