

### **Th.3. VLSI & EMBEDDED SYSTEM**

#### **LIST OF MONTH WISE AVAILABLE DAYS/PERIODS**

Month	Sep	Oct	Nov	Dec	Jan	TOTAL
Month wise no of Academic days avl.	07	10	22	25		64
Month wise no of periods Available						

#### **TOPIC WISE DISTRIBUTION OF PERIODS**

SL. NO.	Unit	Topics	Periods as per Syllabus	Periods actually needed	Expected marks
1	01	Introduction to VLSI & MOS Transistor	12	12	25
2	02	Fabrication of MOSFET	10	09	20
3	03	MOS Inverter	09	08	15
4	04	Static Combinational, Sequential, Dynamics logic circuits & Memories	15	11	25
5	05	System Design method & Synthesis	04	04	05
6	06	Introduction to Embedded Systems	10	10	20
		<b>TOTAL</b>	60	53	110

Sign of Lect.

Sign of HOD

Sign of AIC

Sign of Vice Principal



**UNIT- 02**  
**Fabrication of MOSFET**

Article No.	Name Of The Article	Required Periods	Lect. Sign With Date	Authenticity duly Verified by H.O.D	Sign by V.P
2.1	Simplified process sequence for fabrication	01			
2.2	Basic steps in Fabrication processes Flow	01			
2.3	Fabrication process of nMOS Transistor	01			
	Cont.....	01			
2.4	CMOS n-well Fabrication ProcessFlow	01			
2.5	MOS Fabrication process by n-well on p-substrate	01			
2.6	CMOS Fabrication process by P-well on-n substrate	01			
2.7	Layout Design rules	01			
2.8	Stick Diagrams of CMOS inverter	01			
	<b>TOTAL</b>	09			
	<b>Short Question with answer and Long question with hints</b>				

**UNIT-03**  
**MOS Inverter**

Article No.	Name Of The Article	Required Periods	Lect Sign With Date	Authenticity duly Verified by H.O.D	Sign by V.P
3.1	Basic nMOS inverters,	01			
3.2	Working of Resistive-loadInverter	01			
3.3	Inverter with n-Type MOSFET Load – Enhancement Load, Depletion n-MOS inverter	01			
	Cont.....	01			
3.4	CMOS inverter – circuit operation and characteristics and interconnect effects: Delay time definitions	01			
	Cont...	01			
3.5	CMOS Inverter design with delay constraints – Two sample mask lay out for p-type substrate.	01			
	Cont...	01			
<b>TOTAL</b>		08			



**UNIT-05**  
**System Design method & Synthesis**

Article No.	Name Of The Article	Required Periods	Lect. Sign With Date	Authenticity duly Verified by H.O.D	Sign by V.P
5.1	Design Language (SPL & HDL)& HDL & EDA tools &VHDL and packages Xlinx	01			
5.2	Design strategies & concept of FPGA with standard cell based design	01			
5.3	VHDL for design synthesis using CPLD orFPGA	01			
5.4	Raspberry Pi – Basic idea	01			
<b>TOTAL</b>		<b>04</b>			
<b>Short Question with answer and Long question with hints</b>					

**UNIT-06**

**Introduction to Embedded Systems**

Article No.	Name Of The Article	Required Periods	Lect. Sign With Date	Authenticity duly Verified by H.O.D	Sign by V.P
6.1	Embedded Systems Overview, list of embedded systems, characteristics, example – A Digital Camera	01			
	Cont.....	01			
6.2	Embedded Systems Technologies-- Technology –Definition-Technology for Embedded Systems	01			
	Processor Technology -IC Technology	01			
6.3	Design Technology-Processor Technology, General Purpose Processors – Software, Basic Architecture of Single Purpose Processors –Hardware	01			
	Cont.....	01			
6.4	Application – Specific Processors, Microcontrollers, Digital Signal Processors(DSP)	01			
6.5	IC Technology- Full Custom / VLSI, Semi-Custom ASIC (Gate Array & Standard Cell), PLD (Programmable Logic Device)	01			
	Cont.....	01			
6.6	Basic idea of Arduino micro controller	01			

<b>TOTAL</b>	<b>10</b>			
<b>Short Question with answer and Long question with hints</b>				

Coverage of syllabus up to I.A. **Ch-1,2,3 & 4.**

<b>LEARNING RESOURCES</b>			
<b>Sl. No.</b>	<b>Titles of Book</b>	<b>Name of Authors</b>	<b>Publisher</b>
01	VLSI Design & EDA Tools	By A Sarkar S.De Chandran Kumar Sarkar	SCITECH
02	Embedded SystemDesign	By Frank Vahid & Tony Givargis	WILLY India
03	VHDL Programming	By Example by Douglas L Perry	TMH