ADVANCED HYDROLOGY

1	Course Title:	ADVANCED HYDROLOGY
2	Course Code:	BSM6004
3	Type of Course:	Optional
4	Level of Course:	Third Cycle
5	Year of Study:	2
6	Semester:	4
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:	
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. Ali Osman Demir
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	e-posta : aodemir@uludag.edu.tr Telefon: 0 224 2941616 Adres: Uludağ Üniversitesi, Ziraat Fakültesi, Biyosistem Mühendisliği Bölümü, Görükle Kampüsü, 16059, Nilüfer/BURSA
17	Website:	
18	Objective of the Course:	The objective of the course is to collect and analyze hydrological data on water storage structures, groundwater, surface waters, rainfalls, surface runoffs, water storage in the soil, evaporation and condensation processes, and use them for planning, project and operation of water resources.
19	Contribution of the Course to Professional Development:	In this course, information about advanced hydrology (groundwater hydrology, flood steering, statistical methods in hydrology, etc.) is given to engineers and experts who will work on hydrology and planning of water resources in the future. The course contributes to the professional development of experts and engineers who will work in this field.
20	Learning Outcomes:	

	1	Comprehend the models in the hydrological cycle;
	2	Examine the basic climate parameters in terms of irrigation;
	3	Interpret the events that cause precipitation in the atmosphere;
	4	Define the formation of groundwater, its volumetric change and the conditions of using this resource;
	5	Explain the subjects of surface water resources, surface storage, surface flow and explain the conditions to benefit from these resources;
	6	Explain the tools and methods used in the measurement of hydrological parameters;
	7	Apply the concept of unit hydrograph;
	8	Apply statistical methods to hydrological data.
	9	
	10	

21	Course Content:	

	Course Content:	
Week	Theoretical	Practice
1	Water resources and hydrological applications	
2	Hydrological cycle	
3	Groundwater, aquifers, ground water flow theories and their applications	
4	Hydrological data observation networks, stream flow measurements	
5	Remote sensing (RS) and geographic information systems (GIS) in hydrology	
6	Rainfall-runoff modeling	
7	Unit hydrograph models	
8	Flow routing	
9	Pollutants modeling	
10	Statistical analysis of hydrological data	
11	Correlation, regression, hypothesis testing and trend analysis in hydrology	
12	Probability methods in hydrology	
13	Hydrological modeling	
14	Design storm and flood forecast	

22	Textbooks, References and/or Other	Jain S K and Singh V P, 2019, "Engineering Hydrology, An ... Singh V P, 2017. "Handbook of Applied Hydrology McGraw-Hill Education, ISBN: 978-0-07-183540-7, USA.

23	Assesment		
TERM LEARNING ACTIVITIES	NUMBE	WEIGHT	

Projects Exam	0	0.00 0	
Midterm exams Homework project	0	0.00 0	
Final Exams	1	100.00	

Success Grade

Total	100.00	

Measurement and Evaluation Techniques Used in the Course	Measurement and evaluation of student achievement are made according to the relevant article of the "Bursa Uludağ University Graduate Education- Regulation."

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	8.00	112.00
Homeworks	0	0.00	0.00
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	26.00	26.00
Total Work Load			180.00
Total work load/ 30 hr			6.00
ECTS Credit of the Course			6.00

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	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
ÖK2	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0

ÖK3	3	3	3	0	0	0	4	3	0	0	0	0	0	0	0	0
ÖK4	3	3	3	0	0	0	4	3	0	0	0	0	0	0	0	0
ÖK5	3	3	3	0	0	0	4	3	0	0	0	0	0	0	0	0
ÖK6	3	3	3	0	0	0	4	3	0	0	0	0	0	0	0	0
ÖK7	3	3	3	0	0	0	4	3	0	0	0	0	0	0	0	0
ÖK8	3	3	3	0	0	0	4	3	0	0	0	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