



Country BULGARIA	Institution Vasil Levski National Military University	Module CAD/CAM/CAE systems	ECTS 5.0
Service All Languages	Minimum Qualification for Lecturers		
English, Bulgarian	<ul style="list-style-type: none"> English: Common European Framework of Reference for Languages (CEFR) Level B2 or NATO STANAG 6001 Level 2. Adequate pedagogical competences. Thorough knowledge of the topic taught. 		
Prerequisites for international participants: <ul style="list-style-type: none"> English: Common European Framework of Reference for Languages (CEFR) Level B1 or NATO STANAG Level 2. The end of the 1st year of national (military) higher education. 		Goal of the Module: <ul style="list-style-type: none"> Acquiring knowledge of modern systems for automated design Acquiring knowledge about basic concepts for CAD / CAM / CAE systems, work environment, object creation and design technical documentation Acquiring knowledge of the methodology in the design of machine tools Acquiring knowledge of the design process, the features, structure, classification and capabilities of modern automated design systems 	

Learning outcomes	Know-ledge	<ul style="list-style-type: none"> Methodological foundations and ideology of modern systems for parametric SOLID modeling, Surface modeling and assembling of the products The principle of operation of automated design systems Tools for forming two-dimensional and three-dimensional objects and their parameter manipulation Applied tools and ways to create assembled mechanisms Computer engineering analysis with solidworks simulation Generate technical documentation according to standards
	Skills	<ul style="list-style-type: none"> Techniques for creating 2D models. Creating three-dimensional models by volume primitives. Object parametric solid state (SOLID) modeling. Surface (SURFACE) modeling. Integration of SOLID and SURFACE models. Assembly of molded parts Working with additional modules in CAD / CAM systems - purpose and basic functions Engineering Analysis and Generation of Design Documentation



	Competences	<ul style="list-style-type: none"> • Capacity for working with modern tools (software and hardware) for automated design and engineering • Capacity to create two-dimensional and three-dimensional models of machine-building products for research in the conceptual design phase • Capacity for working with specific surface products as well as generation of sheet material models • Confident skills for modeling assembled units, their engineering calculations and sizing • Capacity to work with two-dimensional digital drawings
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<p>Verification of learning outcomes</p> <ul style="list-style-type: none"> • Observation: Throughout the Module students are to accomplish different practical tasks individually or in teams. The Module has one phases. During these tasks students are to be evaluated to verify their competences. • Test: At the end of the module, students must perform specific practical tasks given by the examination commission by: <ul style="list-style-type: none"> - Creation of two-dimensional models in CAD/CAM/CAE environment according to predefined parameters - Creating three-dimensional models in CAD/CAM/CAE environments according to predefined parameters - Assembling and simulating the operation of a specific set mechanism - Engineering kinematic and strength calculations according to a pre-assignment

Module Details		
Main Topic	Recommended WH	Details
Phase I		
Basic Principles of Phase I	30	<ul style="list-style-type: none"> • Knowledge of the development and features of CAD / CAM systems. • Knowledge of the possibilities and areas of application. • Knowledge of development trends. • Knowledge of basic principles and techniques for creating 2D digital models of parts and machine parts. • Object parametric solid state (SOLID) modeling. • Surface (SURFACE) modeling. • Integration of SOLID and SURFACE models. • Knowledge of additional modules in CAD / CAM systems - purpose and basic functions.
Practical Aspects of Phase I	30	<ul style="list-style-type: none"> • Applying skills to methods and techniques to create 2D models using specialized software to support engineering in the design of machine parts and details • Apply the skills to create dimensional models using bulk primitives. • Applying Object Parametric Solidification (SOLID) modeling skills using specialized software to support engineering in the design of machine parts and details • Applying Surface (SURFACE) modeling skills. • Apply the integration skills of SOLID and SURFACE models. • Applying the skills to manipulate the dimensions and surfaces of three-dimensional digital models of machine parts and mechanisms.



Erasmus Module
CAD/CAM/CAE systems
Description

Vasil Levski National Military University
Doc.: ES/2018/09
Date: 13-09-2018
Origin: BG VELIKO02

		<ul style="list-style-type: none">• Apply skills of assembly, engineering, and generate design documentation.
Additional hours to increase the learning outcomes		
Self-Study		<ul style="list-style-type: none">• Improving knowledge by studying specialized literature for computer aided design technologies• Reflection of the topics issued.
Total	60	