

**SARDAR PATEL UNIVERSITY**  
**Programme & Subject: B.sc (Instrumentation)**  
**Semester: IV**  
**Syllabus with Effect from: November/December- 2012**

<b>Paper Code: US04CINS02</b>	<b>Total Credit:</b>
<b>Title Of Paper: Calibration,Records,Signal Analysers &amp; Optical Fibre</b>	

Unit	Description in detail	Weighting (%)
I	<b>Instrument Calibration</b> Introduction: Comparison Methods: DC Voltmeter Calibration, Deflection Instrument Calibration, DC Ammeter calibration AC Instrument Calibration, Ohmmeter Calibration, Watt meter Calibration. Digital Multimeter as Standard Instrument, Calibration Instruments: Precision DC Voltage Source, Voltage Calibrator, Potentiometers: Basic Potentiometer, Potentiometer with switched resistors, Calibration methods: DC Ammeter Calibration, DC Voltmeter Calibration.	25%
II	<b>Loggers and recorders</b> Introduction, Difference between recorder and logger, Strip Chart Recorder: PMMC, Galvanometer type, PMMC writing mechanism, Dynamic behaviour of Galvanometric Recorders, Potentiometric/Servo/Null Balancing recorders, Ultrasonic Pen position sensing typical Strip chart recorder plot, chart speed, types of chart and accessories, multipoint recorders, X - Y recorders, Data Loggers, Videographic or Paperless recorders, Recorder Selection.	25%
III	<b>Signal Analyzers</b> Introduction, Distortion, Distortion measuring Instruments, Spectral Analyzer, Types of Spectral Analyzer, FET Analyser, vector analyser, Digitizing Oscilloscope, Logic Analyzer: Oscilloscope/logic Analyzer, Types of Logic Analyzer, Logic timing Analyzer, Logic State Analyzer, Block diagram of Logic Analyzer, Interfacing target system, selection of logic Analyzer.	25%
IV	<b>Fiber Optics</b> Advantages/Disadvantages, Applications, Ray theory transmission, Total Internal Reflection, Modes of Propagation, Fibre Specifications, Numerical problems, Types of Fibers: Step index, graded index, multi mode & single mode, Preparation and material systems of optical fibers, optical fiber cables, numerical problems, Applications: Optical Communications system basics, current developments, fiber optic sensors, Attenuation in fiber optics: introduction, intrinsic attenuation, extrinsic attenuation, dispersion, fiber splices, connector basics, numerical problems.	25%

**Basic Text & Reference Books:-**

- Electronic Instrumentation and Measurements – David Bell
- Electronic Instrumentation and Instrumentation Technology by .M.S.Anand
- Lasers and Optical Fiber Communnication by P.Sarah

