University of Split

Department of Professional Studies

ENGINEERING MECHANICS - STATICS

COURSE SYLLABUS

COURSE DETAILS		
Type of study programme	Professional study - 180 ECTS	
Study programme	MECHANICAL ENGINEERING	
Course title	Engineering Mechanics - Statics	
Course code	SKS003	
ECTS (Number of credits allocated)	7	
Course status	Core	
Year of study	First	
Semester	First (fall)	
Course Web site	http://www.oss.unist.hr/	
Total lesson hours per semester	Lectures	30
	Auditory exercises	15
	Seminars	30
Prerequisite(s)	None	
Lecturer(s)	Department of Mechanical Engineering: Ado Matoković, Ph.D., senior lecturer, Vladimir Vetma., assistant,	
Language of instruction	Croatian, English	

COURSE DESCRIPTION	
Course Objectives:	• application basic axioms of statics of rigid bodies and equilibrium conditions during calculations of plane and space rigid bodies, • training students to use software programs MDSolids and AMSES-Frame2d.
Learning outcomes *On successful completion of this course, student should be able to:*	1. define basic axioms and theorems of mechanics, 2. describe different system of forces, 3. explain force and moment of force, 4. define equilibrium conditions of rigid bodies, 5. explain plane trusses and method of joints and method of sections, 6. explain beams and the calculation method of internal forces, 7. define centroid and explain how to calculate centroids of lines and areas, 8. explain friction, 9. control software packages MDSolids and AMSES-Frame2d in calculating trusses and beams
Course content	Introduction. Basic concepts. Force. Newton s laws and axioms of statics. Units. Accuracy, limits and approximations. Problem solving in statics. Concurrent forces: determining the components of a force, resultant and equilibrium conditions for 2D and 3D concurrent forces. Moment. Constraints and statical determinacy. Equilibrium in three dimensions. Plane trusses: truss connections and supports, method of joints, method of sections. Beams: types of beams; distributed loads; internal forces: axial force, shear force and bending moment; diagrams of internal forces. Centroid: centroids of some lines and areas; centroids of composed lines and areas; Theorems of Pappus. Friction: types of friction; static friction; kinetic friction; flexible belts.

CONSTRUCTIVE ALIGNMENT – Learning outcomes, teaching and assessment methods

Alignment of students activities with learning outcomes		
Activity	**Student workload ECTS credits**	**Learning outcomes**
Lectures	**30 hours / 1 ECTS**	**1,2,3,4,5,6,7,8**
Auditory exercises	**15 hours / 0.5 ECTS**	**3,4,5,6,7,8**
Seminars	**30 hours / 1 ECTS**	**5,6,9**
Homework	**12 hours / 0.4 ECTS**	**2,3,4,5,6,7,8**
Short tests	**12 hours / 0.4 ECTS**	**2,3,4,5,6,7,8**
Self-study	**111 hours / 3.7 ECTS**	**1,2,3,4,5,6,7,8**
TOTAL:	**210 hours / 7 ECTS**	**1,2,3,4,5,6,7,8,9**

CONTINUOUS ASSESSMENT		
Continuous testing indicators	**Performance A_i (%)**	**Grade ratio k_i (%)**
Class attendance and participation	**70 - 100**	**10**
Seminars	**100**	**10**
Homework	**0-100**	**10**
Short tests	**0-100**	**10**
First mid-term exam	**50-100**	**20**
Second mid-term exam	**50-100**	**20**
Third mid-term exam	**50-100**	**20**

FINAL ASSESSMENT		
Testing indicators – final exam (first and second exam term)	**Performance A_i (%)**	**Grade ratio k_i (%)**
Written exam	**50 - 100**	**45**
Oral exam	**50 - 100**	**45**
Seminars	**50 - 100**	**10**
Testing indicators – makeup exam (third and fourth exam term)	**Performance A_i (%)**	**Grade ratio k_i (%)**
Written exam	**50 - 100**	**45**
Oral exam	**50 - 100**	**45**
Seminars	**50 - 100**	**10**

PERFORMANCE AND GRADE		
Percentage	**Criteria**	**Grade**
50% - 61%	*basic criteria met*	**sufficient (2)**
62% - 74%	*average performance with some errors*	**good (3)**
75% - 87%	*above average performance with minor errors*	**very good (4)**
88% - 100%	*outstanding performance*	**outstanding (5)**

ADDITIONAL INFORMATION

Teaching materials for students (scripts, exercise collections, examples of solved exercises), teaching record, detailed course syllabus, application of e-learning, current information and all other data are available by MOODLE system to all students.