

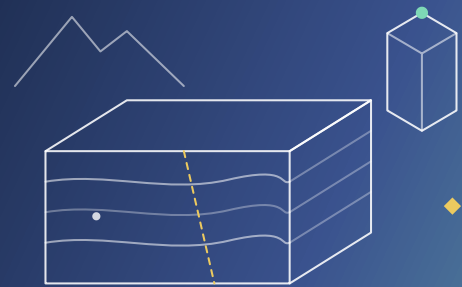
Module code

SPG-3406

Type of module

Undergraduate: Geosciences – Elective

Well Log Analysis



Modular credits

4

Total student
engagement

56 hours

Prerequisite

**SPG-1203 Introduction
to Geology**

Anti-requisite

None

Aims

To introduce students to well log analysis to understand rock properties along a wellbore. Students will learn log purposes, principles, tools and applications relevant to petroleum and related industries, enabling them to interpret lithologies, identify hydrocarbon zones and quantify petrophysical properties.

Module learning outcomes (MLO):

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

MLO 1

Apply well logging principles to evaluate borehole conditions, tool responses and formation corrections.

MLO 2

Analyse lithology logs to determine rock types and reservoir characteristics.

MLO 3

Determine reservoir porosity and water saturation using appropriate logging methods.

MLO 4

Select suitable logging tools and justify interpretations through well-structured reports.

MLO 5

Critically appraise well log data using software, integrating findings individually and collaboratively.

Module contents

Introduction to well log analysis, principles, procedures and tools

Open hole and cased-hole logging techniques

Logging While Drilling (LWD) and Measurement While Drilling (MWD)

Lithology and porosity logs: principles and uses

Quick-look interpretation for lithology and hydrocarbon detection

Models for porosity, shale, water and hydrocarbon saturation

Assessment

60%

Examination

40%

Coursework



■ Examination — 60% ■ Weekly practical — 20% ■ Class tests — 10%

■ Integrated well log analysis discussion — 10%

Formative assessment

Weekly practicals,
discussion and
feedback

Summative assessment

COMPONENT	WEIGHTING
Examination	60%
Coursework	40%
Individual	30%
Weekly practical	20%
Class tests	10%
Group	10%
Integrated well log analysis discussion	10%

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)

4

PLO 4 (Critical Thinking and Problem-Solving Skills)

Sustainability concept addressed

4

SDG 4 Quality Education

7

SDG 7 Affordable and Clean Energy

Digital skills/software used (not limited to)

- Word processing software (e.g. Microsoft Word)
- Image digitising softwares (e.g. Adobe Photoshop, Adobe Illustrator)
- Slide generation software (e.g. Microsoft PowerPoint)
- Data organisation software (e.g. Microsoft Excel)
- File sharing platforms (e.g. OneDrive)

Micro-credentialling option

No

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

No

Document details

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