



SunRise University

Approved by Govt. of Rajasthan vide Sunrise University Act, 2011
Recognized by UGC Act, 1956 u/s 2 (f)

DIPLOMA IN OIL & GAS (DIOG)

SYLLABUS

SunRise University

| PAPER CODE | PAPER NAME | INTERNAL | EXTERNAL | TOTAL |
|-------------------|-------------------------|-----------------|-----------------|--------------|
| DIOG 101 | OIL & GAS | 40 | 60 | 100 |
| DIOG 102 | NON DESTRUCTIVE TESTING | 40 | 60 | 100 |
| TOTAL | | 80 | 120 | 200 |

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DIOG 101: OIL AND GAS

UNIT 1 : INTRODUCTION TO OIL AND GAS INDUSTRY

Facilities and processes, Exploration, Production, Onshore & Offshore, Upstream process sections, Wellheads, Manifolds and gathering, Separation Metering, storage and export, Utility systems, Midstream, Gas Plants Gas compression Pipelines LNG liquefaction and regasification facilities, Refining Petrochemical

UNIT 2 : RESERVOIR AND WELLHEADS

Crude oil, Natural gas, Condensates, The reservoir Exploration and drilling, The well, Well casing, Completion, Wellhead, Subsea wells, Injection Artificial lift, Rod pumps, ESP, Gas lift, Plunger lift, Well workover, intervention and stimulation

UNIT 3 : UPSTREAM OIL AND GAS PROCESS

Manifolds and gathering, Pipelines and risers, Production, test and injection manifolds, Separation- Test separators and well test, Production separators, Second stage separator, Third stage separator, Coalescer, Electrostatic desalter, Water treatment, Gas treatment and compression, Heat exchangers, Scrubbers and reboilers, Compressors, anti-surge and performance, Oil and gas storage, metering and export, Fiscal metering, Storage, Marine loading

UNIT 4 : REFINING AND PETROCHEMICAL

Fractional distillation, Basic products, Upgrading and advanced processes, Blending and distribution. Aromatics- Xylene and polyester chain, Toluene, benzene, polyurethane and phenolic chain, Benzene and styrenic chain, derivatives, Olefins, Ethylene, derivatives Propylene, derivatives, Butadiene, butylenes, and pygas, derivatives, Synthesis gas (syngas) Methanol based products, Ammonia based products

UNIT 5 : UTILITY SYSTEMS

Process control systems, Digital oilfield, Power generation, distribution and drives, Flare and atmospheric ventilation, Instrument air, HVAC, Water systems, Potable water, Seawater, Ballast water, Chemicals and additives Telecom

DIQG 102: NON-DESTRUCTIVE TESTING

UNIT – I: VISUAL TESTING

Overview, Principles and application of lighting, Factors affecting visual testing, Principles and theory, Visual testing Equipment, Visual testing and discontinuities, Evaluation and deposition.

UNIT – II: MAGNETIC TESTING

Overview, Procedure, Comprehension and Instruction preparation examination, Level -II hands-on practical examination

UNIT – III: PENETRANT TESTING

Overview, Penetrants, Developer and equipment, Testing in primary metals production, Appearance of Liquid penetrant Indications

UNIT – IV: ULTRASONIC TESTING

Introduction, Ultrasonic Testing, Equipment, Probes, Probe design, Ultrasonic Testing Techniques, Evaluation of Indications

UNIT – V: RADIOGRAPHIC TESTING

Procedure, X-ray and Gamma ray, Radiographic film, Testing procedure, Penetrometers, IQI, Film processing, Defect Interpretation.