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| Module name | **Basic techniques of cell and tissue culture** |
| Module code | B-BT.027 |
| ISCED code | 0511: Biology |
| Study cycle | Iº |
| Semester | winter or summer semester |
| Responsible for this module  | mgr Kinga Lewtak, kinga.lewtak@gmail.com, +48 81 537 50 97 |
| Language of instruction | English |
| Website |  |
| Prerequisites | plant physiology, biochemistry, basic knowledge of English |
| ECTS | 6 |
| ECTS points hour equivalents | Contact hours (work with an academic teacher) - 60 hrs Total number of hours with an academic teacher – 90 hrsNumber of ECTS points with an academic teacher – 3 Non-contact hours (students' own work) – 90 hrs Total number of non-contact hours – 90 hrs Number of ECTS points for non-contact hours – 3 **Total number of ECTS points for the module 6** |
| Educational outcomes verification methods | continuous assessment of laboratory  |
| 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. |
| Reading list |  |
| Educational 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.

**ATTITUDES*** 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.
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| Practice |  |