

## SYLLABUS (MODULE-ERASMUS+)

Course/module (as specified in the approved curriculum for the field of study) <b>Podstawy biologiczne stosowanej technologii nasion</b>		<b>ECTS</b> <b>5</b>	Catalogue number  HORT 6.3
Name in English <b>Biological bases for modern seed technology</b>			
Unit(-s) providing the course/module (Institute/Department) <b>Department of Plant Pathology, Seed Science and Technology</b>			
Head of course/module <b>dr hab. Hanna Dorna</b>			
Field of study <b>Horticulture</b>	Level <b>II – Master studies</b>	Profile <b>Academic-general</b>	Semester <b>summer</b>
Specialisation <b>Plant Breeding, Seed Science and Technology</b>	MSc Specialisation -		
<b>TYPE OF CLASSES/LECTURES AND THE NUMBER OF HOURS</b> (organised classes/lectures and self-study)			
Type of studies: full-time		Type of studies: extramural	
- lectures	25	-	
- practical total	35	-	
- laboratory classes	20	-	
- performing of projects	15	-	
- classes consultations	5	-	
- project consultations	5	-	
- self-study	65	-	
Total number of hours:		125	Total number of hours:
<b>OBJECTIVE OF COURSE/MODULE</b>			
To acquaint a student with biological bases of technologies applied in modern seed science and seed production.			
To develop skills to use gained knowledge in order to solve problems related to production of high quality seeds.			
<b>TEACHING METHODS</b>			
Lectures, laboratory classes, realization of a project, oral presentation of the project, written report			
<b>LEARNING OUTCOMES</b>		Reference to field outcomes	Reference to area outcomes
knowledge	E1. Student knows and understands biological bases of technologies used in modern seed science and technology.	O2A_W01  O2A_W05 O2A_W07  O2A_W08  O2A_W10	R2A_W01 R2A_W04 R2A_W05 R2A_W06 R2A_W05 R2A_W03 R2A_W04 R2A_W05 R2A_W06 R2A_W01 R2A_W03 R2A_W04 R2A_W06 R2A_W03 R2A_W04 R2A_W05 R2A_W06
skills	E2. Student properly identifies problems related to production of high quality seeds and is able to take actions using relevant techniques and technologies.	O2A_U03 O2A_U04 O2A_U07 O2A_U09  O2A_U10	R2A_U04 R2A_U05 R2A_U03 R2A_U06 R2A_U08 R2A_U09

Social competences	<p>E3. Student is able to define properly priorities leading to accomplishment of a task. Student is able to cooperate and work in a team.</p> <p>E4. Student recognizes a necessity of thinking in economic and social categories to make a decision.</p> <p>E5. Student is aware of importance of social, professional and ethical responsibilities for the quality of produced seeds.</p> <p>E6. Student realizes a necessity of increasing specialized knowledge and skills and understands a need for developing his/her qualifications in relation to his/her field.</p>	<p>O2A_K02</p> <p>O2A_K03</p> <p>O2A_K07</p> <p>O2A_K09</p>	<p>R2A_K02</p> <p>R2A_K03</p> <p>R2A_K03</p> <p>R2A_K05</p> <p>R2A_K07</p>
<p><b>Methods to verify learning outcomes</b></p> <ul style="list-style-type: none"> <li>- test, exam</li> <li>- evaluation of the plan, realization, presentation and execution of the projects and experiment</li> <li>- evaluation of discussion and the reports</li> </ul>		<p>Outcome Reference Numbers</p> <p>E1</p> <p>E2</p> <p>E3, E4, E5, E6</p>	
<p><b>TEACHING CONTENT</b></p>			
<p><b>Lectures:</b> Seed formation and development. Chemical seed composition. Seed germination. Seed dormancy. Seed vigour. Seed longevity. Biological bases of modern seed enhancement technologies.</p> <p><b>Practicals:</b> Seed germination.</p> <p><b>Projects:</b> Evaluation of the effect of initial seed quality and conditions of seed storage on seed longevity and quality. Evaluation of the efficacy of seed priming in optimal and suboptimal conditions.</p>			
<p><b>Forms and criteria for passing course/module</b></p> <p>exam</p> <p>practicals</p>		<p>Percentage share in the final mark</p> <p>70</p> <p>30</p>	
<p>LIST OF LITERATURE</p>			
<p>Basra A.S., 1995. Seed Quality. Basic Mechanisms and Agricultural Implications. Food Products Press. An Imprint of the Haworth Press, Inc. New York, London, Norwood.</p> <p>Basra A.S. (ed.), 2007. Handbook of Seed Science and Technology. Food Products Press, New York, London, Norwood.</p> <p>Bewley J.D., Black M., 1994. Seeds. Physiology of Development and Germination. Plenum Press, New York.</p> <p>Black M., Bewley J.D. (ed.), 2000. Seed Technology and its Biological Basis. Sheffield Academic Press, CRC Press, Boca Roton.</p> <p>Kigel J., Galili G. (ed.), 1995. Seed development and germination. Marcel Decker Inc., New York, Basel, Hong-Kong.</p>			