UHI Millennium Institute

MODULE DESCRIPTOR (AD3)

This document provides detailed information on the module named below. It will be updated as necessary when modifications to the module are approved. Modules are allocated to a Subject Network not a programme, and may be accessed by students studying on different programmes.

WATER MANAGEMENT

a Aims
To develop an understanding of water resource systems and integrated catchment management approaches which are crucial for sustainable mountain and rural development.

b Intended learning outcomes
On completion of this module, the student should be able to:

- understand fundamentals of hydrological processes, monitoring and analysis in terms of both water quantity and quality;
- identify and understand the range of issues related to integrated water management within the rural and mountain environments;
- discuss the potential of application of appropriate tools used in water management;
- analyse and discuss relevant case studies, which illustrate different catchment water management approaches.

c Indicative content
The module begins with an introduction of the river basin as an ecosystem, the history of river management and the current management approaches which aim to include social, institutional, political, legal and financial issues, as well as scientific, technical and environmental aspects.

The module then focuses on four areas of river basin management:

The information base:
- a thorough grounding in the understanding of the land and water interactions within a catchment examining both the processes themselves and the monitoring of hydrology, erosion and sediment yield and water quality.

Technical issues:
- methods of analysis for rainfall, streamflow, floods, low flows, sediment yield, together with the principles of water resource systems, river regulation, the potential and limitations of catchment modelling and environmental impact assessment.

Issues of change:
- impacts of future change such as climate and land use together with the monitoring of change.

Institutional issues:
- aspects of policy, planning, management authorities and consultation relevant to the concept of an integrated management approach.

The module concludes with an examination of the concept of interdisciplinary, multi-level, integrated sustainable river basin management and the way forward, using four case studies which vary in scale and location.

d Mode(s) of delivery and support for teaching and learning

Face-to-face	0 hours or	… %
Video-conference	0 hours or	… %
Supported online learning	40 hours or	… %
Self-directed learning	110 hours	… %
Total activity	150	100%

e Assessment
One project report involving data interpretation, development of a catchment action plan and preparation of a summary report (60% of overall mark), **due week 12.**
One position paper which involves topic research, preparation of slide presentation and accompanying explanatory text together with online group question and answer session (40% of overall mark), **due week 7.**

f Key learning resources

Reading List

Essential:
Newson, M., 2002. Land, Water and Development: Sustainable Management of River Basin Systems (2nd Edition). Routledge. ISBN. 041515507X.

Recommended:
Shaw, E.M., 1994. Hydrology in Practice (3rd Edition). Chapman & Hall. ISBN: 0 412 48290 8**.**

Ward, R.C. and Robinson, M., 1999. Principles of Hydrology (4th Edition). McGraw Hill. ISBN: 0077095022.

Newson, M., 1994. Hydrology and the River Environment. Oxford University Press. ISBN: 019874157X.

Calder, I., 1999. The Blue Revolution. Land Use and Integrated Resource Management. Earthscan. ISBN:1853836346.

Price, M.,1996. Introducing Groundwater (2nd Edition). Nelson Thornes. ISBN: 0748743715.

g Additional background information
Tutorials will be supported by web-based learning resources and guided study provided by on-line contact (individual e-mail and computer conferencing).

h Specialist resource requirements
- internet access to web and e-mail facilities;
- access to a PC and printer;
- access to on-line library resources;