Course Unit Descriptor

Study Programme: Engineering Management

Course Unit Title: Product and Product Assortment Development

Course Unit Code: IM1013

Name of Lecturer(s): Zoran Anišić

Type and Level of Studies: bachelor

Course Status (compulsory/elective): mandatory

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: 5

Prerequisites: none

Course Aims:.

The goal of the course Product Development is: (1) the adoption of the methodology for integrated product development that connects marketing, design and technology implementation, (2) develop the students' ability to identify needs and user requirements for functional, technical and technological characteristics of the product, (3) generating concept and development of solutions, (4) design of product structure, (5) management of the activities of product development in PLM information system. The goal of the course is to enable students of engineering management to participate in th eprocess of integrated product development and to be able to perform it from customer demands to production phase. The course is an introduction to the further development of the market research in terms of technology, innovative development, design technologies and manufacturing systems, and it is an elaboration process of the development function in the company.

Learning Outcomes:
Successful fulfillment of all obligations and passing the exam, students are able to: (1) participate in the activities of product development, (2) perceived potential for the enhancement of the product and generate innovative solutions, and (3) use the knowledge and tools to develop software products and data management in PLM information system.

Syllabus.
The importance, tasks of integrated approach to product development. Stages of product development in the life cycle. Identification of the potential for product development and planning. Research requirements for a functional, technical and other requirements for the product. Model manufacturing costs and maintenance over the life cycle. Analysis of the cost of the product realization. Determination of target specifications for the product. Functional requirements and decomposition. Translating user requirements into functional characteristics of the product. House of quality - QFD matrix. Concept generation . Morphological analysis of concepts and create innovative solutions. Selection and testing of the concept. Product Architecture. The modularity of the product. The structural scheme of products, assemblies and subassemblies. Industrial design. Design for Excellence - (DFX). Detailed development of technical documentation. Prototype products. Development of PLM information systems. Process management in PLM system. Patents and intellectual property. Legal directives in product development.

Required Reading:
Relevant literature in English, tbd

Weekly Contact Hours:2	**Lectures: 2**	**Practical work: 2**

Teaching Methods:
Lectures are auditory, while the work on exercises is carried out partly auditory, in the working groups of three students with the aim of solving the design task, and partly in the computer lab with mandatory use of PLM software for product lifecycle management.

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	**Final exam**	points
Attendance			
Computer exercises			
Tests (4x)			