

Faculty	Natural Sciences		
Home Department	Earth Sciences		
Module Topic	Physical Hydrology and Soil Science		
Generic Module Name	Environmental and Water Science 221		
Alpha-numeric Code	EWP221		
NQF Level	6		
NQF Credit Value	20		
Duration	Semester		
Proposed semester to be offered	Second Semester		
Programmes in which the module will be offered	BSc (Applied Geology) (3214, 3011); BSc (Biodiversity and Conservation Biology) (3217, 3015); BSc (Environmental & Water Science) (3331,3027)		
Year level	2		
Main Outcomes	<p>On completion of this module students should be able to:</p> <ul style="list-style-type: none"> Describe the hydro-geologic system including value, role, key concepts & principles and the hydrologic cycle Describe & illustrate groundwater occurrences including recharge mechanism & estimations methods Explain groundwater hydraulics including basic principles of groundwater flow mechanisms Discuss groundwater chemistry and pollution including water sampling & water quality analysis Describe and explain groundwater development including drilling & logging of boreholes Identify and justify groundwater-surface water interaction including examples of groundwater dependence ecosystems Recognize geohydrology of mining environment including the concept of acid mine drainage (AMD) 		
Main Content	<ul style="list-style-type: none"> Hydro-geologic system Groundwater occurrences including recharge mechanism & estimations methods Groundwater hydraulics including basic principles of groundwater flow mechanisms Groundwater development i.e drilling & logging of boreholes Groundwater chemistry and pollution i.e water sampling & water quality analysis Groundwater-surface water interaction i.e. groundwater dependent ecosystems Geohydrology of the mining environment i.e. Acid Mine Drainage (AMD) 		
Pre-requisite modules	(ESC111, ESC121)		
Co-requisite modules	None		
Prohibited module Combination	None		
Breakdown of Learning Time	Hours	Timetable Requirement per week	Other teaching modes that does not require time-table
<i>Contact with lecturer / tutor:</i>	42	<i>Lectures p.w.</i>	3
<i>Assignments & tasks:</i>	30	<i>Practicals p.w.</i>	2
<i>Practicals:</i>	84	<i>Tutorials p.w.</i>	0
<i>Tutorials:</i>	0		
<i>Tests & Examinations:</i>	10		

<i>Selfstudy:</i>	34			
<i>Other:</i>	0			
Total Learning Time	200			
Methods of Student Assessment	Continuous Assessment (CA): 50% Final Assessment (FA): 50%			
Assessment Module type	Continuous and Final Assessment (CFA)			