

**Course: VSC**  
**Electronics Practical in Computer Instrumentation**

<b>Semester: II</b>	<b>Credits: 2</b>	<b>Subject Code: BSVSCCSE22302</b>	<b>Lectures: 60</b>
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**Course Outcomes:**

At the end of this course, the learner will be able to:

- CO1- Calculate the frequency and amplitude of the sine and square wave.
- CO2- Describe the characteristics of semiconductor devices.
- CO3- Demonstrate the working of OP-AMP, ADC and DAC, analyze and interpret the data for relating electronics to computer science.
- CO4 - Work effectively and responsibly as a team member to perform experiments, report writing, using modern tools and techniques.

The practical course consists of 8 experiments out of which one will be activity equivalent to two experimental sessions. Activity will carry 15% marks at internal and external semester examinations. Internal marks will be calculated in continuous assessment of each practical weekly based on viva.

<b>Practical - Unit 1</b>	<b>30</b>
<ul style="list-style-type: none"> <li>● Activity - Study of CRO</li> <li>● Study of forward and Reverse biased characteristics of PN Junction Diode</li> <li>● Study of Opto-coupler using photo sensor (its application as burglar alarm)</li> <li>● Study of Half wave and Full wave rectifier</li> <li>● Introduction to the virtual lab - Rectifier, diode</li> </ul>	

<b>Practical - Unit 2</b>	<b>30</b>
<ul style="list-style-type: none"> <li>● Build and test adder and subtractor circuits using OPAMP.</li> <li>● Introduction to the virtual lab - Opamp as inverting</li> <li>● To study temperature sensor LM35/AD 590</li> <li>● Study of PIR and TILT sensor with presentation and project</li> <li>● Build and test 4-bit DAC using R-2R Ladder Network</li> <li>● 3-bit Flash ADC using discrete components</li> <li>● Hobby Project- equivalent to two practicals based on sensors to be continued in the second year.</li> </ul>	

**Reference Books:**

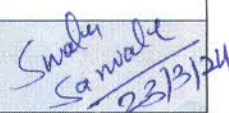
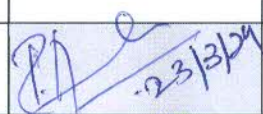
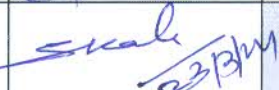
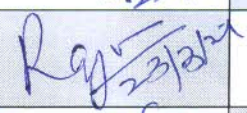
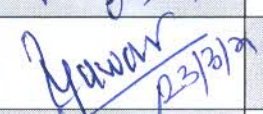
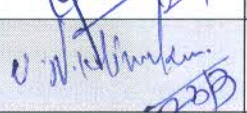

- A. Motorshed, *Electronic Devices and circuits*, Prentice Hall of India.
- Bolyestad, *Electronic Devices and Circuits*, Tata McGraw Hill.
- Prof A.D. Shaligram, *Sensors and Transducers*, PHI publication, 2nd Edition
- Ramakant Gaykwad *Op Amp and Linear Integrated Circuit*
- V.K. Mehta, *Principles of Electronics*, S. Chand and Co.



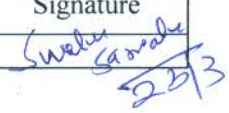
Board Of Studies	Department	Name	Signature
Chairperson (HoD)	BSc(Comp. Sci.)	Swatee Sarwate	<i>Swatee Sarwate</i> 22/2/23

**Websites:**

- <https://electronicsforu.com/>
- <https://www.howstuffworks.com/>
- <https://www.instructables.com/>
- <https://nptel.ac.in/courses/122/106/122106025/>
- <https://nptel.ac.in/courses/117/103/117103063/>

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