



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title	Composite Materials								
Course Code	MME522	Course Level		Second Cycle (Master's Degree)					
ECTS Credit	8	Workload	202 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	Provide the students to understand mechanics and modelling methods of composite materials.								
Course Content	Composite Materials, Orthotropic lamina Materials, Macro mechanic models, Stress Strain relations, Effective Module , Micro mechanic models.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Experiment, Discussion, Case Study, Project Based Study, Individual Study								
Name of Lecturer(s)									

### Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	15
Final Examination	1	60
Quiz	4	15
Assignment	5	5
Term Assignment	1	5

### Recommended or Required Reading

1	Isaac M Daniel and Ori Ishai, "Engineering Mechanics of Materials", Oxford University Pres.
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Week	Weekly Detailed Course Contents	
2	Theoretical	Macro Mechanical Behavior of lamina
3	Theoretical	Properties of Orthotropic lamina
4	Theoretical	Stress-Strain Relations for lamina
5	Theoretical	Effective Modules of continuous fiber reinforced lamina
6	Theoretical	Effective Modules of continuous fiber reinforced lamina
7	Theoretical	Elementary mechanics of materials models
8	Intermediate Exam	Midterm Exam
9	Theoretical	Improved mechanics of materials models and Elasticity models
10	Theoretical	Strength of continuous fiber reinforced lamina
11	Theoretical	Multiaxial Strength Criteria
12	Theoretical	Multiaxial Strength Criteria
13	Theoretical	Micromechanics models for lamina
14	Theoretical	Micromechanics of fiber and Matrix, Shear lag model(SLM),
15	Theoretical	Modified Shear lag model (MSLM).
16	Final Exam	Final Exam

### Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	4	3	98
Assignment	5	0	4	20
Term Project	1	15	10	25
Quiz	4	4	1	20
Midterm Examination	1	15	2	17



Final Examination	1	20	2	22
Total Workload (Hours)				202
[Total Workload (Hours) / 25*] = ECTS				8
*25 hour workload is accepted as 1 ECTS				

### Learning Outcomes

1	Knowledge of Mechanical properties of laminated structures, Macro – micro mechanic behaviour and Analysis and modelling ability
2	To learn the composite material structure
3	To learn the composite material types
4	To learn the composite material usage areas
5	To solve the composite material problems

### Programme Outcomes (Mechanical Engineering Master's Without Thesis)

1	To be able to access wide and deep information with scientific researches in the field of Engineering, evaluate, interpret and implement the knowledge gained in his/her field of study
2	To be able to complete and implement "limited or incomplete data" by using the scientific methods
3	To be able to consolidate engineering problems, develop proper method(s) to solve and apply the innovative solutions to them
4	To be able to develop new and original ideas and method(s), to develop new innovative solutions at design of system, component or process
5	To be able to gain comprehensive information on modern techniques, methods and their borders which are being applied to engineering
6	To be able to design and apply analytical, modeling and experimental based research, analyze and interpret the faced complex issues during the design and apply process
7	To be able to gain high level ability to define the required information and data
8	To be able to work in multi-disciplinary teams and to take responsibility to define approaches for complex situations
9	To be able to transfer of the process and results of studies at national and international environments systematic and clear verbal or written
10	To be able to become aware of social, scientific and ethical values guarding adequacy at all professional activities and at the stage of data collection, interpretation, and announcement
11	To be able to become aware of new and developing application of profession and ability to analyze and study on those applications
12	To be able to gain ability to interpret engineering application's social and environmental dimensions and it's compliance with the social environment

### Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5
P1	4	3	5	5	4
P2	5	4	4	4	5
P3	4	3	4	5	4
P4	3	5	5	3	5
P5	5	3	3	5	5
P6	4	4	5	4	3
P7	3	5	3	5	4
P8	5	3	4	3	5
P9	4	5	5	5	3
P10	5	4	5	5	5
P11	4	3	5	5	5
P12	5	5	4	4	5

