Faculty of Mechanical Engineering / ROAD TRAFFIC / INNOVATION AND COMPETITIVENESS

Course:	INNOVATION AND COMPETITIVENESS			
Course ID	**Course status**	**Semester**	**ECTS credits**	**Lessons** (Lessons+Exercises+Laboratory)
10780	Mandatory	3	4	2+1+0
Programs	ROAD TRAFFIC			
Prerequisites	n/a			
Aims	For students to acquire knowledge about innovations and strengthening competitiveness, as well as to develop creativity in the direction of implementing new ideas on the market of Montenegro and beyond. Students will master the methods for: creating a product management strategy, creating a techno-economic analysis of a new product, analyzing the break-even point of a new product. The aim of the course is to understand and know the concepts: sustainable development, sustainable traffic/transport, sustainable mobility; understanding and knowledge of terms: transport policy, strategies, measures/instruments, indicators/indicators and indices, performance of sustainable transport systems; possibilities of measurement and operationalization - application of the concept of sustainable transport in the practice of transport organizations; understanding the role of transport in the market economy and the essence of the functioning of transport companies			
Learning outcomes	After completing this exam, the student will be able to: 1. explain the concepts of innovation, competitiveness and entrepreneurship, new product development, competition analysis, intellectual property protection. They will be able to argue and analyze the structure and modalities of traffic/transportation and the environment; analyze the possibilities of quantifying the external effects of transport 2. differentiate the basic aspects (economic, ecological and sociological) of sustainable transport development, to define and systematize sustainable transport indicators; differentiates the basic measures of transport policy in the function of sustainable transport development and knows new principles and examples of business economics in the function of sustainable transport 3. understands user behavior, differentiates and analyzes the competition and identifies possible development directions. They create criteria for the selection of indicators of sustainable transport and compare indicators by importance; to explain the general principles of transport in market economy conditions, characterize transport needs, sources and demand for transport services. They describe the characteristics of the service market in the transport sector; defines the functions of companies in the transport sector 4. They know the basics of transport economics; make calculations of the basic elements of the economic analysis of the transport company; make a preliminary economic analysis of the undertaken engineering activities; understands the importance and understands the economic aspect and effects of the functioning of transport. 5. Create a business plan for a new product in the field of transportation, 6. Considers the possibilities of new product development through mathematical calculation and break-even analysis 7. Make a mathematical calculation for creating a product strategy using the BCG method			
Lecturer / Teaching assistant	Aleksandar Vujovic			
Methodology	Lectures, exercises, homework, projects, consultations			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Introductory lecture on course objectives, learning outcomes, exam method. Terminology and development trends in the considered areas.			
I week exercises	Introductory lecture on course objectives, learning outcomes, exam method. Terminology and development trends in the considered areas.			
II week lectures	Definitions of innovation, characteristics of the modern business environment - the basis for the development of innovation. Internal and external factors influencing the development of innovations. The innovation development process in the organization - innovation development stages. Types of innovation. Measuring innovation performance. Analysis of examples of successful innovations			
II week exercises	Definitions of innovation, characteristics of the modern business environment - the basis for the development of innovation. Internal and external factors influencing the development of innovations. The innovation development process in the organization - innovation development stages. Types of innovation. Measuring innovation performance. Analysis of examples of successful innovations			
III week lectures	Definitions and the concept of competitiveness. Entrepreneurship - the entrepreneur as the basis of the development of innovation and competitiveness. Measuring competitiveness. Measuring innovation in the function of improving competitiveness. Sustainable competitiveness and influential factors for the success of products on the market. BCG (Boston Consulting Group) matrix. Examples and discussion.			
III week exercises	Definitions and the concept of competitiveness. Entrepreneurship - the entrepreneur as the basis of			

