

## **Department of Agricultural Process Engineering**

**Course No** : PFE 233    **Course Title** : Engineering Properties of Agricultural Produce  
**Semester** : III        **Credits** : 2 (1+1)

### **Theory**

Importance of engineering properties of Agricultural Produce and Classification. Physical properties- shape, size, roundness, sphericity, volume, density, porosity, specific gravity, surface area of grains, fruits and vegetables.

Thermal properties, Heat capacity, Specific heat, Thermal conductivity, Thermal diffusivity, Heat of respiration; Co-efficient of thermal expansion, Friction in agricultural materials; Static friction, Kinetic friction, rolling resistance, angle of internal friction, angle of repose.

Aero dynamics properties of agricultural products, drag coefficients, terminal velocity. Rheological properties; force, deformation, stress, strain, elastic, plastic and viscous behaviour, Newtonian and Non-Newtonian liquid, Visco-elasticity, Newtonian and Non-Newtonian fluid, Pseudo-plastic, Dilatant, Thixotropic, Rheopectic and Bingham Plastic Foods. Electrical properties.

### **Practical**

Study of moisture content measuring methods and determination, Determination of the shape and size of grains, fruits and vegetables, Determination of sphericity and roundness of fruits and vegetables, Determination of surface area of food materials, Determination of bulk density and true density of grains, Determination of density of fruits and vegetables, Determination of angle of repose of grains and friction co-efficient of grains, Determination of terminal velocity of grains, Study of thermal conductivity of food materials, Study of specific heat of food materials, Determination of hardness of food material and determination of viscosity of liquid foods, Visit to seed processing plant.

