

**SARDAR PATEL UNIVERSITY**  
**Programme: MSC (Applied Science)**  
**Semester: II**  
**Syllabus with effect from: December 2013**

<b>Paper Code:</b> PT02CASC05	<b>Total Credits: 4</b>
<b>Title Of Paper:</b> Experimental Methods – II	

Unit	Description in detail	Weightage (%)
	<b>Note: (Any 8 of the Following):</b>	
<b>1</b>	Error estimations in experimental observations and method of least square fit	
<b>2</b>	Study of Hall Effect in semiconductor and to determine Hall Co-efficient, Hall voltage, carrier density, carrier Mobilities and find out Type of the semiconductor.	
<b>3</b>	Characteristics of the Linear Variable Differential Transducer (L.V.D.T)	
<b>4</b>	I-V-T characteristics of LED below the barrier voltage $V_o$ (firing voltage) (ON voltage) and to find out the material constant $\eta$ and the barrier voltage $V_o$ , also to estimate the Planck's constant based on the LED characteristics	
<b>5</b>	Study of the strain gauge characteristics	
<b>6</b>	Study of the Load cell characteristics	
<b>7</b>	Study of the LASER beam Diode characteristics. Determination of Optical Power ( $P_o$ ) of a Laser Diode and LASER diode Forward current ( $I_p$ )	
<b>8</b>	Determination of the Curie temperature for ferroelectric materials	
<b>9</b>	Study of the Thomson effect and Peltier effect using Thermocouple	
<b>10</b>	Design and Construction of a 4 bit R 2R ladder DAC (digital to analog conversion) circuit and ADC (analog to digital circuit). To plot the curve of 4 bit R 2R ladder DSC circuit	

**Basic Text & Reference Books:**

- Advanced Practical Physics, Vol. 1. S.P. Singh, Pragati Edition
- Transducers and Instrumentation, D.V.S Maruty, Hall of India Pvt. Ltd.
- A Handbook of Electronics, Gupta and Kumar, Pragati Edition.
- Electronics Principles by Matuino.

