

Title	The ecological meaning of composting						
Code	ZDIP48						
Study Program	Postgraduate Interdisciplinary University Programme Environment protection and Nature Conservation						
Semester	III						
ECTS	5						
Status	elective						
Lecturer	full professor Zdenko Lončarić, PhD						
Co-Lecturers							
Requirements for Enrolment							
Objectives	The objectives are to acquire knowledge about composting as an environmentally suitable management of organic waste, the evaluation of the quality of compost and other organic fertilizers and the application of compost.						
Learning Outcomes	<p>After completing the course, students will be able to:</p> <ol style="list-style-type: none"> 1. Successful select mineral and organic matter for the high-quality compost mixture of raw materials 2. Predict the direction and intensity of the composting process. 3. Select the optimal method of composting on the basis of types and quantities of compost raw materials. 4. Organize and conduct the control of composting quality. 5. Evaluation of compost quality to link changes in the physico-chemical properties of the raw materials and the fertilization value of compost. 6. Plan the use of compost in crop and horticultural production. 7. Connect compost application, nutrient availability and soil fertility. 						
Connection between Learning Outcomes, Curricular and Student Activities						Credits*	
						min	max
	Presence at lectures with active participation	0,5	1-7	Lectures	Evidention, evaluation	5	10
	Seminar	1,5	1-7	Seminar	Evidention, evaluation and semian quality	20	40
	Preparation for written exam	2	1-7	Written exam	Written exam	15	30
	Preparation for the oral examination	1	1-7	Final oral exam	Oral exam	10	20
	Total	5				50	100
	Final grade: 50,1-62,5 credits: grade 2 62,6-75 credits: grade 3 75,1-87,5 credits: grade 4 87,6-100 credits: grade 5.						
Consultations	Once a week for 2 hours (day and time specified at the beginning of the academic year). Additional, especially considering seminar, as agreed with the students.						
Learning Activities	Lectures		Seminars		Practice		
Hours	10		5		0		

Contents / Teaching Units	<ul style="list-style-type: none"> • Introduction to the subject • Legislation - laws and regulations in the Republic of Croatia, the EU and the world • Fertility and soil organic matter. Ecological and agronomic affect of compost on soil fertility. • The principles of the composting process and methods. • Compost raw materials - the basic raw materials, additional and conditioners. • Control of the composting process. • Evaluation of compost - physical, chemical and biological properties of compost. Fertilization value and environmental suitability of compost. • The use of compost as substrate mixture. • Preparation of an essay on composting process based on raw materials and composting method showing the environmental and economic impact of the application of compost. (seminar)
Obligatory Literature	<p>Lončarić, Z., Parađiković, N., Popović, B., Lončarić, R., Kanisek, J. (2015.): Fertilization vegetables, organic fertilizer and compost [In Croatian]. Editor: Lončarić, Z. University manual. Faculty of Agriculture, University of Osijek. http://www.agroekologija.eu/agri-conto-cleen/publikacije/prirucnici/</p> <p>Epstein, E. (1997.): The Science of Composting. Technomic, Basel.</p> <p>Thompson, W.H. (ed) (2001.): Test Methods for the Examination of Composting and Compost. The US Composting Council Research and Education Foundation. The US Department of Agriculture.</p> <p>Lončarić, Z. (2005.): Analyses of organic fertilizers and substrates [In Croatian]. Internal script. Faculty of Agriculture.</p>
Recommended literature	<p>Lončarić, Z., Rastija, D., Baličević, R., Karalić, K., Popović, B., Ivezić, V. (2014.): Soil Fertility and the workload in the border area [In Croatian]. Editor: Lončarić, Z. University manual. Faculty of Agriculture, University of Osijek. http://www.agroekologija.eu/agri-conto-cleen/publikacije/prirucnici/</p> <p>Vukadinović, V., Lončarić, Z. (1997): Plant nutrition [In Croatian]. Faculty of Agriculture, University of Osijek.</p> <p>Lončarić, Z., Haman, D. (eds) (2015.): Agricultural contribution towards clean environment and healthy food [In Croatian]. Project books. Faculty of Agriculture, University of Osijek. http://www.agroekologija.eu/agri-conto-cleen/publikacije/projektna-knjiga/</p> <p>Vukobratović, M. (2008.): Production and Quality Evaluation of Composted Manures [In Croatian]. Doctoral dissertation. Faculty of Agriculture, University of Osijek.</p> <p>Lončarić, Z., Vukobratović, M., Ragalyi, P., Filep, T., Popović, B., Karalić, K., Vukobratović, Ž. (2009.): Computer model for organic fertilizer evaluation. Poljoprivreda. 15: 38-46.</p> <p>Lončarić, Z., Engler, M., Karalić, K., Bukvić, G., Lončarić, R., Kralik, D. (2005.): Evaluation of vermicomposted cattle manure [In Croatian]. Poljoprivreda. 11: 57-63.</p>
Requirements for Aquiring Signature	Students are required to actively participate during lectures and to prepare seminar.
Type of Exam	The presence and activity of each student during lecturers and seminars were recorded, activities during lectures are worth 10 % of the grade, and the production and quality of the seminar 40 % of the grade. Final written exam accounts for 30 % and oral examination 20 % of the total marks.
Lectures Language	Croatian and English
Quality Monitoring	Consultation during lectures, oral or written comments after lectures, the quality of the seminar, the success of the examination.