

Discipline	3D Modelling, code: 24, summer semester	
Specialty	Computerized Manufacturing Technologies, Manufacturing Engineering and Technologies	
ECTS credits: 5	Form of assessment: exam	
Lecturer	Assist. Prof. Eng. Mariya Konsulova-Bakalova, PhD Room 715M Phone: +359 52 383 545 E-mail: mbakalova @tu-varna.bg	
Department	MANUFACTURING TECHNOLOGIES AND MACHINE TOOLS	
Faculty	FACULTY OF MANUFACTURING ENGINEERING AND TECHNOLOGIES	
<p>Learning objectives:</p> <p>The automation of the design is developed on the basis of the achievements of fundamental technical disciplines, mathematics and computer engineering. CAD systems have highly developed interactive user dialogue, continually increasing opportunities with maintaining relatively low prices, decentralization of workplaces and the use of personal computers with the unification of the operating environment, widespread distribution in small and medium-sized companies. Standards have been developed for the exchange of data and information between different systems. In order to successfully use CAD systems in addition to the required software and hardware is required and the designer, which plays an important role in this activity. These systems allow the designer to break free from the routine actions, as released time for the simulation of a large number of variants, analysing and choosing a rational solution.</p> <p>The aim of the discipline is to give the students the knowledge and skills in the field of 3D solid computer modelling. 3D modelling of parts and products is studied using SolidWorks CAD system. It is widely used in the field of mechanical engineering for the design of models and analysis of the same. The course covers the geometric modelling, creation of assemblies and the preparation of drawings. The course uses the knowledge accumulated from the disciplines of Engineering Graphics, Machine Elements, Resistance of Materials, etc. included in the curriculum. Laboratory exercises are conduct using 3D CAD software SolidWorks.</p>		

CONTENTS:		
Training Area	Hours lectures	Hours laboratory exercises
3D modelling basics.	1	2
Introduction to Sketching stages in the Process. Sketching Entities and Relations.	1	2
Basic Part Modelling. Choosing the Best Sketch Plane and Profile.	1	4
Patterning – Linear Patterns and Circular Patterns.	1	4
Reference geometry – Planes, Axis, Points. Complex Solid Primitives.	1	2
Multibody Design Techniques. Creating and Editing Multibody Solids. Combining Bodies.	1	2
Surface Modeling.	1	4
Mold Design. Manual mold creation techniques.	1	2
Building sheet metal parts using mechanical design automation software. Sheet Metal Methods and Techniques.	1	2
Drawings. Setting up the system for drawings creating. Create different types of views and sections. Dimensions and dimensioning, tolerances and symbol placement.	1	4
Assembly Modeling capabilities. Down-top Assembly Modelling. Standard and Advanced Mate Features.	2	4
TOTAL: 45 h	15	30