Renewable Energy Including Ethanol Production

DAY 1

Introduction to Renewable Energy and Smart Grid

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

Wind Power, Ocean Tidal Waves and Hydro Electricity

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

Geothermal and Biomass Renewable Energy

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

Ethanol Production from Biomass

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

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

Renewable energy storage systems

Distributed energy resources

Outages and distributed generation

Renewable energy and grid integration

Renewable energy technologies and the future