Written by Administrator

Exam Marks

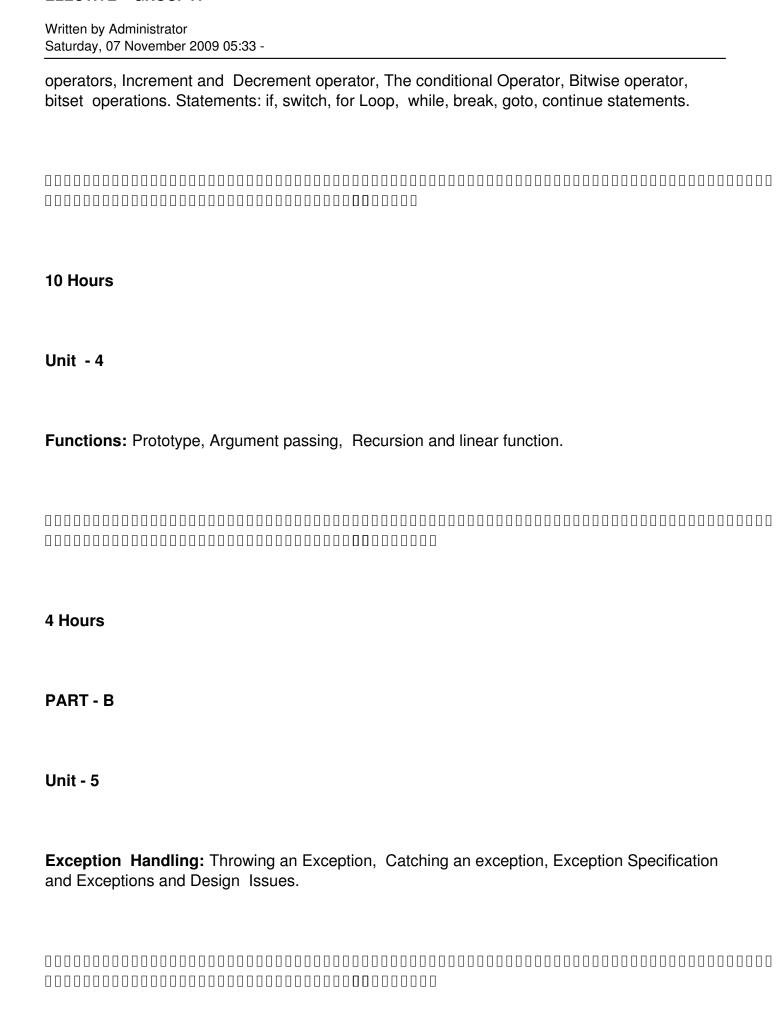
Saturday, 07 November 2009 05:33 -Programming in C++ Subject Code IA Marks : 25 Lecture Hrs/Week No. of : 04 Exam Hours : 03 no. of Lecture Hrs. Total : 52

: 100

Unit - 3

Written by Administrator Saturday, 07 November 2009 05:33 -PART - A Unit - 1 C++, An Overview: Getting started, the C++ program, Preprocessor Directives, The Built-In Array Data Type, Dynamic Memory Allocation and Pointers, An Object - based Design, An Object-Oriented Design, An Exception – based Design, An array. 6 Hours Unit - 2 The basic language: Literal Constant, Variables, Pointer Type, String Types, const Qualifier, Reference Types, the bool type, Enumeration types, Array types. The vector container type. 6 Hours

Operators: Arithmetic Operators, Equality, Relational and Logical operators, Assignment



Unit - 8

Written by Administrator Saturday, 07 November 2009 05:33 -6 Hours Unit - 6 Classes: Definition, Class Objects, Class Initallization, Class constructior, The class destructor, Class Object Arrays and Vectors. 7 Hours Unit - 7 Overload Operators, Operators ++ and --, Operators new and delete. 7 Hours

Multiple Inheritances, public, private & protected inheritance, Class scope under Inheritance.

