Lovely Professional University, Punjab

Course Code	Course Title	Course Planner	Lectures	Tutorials	Practicals	Credits
CSE328	SIMULATION AND MODELLING LABORATORY	11266::Janpreet Singh	0	0	2	1
Course Weightage	ATT: 5 CAP: 45 ETP: 50	**Exam Category: X6: Mid Term Exam: Not Applicable – End Term Exam: Practical**				
Course Orientation	NA					

Course Outcomes :Through this course students should be able to

CO1 :: Describe simulation experiments by using softwares and relate them with real time problems in simulated environments.

CO2 :: construct combinational and sequential circuits to better understand the designs of circuits in digital and analog devices using simulation

CO3 :: Articulate problems based on Guass elimination Method .

	Reference Books (R)		
Sr No	**Title**	**Author**	**Publisher Name**
R-1	GETTING STARTED WITH MATLAB	RUDRA PRATAP	OXFORD UNIVERSITY PRESS
R-2	CIRCUIT MAKER FOR WINDOWS - INTEGRATED SCHEMATIC CAPTURE AND CIRCUIT SIMULATION USER MANUAL	MICROCODE ENGINEERING	MICROCODE ENGINEERING

Relevant Websites (RW)		
Sr No	**(Web address) (only if relevant to the course)**	**Salient Features**
RW-1	http://ocw.usu.edu/electrical_and_computer_engineering/communication_systems_i_1/matlab_tut_2.htm	Matrices and Vectors
RW-2	http://web.eecs.umich.edu/~aey/eecs451/matlab.pdf	A Quick Tutorial on MATLAB
RW-3	http://www.cs.cmu.edu/~guestrin/Class/15781/recitations/matlab/pretty_matlab_pres.pdf	Introduction to MATLAB

List of suggested topics for term paper[at least 15] (Student to spend about 15 hrs on any one specified term paper)

Sr. No.	Topic
1	NA

An instruction plan is only a tentative plan. The teacher may make some changes in his/her teaching plan. The students are advised to use syllabus for preparation of all examinations. The students are expected to keep themselves updated on the contemporary issues related to the course. Upto 20% of the questions in any examination/Academic tasks can be asked from such issues even if not explicitly mentioned in the instruction plan.

*Each experiment of the lab will be evaluated using following relative scheme:

Component	Weightage (%)
Performance/Job evaluation/conduct/skill execution/demonstration	50
Viva	50

Detailed Plan For Practicals

Practical No	Broad topic	Subtopic	Other Readings	Learning Outcomes
Practical 1	Basics and Programming in OCTAVE	Creating simple 2D Plots with the help of scripts in OCTAVE.		Students will understand the scripting in octave and will be able to print 2d plots on OCTAVE
Practical 2	Basics and Programming in OCTAVE	Solving problems based on Matrix and Array without using the predefined functions.		Student will be able to solve the mathematical problems of matrix and array
Practical 3	Applications	Applications of Linear Algebra e.g. Simulation of Guass Elimination method.		Students will learn about the LInear Algebra (Practical Evaluation 1)
Practical 4	Graphics in OCTAVE	Basics of plotting and labeling graphs in OCTAVE.		student will learn plotting and labeling of various types of graphs in OCTAVE
Practical 5	Graphics in OCTAVE	Basics of plotting and labeling graphs in OCTAVE.		student will learn plotting and labeling of various types of graphs in OCTAVE
Practical 6	Using Digital Devices in CIRCUIT MAKER	Design Logic circuits using Gates like AND, OR, NOT and Use of the Multiplexers to simulate the circuits for BUS systems.		Students will learn about the basics of Digital Electronics and also will understand the use of multiplexers in multiplexing and demultiplexing process.(Practical Evaluation 2)
Practical 7	Using Digital Devices in CIRCUIT MAKER	Use of Decoders to simulate the Binary to Decimel conversion and Use of Comparator to determine equality, less than or greater than relationships between numbers.		Students will learn about the decoders and comparators (Practical Evaluation 3)
Practical 8	Applications	Construction of half and full adder circuit by using circuit maker.		Student will be able to construct circuits using the basic logic gates.Circuits include but not limited to half,full adder.(Practical Evaluation 3)
Practical 9	Applications	Construction of half and full adder circuit by using circuit maker.		Student will be able to construct circuits using the basic logic gates.Circuits include but not limited to half,full adder.(Practical Evaluation 3)
Practical 10	Using Analog Devices in CIRCUIT MAKER	Use of Analog devices like Multimeter and Use of Maths functions like Summer and Multiplier.		Analog devices are studied by the students
Practical 11	Using Analog Devices in CIRCUIT MAKER	Use of Analog devices like Multimeter and Use of Maths functions like Summer and Multiplier.		Analog devices are studied by the students

Practical 12	Using Analog Devices in CIRCUIT MAKER	Using the math functions to create temperature converter circuit.		Students will learn about simulating a physical system (Practical Evaluation 4)
Practical 13	Using Analog Devices in CIRCUIT MAKER	Using the math functions to create temperature converter circuit.		Students will learn about simulating a physical system (Practical Evaluation 4)
Practical 14	Simulation in CIRCUIT MAKER	Simulate a circuit which implements the rocket system or running cars or a circuit which converts a given Farnheit degree temperature into Celsius degree.		Student will implement circuits including but not limited to circuits generating high voltage circuits from low voltage,temperature converter etc.
	SPILL OVER			
Practical 15	Spill Over			