

**Class: S.E. (Electronics & Telecommunication Engg.)**

**Semester-IV**

**Subject: - Simulation Software Workshop**

<b>Periods per week</b>	<b>Lecture</b>	<b>-</b>	
	<b>Practical</b>	<b>2</b>	
<b>01 Period of 60 min</b>	<b>Tutorial</b>	<b>--</b>	
		<b>Hours</b>	<b>Marks</b>
<b>Evaluation System</b>	<b>Theory Examination</b>	<b>-</b>	<b>-</b>
	<b>Practical Examination</b>	<b>-</b>	<b>--</b>
	<b>Oral Examination</b>	<b>-</b>	<b>25</b>
	<b>Term Work</b>	<b>-</b>	<b>25</b>
	<b>Total</b>		<b>50</b>

<b>Module</b>	<b>Contents</b>
<b>Objective</b>	<b>Students should get extensive experience in using the most popular simulation tools used worldwide. This will give them confidence in coupling theory with practice and make them aware of trends in design and simulation of both research and industry.</b>
<b>Pre-requisite</b>	<b>Computer fundamentals.</b>

- 1 Analog circuits (BJT/FET/MOSFET/IC)
- 2 Digital circuits (Combinational and Sequential circuits)
- 3 Communication fundamentals
- 4 Signal analysis and processing fundamentals
- 5 Electromagnetic Wave Theory
- 6 Computer programming skills

Our course prescribes that students should get extensive experience in using the most popular simulation tools used worldwide. This will give them confidence in coupling theory with practice and make them aware of trends in design and simulation of both research and industry. This should include learning design and simulation of analog circuits in PSPICE using both schematics and net listing. (either of them) will give students an introduction to digital VLSI. We recommend use of Xilinx 9.21 which is completely free and comes with its own simulation tool. SciLab/MATLAB is one tool which is used through the world for design and simulation of systems.

Student should be given in-depth knowledge about its use and should be excelled in using at least one of its tool-box thoroughly. Since many of the VLSI design tools used in industry (such as CADENCE) are LINUX operating system. This should include understanding the file system, use of command terminal, installation procedure of software packages, etc.

Apart from the prescribed course work, instructors are requested to use their own innovations and ideas to help students excel in use of these simulation Software Package can also be added to the course work.

**Term Work:**

Students are required to perform maximum **six** simulation experiments.

It should be divided as (module 1,2) two using PSPICE, (Module 3,4) two using HDL and (module 5,6) two using SciLab / MATLAB. Apart from this students should prepare list of the (7) most basic commands used in LINUX environment. Also one report on the (8) LINUX files system. All experiment reports should include details about the tools used, syntax, commands, etc. Students should be encouraged to use internet as a resource to learn and implement these experiment.

**The distribution of marks for term work shall be as follows, Laboratory**

**work (Experiments and Journal) : 20 marks.**

**Attendance (Practical) : 05 marks**

**The final certification and acceptance of term-work ensures the satisfactory performance of laboratory work and minimum passing in the term work.**

**Recommended Software:**

- Design and simulation of analog circuits of PSPICE
- Design and simulation of basic digital circuits using HDLs like or /and Verilog.
- Xilinx 9.2i with its own simulation tool.
- SciLab / MATLAB, one tool for design and simulation of systems.
- LINUX operating system.