

Study program: Production engineering			
Type and level of studies: Master studies (second level of studies) - vocational studies			
Course unit: Project management			
Teacher in charge: Jovanović R. Jelena			
Language of instruction: English			
ECTS: 8			
Prerequisites: -			
Semester: Summer			
Course unit objective: Realization of goals of business-production systems from the aspect of adopted dynamics, available potentials and limitations using project management methods and techniques.			
Learning outcomes of Course unit: Mastering the knowledge and skills to use appropriate methods and software tools in solving key problems in industrial engineering such as: design and monitoring of implementation of all investment projects, development and introduction or design of new products and technologies, analysis and design of production cycles, machine maintenance and technical systems.			
Course unit contents:			
Theoretical classes			
I. <u>Basics of graph theory with application:</u> Basic terms and definitions of graph theory, matrix interpretation of graphs, networks, extreme paths and flows in networks, application of graph theory to show product structure. II. <u>Project:</u> Basic terms; Types of projects; Project management concept. Methods of organization (classical and contingency approach); Project structure analysis (PBS diagram; WBS diagram; OBS diagram); Responsibility matrix; Project map; Potentials and limitations; Events, activities and activity cycle; Project planning and management; Mode of workpiece move in production; The concept of production cycle and constraint in the production cycle (available capacities, time and costs); Activities and events relevant to product and technology development; Activities and events important for the repair of technical means; Activities and events important for the preparation, planning and management of production on the just in time principle. III. <u>Methods for project planning and management:</u> Gantt chart, setting deadlines using Gantt charts, drawing activities at the earliest and latest start, determining time reserves and critical path. Network planning and management: CPM, PERT and PDM. Cost estimation method. Project risk management methods. Realized value method. Project stakeholder analysis. Software tools and practical application of methods in planning and managing the production of complex products and other projects.			
Practical classes			
Exercises include the application of the course material in solving practical problems (tasks) with appropriate software support.			
Literature:			
1. P. Jovanović, Project management, Faculty of organization science in Belgrade, Belgrade, 2009. 2. R. Đukić, J. Jovanović, Production process management - Practicum, Technical College of Applied Studies Cacak, Cacak, 2011. 3. R. Đukić, J. Jovanović, Organization production, Technical College of Applied Studies Cacak, Cacak, 2010. 4. C. Chatfield, T. Johanson, Microsoft Project 2016, step by step, CET 2017. 5. Marmel E., Microsoft Project 2007 Bible, Wiley Publishing, Inc., Indianapolis, Indiana, 2007. 6. J. Jovanović, D. D. Milanović, R. Đukić at all., Management of the production cycle using the QSB and MS Project software, Technique and practice, no 6, Technical College of Applied Studies Cacak, Cacak, 2011. 7. J. Jovanović, D. D. Milanović, R. Đukić, Applying of software tools on optimization of production, YU INFO 2012, Information Society of Serbia, Kopaonik, 2012.			
Number of active teaching hours: 6		Lectures: 3	Practice: 3
Teaching methods: Theoretical classes - monologue, dialogue, documentation methods. Practical classes - documentation methods (preparation of professional and seminar papers and studies), demonstration methods (experimental work and professional practice) and methods of practical work on the computer. Testing knowledge, assessment and the method of examinations. Exam is written and / or oral.			
Examination methods (maximum 100 points)			
Exam prerequisites	No. of points: 40	Final exam	No. of points: 60
Student's activity during lectures	10	written examination	60
Project	30		