PNS SCHOOL OF ENGG. & TECH., MARSHAGHAI

DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING

LESSON PLAN

BRANCH : ETC ENGINEERING	SEMESTER : 5TH	NAME OF THE TEACHING FACULTY : MR. ADITYA NARAYAN JENA
SUBJECT : VLSI & EMBEDDED SYSTEM	NO. OF DAYS PER WEEK CLASS ALLOTTED : 05	SEMESTER FROM DATE : 15.09.2022 TO 22.12.2022

CHAPTER	MONTH	DATE	TOPIC TO BE COVERED
INTRODUCTION TO VLSI AND MOS TRANSISTOR	SEP	15.09.22	HISTORICAL PERSPECTIVE-INTRODUCTION,CLASSIFICATION OF CMOS DIGITAL
		19.09.22	INTRODUCTION TO MOS TRANSISTOR AND BASIC OPERATION OF MOSFET
		20.09.22	STRUCTURE AND OPERATION OF NMOS ENHANCEMENT TYPE MOSFET
		21.09.22	STRUCTURE AND OPERATION OF CMOS
		22.09.22	MOSFET VI CHARACTERSTICS
		24.09.22	WORKING OF MOSFET CAPACITANCES
		26.09.22	MODELLING OF MOS TRANSISTORS,CONCEPT OF SPICE LEVEL-1 MODELS,LEVEL-2 MODELS,LEVEL-3 MODEL.
		27.09.22	DESIGN FLOW CIRCUIT PROCEDURES
		28.09.22	VLSI DESIGN FLOW
		29.09.22	Y-CHART
	OCT	10.10.22	DESIGN HIERARCHY
		11.10.22	VLSI DESIGN STYLES-FPGA,GATE ARRAY DESIGN
		13.10.22	STANDARD CELL BASED DESIGN STYLE,FULL CUSTOM DESIGN STYLE
FABRICATION OF MOSFET	OCT	15.10.22	SIMPLIFIED PROCESS SEQUENCE FOR FABRICATION
		18.10.22	BASIC STEPS IN FABRICATION PROCESS FLOW
		19.10.22	FABRICATION PROCESS OF NMOS TRANSISTOR
		20.10.22	FABRICATION PROCESS OF NMOS TRANSISTOR
		22.10.22	CMOS N-WELL FABRICATION PROCESS FLOW
		26.10.22	CMOS N-WELL FABRICATION PROCESS FLOW
		27.10.22	MOS FABRICATION PROCESS BY N-WELL ON P-SUBTRATE
		29.10.22	CMOS FABRICATION PROCESS BY P-WELL ON N-SUBTRATE
		31.10.22	LAYOUT DESIGN RULES
	NOV	1.11.22	STICK DIAGRAMS OF CMOS INVERTER
MOS INVERTER	NOV	02.11.22	BASIC NMOS INVERTERS
		03.11.22	WORKING OF RESISTIVE-LOAD INVERTER
		05.11.22	INVERTER WITH N-TYPE MOSFET LOAD-ENHANCEMENT LOAD
		09.11.22	DEPLETION NMOS INVERTER
		10.11.22	CIRCUIT OPERATION OF CMOS INVERTER
		12.11.22	CHARACTERSTICS AND INTERCONNECT EFFECTS OF CMOS INVERTER,DELAY TIME DEFINATIONS
		14.11.22	CMOS INVERTER DESIGN WITH DELAY CONSTRAINTS-TWO SAMPLE MASK LAY OUT FOR P-TYPE SUBTRATE

STATIC COMBINATIONAL,SEQUENTIAL,DYANAMICS LOGIC CIRCUITS AND MEMORIES	**NOV**	15.11.22	DEFINE STATIC COMBINATIONAL LOGIC,WORKING OF STATIC CMOS LOGIC CIRCUITS(TWO-INPUT NAND GATE)
		17.11.22	CMOS LOGIC CIRCUITS(NAND2 GATE)
		19.11.22	CMOS TRANSMISSION GATES(PASS GATE)
		21.11.22	BASICS OF COMPLEX LOGIC CIRCUITS,CLASSIFICATION OF LOGIC CIRCUITS BASED ON THEIR TEMPORAL BEHAVIOUR
		22.11.22	SR FLIP LATCH CIRCUIT,CLOCKED SR LATCH WORKING
		23.11.22	CMOS D LATCH OPERATION
		24.11.22	INTRODUCTION TO MICROPROCESSOR AND
		26.11.12	BASIC PRINCIPLES OF DYANAMIC PASS TRANSISTOR CIRCUITS;DYNAMIC RAM,SRAM
		28.11.22	OPERATION OF FLASH MEMORY
SYSTEM DESIGN METHOD AND SYNTHESIS	**NOV**	29.11.22	DESIGN LANGUAGE(SPL AND HDL) AND EDA TOOLS
		30.11.22	VHDL AND PACKAGE XLINX
	DEC	1.12.22	DESIGN STRATEGIES AND CONCEPT OF FPGA WITH STANDARD CELL BASED DESIGN
		03.12.22	VHDL FOR DESIGN SYNTHESIS USING CPLD OR FPGA
		05.12.22	BASIC IDEA OF RASPBERRY PI
INTRODUCTION TO EMBEDDED SYSTEMS	**DEC**	06.12.22	OVERVIEW OF EMBEDDED SYSTEMS,LIST OF EMBEDDED SYSTEMS
		07.12.22	CHARACTERSTICS OF EMBEDDED SYSTEMS
		08.12.22	DIGIAL CAMERA-COMPONENTS AND OPERATION
		10.12.22	EMBEDDED SYSTEM TECHNOLOGIES-TECHNOLOGY FOR EMBEDDED SYSTEMS
		12.12.22	PROCESSOR TECHNOLOGY,IC TECHNOLOGY
		13.12.22	DESIGN TECHNOLOGY-PROCESSOR TECHNOLOGY
		14.12.22	GENERAL PURPOSE PROCESSORS-SOFTWARE
		15.12.22	BASIC ARCHITECTURE OF SINGLE PURPOSE PROCESSORS-HARDWARE
		17.12.22	APPLICATION-SPECIFIC PROCESSORS,MICROCONTROLLERS,DIGITAL SIGNAL PROCESSORS(DSP)
		19.12.22	IC TECHNOLOGY-FULL CUSTOM/VLSI
		20.12.22	SEMI CUSTOM ASIC(GATE ARRAY AND STANDARD CELL)
		21.12.22	OPERATION OF PROGRAMMABLE LOGIC DEVICE(PLD)
		22..12.22	BASIC IDEA OF ARDUINO MICROCONTROLLER

Amarendra Saha

SIGNATURE OF H.O.D.

Aditya Narayan Jena

SIGNATURE OF LECTURER