

**Course: SEC**  
**Electronics Practical in Digital Systems**  
**SEM 1**

<b>Semester: I</b>	<b>Credits: 2</b>	<b>Subject Code: BSSECCSE12302</b>	<b>Lectures: 60</b>
--------------------	-------------------	------------------------------------	---------------------

**Course Outcomes:**

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

- CO1 - Identify and measure different components and solve binary arithmetic problems using Boolean Algebra and K-Maps
- CO2- Demonstrate combinational and sequential logic circuits, build and test circuits using simulation software.
- CO3- Apply knowledge and perform electronics experiments as well as analyze and interpret data of electronics in 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>Unit 1: SEC Practical - SEM 1</b>	30
<ul style="list-style-type: none"> <li>● Activity - Study of Components</li> <li>● Study of Logic gates</li> <li>● Study of De Morgan's Theorem</li> <li>● Problems based on Boolean algebra and K-Map</li> <li>● Interconversions and realizations of logic expressions using ICs/Virtual Lab</li> <li>● Code conversion from one base to another base- Binary to Gray &amp; Gray to Binary</li> </ul>	

<b>Unit 2: SEC Practical - SEM 1</b>	30
<ul style="list-style-type: none"> <li>● Half Adder/ Full adder circuit realization using gates</li> <li>● Study of Four-bit Universal Nibble Adder/Subtractor</li> <li>● Build and Test 4:1 Multiplexer and 1:4 Demultiplexer using gates</li> <li>● Study BCD to seven segment decoder using Thumbwheel switch</li> <li>● Study of RS, and D flip flops using NAND gates /Virtual lab</li> <li>● Simulation practicals on PSPICE</li> </ul>	

Board Of Studies	Name	Signature
Chairperson (HoD)	Swatee Sarwate	



**Reference Books:**

- Floyd T.M, *Digital Fundamentals*
- Jain R.P., *Digital Electronics*, Tata McGraw Hill
- Malvino Leach, *Digital Principles and Applications*, Tata McGraw-Hill.

**Websites:**

- <https://de-iitr.vlabs.ac.in/exp/truth-table-gates/>
- <https://de-iitr.vlabs.ac.in/List%20of%20experiments.html>
- <https://de-iitg.vlabs.ac.in/List%20of%20experiments.html>
- <https://he-coep.vlabs.ac.in/List%20of%20experiments.html>
- <https://dec-iitkgp.vlabs.ac.in/List%20of%20experiments.html>



Board Of Studies	Name	Signature
Chairperson (HoD)	Swatee Sarwate	

Board of Studies	Name	Signature	
Chairperson (HoD)	Swatee Sarwate, Asst. Prof,		
Faculty	Anitha Menon, Asst. Prof,		
Subject Expert (Outside SPPU)	Dr.Sangeeta Kale		
Subject Expert (Outside SPPU)	Dr. Rajshree Jain		
VC Nominee (SPPU)	Dr. Pravin Yawale		
Industry Expert	Dr. Umesh N. Hivarkar		
Alumni	Ms. Purna Polekar		



Board Of Studies	Name	Signature
Chairperson (HoD)	Swatee Sarwate	