AGRICULTURAL ELECTRIFICATION

1	Course Title:	AGRICULTURAL ELECTRIFICATION	
2	Course Code:	BSM4813-S	
3	Type of Course:	Optional	
4	Level of Course:	First Cycle	
5	Year of Study:	4	
6	Semester:	7	
7	ECTS Credits Allocated:	3.00	
8	Theoretical (hour/week):	2.00	
9	Practice (hour/week):	1.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	No prerequisites	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. ALİ VARDAR	
15	Course Lecturers:	Yok	
16	Contact information of the Course Coordinator:	Prof. Dr. Ali VARDAR e-posta : dravardar@uludag.edu.tr Telefon: 0 224 2941605 Adres: Bursa Uludağ Üniversitesi, Ziraat Fakültesi, Biyosistem Mühendisliği Bölümü, Görükle Kampüsü, 16059, Nilüfer/BURSA	
17	Website:		
18	Objective of the Course:	To teach the basics of electrical power, and the usages of this energy in agriculture. Introductory definitions relating to agricultural electrification, the state of agricultural electrification of Turkey and the potential of electrical energy, General meaning of agricultural electrification, electricity network, electricity power-stations. Introduction to electro technique, application areas of electricity in agricultural fields (Agricultural lighting, cooling, ventilation, heating, cooking, practicing and electrical motors).	
19	Contribution of the Course to Professional Development:	It contributes to the student's ability to learn and perform electrical and electronic applications in agricultural fields.	
20	Learning Outcomes:		
		1	To be able to comprehend the production ways of electrical energy and the basic magnitudes and concepts of electricity
		2	To be able to determine the appropriate installed power and transformer power concepts of the enterprise
		3	Ability to select the motor by determining the electric motor power of a work machine
		4	To be able to determine the heating, lighting, electrical ventilation elements and applications of an agricultural enterprise
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21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	Introduction to Electricity	Solved problems about the subject
2	Power, current, voltage, resistance and power circles in direct and alternating current, the effects of electrical energy, generators, direct current generators, alternating current generators, defining the power of established power plant.	Solved problems about the subject
3	Important technical terms regarding the generation and consumption of electrical energy, feeding villages and farms through power grid, transformer stations, power distribution units used in villages and farms, conductors, poles and isolators, determination of the best suitable conductor cross section area, low voltage grids.	Solved problems about the subject
4	General electrification, The definition of agricultural electrification, Electric installation.	Solved problems about the subject
5	The types of power generators, Hydraulic power plant, thermal power plant, solar power plant, nuclear power plant, wind plant, the classifications of power plants due to the region they are set up, Village plants, City plants, Industrial plants, regional plants, the classification of power plants based on their financing structure,	Solved problems about the subject
6	The uses of electrical energy in agriculture: techniques of electrical illumination and applications in agriculture,	Solved problems about the subject
7	The technique of electrical aeration and applications in agriculture,	Solved problems about the subject
8	The technique of electrical cooling and applications in agriculture,	Solved problems about the subject
9	Repeating courses	
10	The technique of electrical heating and infrared radiation and applications in agriculture,	Solved problems about the subject
11	Electrical motors and their uses in agriculture,	Solved problems about the subject
12	Electro pumping stations, milk coolants, incubators, automated mangers, automated manure cleaners, transportation mechanisms, electrical tractors, the compensation of blind power, electrified fences.	Solved problems about the subject
13	Internal fitting and its characteristics	Solved problems about the subject
14	The electrical security measures to be taken during agricultural electrification applications. Electrical power saving precautions	Solved problems about the subject

22	Textbooks, References and/or Other Materials:	-Prof. Dr. Güngör YAVUZCAN 1994. Tarımsal Elektrifikasyon. A.Ü. Ziraat Falültesi Yayınları Yayın No:1342, Ders kitabı: 390 ISBN 975-482-165-8 Ankara (215 s). Aynı yazara ait Uygulama Kitapcığı. -Prof. Dr. Kamil ALİBAŞ'a ait ders notları (Yayınlanmamış). -Prof. Dr. Abdülkadir YAĞCIOĞLU 1995. Tarımsal Elektrifikasyon. Eğe Üniversitesi Ziraat Fakültesi Yayınları (159 s) -Haluk Erna, Pratik Elektrik ve Elektroteknik. İnkilap ve Aka Kitapevleri Kolektif Şirketi (775s) -Robert J.Gustafson. 1981 Fundamentals of Electricity For Agriculture. The AVI Publishing Conpany (294 s) -Abraham Marcus Electricity For Technicians. Prentice-hall inc.Englewood Cliffs, Neww Jersry (490 s)
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		Midterm Exam + Final Exam

24 ECTS / WORK LOAD TABLE

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	1.00	14.00
Practicals/Labs	14	2.00	28.00
Self study and preperation	0	0.00	0.00
Homeworks	1	6.00	6.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	18.00	18.00
Others	0	0.00	0.00
Final Exams	1	24.00	24.00
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	3	5	4	0	3	0	0	4	1	1	3	0	0	0	0	0

ÖK2	5	5	5	1	5	1	2	2	3	3	4	0	0	0	0	0
ÖK3	5	5	5	1	5	1	2	2	3	3	4	0	0	0	0	0
ÖK4	5	5	5	1	5	1	2	2	3	3	4	0	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

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