

Vocational School / Construction Technology
2024 - 2025 Academic Year
HYDRAULICS and HYDROLOGY
Syllabus

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
HYDRAULICS and HYDROLOGY	İNŞ2212222	Spring Semester	3+0	3	4
Prerequisites Courses					
Recommended Elective Courses					
Language of Instruction	Turkish				
Course Level	Short Cycle (Associate's Degree)				
Course Type	Elective				
Course Coordinator	Lect. Özge KARABAY				
Name of Lecturer(s)	Lect. Özge KARABAY				
Assistant(s)					
Aim	To comprehend fundamental concepts of Hydraulics and Hydrology and apply to engineering problems.				
Course Content	This course contains; Definitions of Basic Hydrology Terms, The Formation of Precipitation, Types of Precipitation, Hydrological Cycle, Properties of River Basins, Formation of Surface and Groundwater Flow; Equipment and Methods of Pluviometry, Unit Systems and Conversions, Fundamental Principles of Pascal's Law, Variation of Pressure with Depth in Stationary Fluids, Methods of Pressure Measurement, Calculation of Pressure Force Acting on Curved and Plane Surfaces, Equilibrium Conditions of Floating Objects, Midterm Exam, Inviscid Fluids and Equation of Continuity, Laminar and Turbulent Flows, Resultant Head Losses in Pipeflows, Laminar and Turbulent Flows, Resultant Head Losses in Pipeflows, Calculation of Head Losses in Pipeflow, Classification of Free Surface Flows, Hydraulic Gradient, Final Exam.				
Course Learning Outcomes			Teaching Methods	Assessment Methods	
Calculates the total amount of head loss in Pipe Flows.			12, 14, 3, 9	A, E, G	
Explains Fundamental Principles of the Hydrological Cycle.			12, 14, 3, 9	A, E, G	
Calculates the hydrostatical pressure of fluids.			12, 14, 3, 9	A, E, G	
Applies fundamental properties of Pipe Flows to calculation principles.			12, 14, 3, 9	A, E, G	
Solves engineering problems by using Open Channel Flow Equations.			12, 14, 3, 9	A, E, G	
Applies fundamental properties of Open Channel Flows to calculation principles.			12, 14, 3, 9	A, E, G	
Applies fundamental equations of Hydraulics to engineering problems.			12, 14, 3, 9	A, E, G	
Draws the unit hydrograph of a given precipitation period by using the precipitation data.			12, 14, 3, 9	A, E, G	
Teaching Methods	12: Problem Solving Method, 14: Self Study Method, 3: Problem Based Learning Model, 9: Lecture Method				
Assessment Methods	A: Traditional Written Exam, E: Homework, G: Quiz				
Lecture Schedule					
Sequence	Topics	Preliminary Preparation			
1	Definitions of Basic Hydrology Terms				
2	The Formation of Precipitation, Types of Precipitation, Hydrological Cycle, Properties of River Basins				
3	Formation of Surface and Groundwater Flow; Equipment and Methods of Pluviometry				
4	Unit Systems and Conversions, Fundamental Principles of Pascal's Law				
5	Variation of Pressure with Depth in Stationary Fluids, Methods of Pressure Measurement				
6	Calculation of Pressure Force Acting on Curved and Plane Surfaces				
7	Equilibrium Conditions of Floating Objects				
8	Midterm Exam				
9	Inviscid Fluids and Equation of Continuity				
10	Laminar and Turbulent Flows, Resultant Head Losses in Pipeflows				
11	Laminar and Turbulent Flows, Resultant Head Losses in Pipeflows				
12	Calculation of Head Losses in Pipeflow				
13	Classification of Free Surface Flows				
14	Hydraulic Gradient				
15	Final Exam				
Evaluation Methods		Weight(%)			
Midterm Exam		40			
General Exam		60			
Resources					
Lecture notes, presentations					