

Subject name	Technical Infrastructure of Agriculture	
Subject code	E.1.TIA.SC.ECTIE.A	
Department	Institute of Agricultural Engineering and Computer Science	
Faculty	Production and Power Engineering	
Subject supervisor/Lecturer	Profesor Sławomir Kurpaska, Dr Anna Krakowiak-Bal	
General information	semester	autumn
	ECTS credits	4
	Lectures total	20
	Laboratories	10
Objective and general description	<p>The main educational objective is to introduce students to the basic design problems of the technical infrastructure which are: roads, water supply system, sewage system, irrigation.</p> <p>Lectures</p> <ol style="list-style-type: none"> 1. Theoretical basis of the infrastructure: definitions, sections, functions, core indicators. 2. Water and sewage management system 3. Waste management 4. Microclimate in the objects under cover (air humidity, wet air, balance of the CO₂ needs) 5. Technical solutions of the growth factors control systems in the objects under cover (air cooling, devices for plant protection, irrigation) 6. Storage of agricultural products (technical equipment to maintain the microclimate: coolers, evaporators) 7. Irrigation devices in the vegetables field production <p>Lab practical's</p> <ol style="list-style-type: none"> 1. Balancing the water needs in commune, capacity of the expansion tanks, pumps selection 2. Hydraulic calculations of the water supply system 3. Project of the greenhouse equipped with cooling mats 4. Project of the agricultural storage building 5. Project of the irrigation system in field crops 	
Assessment method	Examination	
References	<p>Bakker J.C., Bot G.P.A., Challa H., Van de Braak N.J.: Greenhouse climate control an integrated approach. Wageningen Pers, Wageningen, 1995</p> <p>S. Kurpaska, Z. Slipek: Optimization of greenhouse substrate heating. Journal Agricultural Engineering Research., 76, 129-139, 2000.</p> <p>Pinstrup-Andersen P., Shimokawa S. Rural Infrastructure and Agricultural Development, Tokyo, 2006 available on http://siteresources.worldbank.org/INTDECABCTOK2006/Resources/Per_Pinstrup_Andersen_Rural_Infrastructure.pdf</p> <p>Wise A.F.E., Swaffield J., Water, Sanitary and Waste Services for Buildings, Elsevier, 2002</p> <p>Wójcicki Z. 2007. Directions of changes in polish agriculture and its infrastructure. Infrastruktura i Ekologia Terenów Wiejskich. Nr 2007/ 3</p> <p>Krakowiak-Bal A., Salamon J. 2011. Public-private partnership as a method of implementing technical infrastructure investments. Infrastruktura i Ekologia Terenów Wiejskich. Nr 2011/ 12</p>	

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