

Course Code : ENCM 31592
Title : Water Resources Management
Pre-requisite : ENCM 21533
Co-requisite : None
Status : Compulsory, Theory cum Practical

Learning outcomes:

After completion of the course unit, the student will be able to;

- explain and describe the principles of water resources planning and management,
- discuss the impacts of interventions on land and water resources,
- assess the key concepts for integrated water resources management, and
- analyze rainfall and river flows in decision making on water resources planning and management.

Course content:

Water allocation and utilization, Water resources utilization in agriculture, Measures to improve efficiency and sustainability of water use in agriculture, Water measurement in irrigation; Sectoral and holistic approach of water resource management, Principles and practice of water resources planning and management (Dublin principle, Integrated Water Resources Management); Water demand management and demand management tools; Bulk water allocation, Groundwater extraction and water Supply Wells, Aquifers and Groundwater Recharge Areas, Watershed Management as tool for water resources management, Water withdrawal from rivers and other freshwater sources and lower water levels in reservoirs, lakes, and ponds; Mass curve analysis, Modeling rainfall-runoff relationships; Conservation of freshwater and groundwater resource, techniques used in water conservation, Environmental flow; Impacts of mini hydropower projects; Impact of river basin development projects.

Practical sessions on rainfall frequency analysis; Application of computer models in water resources estimation and management; Modeling rainfall-runoff relationships.

Method of teaching and learning:

A combination of lectures, computer based learning, 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 30 %		Final Assessment 70 %	
Details:	Theory	Practical	Other
Individual assignment 30	70	-	-

Recommended reading:

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>).