	the development of innovation and competitiveness. Measuring competitiveness. Measuring innovation in the function of improving competitiveness. Sustainable competitiveness and influential factors for the success of products on the market. BCG (Boston Consulting Group) matrix. Examples and discussion.
IV week lectures	Sustainable competitiveness and influential factors for the success of products on the market. BCG (Boston Consulting Group) matrix. Examples and discussion.
IV week exercises	Sustainable competitiveness and influential factors for the success of products on the market. BCG (Boston Consulting Group) matrix. Examples and discussion.
V week lectures	User behavior. Models that describe user behavior and purchasing decisions. Identification of social strata for market research purposes. The process of measuring user satisfaction. Marketing and customer satisfaction. An example of identifying a new competitive product – the development of an innovative idea
V week exercises	User behavior. Models that describe user behavior and purchasing decisions. Identification of social strata for market research purposes. The process of measuring user satisfaction. Marketing and customer satisfaction. An example of identifying a new competitive product – the development of an innovative idea
VI week lectures	Market research and analysis as a function of innovation and competitiveness. Market segmentation. Data collection methods and techniques. Positioning the product in relation to the competition and creating a perception map. An example of creating a perceptual map
VI week exercises	Market research and analysis as a function of innovation and competitiveness. Market segmentation. Data collection methods and techniques. Positioning the product in relation to the competition and creating a perception map. An example of creating a perceptual map
VII week lectures	I TEST
VII week exercises	I TEST
VIII week lectures	Remedial Test I. Analysis of home works.
VIII week exercises	Remedial Test I. Analysis of home works.
IX week lectures	Engineering methods and techniques in the function of improving innovation and competitiveness. Examples of application of engineering methods and techniques. Competitive analysis and product differentiation. An example of competition research according to the Harvey Mackay model
IX week exercises	Engineering methods and techniques in the function of improving innovation and competitiveness. Examples of application of engineering methods and techniques. Competitive analysis and product differentiation. An example of competition research according to the Harvey Mackay model
X week lectures	Business plan 1. Examples. Creation of a business plan for the selected innovative company/product. Case analysis from practice
X week exercises	Business plan 1. Examples. Creation of a business plan for the selected innovative company/product. Case analysis from practice
XI week lectures	Business plan 2. Examples. Creation of a business plan for the selected innovative company/product. Participation of experts from practice
XI week exercises	Business plan 2. Examples. Creation of a business plan for the selected innovative company/product. Participation of experts from practice
XII week lectures	Break Even analysis and the breaking point of profitability. Example. Break-even analysis for a new product. Case analysis from practice
XII week exercises	Break Even analysis and the breaking point of profitability. Example. Break-even analysis for a new product. Case analysis from practice
XIII week lectures	Intellectual property protection (patents, trademarks, design protection...)
XIII week exercises	Intellectual property protection (patents, trademarks, design protection...)
XIV week lectures	Test II
XIV week exercises	Test II
XV week lectures	Remedial Test II 2. Homework analysis.
XV week exercises	Remedial Test II 2. Homework analysis.
Student workload	

Per week	**Per semester**
4 credits x 40/30=5 hours and 20 minuts 2 sat(a) theoretical classes 0 sat(a) practical classes	Classes and final exam: **5 hour(s) i 20 minuts x 16 =85 hour(s) i 20 minuts** Necessary preparation before the beginning of the semester

1 excercises **2 hour(s) i 20 minuts** of independent work, including consultations	(administration, registration, certification): **5 hour(s) i 20 minuts x 2 =10 hour(s) i 40 minuts** Total workload for the subject: **4 x 30=120 hour(s)** Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) **24 hour(s) i 0 minuts** Workload structure: **85 hour(s) i 20 minuts (cources), 10 hour(s) i 40 minuts (preparation), 24 hour(s) i 0 minuts (additional work)**
Student obligations	Regular attendance at lectures and exercises (max allowed two absences at lectures + two absences at exercises)
Consultations	Every working day in office 419
Literature	Peter Drucker, Innovation and Entrepreneurship, Taylor & Francis, Sep 15, 2014 Degraff, J., Quinn, S. (2007). Leading innovation. McGraw-Hill, 2007. Don Waldman, Elizabeth J Jensen, Industrial Organization: Theory and Practice, Pearson Education, Apr 11, 2013 Jovanovic J., Vujovic A., Krivokapic Z, Pekovic S., Kramar D., Sokovic M. Inovacije i inovativnost. SATCIP, Vrnjacka Banja, 2015 Mirko Markovic, Poslovanje i preduzetnistvo, -Univerzitetska knjiga, Mostar, 2003,
Examination methods	Activities in classes and exercises: 5 points Two colloquiums of 20 and 25 points each: 45 points Final exam: 50 points
Special remarks	
Comment	

Grade:	F	E	D	C	B	A
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points