

School of Fine Arts Design and Architecture / Architecture (English)

2023 - 2024 Academic Year

MATERIALS SELECTION in CONSTRUCTION

Syllabus

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
MATERIALS SELECTION in CONSTRUCTION	ARC2115286	Fall Semester	2+1	2,5	4
Prerequisites Courses					
Recommended Elective Courses					
Language of Instruction	English				
Course Level	First Cycle (Bachelor's Degree)				
Course Type	Elective				
Course Coordinator	Assist.Prof. Mustafa ERDEM				
Name of Lecturer(s)					
Assistant(s)					
Aim	1.Reduce error rate and time loss in design and implementation by using systematic research methods2.Designing elements and components of the structure to be able to make the correct design considering the valid conditions, determination of the necessary qualities that the elements forming the elements have in various ways.3.To select the most suitable one based on material properties and performance criterion among the products which are very many in number and type, in the scope of 'sustainable resource utilization'.				
Course Content	This course contains; The importance of material selection, history, causes of the problem,Selection aids for material selection: Classification systems, requirement- property definition tables, structure catalog description system,Material selection methods: performance approach, performance analysis, user requirements analysis,Performance requirements, Japanese method,Hillerborg Method, Hill Method, Fischmeister-Larsson Method,Patterson Method, Sentler Method, Samuelsson Technique, Westling Technique, Beahre Technique,Midterm,Individual discussion of purpose, scope and methods,Definition and classification of components, material selection method at component level, application example,Definition and classification of construction elements, method of material selection at construction level, application example,Seminar (Term paper PP presentations),Seminar (Term paper PP presentations),Seminar (Term paper PP presentations),Final presentations.				
Course Learning Outcomes			Teaching Methods	Assessment Methods	
Uses material selection principles.Evaluates the concepts of need-possibility balance and the systematics of materials and functions in the structure.Selection aids, material selection methods, internal and external factors affecting the structure, analysis of building elements, heat retaining, vapor barrier, water insulating and sound absorbing materials, water and vapor insulation calculations and arrangements; It solves the material composition of wall, floor, foundation and roof elements.			14, 4	A, E	
Teaching Methods	14: Self Study Method, 4: Inquiry-Based Learning				
Assessment Methods	A: Traditional Written Exam, E: Homework				
Lecture Schedule					
Sequence	Topics	Preliminary Preparation			
1	The importance of material selection, history, causes of the problem				
2	Selection aids for material selection: Classification systems, requirement-property definition tables, structure catalog description system				
3	Material selection methods: performance approach, performance analysis, user requirements analysis				
4	Performance requirements, Japanese method				
5	Hillerborg Method, Hill Method, Fischmeister-Larsson Method				
6	Patterson Method, Sentler Method, Samuelsson Technique, Westling Technique, Beahre Technique				
7	Midterm				
8	Individual discussion of purpose, scope and methods				
9	Definition and classification of components, material selection method at component level, application example				
10	Definition and classification of construction elements, method of material selection at construction level, application example				
11	Seminar (Term paper PP presentations)				
12	Seminar (Term paper PP presentations)				
13	Seminar (Term paper PP presentations)				
14	Final presentations				
Evaluation Methods		Weight(%)			
Midterm Exam		50			
General Exam		50			

Resources
Diamant,M.E.,Insulation Of Buildings,London,Iliife Book Ltd,1982. Handisyde,C.G.,Building Materials,London,The Architectural Press,1978. Ragsdale,L.A.,Raynham,E.A,Building Materials Practice,London,E.Arnold Ltd.1984.Material Selection in Construction Lecture Notes will be provided by the lecturer.