NANOFIBER PRODUCTION METHODS AND APPLICATION FIELDS

1	Course Title:	NANOFIBER PRODUCTION METHODS AND APPLICATION FIELDS
2	Course Code:	TEK3077
3	Type of Course:	Optional
4	Level of Course:	First Cycle
5	Year of Study:	3
6	Semester:	5
7	ECTS Credits Allocated:	3.00
8	Theoretical (hour/week):	2.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	-
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. ESRA KARACA
15	Course Lecturers:	-
16	Contact information of the Course Coordinator:	U. Ü. Mühendislik Fakültesi Tekstil Mühendisliği Bölümü Görükle 16059 BURSA ekaraca@uludag.edu.tr 0 224 294 20 52
17	Website:	
18	Objective of the Course:	1.To provide general knowledge on nanotechnology. 2.To recognize nanofiber production methods. 3.To train students in understanding of principles and parameters of electrospun nanofiber production. 4.To provide knowledge on usage fields of nanofibers.
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	

	1	To understand nanotechnology applications in textile.
	2	To compare the nanofiber production methods.
	3	To understand the principles and parameters of electrospinning.
	4	To list usage fields of nanofibers.
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21	Course Content:	

Course Content:		
Week	Theoretical	Practice

1	Definition and important of nanotechnology	
2	Advantages and disadvantages of nanotechnology	
3	Nanotechnology applications in textile	
4	Nanofiber production methods	
5	Nanofiber production methods	
6	Advantages and disadvantages of nanofibers	
7	Advantages and disadvantages of electrospinning	
8	Principles of electrospinning	
9	Midterm exam + Repeating of courses	
10	Modeling of electrospinning	
11	Parameters of electrospinning	
12	Parameters of electrospinning	
13	Usage of nanofibers in biomedical field	
14	Usage of nanofibers in other fields	
22	Textbooks, References and/or Other Materials:	1.E. Karaca, "Instructor Prepared Handouts", 2010. 2.S. Ramakrishna, K. Fujihara, "Electrospinning and Nanofibers", World Scientific, Singapore, 2005. 3.A.L. Andrady, "Science and Technology of Polymer Nanofibers", John Wiley & Sons Inc., New Jersey, 2008.
23	Assesment	

TERM LEARNING ACTIVITIES	NUMBER	WEIGHT
Midterm Exam	1	40.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	60.00
Total	2	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		

24	**ECTS / WORK LOAD TABLE**

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	12	3.00	36.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	8.00	8.00
Others	2	2.00	4.00
Final Exams	1	10.00	10.00
Total Work Load			86.00
Total work load/ 30 hr			2.87
ECTS Credit of the Course			3.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	0	0	0	0	0	0	0	0	0	3	0	0	4	4	3	4
ÖK2	3	3	4	0	0	0	0	0	0	0	0	0	0	0	0	5
ÖK3	4	3	4	2	4	0	0	0	0	0	0	0	0	0	0	5
ÖK4	0	0	0	0	0	0	0	0	0	3	0	0	4	0	0	5

	LO: Learning Objectives PQ: Program Qualifications				
Contribution Level:	1 very low	2 low	3 Medium	4 High	5 Very High