Module name	**Basic techniques of cell and tissue culture**
Module code	B-BT.027
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	6
ECTS points hour equivalents	Contact hours (work with an academic teacher) – 60 hrs - labs: 60 hrs Non-contact hours (students' own work) – 90 hrs - preparation for the exam: 25 - preparation for labs: 20 - preparation of reports from laboratory exercises: 20 - literature study: 25 **Total number of ECTS points for the module - 6**
Learning outcomes verification methods	continuous assessment of laboratory, written test
Course full description	**The module covers the knowledge in the area of** Plant cell and tissue culture laboratory – basic equipment and organization of work. Main techniques of sterilization and preparation of plant material. Components of culture media and preparation procedures. Hormonal control of cell growth and development. Induction of organogenesis and plant regeneration from cultured explants. Initiation and establishment of callus culture from different types of explants. Meristem culture (isolation of shoot apical meristems). *In vitro* clonal propagation of crop plants (method of micropropagation from axillary buds). Establishment of cell suspension culture and its application in 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