Course Unit Descriptor

Study Programme: Information Systems Engineering

Course Unit Title: Fundamentals of Technical Systems Engineering

Course Unit Code: IZOO08

Name of Lecturer(s): Andraš Anderla

Type and Level of Studies: Bachelor level

Course Status (compulsory/elective): compulsory

Semester (winter/summer): summer

Language of instruction:english

Mode of course unit delivery (face-to-face/distance learning): face-to-face

Number of ECTS Allocated:6

Prerequisites: none

Course Aims:

The subject is aimed for introducing of students in field of technical systems engineering (engineering of complex industrial products) and for explanation of major principles and methods in engineering work in that area. In the contents of this subject, special attention is dedicated to contemporary methods of engineer's work and application of standards. Simultaneous with that, the subject is aimed to development of creative component of future engineers and their preparation for competent participation in processes of industrial product design and preparations of industrial manufacturing.

Learning Outcomes:

Students would educated for a systematic and correct approaching to problems in field of technical systems (industrial products) engineering and trained in application of basic methods and techniques of developmental and designer work. In the same time, students would receive some pragmatic knowledge and skills in the field of technique, technology and engineering, to introduce with different components of technical systems and to complete useful experiences in application of industrial and similar standards.

Syllabus:

Introduction. Basic terms and their explanations. Technical system as an industrial product. Function of technical system (industrial product) and concept of multifunctionality. The structure, form and metrics of technical systems and their components. State changes as a fundament of technical systems function. System and component loads as consequences of function. Control component of technical systems. Principles, methods and standards in communication about product, presentation spaces and methods of presentation. Fundamentals of computer graphics. Vector graphics and geometric transformations. Raster graphics. Principles of raster-in-vector conversion of product or component representations. Product geometry as a base for design of technological procedures in industrial manufacturing. Basic elements and structure of technological procedures. Fundamentals of computer aided manufacturing and product and/or component assembly.

Required Reading: Relevant literature in English TBD

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

Teaching Methods: Educational process is realizing in two of forms: lectures and exercises (auditoria and exercises in the lab). During of obligatory exercises, students would complete one or more independent and obliged works, with open possibility of consultations with teachers.

Knowledge Assessment (maximum of 100 points):100			
Pre-exam obligations	points	**Final exam**	points
Project	40	Oral Part of the Exm	50
Exercises Attendance	5		
Lecture Attendance	5		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			