4 / 35

IA Marks

ELECTIVE GROOF A
Written by Administrator Saturday, 07 November 2009 05:33 -
6 Hours
Text book:
1. C++ Primer , S. B. Lippman & J. Lajoie, 3rd Edition, Addison Wesley, 2000.
Reference Books:
 C++ Program Design: An Introduction to Programming and Object- Oriented Design . Cohoon and Davidson, 3rd Edn. TMH publication. 2004. Object Oriented Programming using C++, R. Lafore, Galgotia Publications, 2004.
Satellite Communication
Subject Code :

: 25

Written by Administrator	
Saturday, 07 November 2009 05:33 -	

lo. of Lecture Hrs/Week		: 04
Exam Hours	: 03	
otal no. of Lecture Hrs.		: 52
xam Marks	: 100	
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3 Hours

Unit - 2

Unit - 4

Written by Administrator Saturday, 07 November 2009 05:33 -

Orbits: Introduction, Kepler laws, definitions, orbital element, apogee and perigee heights, orbit perturbations, inclined orbits, calendars, universal time, sidereal time, orbital plane, local mean time and sun synchronous orbits, Geostationary orbit: Introduction, antenna, look angles, polar mix antenna, limits of visibility, earth eclipse of satellite, sun transit outage, leandiag orbits.

10 Hours Unit - 3 Propagation impairments and space link: Introduction, atmospheric loss, ionospheric effects, rain attenuation, other impairments. Space link: Introduction, EIRP, transmission losses, link power budget, system noise, CNR, uplink, down link, effects of rain, combined CNR. 8 Hours

Space Segment: Introduction, power supply units, altitude control, station keeping, thermal control, TT&C, transponders, antenna subsystem.

Written by Administrator Saturday, 07 November 2009 05:33 -6 Hours PART - B Unit - 5 & 6 Earth Segement: Introduction, receive only home TV system, out door unit, indoor unit, MATV, CATV, Tx - Rx earth station.

6 Hours

Interference and Satellite access: Introduction, interference between satellite circuits, satellite access, single access, pre-assigned FDMA, SCPC (spade system), TDMA, pre-assigned TDMA, demand assigned TDMA, down link analysis, comparison of uplink power requirements for TDMA & FDMA, on board signal processing satellite switched TDMA.

n, 2006.

Written by Administrator Saturday, 07 November 2009 05:33 -9 Hours Unit - 7 & 8 DBS, Satellite mobile and specialized services: Introduction, orbital spacing, power ratio, frequency and polarization, transponder capacity, bit rates for digital TV, satellite mobile services, USAT, RadarSat, GPS, orb communication and iridium. 10 Hours **Text Book:**

Satellite Communications, Dennis Roddy, 4th Edition, McGraw-Hill International editio

Written by Administrator	
Saturday, 07 November 2009 ()5:33 -

No. of Lecture Hrs/Week

References books:					
1. Satellite nd Edition, John Wile	Communications, Timotey & Sons, 2003.	hy Pratt, Cha	arles Bostian and Jeremy <i>i</i>	Allnutt, 2	
2. Satellite Suyderhoud, R. A Pearson Educ		s Engineering,	W. L. Pitchand, H. L.	nd Ed.,	
Random Proces	ses				
Subject Code			:		
IA Marks	: 25				

10 / 35

: 04

Written by Administrator Saturday, 07 November 2009 05:33 -

	Exam Hours	: 03
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Total	no. of Lecture Hrs.	: 52

Exam Marks		: 100
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Part - A

Unit - 1

Introduction to Probability Theory: Experiments, sample space, Events, Axioms, Assigning probabilities, Joint and conditional probabilities, Baye's Theorem, Independence, Discrete Random Variables, Engg Example.

