

SYLLABUS (MODULE-ERASMUS+)

Course/module (as specified in the approved curriculum for the field of study) Modern edible and medicinal mushroom production		ECTS 3	Catalogue number HORT 7.3
Name in Polish Nowe technologie produkcji grzybów uprawnych i leczniczych			
Head of course/module dr inż. Agnieszka Jasińska			
Unit(-s) providing the course/module (Institute/Department) Department of Vegetable Crops			
Field of study Horticulture	Level	Profile Academic-general	Semester summer
TYPE OF CLASSES/LECTURES AND THE NUMBER OF HOURS (organised classes/lectures and self-study)			
Type of studies: full-time		Type of studies: extramural	
- lectures	15	- lectures	X
- laboratory practical	10	- classes	X
- project based practical	5	-	
- Field exercise	5	-	
- Other – tutored		-	
- self-study	40	- self-study	
Total number of hours:		75	Total number of hours: X
OBJECTIVE OF COURSE/MODULE			
The objective of the course is to familiarize the student with biology, environmental requirements and rules of modern cultivation of edible and medicinal mushrooms. Detailed cultivation of selected species. Rules of harvest and storage. Gaining knowledge and skills in breeding work related to fungi. Medicinal value and properties of mushroom.			
TEACHING METHODS			
Lecture supported by multimedia presentation, exercises, discussion; demonstration practical allowing familiarising with raw material of mushrooms crop; laboratory exercises.			
LEARNING OUTCOMES		Reference to field outcomes	Reference to area outcomes
Knowledge	E1 - Student has extensive knowledge in the field of fungal biology and their environmental requirements and on biotic and abiotic factors affecting the yield and quality of fungi E2 - Student has an in-depth knowledge of the metabolites present in the fungus, the sources of their variability, and the factors that influence their knowledge of fungal biology and their environmental requirements. E3 - I know the species and varieties of economically important mushrooms. E4- has an extensive knowledge of mushroom cultivation that enables the production of high quality products and biological value. E5 - has deep knowledge of integrated and ecological mushroom production E6 - has an extensive knowledge of the construction, equipment and use of mushroom production facilities.	<i>Not applicable</i>	<i>Not applicable</i>
Skills	E7 – Student can use his own knowledge and needed information from various sources in the field of modern edible fungi and medicinal mushrooms and mushrooms as a source of medicinal substances. E8 - identifies and analyzes phenomena affecting the conditions of modern mushroom cultivation and is able to adapt to its requirements.		
Social competences	E9 - Student understands the need to constantly acquire and expand knowledge of edible mushrooms and medicinal plants.		

Methods to verify learning outcomes Written test Recognition mushrooms Project making Evaluation of the discussion on the results of laboratory exercises Written exam	Outcome Reference Numbers E1 – E9
TEACHING CONTENT	
<p>Content of lectures: Production of cultivated mushrooms in Poland and in the world. Fundamentals of crop biology. Preparation of growing media with basic elements of microbiological processes. Construction and equipment of modern mushroom growing chambers. Variations and production of mycelium. Technology of cultivation of mushroom species of economic importance. Modern technologies for preparation of cultivation substrate. Large-scale cultivation technology of common button mushroom, oyster mushroom and shiitake. The use of biotechnological methods in conservative and creative breeding of mushrooms.</p> <p>Content of exercises: Get acquainted with the preparation process of agaric media and vaccination of mycelium. Observation and measurements of mycelial growth (laboratory exercises). Get acquainted with the process of obtaining reproductive material for production (demonstration exercises). Calculation of demand for materials for preparation of growing media. Organoleptic assessment and sorting of fungi for commercial purposes. Determination of dry matter and fruiting extract (workshop exercises). Getting acquainted with the process of functioning of a biological laboratory and participation in selected breeding works (including the making of little experience). Evaluation of substrate quality and casing for cultivation of edible and medicinal mushrooms.</p> <p>Project: Study of selected topics in biology and mushroom cultivation (review, descriptive or outline of multimedia presentation) / Planting of selected species of mushroom</p> <p>Field exercise: Get acquainted with the process of mycelium and substrate production and cultivation of selected species of mushrooms</p>	
Forms and criteria for passing of course/module Written test Recognition of mushrooms Project making Evaluation of the discussion on the results of laboratory exercises Written exam	Percentage of final mark 20% 10% 15% 10% 45%
LIST OF LITERATURE	
Basic literature Ouden den M. 2016. Mushroom Signals. A practical guide to optimal mushroom growing. RoodBont Agricultural Publishers. Oei P. 2003. Mushroom cultivation. Appropriate technology for mushroom growers. Third edition. Backhuys Publishers, Leiden, The Netherlands Mushroom Growers: Handbook 1 Oyster Cultivation 2004 by MushWorld - pdf Mushroom Growers: Handbook 2 Shiitake Cultivation 2004 by MushWorld – pdf Stamets P. 2005. Mycelium Running: How Mushrooms Can Help Save the World. Ten Speed Press. New York Stamets P. 1993. Growing gourmet and medicinal mushrooms. Ten Speed Press. NY	