

Code No.: ETEC 301
Paper: Digital Circuits & Systems – II

L T C
3 1 4

INSTRUCTIONS TO PAPER SETTERS:

MAXIMUM MARKS: 75

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from question no. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks.

UNIT – I

Specification of combinational systems using VHDL, Introduction to VHDL, Basic Language element of VHDL, Behavioral Modeling, Signal Assignment Statement, Structural modeling, Component Declaration, component instantiation, package declaration, package body, Design of standard combinational modules, Generate Statement **[No. of Hrs.: 11]**

UNIT – II

Description and design of sequential circuits using VHDL, Flip-flop, Register and Counter, Design of a Serial Adder with Accumulator, State Graph for Control Network, design of a Binary Multiplier, Multiplication of a Signed Binary Number **[No. of Hrs.: 12]**

UNIT – III

Subprogram Overloading, Operator Overloading, Signatures, Generics and Configuration, Functions and Procedure, Model simulation, Writing a test bench, Dumping results into a text file, reading vectors from a text file, state machine modeling **[No. of Hrs.: 12]**

UNIT – IV

Overview of FPGA and CPLD. Study of internal architecture of xilinx's vertex series of devices and altera's cyclone processor. **[No. of Hrs.: 09]**

TEXT BOOKS:

1. J. Bhaskar, "A VHDL Primer", Addison Wesley, 1999.
2. C. H. Roth, "Digital System Design using VHDL", PWS Publishing, 2003.

REFERENCES BOOKS:

1. M. Ercegovic, T. Lang and L.J. Moreno, "Introduction to Digital Systems", Wiley, 2000
2. J.F. Wakerly, "Digital Design-Principles and Practices", PHL, 2000.
3. Douglas Perry, "VHDL", MGH, 2000.
4. Michael John Sebastian Smith, "Application-Specific Integrated Circuits", Addison-Wesley, 2000.
5. Z. Navabi, "VHDL-Analysis and Modeling of Digital Systems", MGH, 2000.