Biostratigraphy Laboratory Techniques Training Course

Professional Development Training Course Outline

Category	Occupational Health	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

This course provides a comprehensive introduction to the principles and practical **laboratory techniques** used in **biostratigraphy**, the science of dating and correlating rock strata using fossils. In a professional landscape where **geological data integration** is paramount for **resource exploration** and **environmental analysis**, mastering these techniques is a critical skill. Participants will gain hands-on experience with modern **micropaleontology** methods, including **sample preparation**, fossil identification, and data interpretation, empowering them to generate high-quality biostratigraphic data.

Biostratigraphy Laboratory Techniques Training Course is designed to bridge the gap between theoretical knowledge and practical application, focusing on the latest advancements in **digital biostratigraphy** and **machine learning** for data analysis. Through a series of lab sessions, case studies, and exercises, participants will learn how to build a robust **chronostratigraphic framework**, interpret **paleoenvironments**, and integrate biostratigraphic data with other subsurface datasets like **seismic** and **well logs**. The course emphasizes the **workflow optimization** and **quality control** necessary for generating reliable and actionable results in both the **hydrocarbon** and **renewable energy** sectors

Programme Curriculum

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Course Objectives

1. Master fundamental principles of biostratigraphy and chronostratigraphy.
2. Gain proficiency in micropaleontology laboratory techniques.
3. Perform accurate fossil identification and taxonomy for key microfossil groups.
4. Develop skills in sample preparation and data collection for diverse rock types.
5. Interpret paleoenvironments and paleoclimates from fossil assemblages.
6. Construct and utilize biostratigraphic zonation schemes.
7. Apply graphic correlation and other quantitative methods for high-resolution analysis.
8. Integrate biostratigraphic data with seismic interpretation and well log correlation.
9. Analyze and predict stratigraphic sequences and systems tracts.
10. Assess and mitigate common data pitfalls such as reworking and caving.
11. Utilize digital tools and software for biostratigraphic data management.
12. Evaluate thermal maturity of organic matter using palynology.
13. Apply biostratigraphy in modern geoscience workflows for exploration and production.

Organizational Benefits

- Enables more accurate **age dating**, **well correlation**, and **reservoir characterization**, leading to reduced drilling risk and higher success rates in **hydrocarbon exploration**.
- Equips teams with the skills to efficiently generate and interpret biostratigraphic data, optimizing workflows and reducing reliance on external consultants.
- Provides a robust **chronostratigraphic framework** that informs key decisions in basin analysis, field development, and **carbon capture utilization and storage (CCUS)** projects.
- The ability to perform in-house biostratigraphic analysis reduces operational costs associated with third-party lab services and unnecessary drilling.
- Enhances the technical expertise of geoscientists and engineers, fostering a more skilled and adaptable workforce capable of tackling complex subsurface challenges.
- Organizations with internal biostratigraphic capabilities can more rapidly and accurately interpret new data, gaining a significant competitive edge in the **energy sector**.
- Improves the understanding of geological risks by accurately identifying **unconformities**, **hiatuses**, and potential drilling hazards.

Target Audience

1. Exploration Geologists.
2. Development Geologists.

3. Wellsite Geologists.
4. Reservoir Engineers.
5. Geophysicists.
6. Academic Researchers.
7. Environmental Scientists.
8. Students and Early-Career Professionals.

Course Modules

Module 1: Introduction to Biostratigraphy

- Principles of Stratigraphy & Geochronology.
- History & Evolution of Biostratigraphy.
- Microfossil Groups.
- Biostratigraphic Units & Zonation.
- **Case Study: The Permian-Triassic Boundary:** An analysis of how biostratigraphy helps define the most significant mass extinction event in Earth's history.

Module 2: Laboratory Techniques & Sample Preparation

- Sampling Strategies.
- Foraminifera & Nannofossil Lab Techniques.
- Palynology Lab Techniques
- Microscope & Imaging Methods.
- **Case Study: Wellsite Operations:** A simulation of real-time sample processing and data delivery during a drilling program to guide decision-making.

Module 3: Fossil Identification & Paleoenvironmental Analysis

- Key Index Fossils.
- Taxonomy & Nomenclature.
- Biofacies Analysis.
- Paleobathymetry & Paleoclimatology.
- **Case Study: North Sea Basin:** Interpreting paleoenvironmental shifts from well data to understand depositional history.

Module 4: Data Interpretation & Visualization

- Creating Biostratigraphic Charts.
- Well-to-Well Correlation.
- Graphic Correlation.
- Digital Biostratigraphy.
- **Case Study: Gulf of Mexico:** Applying graphic correlation to a complex deepwater basin to resolve stratigraphic uncertainty.

Module 5: Integration with Other Geoscience Disciplines

- Biostratigraphy & Sequence Stratigraphy.
- Biostratigraphy & Seismic Interpretation.
- Biostratigraphy & Well Logs.
- Chemostratigraphy & Magnetostratigraphy.

- **Case Study: Offshore Brazil:** A workflow demonstrating the integration of all data types to predict reservoir distribution and trap integrity.

Module 6: Applied Biostratigraphy in the Energy Sector

- Exploration Applications.
- Development Applications.
- Wellsite Biosteering.
- Hydrocarbon Source Rock Analysis.
- **Case Study: Carbon Capture & Storage (CCUS):** Applying biostratigraphic principles to identify and evaluate potential CO2 storage sites.

Module 7: Quality Control & Pitfall Mitigation

- Understanding Reworking & Caving.
- Data Quality Assessment.
- Data Reporting.
- Common Errors: A review of common mistakes and how to avoid them.
- **Case Study: Fault Identification:** Using biostratigraphy to confirm the presence and throw of a fault not clearly visible on seismic data.

Module 8: Advanced Topics & Emerging Trends

- Quantitative Biostratigraphy.
- Machine Learning in Biostratigraphy.
- New Micropaleontology Disciplines.
- Applications Beyond Hydrocarbons.
- **Final Project:** A capstone exercise where participants apply all learned skills to a comprehensive dataset from a global basin.

Training Methodology

This course employs a blended learning approach that combines **instructor-led lectures** and **interactive discussions** with significant **hands-on laboratory sessions** and **practical exercises**. The methodology is designed to ensure participants not only understand the theory but can also confidently apply it in real-world scenarios.

1. Interactive Lectures.
2. Hands-On Laboratory Work.
3. Real-World Case Studies.
4. Practical Exercises.
5. Group Projects.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

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