

Semester:	5		
Course Code:	ENCM 31762		
Course Name:	Water Resources Management		
Credit Value:	2		
Status	Compulsory for BSc in ENCM degree Optional for BSc Honours in ENCM degree		
Pre-requisites	ENCM 11722		
Co-requisites	None		
Hourly Breakdown	Theory	Practical	Independent Learning
	26	12	62
Intended Learning Outcomes:			
After completion of this course unit, the student will be able to;			
<ol style="list-style-type: none"> 1. estimate sustainable yield of the water resources, 2. develop water resource management plans for a given area, 3. quantify water usage and propose water conservation measures, 4. apply the concepts of water resources management to address the related issues in Sri Lanka, and 5. use computer models in addressing issues of water resources management 			
Course Content:			
<p>Watershed management: types and characteristics of watersheds, watershed interactions and deterioration, principles and benefits of watershed management, integrated watershed management; Water withdrawals: yield estimation, challenges and opportunities, environmental impacts; Water demand management: water uses, water allocation, strategies and tools, success stories from other countries; Water in environment conservation: Environmental Flow, sustainable utilization of water resources, water accounting and auditing, rainwater harvesting; Issues related to water resources in national, regional and global context: water quality deterioration, increased global water stress; Water governance: paradigm shift, Water Resources Development, Planning, Integrated and Sustainable Water Resources Management, acts and ordinances - Water Resource Board (Amendment) Act, No. 42 of 1999, National drinking water policy, National Water Supply and Drainage Board (Amendment) Act, No. 13 of 1992, National policy for rural water supply and sanitation, Irrigation Ordinance (Cap. 453), National Policy on Protection and Conservation of Water Sources, their Catchments and Reservations in Sri Lanka; Environmental considerations in Irrigation management: Waterlogging and salinization, impacts on downstream water use and environmental flow due to dams and reservoirs, Socio-economic impacts of irrigation schemes, Alternatives to mitigate the negative impacts of irrigation projects; Water resources planning and development: mini hydropower projects, flood control reservoirs, water storage and diversions; River basin developments in Sri Lanka: hydraulic civilization, post-independence water resources developments, Dry Zone development and colonization projects, Mahaweli development project, Mahaweli Water Security Investment Program, Moragahakanda-Kalu Ganga development project; Future challenges in water resources management: chronic water scarcity, hydrological uncertainty and extreme weather events, competition and markets; Water resources Database: FAO – AQUASTAT, IWMI databases</p>			

Teaching /Learning Methods: A combination of lectures, field studies, computer-based learning, self-studies, field-based assignments and small group discussions.			
Assessment Strategy: Continuous assessment and end of semester examination. Percentage given for each sub component indicates the percent contribution to the final marks			
Continuous Assessment 40 %		Final Assessment 60 %	
Details:		Theory	Practical
Quizzes	10	60	-
Assignments	20		
Field reports	10		
Recommended Readings:			
1. Biswas, A. K., O. Varis & C. Tortajada (2005). Integrated Water Resources Management in South and South-East Asia.Oxford University Press.			
2. Grafton, R.Q. & K. Hussey (2011). Water Resources Planning and Management, Cambridge University Press.			
3. Sawvel, P.J. (2008). Water Resources Management (Introducing Issues with Opposing Viewpoints). Greenhaven.			
4. Srinivasa, R. K. & A. Vasan (2010). Sustainable Water Resources Management and Impact of Climate Change.BS Publications, New Delhi, India.			
5. Publications of the CapNet (http://www.cap-net.org).			