Course: SEC
Electronics Practical in Digital Systems

Semester: I	Credits: 2	Subject Code: BSSECCSE12302	Lectures: 60

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.

Unit 1: SEC Practical - SEM 1   30

- Activity - Study of Components
- Study of Logic gates
- Study of De Morgan's Theorem
- Problems based on Boolean algebra and K-Map
- Interconversions and realizations of logic expressions using ICs/Virtual Lab
- Code conversion from one base to another base- Binary to Gray & Gray to Binary

Unit 2: SEC Practical - SEM 1   30

- Half Adder/ Full adder circuit realization using gates
- Study of Four-bit Universal Nibble Adder/Subtractor
- Build and Test 4:1 Multiplexer and 1:4 Demultiplexer using gates
- Study BCD to seven segment decoder using Thumbwheel switch
- Study of RS, and D flip flops using NAND gates /Virtual lab
- Simulation practicals on PSPICE

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

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- 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

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