SYNTHESIS OF SOME BIOLOGICAL ACTIVE COMPOUNDS

1	Course Title:	SYNTHESIS OF SOME BIOLOGICAL ACTIVE COMPOUNDS	
2	Course Code:	KIM4046	
3	Type of Course:	Optional	
4	Level of Course:	First Cycle	
5	Year of Study:	4	
6	Semester:	8	
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:	None	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. AYHAN YILDIRIM	
15	Course Lecturers:		
16	Contact information of the Course Coordinator:	Prof. Dr. Ayhan YILDIRIM yildirim@uludag.edu.tr 0 224 29 41 771	
17	Website:		
18	Objective of the Course:	Teaching the structures and production of natural and synthetic fibers used in textiles industry, the classes of the auxiliary chemical substances used in chemical finishing processes, their properties, their usage areas and their effects on the environment	
19	Contribution of the Course to Professional Development:	At the end of this course, the student, in addition to professional development and knowledge and skills about basic industrial textile chemicals; In the textile sector in the industry, it can be a qualified employee who has the power to solve different problems in both production and quality control laboratories.	
20	Learning Outcomes:		
		1	To recognize and classify textile fibers and structures
		2	To recognize auxiliary chemical substances used in textile finishing processes
		3	To understand the structural properties of textile auxiliaries and their effect mechanisms
		4	Understand the role and importance of chemist in the textile sector
		5	To be aware of the effects of auxiliary chemical substances on human and environmental health
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21	Course Content:		

	Course Content:	
Week	Theoretical	Practice
1	Introduction to textile industry,textile fibers, geometry, morphology, fiber structure, classification	
2	Artificial fibers, raw materials and synthesis Petroleum products, synthetic products, polymerization and polymerization methods, properties of regenerated and synthetic fibers, preparation methods	
3	Natural fibers: Plant and animal fibers Protein and cellulose structures, peptides, wool, keratin, silk, fibroin structures, chemical processes applied to protein fibers, polysaccharides, glycosidic linkages, chemical properties of cellulose, chemical finishing on cellulosic fibers	
4	Chemical finishing operations Preprocessing, coloring, finishing, auxiliary chemicals used in textiles, singeing, sizing, desizing, scouring, carbonizing, and mercerizing operations, surfactants, wetters, foam cutters, softening process	
5	Surface active agents in textile I Definition, structure and classification of surfactants, physicochemical properties, synthesis, cmc values, HLB values	
6	Surface active agents in textile II Gemini type surfactants, their properties and comparison with other surfactants, usage places in textiles, preparation methods, biodegradations	
7	Textile wet and dry cleaning processes, used chemicals Pollution in textile materials, wet and dry cleaning methods, chemicals used in these methods, advantages and disadvantages of these two methods	
8	Chemical substances retarding combustion in textile materials Combustion process in textile fibers, methods of making the fibers flame retardant, non-combustible fabrics, Flame retardant compounds suitable for fibers and their properties	
9	Antistatic chemicals Static loading in textile materials, adverse effects and results, chemical structures and properties of antistatic chemical substances, conductive textiles, wearable smart electronic textiles	
10	Organic dyes and dyeing I Definition of organic dyes, history, natural dyes, development of synthetic dyes, classification, chemical structures, properties	
11	Organic dyes and dyeing II Synthesis, examples, color and light theory, chromophore and oxochrome groups, dyeing processes, preparation and finishing, use of surfactants in dyeing process, color fastness, environmental effects of coloring	

12	Optical bleaches Definition and properties, chemical structures, functions and mechanisms of action, factors affecting their functions, application methods, microencapsulation technique	
13	Antimicrobial finish treatment in textiles Biocides, fungicides, bacteriostats, fungicides, properties and mechanisms of action, controlled release, antimicrobial polymers	
14	Non-slip materials, elastomeric finishes, phase modifiers Properties of non-slip materials, usage areas, wetted surfaces, elastomeric finishing chemicals, heat regulating textile materials, FDM properties, types, effect mechanisms of FDM, textile usage areas	

22	Textbooks, References and/or Other Materials:	1. Chemical Finishing of Textiles Wolfgang D. Schindler, Peter J. Hauser Taylor & Francis, Aug 23, 2004 2. Principles of Textile Finishing Asim Kumar Roy Choudhury Woodhead Publishing, Apr 29, 2017
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	1	20.00
Quiz	0	0.00
Home work-project	1	20.00
Final Exam	1	60.00
Total	3	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		Short-term quizzes are held Oral exams are held in the course Homework given

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	2	7.00	14.00
Homeworks	1	18.00	18.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	10.00	10.00
Others	0	0.00	0.00
Final Exams	1	20.00	20.00
Total Work Load			90.00
Total work load/ 30 hr			3.00
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	0	0	0	0	0	0	0
ÖK2	0	0	5	3	0	0	2	0	0	0	0	0	0	0	0	0
ÖK3	0	3	5	4	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	0	3	0	0	4	2	0	0	0	0	4	5	0	0	0	0
ÖK5	5	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**