UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING, ROURKELA

LESSON PLAN

SESSION: 2023-2024

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SUBJECT CODE: TH.2

NAME OF THE SUBJECT: VLSI & EMBEDDED SYSTEM

BRANCH: ELECTRONICS & TELECOMMUNICATION

SEMESTER: DIPLOMA 5TH SEM

NUMBER OF CLASSES ALLOTED PER WEEK: 4

TOTAL PERIODS ALLOTED TO THE SUBJECT ACCORDING TO SCTEVT: 60

NAME OF THE FACULTY: KAMALA KANTA NATH

UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING,ROURKELA

LESSON PLAN

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SUBJECT CODE:　　　　　　Th.2

SUBJECT NAME:　　　　　VLSI & EMBEDDED SYSTEM
BRANCH:　　　　　　　　　ELECTRONICS & TELECOMMUNICATION
SEMESTER:　　　　　　　　 DIPLOMA -v

PERIODS PER WEEK:　　　　4

NAME OF THE FACULTY:　　　KAMALA KANTA NATH

NO OF CLASSES ALLOTTED PER WEEK OFF-LINE:　　4(01/08/2023 to 30/11/2023)

Week/Date	Lecture	Topic to be covered	Remarks
1st week 01/08/2023 To 05/08/2023	1st	**Unit-1: Introduction to VLSI & MOS Transistor** Historical perspective- Introduction	
	2nd	Classification of CMOS digital circuit types	
	3rd	VI characteristics of CMOS	
2nd week 07/08/2023 To 12/08/2023	1st	Working of MOS capacitance	
	2nd	Modeling of CMOS	
	3rd	Flow circuit design procedure	
	4th	VLSI design flow	
3rd week 14/08/2023 To 19/08/2023	1st	Y chart explanation	15 indepedence day
	2nd	HOLIDAY	
	3rd	Design hierarchy & FPGA	
	4th	Gate array design& full custom	
4th week 21/08/2023 To 26/08/2023	1st	**Unit-2: Fabrication of MOSFET** Simplified process sequence for fabrication	
	2nd	Basic steps of fabrication process	
	3rd	Fabrication process of N MOS	
	4th	C MOS N well fabrication process	

UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING,ROURKELA

LESSON PLAN

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SUBJECT CODE: Th.2

SUBJECT NAME: VLSI & EMBEDDED SYSTEM
BRANCH: ELECTRONICS & TELECOMMUNICATION
SEMESTER: DIPLOMA -v

PERIODS PER WEEK: 4

NAME OF THE FACULTY: KAMALA KANTA NATH

NO OF CLASSES ALLOTTED PER WEEK OFF-LINE: 4(01/08/2023 to 30/11/2023)

Week/Date	Lecture	Topic to be covered	Remarks
5th week 28/08/2023 To 02/09/2023	1st	C MOS p well fabrication process	30aug jhulan purnima
	2nd	Layout design of CMOS	
	3rd	HOLIDAY	
	4th	stick diagram of CMOS	
6th week 04/09/2023 To 09/09/2023	1st	**Unit-3: MOS Inverter** Basic N MOS inverter	
	2nd	Working of resistive load in CMOS	
	3rd	Inverter with NMOS load	
	4th	Depletion NMOS inverter	
7th week 11/09/2023 To 16/09/2023	1st	CMOS inverter operation	
	2nd	CMOS characteristics	
	3rd	CMOS interconnect effect	
	4th	CMOS design with delay	
8th week 18/09/2023 To 23/09/2023	1st	Two sample mask layout	19 sep Gaensh puja
	2nd	HOLIDAY	
	3rd	HOLIDAY	
	4th	Introduction to static combinational logic	20 sep nuakhai

UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING,ROURKELA

LESSON PLAN

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SUBJECT CODE: Th.2

SUBJECT NAME: VLSI & EMBEDDED SYSTEM
BRANCH: ELECTRONICS & TELECOMMUNICATION
SEMESTER: DIPLOMA -v

PERIODS PER WEEK: 4

NAME OF THE FACULTY: KAMALA KANTA NATH

NO OF CLASSES ALLOTTED PER WEEK OFF-LINE: 4(01/08/2023 to 30/11/2023)

Week/Date	Lecture	Topic to be covered	Remarks
9th week 25/09/2023 To 30/09/2023	1st	CMOS NAND gate operation	
	2nd	CMOS NOR gate operation	
	3rd	CMOS transmission gate	
	4th	Complex logic circuit	
10th week 02/10/2023 To 07/10/2023	1st	HOLIDAY	2 oct Gandhi jayanti
	2nd	**Unit-4: Static Combinational, Sequential, Dynamics logic circuits & Memories** CMOS SR latch operation	
	3rd	CMOS D latch operation	
	4th	Dynamic pass transistor	
11th week 09/10/2023 To 14/10/2023	1st	Working of d ram	
	2nd	INTRNAL ASSESMENT	
	3rd	Working of SRAM	
	4th	Flash memory	
12th week 16/10/2023 To 21/10//2023	1st	**Unit-5: System Design method & synthesis** Introduction to design language	
	2nd	HDL & EDA tools	
	3rd	VHDL & package X link	
	4th	HOLIDAY	

LESSON PLAN

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SUBJECT CODE: Th.2

SUBJECT NAME: VLSI & EMBEDDED SYSTEM
BRANCH: ELECTRONICS & TELECOMMUNICATION
SEMESTER: DIPLOMA -v

PERIODS PER WEEK: 4

NAME OF THE FACULTY: KAMALA KANTA NATH

NO OF CLASSES ALLOTTED PER WEEK OFF-LINE: 4(01/08/2023 to 30/11/2023

Week/Date	Lecture	Topic to be covered	Remarks
13th week 23/10/2023 To 28/10/2023	1st		Durga Puja holiday
	2nd		
	3rd		
	4th		
13th week 30/10/2023 To 04/11/2023	1st	Strategies and concept of FPGA	
	2nd	VHDL for synthesis using CPLD & FPGA	
	3rd	Raspberry Pi basic idea	
	4th	**Unit-6: Introduction to Embedded Systems** Embedded system overview	
15th week 06/11/2023 To 11/11/2023	1st	list of embedded systems,characteristics	
	2nd	A Digital Camera	
	3rd	Technology for Embedded Systems	
	4th	Processor Technology	
16th week 13/11/2023 To 18/11/2023	1st	IC Technology	
	2nd	Design Technology-Processor Technology	
	3rd	General Purpose Processors – Software	
	4th	Basic Architecture of Single Purpose Processors – Hardware	

UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING,ROURKELA

LESSON PLAN

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SUBJECT CODE: Th.2

SUBJECT NAME: VLSI & EMBEDDED SYSTEM
BRANCH: ELECTRONICS & TELECOMMUNICATION
SEMESTER: DIPLOMA -v

PERIODS PER WEEK: 4

NAME OF THE FACULTY: KAMALA KANTA NATH

Week/Date	Lecture	Topic to be covered	Remarks
17th week 20/11/2023 25/11/2023	1st	Microcontrollers, Digital Signal Processors(DSP)	
	2nd	IC Technology- Full Custom / VLSI,	
	3rd	Semi-Custom ASI(Gate Array & Standard Cell)	
	4th	HOLIDAY	
17th week 27/11/2023 30/11/2023	1st	PLD (Programmable Logic Device)	27 nov rasa purnima
	2nd	Basic idea of Arduino micro controller	
	3rd	VST	