COMPUTER APPLICATIONS IN HYDRAULICS										
1	Course Title:	COMPU	ER APPLICATIONS IN HYDRAULICS							
2	Course Code:	INS4052								
3	Type of Course:	Optional								
4	Level of Course:	First Cyc	le							
5	Year of Study:	4								
6	Semester:	8								
7	ECTS Credits Allocated:	4.00								
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 f	ace							
14	Course Coordinator:	Prof. Dr.	SERDAR KORKMAZ							
15	Course Lecturers:									
16	Contact information of the Course Coordinator:	skorkmaz@uludag.edu.tr 0224 24 09 04								
17	Website:									
18	Objective of the Course:	To teach the theories behind the hydraulic engineering applications and to do hydraulic design by using the computer programs that are used worldwide.								
19	Contribution of the Course to Professional Development:	To learn the theories behind the hydraulic engineering applications and to be able to perform hydraulic design by using the computer programs that are used worldwide.								
20	Learning Outcomes:									
		1	To be able to classify pressurized and open channel flows and calculate depth, section area and velocity computations							
		2	To be able to design potable water network considering all the criteria by using up-to-date computer programs							
		3	To be able to overcome the problems met during design using research techniques and engineering intuition							
		4								
		5								
		6								
		7								
		8								
		9								
		10								
21	21 Course Content:									
	Course Content:									
Week	Theoretical		Practice							
1	Basic hydraulic principles, terms use pressurized and open channel flows	ed in	Head loss computation in computer							
2	Friction and local losses in pressuris	ed pipes	Discharge and diameter calculation							
3	Pipes in series		Equivalent diameter computations for pipes in series; software application							

4	Pipe	s in p	oaralle	əl					Ec sc	Equivalent diameter computations for pipes in parallel; software application							
5	Multi calcu	i-rese ulatio	ervoir m	syster	ns, ju	nction	head		A	Analysis of multi-reservoir systems using software						ftware	
6	Wate meth	Vater distribution networks, Hardy-Cross					So	Solutions to water distribution networks using software									
7	Pum paral	umped systems, pumps in series and in arallel, pump curve, pump efficiency					So he	olutions ad and	s to pur d press	mped w	ater dis eria usii	tributiong soft	on netwo ware	orks, pur	mp		
8	Grav	Gravity pipelines					Ar	nalysis	of grav	/ity pipe	lines us	sing sc	oftware				
9	Introduction to open channel flows, flow types					s De	Determination of flow type										
10	Flow	-lows in composite and compound channels					Di	Discharge computations using Manning's Formula									
11	Conc trans	Concept of specific energy, channel transitions					W H	Water depth computations for channel transitions using HEC-RAS program									
12	Cono trans	Concept of specific energy, channel ransitions						W H	Water depth computations for channel transitions using HEC-RAS program								
13	Cond	Concept of specific force, hydraulic jump						H	ydrauli	c jump	comput	ations u	using H	HEC-RA	S		
14	Gradually varied flow, flow profiles GVF computations using HEC-RAS																
22	Textbooks, References and/or Other Materials:						1. Ec 2. M 3. M	<ol> <li>Computer Applications in Hydraulic Engineering, 7th Edition, Bentley, 2007.</li> <li>Munson Young Okiishi's Fundamentals of Fluid Mechanics, 8th Ed, Wiley, 2016.</li> <li>Fluid Mechanics 9th Ed, ISE, FM White, H Xue, McGraw Hill, 2021</li> </ol>									
Activites						Number			Dura	Duration (hour)			Total Work Load (hour)				
Mederaticelam 1					2	25!00			2.00			28.00					
Practicals/Labs							14			2.00			28.00				
ABHNSTWAYRAPHOJEEPeration 2						1	15!00			2.00	2.00		28.00				
Homeworks							2			15.00	15.00			30.00			
Population 4							10	100.00			0.00			0.00			
Field Studies								0			0.00	0.00			0.00		
ANK REP A	Diverente Stande								1			2.00			2.00		
Others	ers								0			0.00			0.00		
Final E	mal Exams							10	2.00				2.00				
	Total Work Load												2.02				
voraiswork load/ 30 nr							assignments				3.93						
ECISC				uise												4.00	
25	25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS																
	F	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	B PQ9	PQ1 0	PQ11	PQ12	PQ1 3	PQ14	PQ15	PQ16
ÖK1	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	5	5	5	0	5	0	5	0	0	0	0	0	0	0	0	0	0
ÖK3	5	5	5	0	5	0	5	0	0	0	0	0	0	0	0	0	0
			I	0: L	earn	ning C	bjec	tives	S	PQ: P	rogra	ım Qu	alifica	tions	;	-	•

Contrib	1 very low	2 low	3 Medium	4 High	5 Very High
ution					
Level:					