



Fire Safety Management Institute

Course Name: International Diploma in Renewable Energy Engineering.

Course Overview: The International Diploma in Renewable Energy Engineering is designed to provide comprehensive knowledge and skills in the field of renewable energy technologies. This diploma program aims to equip students with the theoretical understanding and practical expertise necessary to design, implement, and manage renewable energy projects effectively. Through a blend of classroom learning, practical exercises, and real-world case studies, students will gain insights into various renewable energy sources, technologies, and their applications in diverse contexts.

Learning Objectives:

- Understand the fundamental principles and concepts of renewable energy engineering.
- Gain knowledge of various renewable energy sources including solar, wind, hydroelectric, biomass, and geothermal energy.
- Learn the principles of energy conversion and storage technologies relevant to renewable energy systems.
- Develop skills in the design, installation, and maintenance of renewable energy systems.
- Analyze the environmental, economic, and social implications of renewable energy deployment.
- Explore policy frameworks, regulations, and incentives driving the adoption of renewable energy worldwide.
- Apply engineering principles and tools to assess the feasibility and performance of renewable energy projects.
- Collaborate effectively in multidisciplinary teams to address real-world challenges in renewable energy engineering.

Qualification Structure: The International Diploma in Renewable Energy Engineering in the construction Industry consists of 10 mandatory units for a combined total of 50 credits, 500 hours of Total Qualification Time (TQT), and 250 Guided Learning Hours (GLH) for the completed qualification.

Course Content:

1. Introduction to Renewable Energy Engineering

- Overview of renewable energy sources.
- Historical perspective and current global trends.
- Environmental and societal impacts of energy production.

2. Solar Energy Systems

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Fire Safety Management Institute

- Solar photovoltaic (PV) technology.
- Solar thermal systems.
- Design principles and applications.

3. Wind Energy

- Wind turbine technology.
- Wind resource assessment.
- Wind farm design and optimization.

4. Hydroelectric Power

- Types of hydroelectric systems.
- Hydropower generation techniques.
- Environmental considerations.

5. Biomass Energy

- Biomass conversion processes.
- Bioenergy technologies (e.g., biogas, biofuels).
- Sustainable biomass utilization.

6. Geothermal Energy

- Geothermal resource exploration.
- Geothermal power plant design.
- Geothermal heating and cooling systems.

7. Energy Storage and Conversion

- Battery technologies.
- Pumped hydro storage.
- Thermal energy storage.

8. Renewable Energy Project Management

- Project planning and development.
- Risk assessment and mitigation.
- Financial modeling and investment analysis.

9. Policy and Regulatory Frameworks

- International and national energy policies.



Fire Safety Management Institute

- Renewable energy incentives and subsidies.
- Regulatory compliance and permitting processes.

10. Case Studies and Practical Applications

- Real-world examples of successful renewable energy projects.
- Hands-on exercises and simulations.
- Field trips to renewable energy facilities.

Duration and Delivery: The qualification will be flexible in its delivery to accommodate part-time and distance learning. The International Diploma in Renewable Energy Engineering in the construction Industry program will typically span over 04 to 06 months, including classroom lectures, practical exercises, distance, and online.

Assessment and verification: All units within this qualification are internally assessed by the Fire Safety Management Institute. Learners must have a minimum of 50% marks in each unit to achieve a 'pass' grade for this qualification.