AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Biocides								
Course Code	BİO649		Couse Level	Third Cycle (Doctorate Degree)					
ECTS Credit	4	Workload	94 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	The aim of the course is to give information about the concept of biocides, biocidal agents and chemistry, mechanisms of action on microorganisms, control use of biocides, biocide tests, the count of microorganisms, selection and proper use of biocides, biocidal products on the market								
Course Content	The mechanism of action of biocidal products on microorganisms, the selection of biocidal products, controlled use of biocidal agents, types of use of biocidal products, The relationship between human health and the environment of biocidal substances								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Experiment, Discussion								
Name of Lecturer(s)									

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading	
1	H.W. Rossmoore – 2012. “Handbook of Biocide and Preservative Use”
2	Peter C. Zhu.2007. New Biocides Development:TheCombinedApproach of ChemistryandMicrobiology.
3	D. R. Karsa, David Ashworth. 2002.IndustrialBiocides: SelectionandApplication1.Peter C. Zhu.2007. New Biocides Development:TheCombinedApproach of ChemistryandMicrobiology.
4	H.W. Rossmoore. 1995. Handbook of Biocide and Preservative Use.

Week	Weekly Detailed Course Contents	
1	Theoretical	Biocides concept, importance, current location
2	Theoretical	Biocides and biocidal control tests
3	Theoretical	Necessary documentation and permits for the safe sale on the market of biocidal products
4	Theoretical	The interaction of microorganisms with the biocide mechanism
5	Theoretical	The kinds and types of use of the biocidal agent
6	Theoretical	paper biocidal agent, for use in the pulp and paper, food and microbiological analysis
7	Theoretical	Biocide use in personal care products and control tests
8	Intermediate Exam	MID TERM EXAM
9	Theoretical	Enumeration of microorganisms in the textile industry and the use of biocides
10	Theoretical	Biocide use in coatings, paints the history of biocides
11	Theoretical	The effect of the biocide used in wood protection and methods
12	Theoretical	The selection of disinfectant in food hygiene and food effect, antimicrobials in food preservation: Direct antimicrobial protection, indirect antimicrobial protection
13	Theoretical	Use of biocidal and microbial count in cosmetics
14	Theoretical	Biocidal use and microbiological counts in pool water and toilet
15	Theoretical	Biocidal use and microbiological counts in pool water and toilet Control and use of biocides in plastics
16	Theoretical	PRESENTATION
17	Final Exam	FINAL EXAM

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	5	0	2	10
Assignment	5	1	2	15
Reading	2	0	1	2

Individual Work	15	0	3	45
Quiz	5	0	4	20
Midterm Examination	1	0	1	1
Final Examination	1	0	1	1
			Total Workload (Hours)	94
			[Total Workload (Hours) / 25*] = **ECTS**	4
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	1. Biocide concept and importance
2	2. Control of the use of biocides and biocidal testing
3	3. The necessary documents and permits for secure sale on the market of biocidal products
4	4. Interaction and mechanisms of microorganisms with biocidal substances
5	5. Biocidal product application methods
6	6. To be apply in industrial products such as paper, textiles, paint, cosmetics
7	7. Selection and application of biocidal agent to provide Food, pool and toilet hygiene
8	8. Biocidals and areas used in the market
9	9. New biocidal requirements and investigation
10	10. Important in the industrial production of biocidal

Programme Outcomes *(Biology Doctorate)*	
1	Develops expertise-level knowledge in the field of biology.
2	Applies the acquired theoretical and practical knowledge related to the field.
3	Gains the ability to identify problems related to the field and formulate hypotheses for their solutions.
4	Utilizes various methods for solving problems when planning research in accordance with predetermined hypotheses related to the field.
5	Gains diverse experiences through laboratory or fieldwork related to the field.
6	Presents the data obtained in relation to solving field-specific problems by adhering to scientific and ethical values.
7	Utilizes the knowledge acquired in the field in interdisciplinary studies.
8	Follows current and scientific developments related to the field.
9	Conveys current developments related to the field to individuals in the same or different fields.
10	Values ethical principles.
11	Develops a sensitive perspective towards the conservation of biodiversity and issues related to the environment and climate.
12	Acquires sufficient English proficiency to understand fundamental topics in the field of biology.
13	Demonstrates the ability to prepare a national or international article to contribute to the literature in the field of biology.
14	Develops projects aimed at solving problems in the field.