

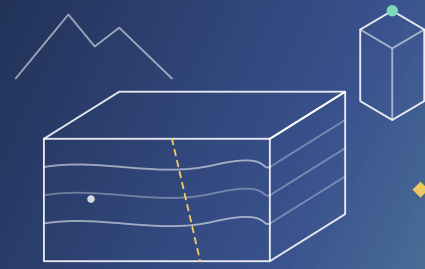
Module code

SPG-2207

Type of module

Undergraduate: Geosciences – Major Core

Hydrogeology



Modular credits

4

Total student
engagement

56 hours

Prerequisite

None

Anti-requisite

None

Aims

To introduce students to groundwater and its interaction with surface water and key topics including groundwater flow (steady/transient), solute transport, aquifer properties, well hydraulics, modelling, testing, drilling, exploration, groundwater chemistry, contamination, and remediation.

Module learning outcomes (MLO)

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

MLO 1

Apply and analyse the basic equations of groundwater flow and flow through porous media.

MLO 2

Analyse pumping test and hydrogeological and hydrochemical data.

MLO 3

Calculate aquifer properties.

MLO 4

Apply correctly analytical equation for a given hydrogeological problem.

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

Assessment

60% **40%**

Examination

Coursework



■ Examination — 60% ■ Class tests — 20% ■ Practical reports — 20%

Formative assessment

Weekly discussion
and feedback

Summative assessment

COMPONENT	WEIGHTING
Examination	60%
Coursework	40%
Individual	40%
Class tests	20%
Practical reports	20%

Graduate attributes and skills

Programme learning objectives (PLO) addressed

- | | |
|---|--|
| 1 PLO 1 (Fundamental Theoretical Knowledge in Geosciences) | 2 PLO 2 (Application of Scientific Methods and Data Analysis) |
| 3 PLO 3 (Integrated Laboratory, Field, and Technical Skills) | 5 PLO 5 (Sustainability and Responsible Practice) |

Sustainability concept addressed

- SGD 6 Clean water and Sanitation
- SGD 15 Life on Land
- SGD 13 Climate Action

Digital skills/software used (not limited to)

- Word processing software (e.g. Microsoft Word)
- Data processing and spreadsheet software (e.g. Microsoft Excel)
- Learning management system (e.g. Canvas)

Micro-credentialling option

Yes, 4 MCs

Stackable towards GenBESTARI Undergraduate Degree Programme or other relevant Lifelong Learning Programmes

No

Document details

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