SYLLABUS (MODULE-ERASMUS+)

Course/module (as specified in the approved curriculum for the field of study) **Mushroom and Herbal crops**	ECTS **5**	Catalogue number **HORT 4.3**
Name in Polish **Grzyby uprawne i rośliny zielarskie**		
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 **winter**

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
-		- classes	X
- laboratory practical	25	-	
- project based practical	5	-	
- Other – tutored		-	
- self-study	80	- self-study	
Total number of hours:	125	Total number of hours:	X

OBJECTIVE OF COURSE/MODULE

The objective of the course is to familiarize the student with biology and cultivation of mushrooms and herbal crops. Detailed cultivation of selected species. Rules of harvest and storage.

TEACHING METHODS

Lecture supported by multimedia presentation, exercises, discussion; demonstration practicals allowing familiarising with raw material of mushrooms and herbal crops; recognition of herbs in the field; laboratory exercises.

LEARNING OUTCOMES		Reference to field outcomes	Reference to area outcomes
Knowledge	E1 - Student has knowledge about biologically active substances in plants and fungi and sources of their variability, knowledge of fungal biology and their environmental requirements. E2 - Knows species and varieties of economically important fungi and herbal plants. E3 - knows the principles of cultivation, nursing, harvesting and medical treatment of raw materials and knows the basic technologies of mushroom cultivation and mycelium production.	*Not applicable*	*Not applicable*
Skills	E4 - Student analyzes phenomena affecting the size and quality of the crop and the state of the environment. E5 - Demonstrates the ability to select species for the environment		
Social competences	E6 - Student understands the need to constantly acquire and expand knowledge in the field of herbal plants and mushrooms. E7 - Has knowledge of activities aimed at limiting the risk of growing herbs and fungi and taking care of the condition of the natural environment		

Methods to verify learning outcomes	Outcome Reference Numbers
Written test	E1, E2, E3
Recognition of herbal material and herbal plants; mushrooms	E2,
Project making	E4, E7
Evaluation of the discussion on the results of laboratory exercises	E5, E6, E7
Written exam	

TEACHING CONTENT

Content of lectures:

History and modern development of herbalism, herbal industry. Characteristics of biologically active compounds present in plants and their application in medicine, food industry, cosmetics and other fields. Factors of volatility of substances in the plant and in the raw material. Climatic, soil and cultivating requirements, ways of setting up plantations, dates and ways of harvesting and drying important oil species, and sources of alkaloids, glycosides and tannins. Issues of harvesting wild plants taking into account the postulates of nature conservation.

Production of cultivated mushrooms in Poland and in the world. Fundamentals of crop biology. Preparation of growing media with basic elements of microbiological processes. Rooms for growing mushrooms. Variations and production of mycelium. Technology of cultivation of mushroom species of economic importance. Postharvest treatment of fruit trees, storage and preparation for trade.

Content of exercises:

Recognition of the most important herbal species (field exercises). Nomenclature, harvesting dates and identification of herbal raw materials (workshop exercises). Getting to know raw material after harvest - drying, storage, and packaging. Demonstration of knowledge of the use of herbal plants in home gardens. Identification of various forms of therapeutic phytopathology (demonstration 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).

Project:

Study of selected topics in biology and mushroom cultivation (review, descriptive or outline of multimedia presentation) / Planting of selected species of mushroom

Forms and criteria for passing of course/module	Percentage of final mark
Written test	25%
Recognition of herbal material and herbal plants; mushrooms	10%
Project making	10%
Evaluation of the discussion on the results of laboratory exercises	10%
Written exam	50%

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. 1983. The mushroom cultivator. A Practical Guide to Growing Mushrooms at Home. Agariikon Press Olympia, Washington