Course Title-Course Code: CE 513 OPEN CHANNEL HYDRAULICS	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	70	76	188	3	7.5

Language	Turkish
Compulsory / Elective	Elective
Prerequisites	-
Course Contents	**Basic Equations in Open Channel Hydraulics** (Continuity equation, energy equation, specific energy, types of flow regimes and channels, minimum energy, momentum equation) **Determination of Open Flow Channel Capacity** (Emprical equations, logarithmic velocity distribution and Prandtl hypothesis, Chezy equation ve Prandtl/Colebrook equation, Darcy-Weisbach equation, universal equation and shape factor, Keulegan equation, open channel flow with natural bed and its capacity, open channel flow and erosion**,** stable channel design) **Change in Cross-Section (**Cross-Section expansion, cross-section contraction, minor losses in energy**,** contraction and expansion losses, entrance loss, negative sill loss, grid structure loss, submerged curtain loss, water surface rise due to bridge piers, Venturi channel loss) **Steady Non-Uniform Flows** (Differential equation of water surface profile, GVF types, calculation of water surface profile with step methods (direct step, standard step), analitical calculation of water surface profile (Bakhmetef, Bresse, Chow methods), graphical calculation of water surface profiles (Ezra, modified Ezra methods)) Introduction to Unsteady Flows
Course Objectives	Gaining information about open channel flow hydraulics.
Learning Outcomes and Competences	Gaining experince on advanced topics in open channel flow hydraulics.
Textbook and /or References	Bollrich G., Preissler G., **Technische Hydromechanik**, Band 1, Verlag für Bauwesen, 1992. (in German) Chow V. T., **Open Channel Hydraulics**, Mc Graw Hill, 1959. Henderson F. M., **Open Channel Flow**, Macmillan Comp., 1971. Morris H. M., Wiggert J. M., **Applied Hydraulics in Engineering**, John Wiley & Sons, New York, 1971. Naudascher E., **Hydraulik der Gerinne und Gerinnebauwerke**, Springer Verlag, 1987. (in German) Rössert R,.**Hydraulik im Wasserbau**, Oldenburg Verlag, 1988. (in German) Schröder R. C. M., **Technische Hydraulic,** SpringerVerlag, 1994. (in German) Sümer B. M., Ünsal İ., Bayazıt M., **Hydraulics**, Birsen Yayınevi, İstanbul, 1983. (in Turkish) Vischer D. L., **Dam Hydraulics**, John Willey & Sons, New York, 1992.

Assessment Criteria		*If any,mark as (X)*	Percent (%)
	Midterm Exams	X	20
	Quizzes		-
	Homeworks	X	10
	Projects		-
	Term Paper		-
	Laboratory Work		-
	Other		-
	Final Exam	X	70

Instructors	Prof. Dr. Tülay ÖZBEK