



UNIVERSITÀ DI PISA

BOREHOLE METHODS FOR SUBSURFACE INVESTIGATIONS

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CdS GEOFISICA DI ESPLORAZIONE E APPLICATA
Codice 260DD
CFU 6

Moduli	Settore/i	Tipo	Ore	Docente/i
BOREHOLE METHODS FOR SUBSURFACE INVESTIGATIONS	GEO/05	LEZIONI	48	DAVIDE BALDINI

Obiettivi di apprendimento

Conoscenze

The course will highlight the techniques and principles of advanced well log interpretation. The whole cycle of well data acquisition and evaluation will be covered, including surface logging, core logging and geophysical logging.

Modalità di verifica delle conoscenze

The course will utilise a variety of learning techniques to ensure maximum understanding, comprehension and retention of the information presented. The daily sessions will be highly interactive and participative. This involves regular discussion of applications as well as hands-on exercises that will be solved manually and/or using SWs

Capacità

At the end of the course the student will be capable of preparing a well data acquisition program by choosing the most suitable downhole tools to satisfy the technical needs of a project. Moreover, the student will be in condition to interpret the acquired data for formation evaluation purpose.

Modalità di verifica delle capacità

Technical questions and practical exercises

Programma (contenuti dell'insegnamento)

- 1. Introduction to borehole methods and objectives of well data acquisition**
- 2. Surface Logging:**
 - Primary well control and well safety
 - Geological description of drill cuttings and show evaluation
 - Mud gas extraction and gas chromatography measurements
 - Elaboration, analysis and interpretation of surface logging data for formation evaluation purpose
- 3. Core Logging:**
 - Different typologies of core logging: conventional coring vs sidewall coring
 - Downhole equipment for coring operations
 - Laboratory analyses on core samples
- 4. Geophysical Logging**
 - Lithology, Resistivity and Porosity Logs: from basic tools to most modern technologies (LWD and wireline)
 - Image logs (high-resolution LWD image logs versus wireline image logs)
 - Wireline formation testing
 - Computation of the main reservoir parameters (mineralogy, porosity, saturation...)
- 5. Artificial Intelligence supporting well data interpretation**
 - Lithology and fluid type
 - Virtual logs and automated well correlations



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