

# **AENG352 Renewable Energy 2+1**

## **Modules**

### **Module –I Overview of renewable energy sources**

Lecture-1. Classification of energy sources

Lecture-2. Introduction to renewable energy

Lecture 3. Renewable Energy-Potentials and Achievements

### **Module –II Characterization of Biomass**

Lecture-4. Characterization of biomass

Lecture-5. Densification of biomass-Briquetting

### **Module –III Thermochemical conversion Technology (TCCT)**

Lecture-6. Biomass Combustion Technology

Lecture-7. Gasifier Technology

Lecture-8. Biomass Gasification Methods

Lecture-9. Removal of tar and impurities from gasification

Lecture 10- Principles of pyrolysis and methods

### **Module –IV Biochemical conversion Technology-Biogas (BCCT)**

Lecture-11. Biogas technology

Lecture-12. Biogas plants types

Lecture 13. Microbiology of biogas production

Lecture 14. Size and selection for Biogas plant

Lecture 15. Biogas plant- materials and methods for Construction

### **Module –V Bio-fuels (BCCT)**

Lecture 16. Bio-Fuels and characteristics

Lecture- 17. Bio-Diesel

Lecture-18. Bio-Diesel production processes

Lecture-19.Bio-Ethanol Production

Lecture-20.Importance of biofuels

**Module –VI Solar Energy Conversion System (SECS)**

Lecture-21.Basics of Solar Photovoltaic's

Lecture 22.Recent trends in solar drying-solar tunnel drier

Lecture- 23.Solar Driers

Lecture-24.Solar PV and water pumping

Lecture- 25.Solar Water Heater

**Module –VII Hydro-Energy Conversion System (HECS)**

Lecture-26-Hydropower Energy Sources

**Module –VIII Wind Energy Conversion System (WECS)**

Lecture-27 Wind energy conversion principles

Lecture 28-wind mill- aero generator

**Module-IX. Energy conservation in agriculture**

Lecture-29. Energy conservation in agriculture