DESIGN OF IRRIGATION MACHINERY

1	Course Title:	DESIGN OF IRRIGATION MACHINERY	
2	Course Code:	BSM6014	
3	Type of Course:	Optional	
4	Level of Course:	Third Cycle	
5	Year of Study:	1	
6	Semester:	2	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	2.00	
9	Practice (hour/week):	2.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	None	
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:	e-posta: dravardar@uludag.edu.tr Telefon: 0 224 2941605 Adres: Uludağ Üniversitesi, Ziraat Fakültesi, Biyosistem Mühendisliği Bölümü, Görükle Kampüsü, 16059, Nilüfer/BURSA	
17	Website:		
18	Objective of the Course:	The aim of the course is to enable the student to design irrigation machines.	
19	Contribution of the Course to Professional Development:	It contributes to the identification and design of irrigation machines / systems to be applied in agricultural areas.	
20	Learning Outcomes:		
		1	To understand the importance of irrigation concept;
		2	Understanding the importance of the concept of machine design;
		3	To be able to design irrigation machines
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21	Course Content:		

Course Content:

Week	Theoretical	Practice
1	Physical properties of water, flow types and properties	Physical properties of water, flow types and properties
2	Equivalent pipe length and total losses	Equivalent pipe length and total losses
3	Planning the pipeline	Planning the pipeline
4	Working principles and classification of centrifugal pumps	Centrifugal pump application

5	Axial thrust and Centrifugal pump parts	Centrifugal pump application
6	Theoretical principles in centrifugal pumps	Problem solutions
7	Cavitation and its characteristics	Problem solutions
8	Selection and operation in the pumping plant. Selection application in the pumping plant	Problem solutions
9	Determining the centrifugal pump type	Santrifüj pompa uygulaması
10	Calculation of pump shaft power and diameter	Problem solutions
11	Sizing of pump impeller - Determination of impeller inlet conditions	Pumping pump calculation example
12	Sizing of pump impeller - Determination of impeller inlet conditions	Pumping pump calculation example
13	Drawing the impeller	Drawing the impeller
14	Checking the diffuser requirement, determining the snail size	Pumping pump calculation example

22	Textbooks, References and/or Other Materials:	1. Keskin K., Güner M., 2002, Sulama Makinaları, Ankara Üniversitesi Ziraat Fakültesi, Yayın No: 1524, Ankara. 2. Güner M., 2011, Sulama Makinaları Yardımcı Ders Kitabı, Ankara Üniversitesi Ziraat Fakültesi, Yayın No: 1585, Ankara. 3. Güner M., Keskin R., 2012, Sulama Makinaları, Ankara Üniversitesi Ziraat Fakültesi, Yayın No: 1587, Ankara.
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	0	0.00
Quiz	0	0.00
Homeworks, Performances	0	0.00
Final Exam	1	100.00
Total	1	100.00
Contribution of Term (Year) Learning Activities to Success Grade		0.00
Contribution of Final Exam to Success Grade		100.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		The effect of the final exam on the course-passing grade is 100%.

24	**ECTS / WORK LOAD TABLE**

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	14	2.00	28.00
Self study and preperation	14	5.00	70.00
Homeworks, Performances	4	10.00	40.00
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	10.00	10.00
Total Work Load			176.00
Total work load/ 30 hr			5.87
ECTS Credit of the Course			6.00

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	2	3	4	2	3	4	3	4	3	4	3	0	0	0	0
ÖK2	2	3	4	5	3	2	3	4	3	4	2	3	0	0	0	0
ÖK3	2	3	5	4	2	3	3	4	3	2	3	3	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low		2 low		3 Medium		4 High		5 Very High							