Academic Year: 2023-2024	Semester: Fall	Starting Date: 15-10-2023
Course Name	Advance Hydrology	
Module Language	English	
Instructor	Dr. Abdulwahd Ali	
Teaching Assistance(s)	None	
College/University	College of Engineering – Salahaddin University-Erbil	
Department	Water and Environment Engineering	
Semester Duration	15 weeks	
Course Overview	The student is introduced to Advance Engineering Hydrology including the hydrological cycle on earth, fundamentals of hydrology, analysis of rainfall data, missing data, infiltration, infiltration index, characteristics of catchment areas, methods of surface runoff estimations, watershed hydrology, and time of concentration, hydrographs, unit hydrograph, and synthetic unit hydrographs, Dimensionless Unit Hydrograph, Instantaneous Unit Hydrograph Flood Routing, and Morphology of River Basins. By the end of this course, the student should be able to Analyze the rainfall data and storm analysis, estimate the water losses, and find the peak discharge for designing.	
Course Objectives	The objective of this course is to provide students with an understanding of the important hydrological problems and try to solve it. The use of advanced methods will be introduced in a engineering hydrology, having as the final goal the design and analysis of hydrological data.	
Course Contents	Week Lecture 1st Introduction 2nd Missing Data 3rd Infiltration 4th Surface runoff 5th Natural Resource Conservation Service 6th Flood Analysis 7th Rational Method 8th Time of concentration and travel time 9th Unit Hydrograph 10th Synthetic Unit Hydrograph 11th SCS Dimensionless Unit Hydrograph 12th Instantaneous Unit Hydrograph 13th Flood Routing 14th Morphology of River Basins 15th Final Exam	
Textbooks and References	1- " Engineering Hydrology ", by K Subramanya. 2- " Irrigation Engineering and Hydraulic Structures ", by S. R. Sahasrabudhe.	

	3- "Apply Hydrology", by Ven T. Chow.
	4- " Hydrologic analysis and design ", by Richard H. McCuen.
Teaching Style	3 hrs. in Class
Requirements for credit points	For the award of credit points, it is necessary to pass the module exam. It contains: An examination during the academic semester, Quizzes, Presentation, Scientific Report, and Final examination. Student's attendance is required in all classes.
Credit ECTS	6

Grade Distribution	The following grade system is used for the evaluation of the module exam:
	The module exam is based on the summation of two categories of evaluations:
	
	First: (50%) of the mark is based on the academic semester effort which includes
	    - Midterm Exam = 20%.
	    - Quiz = 10%
	    - Seminar = 10%
	    - Scientific Report = 10%
	
	Second: (50%) of the mark is based on the final examination that is comprehensive for the whole of the study materials reviewed during the academic semester.

Workload	Workload 10 hr/week (150 hr): Contact face-to-face 3 hr/week (45 hrs) and Non-Contact Self learning 7 hr/week (105 hr).