

Engineering Hydrology Module				
Course Title	Surface Water (Applied) Hydrology			
Course Code	WRIE2094			
Program	B.Sc in Water Resources and Irrigation Engineering			
Module name	Engineering Hydrology			
Course Coordinator	Name: Office location Mobile:; e-mail: Consultation Hours: _____			
Instructor Name	Name: Office location Mobile:; e-mail: Consultation Hours: _____			
Course Information	Academic Year Year : Semester: Meeting Day: Meeting Time: Meeting Location:			
ECTS	5			
Students' work load in hrs	Lecture	Tutorial	Lab	Home study
	2	2	0	4
Course objectives & Competences to be Acquired	The course is designed to acquaint students with developing hydrographs, frequency analysis of, rainfall and stream flow data, flood routing, reservoir capacity determination and sedimentation, and statistical analysis of hydrological parameters and generation of random numbers			
Course Description	• Flood Routing; Reservoir Routing; Channel Routing. • Frequency analysis: rainfall, low flow, floods and droughts. • Reservoirs: determination of reservoir capacity; reservoir sedimentation • Basic concepts of stochastic hydrology: parameter estimation, biased and unbiased statistics, time series analysis, consistency and homogeneity, hypothesis testing, trend and periodicity, histogram and frequency distributions: applications to flood frequency analysis, probable maximum precipitation and probable maximum floods.			
Pre-requisite	Introductory hydrology and Hydrometry & Probability & Statistics			
Status of Course	Compulsory			
Syllabus/Schedule				
Week	Topics			Required Text

	1. Introduction (Lec=2hrs)	
	2. Frequency Analysis (Lec=4hrs, Tut=7hrs) 2.1 Introduction	Subramanya, K. (1994), Engineering Hydrology
	3. Flood Routing & Reservoir (Lec=3hrs, Tut=5hrs) 3.1.Introduction	
	4.0. Rainfall-runoff relationship 4.1 Introduction	
	5.0 Introduction to Urban Hydrology (Lec=3hrs, Tut=5hrs)	Subramanya, K. (1994), Engineering Hydrology
	4. Basic Concepts of Stochastic Hydrology (Lec=4hrs, Tut=5hrs)	Subramanya, K. (1994), Engineering Hydrology
Summary of Teaching and Learning Method	Lecture, discussion, individual work, problem solving, project work	
Assessment	a. 10% Test	chapters
		Chapter 2,3&4
		All chapters
		Instructor selection
		Project presentation
Course Expectation	Preparedness and participation: both students and the teacher should be prepared since education is an interactive process. Students should be active participants in the teaching-learning process. They should be interested to the course and come to class with the necessary materials such as exercise books and pen. In addition, they should to take responsibility in their education. Teachers are also expected be prepared and interested to the course, which they are offering. They have to consult the essential materials ahead of time and try share their knowledge in an efficient and effective manner. Material availability: reference materials are expected to be available in the library nearest to respective faculties.	
Policy	Attendance: students should attend at least 85% Assignments: all students must do all the assignments given Tests/quizzes: all students must site/take all tests/quizzes given Cheating/plagiarism: cheating/plagiarism is strictly forbidden. It will result in disqualification of the course.	

Reference	• Subramanya, K. (1994), Engineering Hydrology 2nd ed., Tata McGraw-Hill • Shaw, E.M. (1994) Hydrology in Practice, 3rd ed., Chapman & Hall • Linsley, R.K (1982), Hydrology for Engineers, 3rd ed., McGraw-Hill • Chow, V.T. (1964), Hand book of Applied Hydrology, McGraw-Hill • Any journals and research papers on hydrology • Wilfried Brutsaert. (2005). Hydrology: An Introduction. Cambridge University Bridge. • Warren Viessman and Gary L. Lewis. (2002). Introduction to Hydrology. 5/e. Prentice Hall. • Ven Te Chow and Maidment (1988). Engineering Hydrology. McGraw-Hill. • Fundamental hydrology • Bhattacharya (2003). Elements of Applied Hydrology, Delhi • Ward, R.,C (2000). Principles of Hydrology, London. • Robinson, M. (2000). Principles of Hydrology, London. • Wilson E. M (1990). Engineering Hydrology: 4th Edition, Britain
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