

School of Fine Arts Design and Architecture / Industrial Design

2023 - 2024 Academic Year

FUNDAMENTALS of STRUCTURE

Syllabus

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
FUNDAMENTALS of STRUCTURE	EUT1224020	Spring Semester	2+2	3	3
Prerequisites Courses					
Recommended Elective Courses					
Language of Instruction	Turkish				
Course Level	First Cycle (Bachelor's Degree)				
Course Type	Elective				
Course Coordinator	Assist.Prof. Tahir AKKOYUNLU				
Name of Lecturer(s)	Prof.Dr. Vahit MERMERTAŞ				
Assistant(s)					
Aim	Teaching basic engineering calculations for design elements, Comprehension of principles of structural systems in practice, Teaching basic principles of giving dimension to structural design elements, Teaching constructive principles of structural members.				
Course Content	This course contains; ,Briefly review of basic of structures,Introduction to internal forces and cross section effects 1 (normal force, shear force, bending moment),Introduction to internal forces and cross section effects 2,Frame systems (truss) (1),Frame systems (truss) (2),Introduction to strength and basic concepts (internal force, stress),Introduction to strength and basic concepts (internal force, stress),Introduction to strength and basic concepts (hook law, deformation),Simple strength states (1) (axial force, buckling),Simple strength states (2) (shear force),Simple states of strength (3) (torsion and bending moment),Space frame system, Examples from World,Space Frame System, Examples from World (Presentations).				
Course Learning Outcomes			Teaching Methods	Assessment Methods	
1. basic engineering calculations for design elements			12, 2, 6, 9	A, F, G	
2. comprehension of principles of structural systems in practice			12, 2, 6, 9	A, F, G	
3. constructive principles of structural members			12, 2, 6, 9	A, F, G	
Teaching Methods	12: Problem Solving Method, 2: Project Based Learning Model, 6: Experiential Learning, 9: Lecture Method				
Assessment Methods	A: Traditional Written Exam, F: Project Task, G: Quiz				
Lecture Schedule					
Sequence	Topics	Preliminary Preparation			
1					
2	Briefly review of basic of structures				
3	Introduction to internal forces and cross section effects 1 (normal force, shear force, bending moment)				
4	Introduction to internal forces and cross section effects 2				
5	Frame systems (truss) (1)				
6	Frame systems (truss) (2)				
7	Introduction to strength and basic concepts (internal force, stress)				
8	Introduction to strength and basic concepts (internal force, stress)				
9	Introduction to strength and basic concepts (hook law, deformation)				
10	Simple strength states (1) (axial force, buckling)				
11	Simple strength states (2) (shear force)				
12	Simple states of strength (3) (torsion and bending moment)				
13	Space frame system, Examples from World				
14	Space Frame System, Examples from World (Presentations)				
Evaluation Methods		Weight(%)			
Midterm Exam		50			
General Exam		50			

Resources
to be distributed by the lecturer.1. Why Buildings Stand up? Mario Salvadori 2. Statics and Strength of Materials for Architecture and Building Construction, Barry Onouye, Kevin Kane 3. Principles of Structures, Ariel Hanaor