CIVIL 782 – WATER RESOURCES ENGINEERING
(Formerly Civil 482)
(15 Points, SC 2012)

COURSE CO-ORDINATOR: Dr A. B. Swann
(Room 1.0716, ext. 88185)

Other Teaching Staff: T.B.A.

Programme: 5hours/week (including computing lab)

Prerequisites: CIVIL 331 and ENVENG 333 or equivalent

PHILOSOPHY:
This course is contextually based and focuses on hydrology and hydraulics as they relate to the development of a typical water resources engineering scheme. A design project based around a pre-feasibility study of a multi-purpose reservoir scheme (using case study data of an actual or previously proposed scheme) provides first hand experience of the design process.

COURSE ASSESSMENT:
Assessment is divided between an individual project mark and a 2 hour final examination. Note that the total course mark (%) cannot exceed the examination mark (%) by more than 10%

The weighting for each type of assessment is:
- Project mark 50%
- Final exam 50%

LEARNING OBJECTIVES:
- To develop an appreciation of the design process.
- To develop literature research and review skills.
- To encourage a systematic approach to handling a substantial project.
- To improve information handling and document preparation skills.
- To develop reporting skills
COURSE OUTLINE:
The course will cover the range of design aspects related to the requirements of the proposed scheme. These will include a selection from:

- Design Flood Selection.
- Reservoir Design and Optimization.
- Flood Control and the Design of Suitable Flood Control Works (Spillways, Stilling Basins and Diversion Works)
- Investigation of a Site's Potential for Hydro-Electric Power Generation and Initial Plant Selection Studies.
- Pressure Surge Analysis and the use of Surge Tanks.
- Cavitation problems and the setting of turbines.
- Some aspects of River Engineering and sediment control

TEXTS:
Recommended text: