Subject name	**Engineering in Horticulture**	
Subject code	**E.1.EHXX.SC.ECTIE.A**	
Department	**Institute of Agricultural Engineering and Computer Science**	
Faculty	**Faculty of Production and Power Engineering**	
Subject supervisor/Lecturer	**Professor Sławomir Kurpaska Ph.D.**	
General information	**Teaching period**	**One semester**
	ECTS credit	**6**
	Lectures total	**15**
	Lab practical	**15**
Objective and general description	The main objective of the course is getting general knowledge of engineering solutions in horticulture. Student will get information about the construction, technical equipment in modern greenhouses and plastic tunnel. Apart from these topics, the basic machinery for vegetable and orchard production will be presented.	
Lectures **5 x 3 hours**	1. Introduction to horticulture engineering. 2. Construction of modern greenhouses and plastic tunnels (covers, construction materials, kind of greenhouse substrate). 3. Technical systems in modern facilities: heating, ventilation, irrigation (fertilization), supply in carbon dioxide and artificial lighting. 4. Machinery to vegetable and orchards harvesting.	
Lab practicals **5 x 3 hours**	1. Calculation methods for heat requirement. 2. Principle of irrigation systems construction. 3. Practical training in production greenhouses. 4. Technical equipment in horticulture products storage. 5. Projects of heating systems in greenhouses objects.	
References	1. Bakker J.C., Bot G.P.A., Challa H., Van de Braak N.J.: Greenhouse climate control an integrated approach. Wageningen Pers, Wageningen, 1995 2. Kurpaska S.: Greenhouses and foil tunnel- engineering and proceses (in Polish). PWRiL, Poznań, 2007 3. S. Kurpaska Z. Ślipek, B. Bożek, J. Frączek: Simulation of heat and moisture transfer in the greenhouse substrate due to warming system by buried pipes. Biosystems Engineering 90(1), 63-74, 2005. 4. McDonald R., McCollum T.: Temperature of water heat treatment influences tomato fruit quality following low-temperature storage. Posthavaster Biology and Technology, 16(2), 1999.	