

Course Title-Course Code: CE 519 GROUNDWATER MODELLING							Name of the Programme:CIVIL ENGINEERING		
Semester	Teaching Methods							Credits	
	Lecture	Recite	Lab.	Field Study	H W	Other	Total	Credit	ECTS Credit
1-2	42	0	0	0	84	62	188	3	7.5
Language	Turkish								
Compulsory / Elective	Elective								
Prerequisites	-								
Course Contents	Darcy's law, aquifer types and characteristics, solutions for unsteady flow, boundary conditions, one-dimensional aquifers, wells, Theis and Jacob solution, multiple wells, variable pumping. Finite Difference Numerical Techniques; Crank-Nicolson and Alternating Direction Implicit Method. Two-dimensional flow in aquifers. Modelling assignments and Modflow program.								
Course Objectives	To teach definitions and modelling techniques used in Groundwater Engineering.								
Learning Outcomes and Competences	Students get experience and skill to develop groundwater resources in an optimum manner.								
Textbook and /or References	1-Bear J. (1979) Hydraulics of Groundwater, Mc Graw Hill New York. 2- Todd, D.K. (1980) Groundwater Hydrology, John Wiley and Sons. 3- Wang, H.F., Anderson, M.P. (1982) Introduction to Groundwater Modeling: Finite Difference and Finite Element Models, W. H. Freeman, San Francisco, USA.								
Assessment Criteria								<i>If any, mark as (X)</i>	Percent (%)
	<i>Midterm Exams</i>							X	40
	Quizzes								-
	Homeworks							X	20
	Projects								-
	Term Paper								-
	Laboratory Work								-
	Other								-
	Final Exam							X	40
Instructors	Assoc.Prof. Dr. Osman N. ÖZDEMİR								