



# **Nigerian Association of Petroleum Explorers**

## **Geoscience and Mining Professional - Curriculum Development (Oil and Gas Industry)**

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## Part A – Basic Geology – The Fundamentals of Geology

### General Paper

- Igneous Petrology
- Metamorphic Petrology
- Sedimentary Petrology
- Geology of Nigeria



## **Criteria for Application for Certification**

- Candidate must possess a minimum of B.Sc Degree**
- Professional program to commence minimum of 3-5years after graduation from and accredited university**
- Professional accreditation to be aligned with key areas of specialization**
  - Mining**
  - Geosciences**
  - Mineral Exploration and Field Mapping**
  - Applied Geology (Engineering Geology, Hydrogeology, etc.)**



## Qualification for Professional Certification

### 1. B.Sc Degree + 5years Experience

- Qualifying Exam
- Evidences of industry projects completed
- Evaluation of evidence by Assessment Team
- Interview

### 2. M.Sc Degree + 3years Experience

- Evidences of industry projects completed
- Evaluation of evidence by Assessment Team
- Interview

### 3. Ph.D Degree + 3years Experience or 10-15years Experience

- Evidences of industry projects completed
- Evaluation of evidence by Assessment Team
- Interview



## **Qualifying Exam for Professional Certification**

### **Examination Standards**

- Qualifying exam to adopt/modify curriculum of existing M.Sc programs from Tertiary Institutions**
- Focus to be on industry practices, current technologies and best practices**
- Benchmarking of exam for international standards**
- Exam can be online**

### **Assessment Criteria**

- Referees**
- Need to define checklist for evidence assessment, weighting and grading (e.g. robustness, integration, technology application, contribution, value to business and knowledge etc.)**



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## **Part B – Specializations – The Practice of Geology**

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- Petroleum Geology**
- Engineering Geology**
- Hydrogeology**
- Petroleum Geophysics**
- Environmental Geoscience**
- Marine Geology, Oceanography, Geodesy**
- Mining Geology**



- The following section refers ONLY to Certification as a Petroleum Geoscientists – Petroleum Geology and Petroleum Geophysics**
- Candidates would also qualify for COMEG full registrations as a Certified Petroleum Geologist/Geoscientist.**



## Required Competencies

- Petroleum Geology, Petroleum Geophysics,
- Petrophysics, Geomechanics/Pore Pressure
- Play to Prospect – Basin Analysis, Petroleum Systems
- Petroleum Economics and Finance
- Aspects of Petroleum Law/Legislations
- Community Relations/Security/Safety/Health/Environment
- Drilling/Borehole Stability, Reservoir Management, Operations, Production
- Project Planning/Management, Software/IT/Data Management
- Gas/Condensate, Unconventional Resources
- Asset Management/Optimization/Disposal
- Asset Capture/New Ventures/New Business





## Curriculum Development - Oil and Gas

- Part 1: Geology – exempt B.Sc / M.Sc Geology, compulsory for Geophysics graduates
- Part 1: Geophysics – exempt B.Sc / M.Sc Geophysics, compulsory for Geology graduates
- Part 2: For ALL, no exemption
- Part 3: For ALL, no exemption
  
- Modules – Each part contains courses/examination in 8 modules, i.e. Petroleum Geology, Petroleum Geophysics, Petroleum Law, Finance, Economics, Reservoir Management, Petrophysics, Drilling
  
- Part 2 & 3 would contain additional courses and examination in Project Management, Data Management and Integration, Safety/Health/Environment, Community Relations/Security, Unconventional Resources



