

DEPARTMENT OF COMPUTER SCIENCE AND ENGG.

COURSE PLAN

Department : CSE
 Subject : SWITCHING THEORY & LOGIC DESIGN (CSE-203)
 Semester & branch : III SEM (CSE)
 Name of the faculty : Hemalatha S
 No of contact hours/week : 4 Hrs

Assignment portion	
Assignment no.	Topics
1	LECTURE NO. 1 TO 14
2	LECTURE NO. 15 TO 29
3	LECTURE NO. 30 TO 42
Test portion	
Test no.	Topics
1	LECTURE NO. 1 TO 20
2	LECTURE NO. 21 TO 42

Submitted by: Hemalatha s

(Signature of the faculty)

Date:7/8/2013

Approved by:

(Signature of HOD)

Date:

Lecture no.	Topic to be covered
1	Introduction, Variables and Functions, Inversion, Truth Tables
2	Logic Gates and Networks, Boolean Algebra
3	Introduction to VHDL, introduction to MaxPLUS II design software, Writing simple VHDL code
4	Examples on boolean algebra and VHDL code(T)
5	Synthesis using AND, OR and NOT logic gates
6	Minterms, SOP, maxterms, POS, Examples on SOP and POS
7	Karnaugh Maps, Two-variable map, Three-variable map
8	Four-variable map, Five-variable map, Examples(T)
9	Strategy for Minimization - terminology
10	Minimization procedure
11	Minimization of Product-of-Sum forms
12	Incompletely specified functions, Multiple output circuits(T)
13	NAND and NOR Logic networks, Multilevel NAND and NOR circuits, Functional Decomposition
14	Analysis of Multilevel circuits, Introduction to structural style of programming in VHDL- usage of components
15	Positional Number Representation
16	Addition of unsigned numbers, decomposed Full-Adder(T)
17	Ripple-carry adder, Design example
18	Signed numbers, negative numbers, addition and subtraction
19	Adder and subtractor unit, Radix-complement schemes, arithmetic overflow, performance issues(T)
20	Design of arithmetic circuits using VHDL
21	Fast adders – Carry Lookahead Adder

22	Technology Considerations
23	Representation of numbers in VHDL code, Arithmetic assignment statements.
24	BCD representation(T)
25	Multiplexers, Synthesis of logic functions using mux's
26	VHDL code for mux and circuits using mux's
27	Mux synthesis using Shannon's expansion
28	Decoder, Encoder, circuits using decoders(T)
29	VHDL code for decoders, encoders and circuits using decoders
30	Code converters
31	Arithmetic comparison circuits
32	VHDL code for code converter and comparators, More examples (T)
33	Flip-Flops
34	Triggering of Flip-Flop
35	Analysis of clocked sequential circuits(T)
36	State reduction and Assignment
37	Flip-Flop excitation tables
38	Design procedure
39	Design procedure (Contd.)
40	Design of counters, Examples(T)
41	Registers
42	Shift registers
43	FF's and Registers in VHDL code – usage of sequential statements

44	Ripple Counters(T)
45	Synchronous counters
46	Counters in VHDL code
47	Overview of semiconductor diode, BJT, MOSFET, TTL-standards
48	High speed, low-power schotky, CMOS logic-NAND, NOR(T)

Text Books:

1. Stephen Brown and Zvonko Vranesic, “Fundamentals of Digital Logic with VHDL Design” Tata McGraw Hill Publishing Co. Ltd., 2000.
2. M. Morris Mano, “Digital Design” , PHI Pvt. Ltd., 2nd Edition, 2000.
3. Donald P. Leach, Albert Paul Malvino, Goutam Saha, “Digital Principles and Applications” Tata McGrawHill Publishing Co. Ltd., 6th Edition, 2006.

References:

1. J. Bhasker, “A VHDL Primer”, PHI Pvt. Ltd., 3rd Edition, 2005.
2. William I Fletcher, “An Engineering Approach to Digital Design”, PHI Pvt. Ltd.
3. John M. Yarbrough, “Digital Logic Applications and Design”, 2009