

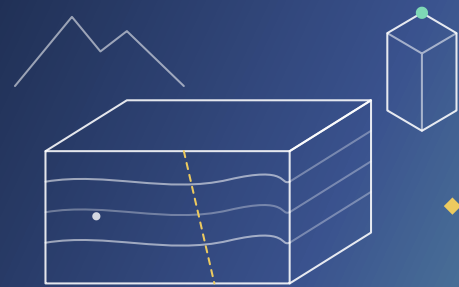
Module code

SPG-2205

Type of module

Undergraduate: Geosciences – Major Core

Geophysics



Modular credits

4

Total student
engagement

56 hours

Prerequisite

None

Anti-requisite

None

Aims

To equip students with core knowledge of applied geophysical methods, such as seismic refraction, magnetic, gravity, and resistivity, used for subsurface exploration. Through theory and practical work, students learn data acquisition, processing, and interpretation for resource, environmental, and engineering studies.

Module learning outcomes (MLO):

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

MLO 1

Analyse the fundamental physical principles underlying seismic refraction, magnetic, gravity, and resistivity methods.

MLO 2

Design and implement basic geophysical surveys appropriate for geological investigations.

MLO 3

Operate field instruments for seismic, magnetic, gravity, and resistivity data acquisition.

MLO 4

Process and analyse geophysical data using standard techniques.

MLO 5

Interpret geophysical results to identify subsurface structures and geological features.

MLO 6

Evaluate the strengths and limitations of different geophysical methods in addressing specific geological problems.

MLO 7

Integrate multiple geophysical datasets to support geological mapping and resource exploration.

MLO 8

Communicate geophysical findings effectively through technical reports and presentations.

Module contents

Introduction to Geophysics

Seismic Refraction Method – principles, data acquisition, processing, and interpretation

Magnetic Method – principles, data acquisition, processing, and interpretation

Gravity Method – principles, data acquisition, processing, and interpretation

Electrical Resistivity Method – principles, data acquisition, processing, and interpretation

Assessment

60%

Examination

40%

Coursework

Examination
60%

15%

20%

■ Examination – 60% ■ Class test – 15% ■ Assignments – 5% ■ Oral presentations – 20%

Formative assessment

Weekly discussion
and feedback

Summative assessment

COMPONENT	WEIGHTING
Examination	60%
Coursework	40%
Individual	20%
Class test	15%
Assignments	5%
Group	20%
Oral presentations	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)	7	PLO 7 (Independent Learning and Professional Development)

Sustainability concept addressed

4	SDG 4 Quality Education
6	SDG 6 Clean Water and Sanitation
7	SDG 7 Affordable and Clean Energy

Digital skills/software used (not limited to)

- Application software (e.g. Microsoft Word, Microsoft Excel, SeisImager, Oasis montaj, Geosoft, GM-SYS, RES2DINV)
- Organisational tools (e.g. Outlook Calendar)
- Learning management systems (e.g. Canvas)

Micro-credentialling option

No

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

No

Document details

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