BIOLOGICAL CONTROL

1	Course Title:	BIOLOGICAL CONTROL	
2	Course Code:	BIT5003	
3	Type of Course:	Compulsory	
4	Level of Course:	Second Cycle	
5	Year of Study:	1	
6	Semester:	1	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	3.00	
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:	Doç.Dr. HİMMET TEZCAN	
15	Course Lecturers:	Doç. Dr. Nimet Sema Gençer	
16	Contact information of the Course Coordinator:	e-mail: himmett@uludag.edu.tr Tel: (90) 224 29 41 572 Bursa Uludağ Üniversitesi Ziraat Fakültesi Bitki Koruma Bölümü Görükle Kampüsü 16059 BURSA/ TÜRKİYE	
17	Website:	http://www20.uludag.edu.tr/~bitkik/ludi/biyolojik_mucadele_ing.docx	
18	Objective of the Course:	The purpose of the course is to give the student a thorough understanding of the principles and methods of biological control of pests and diseases, provide knowledge of basic identification of biological control agents and help to understand relationships between pests and their natural enemies, observing the biocontrol mechanisms between the microorganisms in the ecological aspects, bioformulation and application of the biocontrol agents against to plant diseases and pests.	
19	Contribution of the Course to Professional Development:	After the course, the students will be learned the principles and methods of biological control of pests and diseases, provide knowledge of basic identification of biological control agents and help to understand relationships between pests and their natural enemies, observing the biocontrol mechanisms between the microorganisms in the ecological aspects, bioformulation and application of the biocontrol agents against to plant diseases and pests.	
20	Learning Outcomes:		
		1	To know history and importance of biological control
		2	To understand the antagonistic mode of action of biocontrol agents
		3	To know parasitoids and predators
		4	To know biological control agents for plant pathogens
		5	To know natural enemy conservation
		6	To know principles and methods of introduction of new natural enemies
		7	To know augmentation of parasitoids, predators and pathogens
		8	To know nature conservation

	9	To understand the scale-up production, and formulation of promising biocontrol agents
	10	Creating an article, report and Project and evaluating these

21	Course Content:

Course Content:

Week	Theoretical	Practice
1	Pest origins, pesticides, and the history of biological conrtol	
2	Biological control agents and biological control methods	
3	Parasitoids and predators of arthropods and molluscs	
4	Natural enemy conservation,	
5	Introduction of new natural enemies,	
6	Augmentation of parasitoids, predators	
7	Biology of arthropod parasitoids and predators	
8	Introduction of biological control of plant diseases, natural balance	
9	Introduction to the mode of action the biological controls; antibiosis in rhizoplane and phylloplane	
12	Isolations of potantial antagonistic microorganisms in field, in vitro tests for tests and field trials for selection of potantial antagonists	
	effectiveness of biocontrol organism	
	commercial scale production of biocontrol agents and the examples of commercial pathogens	
	materials.	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	5.00	70.00
Homeworks	2	28.00	56.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	0	0.00	0.00
Others	0	0.00	0.00
Final Exams	1	110.00	110.00
Total Work Load			180.00
Total work load/ 30 hr			6.00
ECTS Credit of the Course			6.00

Menderes Universitesi Yayınları No:1

R.G. Van Driesche, TS. Bellows, JR Biological Control. Chapman & Hall-An International Thomson Publishing Company.

H.D.BURGES, H.D., 1998. Formulation of Microbial Biopesticides: Beneficial microorganisms, nematodes and seed treatments. Kluwer Academic Publishers.

Cook, R.J. and Baker, K.F. 1983. Te Nature and Practice of Biological Control of Plant Pathogens, APS Press, St. Paul, Minnesota, USA

23	Assesment

TERM LEARNING ACTIVITIES	NUMBER	WEIGHT

Midterm Exam	0	0.00
Quiz	0	0.00
Home work-project	2	20.00
Final Exam	1	80.00
Total	3	100.00
Contribution of Term (Year) Learning Activities to Success Grade		20.00
Contribution of Final Exam to Success Grade		80.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		Multiple Choice Test Exam

24	**ECTS / WORK LOAD TABLE**

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	4	4	0	4	0	0	5	0	0	0	0	0	0	0	0	0
ÖK2	5	0	0	0	0	4	5	0	0	5	0	0	0	0	0	0
ÖK3	0	0	0	0	0	4	5	0	0	0	0	0	0	0	0	0
ÖK4	0	5	0	0	3	0	0	0	0	4	0	0	0	0	0	0
ÖK5	4	0	0	5	0	0	5	0	0	0	0	0	0	0	0	0
ÖK6	3	3	0	5	0	0	5	0	0	0	0	0	0	0	0	0
ÖK7	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
ÖK8	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
ÖK9	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
ÖK10	0	0	0	0	0	0	0	5	4	5	4	5	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

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