



Cultivation of edible and medicinal fungus  
Educational subject description sheet

**Basic information**

<b>Field of study</b> horticulture	<b>Education cycle</b> 2021/22	
<b>Speciality</b> -	<b>Subject code</b> WPTPOG-AMS.MI1BO.0426.21	
<b>Organizational unit</b> The Faculty of Life Sciences and Technology	<b>Lecture languages</b> english	
<b>Study level</b> Second-cycle (engineer) programme	<b>Mandatory</b> optional	
<b>Study form</b> Full-time	<b>Block</b> major subjects (conducted) in foreign languages	
<b>Education profile</b> General academic	<b>Disciplines</b> Agriculture and horticulture	
	<b>Subject related to scientific research</b> No	
	<b>Subject shaping practical skills</b> Nie	
<b>Teacher responsible for the subject</b>	Cecylia Uklańska-Pusz	
<b>Other teachers conducting classes</b>	Cecylia Uklańska-Pusz	
<b>Period</b> Semester 1	<b>Examination</b> credit	<b>Number of ECTS points</b> 3.0
	<b>Activities and hours</b> lecture: 20 project classes: 15	

**Goals**

C1	Transmissions of knowledge of the technology of cultivation of edible mushrooms with particular emphasis on the button mushrooms ( <i>Agaricus bisporus</i> )
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## Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
<b>Knowledge - Student knows and understands:</b>			
W1	Student got knowledge of edible and medicinal mushrooms and methods of their cultivation.	OG_P7S_WG07	written credit, project, participation in discussion
W2	Has knowledge of microbiology necessary to understand the phenomena occurring in the environment under the influence of microorganisms, including the use of microbial processes in the practice horticulture (e.g. substrate production).	OG_P7S_WK12	written credit, project, participation in discussion
W3	Has ordered knowledge of mushroom cultivation technology and knowledge necessary for the organization of the protection mushrooms from diseases and pests.	OG_P7S_WG01	written credit, project, participation in discussion
<b>Skills - Student can:</b>			
U1	able to use the technology of information technology in the acquisition and processing of information, building databases necessary to design and implement projects in the field of horticultural production of edible mushrooms	OG_P7S_UO10	project, observation of student's work, participation in discussion
U2	It has the ability to determine the necessity of treatments to protect plants in crops of mushrooms and choice of means and methods of conducting.	OG_P7S_UW03	project, observation of student's work, participation in discussion
U3	Has the ability to select and plan technology used in gardening for best production results with particular emphasis on the quality of the final product and the economic analysis of the project, applies the principles of occupational safety and health in the implementation of processes related to the production of cultivated mushrooms.	OG_P7S_UW04	project, observation of student's work, participation in discussion
<b>Social competences - Student is ready to:</b>			
K1	It is aware of the importance of social, professional and ethical responsibility for the production of horticultural crops of high quality, and shaping and the environment,	OG_P7S_KO04	project, observation of student's work, active participation, participation in discussion
K2	Is able to correctly identify and solve problems related to the planning and execution of the production of cultivated mushrooms.	OG_P7S_KR07	project, observation of student's work, active participation, participation in discussion
K3	Has awareness of the importance of training and self-development in new technologies in horticulture and understands the need for learning throughout life in order to improve the skills acquired during their studies.	OG_P7S_KK01	project, observation of student's work, active participation, participation in discussion

## Balance of ECTS points

Activity form	Activity hours*	
lecture	20	
project classes	15	
presentation/report preparation	10	
exam participation	10	
project preparation	15	
collecting and studying literature	10	
conducting research	10	
<b>Student workload</b>	<b>Hours</b> 90	<b>ECTS</b> 3.0
<b>Workload involving teacher</b>	<b>Hours</b> 45	<b>ECTS</b> 1.7
<b>Practical workload</b>	<b>Hours</b> 25	<b>ECTS</b> 1.0

\* hour means 45 minutes

## Study content

No.	Course content	Activities
1.	<p>1. General information on edible and medicinal mushrooms. Classification of fungi. Biology and morphology, reproduction of fungi.</p> <p>2. The importance of the economic and nutritional and medicinal mushrooms. Acquisition mushrooms from nature and history of cultivation of selected species.</p> <p>3. Production of mushrooms in the world and in Poland. Prospects for the development and maintenance of the position of Polish mushroom growing, the internal market and export of mushrooms.</p> <p>4, 5. Factors microclimate in mushroom cultivation. Air, CO<sub>2</sub> concentration, light, air and surface temperature, water, soil and air moisture.</p> <p>6. Breeds and varieties of mushrooms and oyster mushrooms. Livestock breeds acquisition spores, banks and the production of mycelium.</p> <p>7, 8. Production of substrate for the cultivation of mushrooms and other fungi. Ingredients for production of the substrate. Phase I, II of composting, conditioning and pasteurization, the substrate Phase III.</p> <p>9. The cover for mushroom growing. The composition, properties and role of cover. Mushrooms supplements.</p> <p>10, 11. Hygiene and crop protection mushrooms. Pests and diseases, identification of species.</p> <p>12, 13. Methods of protection - agronomic, biological, chemical</p> <p>14. Storage of mushrooms after the harvest and preparation for marketing. Sorting, packaging, storage conditions (temp., humidity), transport.</p> <p>15. Processing of mushrooms.</p>	lecture

