

SUBJECT NO-AG60148, SUBJECT NAME- INSTRUMENTATION AND CONTROL IN FOOD
INDUSTRIES

LTP- 3-1-0,CRD- 4

SYLLABUS :-

Introduction: Review of Laplace Transforms; Zero, first and second order responses of instruments. Motion and Displacement Measurement: Strain gages, differential transformers, piezoelectric transducers, nozzle flappers. Pressure Measurement: Manometer dynamics, Bourdon tubes, pressure transducers, force balance transducers. Vacuum Measurement: McLeod gage, Knudsen gage, thermal conductivity gage, Pirani gage, ionization gage. Force and Torque Measurement: Drawbar dynamometers, octagonal ring transducers, torque transducers. Flow Measurement: Pitot static tube, hot wire anemometer, orifice meter, rotameter, turbine flowmeter. Temperature Measurement: Bimetallic thermometers, pressure thermometers, thermocouples, thermopiles, resistance thermometers, thermistors, radiation thermometers. Liquid Level Measurement: Humidity Measurement; Concept of Biosensors. Control Theories: Proportional, integral and derivative controls, transfer functions, feedback control, transient response, stability criterion, Routh test, root loci, frequency response, Bode plots, controller tuning; Application in Food Industry. Digital Control: Sampling and Z transforms, sampled data control based Systems.