

Subject name	Sustainable Horticulture Systems	
Subject code	E.1.SUST.EC.ECTIE.O	
Department	Department of Plant Nutrition	
Faculty	Faculty of Biotechnology and Horticulture	
Subject supervisor/Lecturer	A. Lis-Krzyścin Ph.D., I. Domagała-Świątkiewicz Ph.D.	
General information	Teaching period	1 semester / winter or summer semester
	ECTS credit	6
	Lectures total	20 h
	Lab classes	10 h
Objective and general description	Principles, concepts and techniques of organic and sustainable production of crops. Biodynamic, organic and integrating farming systems. Soil and water management in sustainable horticulture systems. Agrotechnical methods and their importance in environmental protection. Use of fertilizers. Fertilization in the sustainable systems. Plant nutrient requirements. High quantity and quality of horticultural crop, reduce the agricultural harmful impact of environment.	
Lectures 10 x 2 hours	<ol style="list-style-type: none"> 1. Sustainable agriculture – concepts, principles, challenges. Farming systems: biodynamic, integrating and organic. 2. The environmental factors affecting horticulture plant crop. 3. Agrotechnical factors – tillage, crop rotation, irrigation. Soil quality and fertility management. 4. Plant nutrient requirements. Inorganic and organic fertilizers and application strategies. 5. Food quality and safety (from field to table). 6. Environmental sounds of agricultural practice. 	
Lab classes 5 x 2 hours	<ol style="list-style-type: none"> 1. Soil sampling. Methods of physical characteristic (texture, structure, water capacity, bulk density). 2. Soil chemical analysis. 3. Plant tissue testing. 4. Interpretation the results of soil and plant analysis. Estimation of fertilizers doses. 	
References	<p>Barker A.V., Pilbeam D.J. 2006. Handbook of Plant Nutrition. Francis and Taylor.</p> <p>Krishna K.R. 2002. Soil Fertility and Crop Production. Science Publishers Inc.</p> <p>Læg Reid M., Bøckman O.C., Kaarstad O. 1999. Agriculture, Fertilizers and the Environment. CABI Publish.</p> <p>Marshner H. 1995. Mineral Nutrition of Higher Plants. Academic Press Ltd.</p> <p>Nielsen D.R., MacDonald J.G. 1978. Nitrogen in the Environment. Academic Press Ltd.</p> <p>Schjonning P., Elmholt S., Christensen B.T. 2003. Managing Soil Quality. CABI Publish.</p>	