

## **32 Hrs. Add-on Syllabus for B.Sc. (Hons.)**

**Department of Chemistry**

**Krishnagar Women's College**

### **Chemistry for Sustainable Future**

#### **Module I: Clean Energy Technology**

*Batteries:* Working principle, types of batteries, recent developments in batteries.

*Supercapacitors:* Working principle, classifications and components of supercapacitors, materials used.

*Solar cells:* Working principles, photovoltaic device fabrication, current status of silicon-based solar cells, advancement in solar cells.

*Fuel Cells:* Working principle of fuel cell, classifications, efficiency, recent developments in fuel cells.

#### **Module II: Nanomaterials: preparation and applications**

Introduction of nanomaterials, nanostructures, carbon-based nanomaterials, metal and metal oxides-based nanomaterials, dimensions of nanomaterials. Preparation and applications of nanomaterials.

#### **Module III: Corrosion Science and Engineering**

Basic concepts, electrochemical nature and forms of corrosion, the direct and indirect effects of corrosion, prevention and control of corrosion, material selection and design for the prevention of corrosion.

#### **Module IV: Recycling of solid waste materials**

Definition, sources and types of waste materials: metal, paper, plastic, glass, wood solid wastes, statistics of wastes, sorting and separation techniques of wastes, industrial process of recycling, environmental aspects of recycling.

#### **Module V: Pesticides**

What are pesticides, use of pesticides, environmental impacts and pest control, use of biopesticides.

#### **Module VI: Composite materials**

Introduction of composites, classification of composites, nanocomposites, influence of fillers diameter, length and concentration, properties of composites, applications.

#### **Module VII: Field Visit/ Hands On**