Module code	SG-2301			
Module Title	Hydrogeology			
Degree/Diploma	Bachelor of Science (Geology)			
Type of Module	Major Option			
Modular Credits	4	**Total student Workload**	10	hours/week
		Contact hours	6	hours/week
Prerequisite	None			
Anti-requisite	SG-2206 Hydrogeology			

Aims

The aim of this module is to elucidate the impact of groundwater on the geological evironment and the interaction between surface and subsurface water systems. The module will cover different groundwater flow equations, flow to well bores, calculation of aquifer properties, as well as various methods employed in well hydraulics, well testing, drilling and groundwater exploration, groundwater chemistry, public health, waste disposal, contamination and remedies.

Learning Outcomes

On successful completion of this module, a student will be expected to be able to:

Lower order :	30%	- understand the basic hydrologic principles and groundwater equations - understand the basic applications of hydrogeology
Middle order :	50%	- acquire the rainfall, run off and groundwater data - analyse groundwater data for drinking, irrigation and commercial purposes - analyse and interpret hydrogeological and hydrochemical data - calculate aquifer properties
Higher order:	20%	- appraise hydro-stratigraphy for groundwater management - work independently and in groups to use state of art techniques

Module Contents

- Hydrologic cycle, the hydrologic equation, stream flow and hydrographs, evapo-transpiration
- Introduction to the theory and principles of groundwater flow
- Well drilling and testing, porosity and permeability, Darcy's law
- Study of flow nets, the geology of groundwater occurrences, hydrologic cross-sections and maps
- Well hydraulics and groundwater modelling
- Geophysical exploration methods, well logs
- Groundwater contamination/pollution and remediation

Assessment	Formative assessment	Practical tests, assignments and feedback
	Summative assessment	Examination: 50%
		Coursework: 50% - 7 written assignments (30%) - 1 class test(20%)