2.	1-5. The technology of cultivation of mushrooms, cultivation systems, organization of production ( <i>Agaricus bisporus</i> , <i>Pleurotus</i> sp., <i>Lentinula edodes</i> and others) 6-8. Practical classes in mushroomhouse in Experimental Station in Psary 9-10. Protection of mushrooms.  11-15. Field trip to the mushroom farm (at once).  16-20. Student presentations on chosen topics.	project classes
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## Course advanced

### Teaching methods:

educational film, project-based learning (PBL), presentation / demonstration, teamwork, discussion, participation in research, practical simulation training

Activities	Examination methods	Percentage in subject assessment
lecture	written credit, observation of student's work, active participation, participation in discussion	40%
project classes	project, observation of student's work, active participation	60%

## Literature

### Obligatory

1. 1. Stamets P. Growing gourmet and medicinal mushroom, Ten Speed Press 2000 2. Fletcher J. T., Gaze R. H. Mushroom Pest and Disease Control: A Color Handbook, CRC Press, 2007 3. Hobbs C. Medicinal mushrooms an exploration of tradition, healing and culture, Botanica Press Summertown, Tennessee 1995 4. Rai R.D. Arumuganathan T. Post harvest technology of mushrooms National Research Centre for Mushroom (ICAR) Chambaghat, Solan 2008

### Optional

1. 1. MUSHROOMS AND HEALTH GLOBAL INITIATIVE BULLETIN <http://www.isms.biz/bulletin/> 2. Atkins F. C. Mushroom Growing Today Read Books Ltd. 2013

## Kierunkowe efekty uczenia się

Kod	Treść
OG_P7S_KK01	Absolwent jest gotów do samodoskonalenia w zakresie nowych technologii w ogrodnictwie w celu doskonalenia umiejętności uzyskanych w trakcie studiów, potrafi inspirować i organizować proces uczenia się innych osób
OG_P7S_KO04	Absolwent jest gotów do oceny skutków społeczne wykonywanej działalności w zakresie szeroko rozumianego ogrodnictwa z uwzględnieniem jego wpływu na dobrostan człowieka i środowiska oraz do przestrzegania etycznych zasad wykonywanego zawodu
OG_P7S_KR07	Absolwent jest gotów do działania w sposób przedsiębiorczy w zakresie planowania i realizacji zadań związanych z produkcją ogrodnictw, podejmowania decyzji w trudnych sytuacjach związanych z tą produkcją
OG_P7S_UO10	Absolwent potrafi korzystać z narzędzi internetowych, w tym baz danych oraz wyszukiwarek publikacji naukowych z zakresu nauk rolniczych i przyrodniczych
OG_P7S_UW03	Absolwent potrafi dobrać i modyfikować technologie stosowane w ogrodnictwie oraz je dostosowania do zasobów przyrody w celu poprawy jakości życia człowieka
OG_P7S_UW04	Absolwent potrafi krytycznie ocenić podejmowane działania w rozwiązywaniu zaistniałych problemów przy planowaniu i realizacji produkcji ogrodnictw
OG_P7S_WG01	Absolwent zna i rozumie w stopniu pogłębionym w stosunku do studiów pierwszego stopnia, zasady ogrodnictwa zrównoważonego, wykazuje znajomość wpływu specjalistycznych technologii stosowanych w tradycyjnej, integrowanej i ekologicznej produkcji ogrodnictw na środowisko i bezpieczeństwo żywności
OG_P7S_WG07	Absolwent zna i rozumie w stopniu pogłębionym zasady planowania i realizacji produkcji ogrodnictw, w obszarze gatunków i technologii powszechnie nie stosowanych w praktyce, mających charakter perspektywiczny dla ogrodnictwa polskiego i chińskiego
OG_P7S_WK12	Absolwent zna i rozumie w stopniu pogłębionym precyzuje czynniki środowiskowe i agrotechniczne determinujące jakość produktów ogrodnictw