

CODE : <b>ECO 2</b>	COURSE TITLE: <b>ON-SITE WASTEWATER TREATMENT SYSTEMS</b>		ECTS: <b>5</b>	
COORDINATOR: <b>PROF. R. BŁAŻEJEWSKI</b>		DEPARTMENT: <b>HYDRAULIC ENGINEERING</b>		
COURSE CATEGORY				
VOLUME: (H) <b>60</b>			PERSONAL WORK (H) <b>90</b>	
LECTURE: (H) <b>30</b>	PRACTICALS / LAB (H) <b>30</b>	PLACEMENT: (H)	PROJECT: (H)	OTHER MODALITIES: (H)
EVALUATION:		OTHER MODALITIES:		LECTURER(S)
EVALUATION MODALITIES				<b>LECTURES: PROF. RYSZARD BŁAŻEJEWSKI</b> <b>TUTORIALS: DR. MARCIN SPYCHAŁA</b>
ORAL INDIVIDUAL REPORT				
WRITTEN INDIVIDUAL REPORT	<b>X</b>			
FINAL ORAL EXAM				
FINAL WRITTEN EXAM	<b>X</b>			
COMMENTS OF EVALUATION: LAB: <b>SHORT INDIVIDUAL REPORT</b> LECTURE: <b>MULTICHOICE TEST</b>		TEACHING METHODS: <b>LECTURES AND TUTORIALS</b>		
SEMESTER: <b>WINTER</b>		LANGUAGE: <b>ENGLISH</b>		
PERIOD: <b>15 WEEKS</b>		YEAR OF STUDY: <b>THIRD - FIFTH</b>		
<b>OBJECTIVES</b>				
TO ACQUAINT STUDENTS WITH METHODS OF WASTEWATER TREATMENT FROM OBJECTS UP TO 50 PERSONS, DESIGN OF SMALL WWTPs AND SITE EVALUATION FOR SUBSURFACE DISPOSAL OF THE TREATED WASTEWATER.				
<b>CONTENTS</b>				
<b>Lectures</b> (one lecture 3h) <ul style="list-style-type: none"> <li>▪ Definition of small WWTP. Current status of on-site WWTS in Poland and other countries.</li> <li>▪ Legal conditions of disposal of the treated sewage.</li> <li>▪ Estimation of field conditions for disposal of the treated sewage into soil.</li> <li>▪ Septic tanks.</li> <li>▪ Composting toilets. Dosing and distributing devices.</li> <li>▪ Biomat and clogging of soil pores. Processes in the aerated (unsaturated) zone. Impact of the treated sewage on ground water level and quality.</li> <li>▪ Soil absorption systems. Mounds.</li> <li>▪ Sand and peat filters.</li> <li>▪ Geotextile filters. Small activated sludge systems.</li> <li>▪ Central operation and maintenance of the on-site WWTS.</li> </ul> <b>Tutorials</b> (30 h) Design project of an individual on-site WWTP, including percolation test in the field				
GROUP SIZE:		PRE-REQUIRES: <b>CHEMISTRY, BIOLOGY, SOIL SCIENCE</b>		