

Study Programme: Product engineering			
Course Unit Title: Internet of Things in Manufacturing			
Course Unit Code: DP044			
Name of Lecturer(s): Milošević Mijodrag			
Type and Level of Studies: doctorate			
Course Status (compulsory/elective): elective			
Semester (winter/ summer): winter			
Language of instruction: english			
Mode of course unit delivery (face-to-face/distance learning): face-to-face			
Number of ECTS Allocated: 10			
Prerequisites: none			
Course Aims: Acquiring of advanced knowledge about Internet of Things (IoT) concept in modern manufacturing systems. Development of scientific capabilities, academic and professional skills in the framework of Cyber-physical manufacturing systems. Training students to apply the Big Data technique for analysis of large data sets that are generated in the manufacturing system.			
Learning Outcomes: Development of the skills and expertise for the application of Internet of Things technologies in manufacturing process. Training for the application of methods used in the analysis of large and complex sets of digital data generated in a manufacturing system.			
Syllabus. Application of the Internet of Things concept in the industry. Application of the Internet of Things in managing production operations. Importance of the Internet of Things in visualization and simulation of manufacturing. Industry 4.0. Cyber-physical systems in manufacturing. Implementation of Internet of Things in cyber manufacturing technological systems. Implementation of the Internet of Things in the acquisition of data, monitoring and integration of manufacturing. The concept of smart and intelligent manufacturing. Significance of digital information in the concept of smart manufacturing. Big Data in manufacturing systems. The techniques of classification and analysis of large and complex data sets generated in the manufacturing system. Optimization of production system using the Internet of Things. IoT case studies from industry.			
Required Reading: Jeschke, S., Brecher, C., Song, H., Rawat, D.B. Industrial Internet of Things: Cybermanufacturing Systems Springer, London 2017 Gilchrist, A. Industry 4.0: The Industrial Internet of Things Apress, New York 2016 Zhang, Y., Tao, F. Optimization of Manufacturing Systems Using the Internet of Things Academic Press 2016 Hwaiyu Geng (Ed.) Internet of Things and Data Analytics Handbook Wiley 2017			
Weekly Contact Hours:	Lectures: 5	Practical work:	
Teaching Methods: Lectures, study research work and consultations.			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points
Attendance			
Computer exercises			
Tests (4x)			

