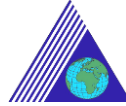


COURSE INFORMATION				
Course Code	MSN 650	Course Title	Green Composites	
Semester	Credits	ECTS	C +P + L Hour	Prerequisites
Spring	3	10	3+0+0	-

Language of Instruction	Course Level	Course Type
English	Graduate	Elective
Course Coordinator		
Instructors	Dr. M. Safa Bodur	
Assistants		
Goals	To gain awareness about green composites as alternative for synthetic fiber reinforced ones	
Content	Composite materials definitions, matrix and reinforcements, natural fibers, fiber / matrix interface, environmental ageing, FEA of natural fiber reinforced composites	
Contribution of the Course to the Professional Education		

Course Learning Outcomes	Detailed Program Outcomes	Teaching Methods	Assessment Methods
Awareness on the importance of natural fiber reinforced composites	11b	1,2	A
Ability to prepare reports	6c, 7c,7d	8	G



Teaching Methods:	1: Lecture by instructor, 2: Lecture by instructor with class discussion, 3: Problem solving by instructor, 4: Use of simulations, 5: Problem solving assignment, 6: Reading assignment, 7: Laboratory work, 8: Term research paper, 9: Presentation by guest speaker, 10: Sample Project Review, 11: Interdisciplinary group working, 12: ...
Assessment Methods:	A: Written exam, B: Multiple-choice exam, C: Take-home quiz, D: Experiment report, E: Homework, F: Project, G: Presentation by student, H: ...

COURSE CONTENT		
Week	Topics	Study Materials
1	Introduction to composite materials	Lecturer Notes, Publications
2	Composite materials classifications	Lecturer Notes, Publications
3	Polymer Composites	Lecturer Notes, Publications
4	Polymer Composites Manufacturing Methods	Lecturer Notes, Publications
5	NFRP composites and their applications	Lecturer Notes, Publications
6	Fiber / matrix interfacial adhesion and its importance	Lecturer Notes, Publications
7	Fiber / matrix interfacial adhesion and its importance	Lecturer Notes, Publications
8	MT I	Lecturer Notes, Publications
9	Techniques for improvement mechanical properties of NFRPs	Lecturer Notes, Publications
10	Environmental effects	Lecturer Notes, Publications



11	Environmental effects	Lecturer Notes, Publications
12	Characterization of NFRPs	Lecturer Notes, Publications
13	Finite element analysis on NFRPs	Lecturer Notes, Publications
14	MTII	Lecturer Notes, Publications
15	Term Project Presentations	Lecturer Notes, Publications

RECOMMENDED SOURCES

Textbook Lecture notes, Current publications.

Additional Resources

MATERIAL SHARING

Documents Publications

Assignments Homework

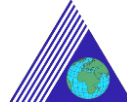
Exams Midterms

ASSESSMENT

IN-TERM STUDIES	NUMBER	PERCENTAGE
Midterms	2	60
Homework	1	20
Term Project	1	20
Total		100
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE		30
CONTRIBUTION OF IN-TERM STUDIES TO OVERALL GRADE		70
Total		100

COURSE CATEGORY

Field Course



COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES		
No	Program Learning Outcomes	check √
1a	Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline,	
1b	Ability to use theoretical and applied knowledge in these areas in complex engineering problems.	
2a	Ability to identify, formulate, and solve complex engineering problems,	
2b	Ability to select and apply proper analysis and modeling methods for this purpose.	
3a	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result,	
3b	Ability to apply modern design methods for this purpose.	
4a	Ability to devise, select and use modern techniques and tools needed for analyzing and solving complex problems encountered in engineering practice.	
4b	Ability to employ information technologies effectively.	
5a	Ability to design experiments for investigating complex engineering problems or discipline specific research questions,	
5b	Ability to conduct experiments, gather data, analyze and interpret results for investigating complex engineering problems or discipline specific research questions.	
6a	Ability to work efficiently in intra-disciplinary teams,	
6b	Ability to work efficiently in multi-disciplinary teams,	
6c	Ability to work individually.	√
7a	Ability to communicate effectively in Turkish, both orally and in writing,	
7b	Knowledge of a minimum of one foreign language,	
7c	Ability to write effective reports and comprehend written reports, prepare design and production reports,	√
7d	Ability to make effective presentations,	√
7e	Ability to give and receive clear and intelligible instructions.	
8a	Recognition of the need for lifelong learning, ability to access information, ability to follow developments in science and technology,	
8b	Ability to continue to educate him/herself.	
9a	Consciousness to behave according to ethical principles and professional and ethical responsibility.	
9b	Knowledge on standards used in engineering practice.	
10a	Knowledge about business life practices such as project management, risk management, change management.	
10b	Awareness in entrepreneurship and innovation.	



10c	Knowledge about sustainable development.	
11a	Knowledge about the global and social effects of engineering practices on health, environment, and safety,	
11b	Knowledge about contemporary issues of the century reflected into the field of engineering.	√
11c	Awareness of the legal consequences of engineering solutions.	

ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION			
Activities	Quantity	Duration (Hour)	Total Workload (Hour)
Course Duration	12	3	36
Hours for off-the-classroom study (Pre-study, practice)	12	6	72
Midterms	2	3	6
Homework	2	30	60
Term Project	1	90	70
Total Work Load			244
Total Work Load / 25 (h)			9.76
ECTS Credit of the Course			10

Prepared by: Dr. Mehmet Safa Bodur

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