Subject name	**Precision Farming Technologies**	
Subject code	**E.1.PFTX.SC.ECTIE.A**	
Department	**Institute of Machinery Management, Ergonomics and Production Processes**	
Faculty	**Faculty of Production and Power Engineering**	
Subject supervisor/Lecturer	**Prof. Maria Walczyk, PhD**	
General information	**Teaching period**	**winter semester**
	ECTS credit	**10**
	Lectures total	**10**
	Classes and lab practicals	**20**
	Project	**60**
Objective and general description	The main objective of the course is to present the precision farming conception, the related technical and practical problems, as well as issues concerning Geographical Information Systems to the extent that is necessary to acquire the ability for its effective use.	
Lectures **5 x 2 hours**	1. The concept of precision farming. Characteristics of the GNSS systems. 2. Yield monitoring systems. Software for processing the yield data. 3. Sensors for estimation of soil and plant properties. 4. Software for preparing the application maps. 5. Equipment technologies for variable rate application in performing tillage, fertilization, sowing and plant protection. 6. Remote sensing in precision farming. 7. Precision viticulture and irrigation. 8. Guidance systems in precision farming. 9. Economic and environmental effects of precision farming. 10. The Site-Specific Management (SSM) and decision support systems.	
Lab practicals **5 x 4 hours**	1. Characteristics of the GPS receivers. Performing scouting job with a GPS receiver based on pocket PC with FarmWorks software. 2. Processing and interpreting the yield data. Preparing maps of the yield spatial distribution. 3. Soil sampling for precision farming purposes and preparing application maps for variable rate fertilization. 4. Work with a VRT fertilizer spreader and assessment of a guidance system accuracy. 5. Processing the field data in a software for farms integrated system management.	
Project 60 hrs	Comprehensive study concerning problems of implementing the precision farming on European farms	

References	Proceedings of the European Conferences on Precision Agriculture, Wageningen, Academic Publishers. 1. Precision Agriculture ’03 2. Precision Agriculture ’05 3. Precision Agriculture ’07 4. Precision Agriculture ’09