



UNIVERSITY OF PETROLEUM & ENERGY STUDIES

Part-Time PhD Program Guide (Engineering/ Science)



University of Petroleum & Energy Studies

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COURSE WORK

The list of subjects from which the candidates can choose for PhD course work is given below:

PhD in Engineering/ Science

PhD (Engineering) – Oil & Gas

Research Methodology – Compulsory

Optional Subjects

1. Drilling Engineering
2. Reservoir Engineering
3. Formation Evaluation and Well Logging
4. Production Engineering and Well Testing Analysis
5. Natural Gas Engineering

PhD (Engineering) – Power/ Electrical

Research Methodology – Compulsory

Optional Subjects

1. Power System
2. Energy Audit
3. Control System Engineering
4. Instrumentation, Control and Automation
5. Renewable Energy Technologies
6. Energy Scenario and Energy Forms
7. Solar Energy Technology
8. Project & Financial Management in Energy Sector

PhD (Engineering) – Aerospace

Research Methodology – Compulsory

Optional Subjects

1. Fundamentals of Astronautics and Space Applications
2. Orbital Mechanics
3. Space Science

PhD (Engineering) – Chemical

Research Methodology – Compulsory

Optional Subjects

1. Transport Phenomena
2. Advanced Thermodynamics
3. Chemical Reactor Engineering and Design
4. Process Modeling and Simulation
5. Mass Transfer Equipment Design and Separation Processes
6. Advanced Process Control
7. Biochemical Engineering
8. Polymer Engineering

PhD (Engineering) – Mechanical

Research Methodology – Compulsory

Optional Subjects

1. Pumps, Compressors and Fans
2. Advanced Thermodynamics and Heat Transfer
3. Advanced Machine Design
4. Steam, Gas and Hydraulic Turbines
5. Fatigue, Fracture and Stress Analysis of Machine Component
6. Refrigeration and Air Conditioning Systems
7. Equipment & Machinery Maintenance
8. Quality and Reliability Engineering
9. Material Science
10. Advanced IC Engines

PhD (Engineering) – Infrastructure

Research Methodology – Compulsory

Optional Subjects

1. Mechanics of Solids
2. Design of Concrete Structure
3. Advanced Concrete Technology
4. Highway Construction Practice
5. Advanced Soil Mechanics
6. Environmental Engineering
7. Water Resources Engineering
8. Hydropower Engineering

PhD (Engineering/ Science) – Health Safety & Environment

Research Methodology – Compulsory

1. Environmental Engineering and Management
2. Behavior Based Safety
3. Hazards & Safety Measures in Process Industry
4. Occupational Health & Safety Management
5. Risk Analysis and Management
6. Safety in Construction
7. Statutory Rules and Regulations
8. Fundamentals of Sustainable Development

PhD (Engineering/ Science) – Computers

Research Methodology – Compulsory

Optional Subjects

1. Applied Numerical and Statistical Techniques
2. Design & Analysis of Advanced Algorithms
3. System Modeling and Simulation
4. Cryptography & Network Security
5. Data Mining
6. Ad-hoc and Sensor Network
7. Wireless Networks
8. Embedded Systems and Real Time Operating System
9. Big Data Analytics
10. Digital Image Processing
11. Parallel and Distributed Computing

PhD (Science) – Earth Sciences

Research Methodology – Compulsory

Optional Subjects

1. Understanding Earth Sciences
2. Basin Analysis and Reservoir Characterization
3. Sedimentology