KOENIG
step forward

KOENIG SOLUTIONS · COURSE OUTLINE

Renewable Energy: Solar, Wind & Ethanol

Learn how solar, wind, geothermal, biomass and ethanol systems generate renewable energy and integrate with the smart grid.

5 Days	5	29
DURATION	MODULES	TOPICS

COURSE OVERVIEW

This course covers renewable energy generation and the smart grid, including solar power and photovoltaic and concentrated solar technologies. It examines wind power generation, turbine construction, ocean tidal wave energy and hydroelectricity, followed by geothermal and biomass energy characteristics and merits. It then addresses ethanol production from biomass, including production from corn, sugarcane and fermentation processes. Finally, it covers renewable energy storage systems, distributed energy resources and grid integration.

WHO THIS COURSE IS FOR

- **Energy Engineers**
- **Power System Planners**
- **Grid Operators**
- **Renewable Energy Analysts**
- **Sustainability Professionals**

LEARNING OBJECTIVES

- Explain the characteristics and merits of a smart grid
- Describe solar power generation and photovoltaic cell types
- Compare on-shore and off-shore wind turbine construction
- Assess the merits of ocean tidal wave and hydroelectric energy
- Identify the characteristics and advantages of geothermal energy
- Describe types and characteristics of biomass energy
- Explain ethanol production from corn, sugarcane and fermentation
- Analyse renewable energy storage and grid integration approaches

COURSE SYLLABUS

5 Modules, 29 Topics

DAY 1

01

Introduction to Renewable Energy and Smart Grid

TOPICS

- Overview of a typical systems covering generation, transmission and distribution and the SMART grid
- Characteristics and merits of a smart grid
- Overview of current renewable energy generation and availability
- Solar power generation
- Photo voltaic cell types and characteristics
- Concentrated solar power generation

DAY 2

02

Wind Power, Ocean Tidal Waves and Hydro Electricity

TOPICS

- Characteristics of wind power generation
- Construction of on shore and off shore wind turbines
- Rotor blade design and wind power capacity
- Merits of wind power generation
- Characteristics and design of ocean tidal wave renewable energy
- Overview and merits of hydroelectricity and dams

DAY 3

03

Geothermal and Biomass Renewable Energy

TOPICS

Geothermal energy technologies · Characteristics of geothermal green energy · Advantages of geothermal renewable energy · What is biomass · Types of biomass used today · Characteristics and merits of biomass

DAY 4

04

Ethanol Production from Biomass

TOPICS

- **Biomass energy:** biofuel, biogas, biodiesel and ethanol
- Understanding ethanol
- Ethanol production process
- Ethanol production from corn
- Ethanol production from sugarcane
- Ethanol production by fermentation

DAY 5

05

Renewable Energy Storage Systems, Distributed Energy Resources (DERS) and Grid Integration

TOPICS

Renewable energy storage systems · Distributed energy resources · Outages and distributed generation · Renewable energy and grid integration · Renewable energy technologies and the future

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training | Live Online Classes (ILO) | Fly-Me-A-Trainer (FMAT) | Flexi (Self-Paced) | 1-on-1 Training

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