## Geology Courses - Part 1,2,3

- Basic Petroleum Geology, Petrophysics and Log Evaluation/Log Interpretation, Open Hole Logs/Cased Hole Logs
- Seismo Stratigraphy, Sequence Stratigraphy, Correlation Methods, Deepwater Stratigraphy, Sedimentology/Environment of Deposition, Chrono-Biostrat
- Core Description and Analysis, Reservoir Characterization and Management, Clay Mineralogy/XRD, Fractured Reservoirs, Clastic/Carbonate Reservoirs, Petrology
- Geopressure Studies/Pore Pressure Prediction, Geomechanics, Biostrat-Geochemistry/Basin Analysis/Petroleum Systems, Salt Tectonics, Mud Logging/Sampling/Analysis/Storage, Fluid Sampling/Testing
- Seismic Interpretation. Subsurface Mapping, Borehole Geology, Facies Modeling, Integration of E&P Data. Regional Geology, Geostatistics/Gridding/Contouring/Upscaling
- Geological Operations and Wellsite Geology/Duties, Integrated Interpretation Techniques, Prospect Evaluation/Risks/Volumetrics, Well Placement Fundamentals. Properties of Reservoir Fluids.



## Geophysics Courses - Part 1,2,3

- Basic Petroleum Geophysics, Acquisition Methods in different Terrains - Marine, Land, Swamp, Processing Methods, Seismic Imaging
- Seismic Interpretation, Seismic Stratigraphy, Mapping/Gridding and Contouring techniques, Seismic Facies
- Quantitative Geophysical Methods, DHI/AVO Analysis, Inversion/Fluid Substitution Techniques, 3D Seismic Attributes
- Electric Logging/Borehole Seismic, Synthetics, VSP/Seismic Velocity, Depth Imaging, Depth Conversion
- Seismic Data Management, Seismic Data Storage
- Seismic Geomechanics, Rock properties



## General Courses - Part 1,2,3

- Communication and Presentation Techniques, Report Writing, Business Proposal /Packaging, Negotiation Skills
- Project Management, Petroleum Economics, Fiscal Policies, Petroleum Provinces of the World, Oil Deals, Oil Pricing, Energy Security, Risk Analysis
- Drilling, Reservoir Management, Integration Methods, Production/Well Intervention
- Safety/Health/Environment, EIA/Waste Management
- New Business Development, Opportunity Capture and Asset Disposal, Abandonment, Bidding Rounds, Scouting/New Ventures
- Financing Exploration and Appraisal/Development Projects, Budgeting/Cash Calls/Cost Recovery, Cash Flows/Profit and Loss
- Field Development Plans, Gas monetization, Integrated Technical Work Program



## General Courses - Part 1,2,3

- Regulatory/Permits and Legal Frameworks, Fiscal Terms, PSC/JV/Sole Risks/Novation/Agreements, Mineral Laws/PIB/NC Acts, TECOM/FINCOM/OPCOM,
- World Energy Demands/New Trends,, Heavy Oils and Tar Sands/Unconventional Resources, Completions, HPHT, Enhanced Oil Recovery,
- Real Time Measurements and Operations, Type Logs, Simulation and Modeling
- Drilling - directional drilling, mud chemicals/fluids/cementing, measurements while drilling, drill bits, drilling rigs, MPD, drilling tools, fishing, sidetracks, BOP, casing designs, directional drilling and surveying.
- Well Testing/Extended Well Tests/Early Production. Sand Control. Gas Injection/Water Injection, Drive Mechanism. Production Platforms/FPSO/Pipelines.
- Tendering/Technical Bidding/Contract Evaluation. Community Relations/Social Services/CSR. International Energy Agencies, R&D, Reserves (P, 2P, 3P)



## Required Competencies

- Petroleum Geology, Petroleum Geophysics,
- Petrophysics, Geomechanics/Pore Pressure
- Petroleum Economics, Profitability Analysis
- Finance, Sources of Funds, Cost Recovery
- Petroleum Law, Regulations, Fiscal Terms
- Community Relations/Security
- Drilling/Borehole Stability, Reservoir Management, Operations  
Geology/Wellsite Duties, Production
- Project Planning/Management, Software/IT/Data Management,  
Gas/Condensate Resources, Unconventional Resources
- Safety/Health/Environment
- Asset Management/Optimization/Disposal/Divestment
- Asset Capture/New Ventures/New Business/Acquisition



**Thank you for  
your attention**