7 Hours

Unit - 2

Random Variables, Distributions, Density Functions: CDF, PDF, Gaussian random variable, Uniform Exponential, Laplace, Gamma, Erlang, Chi-Square, Raleigh, Rician and Cauchy types of random variables

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6 Hours Unit - 3

Operations on a Single R V: Expected value, EV of Random variables, EV of functions of Random variables, Central Moments, Conditional expected values.

7 Hours Unit - 4

Characteristic functions, Probability generating functions, Moment generating functions, Engg applications, Scalar quantization, entropy and source coding.

6 Hours

PART - B

Unit - 5

Pairs of Random variables, Joint CDF, joint PDF, Joint probability mass functions, Conditional Distribution, density and mass functions, EV involving pairs of Random variables, Independent Random variables, Complex Random variables, Engg Application.

7 Hours

Unit - 6

Multiple Random Variables: Joint and conditional PMF, CDF, PDF, EV involving multiple

Written by Administrator Saturday, 07 November 2009 05:33 -

Random variables, Gaussian Random variable in multiple dimension, Engg application, linear prediction.

7 Hours Unit - 7

Random Process: Definition and characterization, Mathematical tools for studying Random Processes, Stationary and Ergodic Random processes, Properties of ACF.

6 Hours

Unit - 8

Example Processes: Markov processes, Gaussian Processes, Poisson Processes, Engg application, Computer networks, Telephone networks.

6 Hours

Written by Administrator Saturday, 07 November 2009 05:33 -							
Text Book:							
 Probability and random processes: application to Signal processing and communication - S L Miller and D C Childers: Academic Press / Elsivier 2004 							

1. **Probability, Random variables and stochastic processes** - A. Papoullis and S U McGraw Hill

2002

2. **Probability, Random** variables and Random signal principles - Peyton Z Peebles: TMH

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Edition 2007

Reference Books:

3. **Probability, random** processes and applications - H Stark and Woods: PHI 2001

Adaptive Signal Processing

Written by Administrator Saturday, 07 November 2009 05:33 -					
Subject Code				:	
IA Marks	: 2	5]		
No of Looture Hrs/M/	a a l			1.04	
No. of Lecture Hrs/We	ek			: 04	
Exam Hours	: 0:	3			
Total no. of Lecture H	rs.			: 52	
Exam Marks	: 10	00			
PART - A					

Unit - 1

Adaptive Systems: Definition and characteristics, Areas of application, General properties, Open-and closed-loop adaptation, Applications of closed-loop adaptation, Example of an adaptive system.

8 Hours

Written by Administrator Saturday, 07 November 2009 05:33 -4 Hours Unit - 2 The Adaptive Linear Combiner: General description, Input signal and weight vectors, Desired response and error, the performance function, gradient and minimum mean-square error, Example of a performance surface, Alternative expression of the gradient, Decorrelation of error and input components. 7 Hours Unit - 3 Properties Of The Quadratic Performance Surface: Normal of the input correlation matrix, Eigen values and Eigen vectors of the input correlation matrix, an example with two weights, geometrical significance of eigenvectors and Eigen values, a second example.

Written by Administrator Saturday, 07 November 2009 05:33 -

Unit - 4

Searching The Performance Surface: Methods of searching the performance surface, Basic ideal of gradient search methods, a simple gradient search algorithm and its solution, Stability and rate of convergence, The learning curve, Gradient search by Newton's method in multidimensional space, Gradient search by the method of steepest descent, Comparison of learning curves.

7 Hours

PART - B

Written by Administrator Saturday, 07 November 2009 05:33 -

Unit - 5

Gradient Estimation And Its Effects On Adaptation: Gradient component estimation by derivate measurement, the performance penalty, Derivative measurement and performance penalties with multiple weights, variance of the gradient estimate, effects on the weight-over solution, excess mean-square error and time constants, mis adjustment, comparative performance of Newton's and steepest-descent methods, Total mis adjustment and other practical considerations.

practical considerations.
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6 Hours
Unit - 6
The LMS Algorithm: Derivation of the LMS algorithm, convergence of the weight vector, an example of convergence, learning curve, noise in the weight-vector solution, misadjustment, performance.
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5 Hours
Unit - 7

Adaptive Modeling And System Identification: General description, Adaptive modeling of

Education Asia, 2001.

Written by Administrator Saturday, 07 November 2009 05:33 multipath communication channel, adaptive modeling in geophysical exploration, Adaptive modeling in FIR digital filter synthesis. 5 Hours Unit - 8 Adaptive Interfacing Canceling: The concept of adaptive noise canceling, stationary noise-canceling solutions, effects of signal components in the reference input, The adaptive interference canceller as a notch filter, The adaptive interface canceller as a high-pass filter, Effects of finite length and causality, multiple-reference noise canceling. 7 Hours **Text Book:**

Adaptive Signal Processing, Bernard Widrow and Samuel D. Stearns, Pearson

Written by Administrator Saturday, 07 November 2009 05:33 -

Reference E	Books:
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 Adaptive filter Theory, Simon Haykin, 4e, Pearson Education Asia, 2002 Theory and Design of Adaptive Filters, Jophn R. Treichler C. Richard Johnson, Jr. and Michael G. Larimore, Pearson education / PHI 2002. 					
Low Power VLSI Design					
Subject Code		:			
IA Marks	: 25				
No. of Lecture Hrs/Week		1.04			
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Written by Administrator Saturday, 07 November 2009 05:33 -

Exam Hours	: 03

Total	no. of Lecture Hrs.	: 52

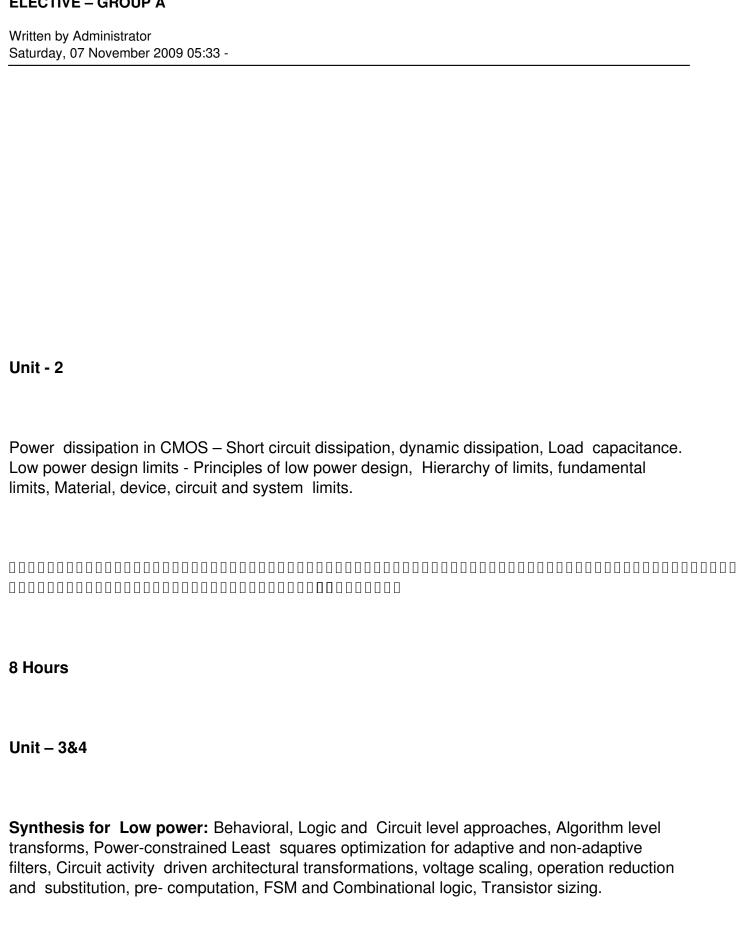
Exam Marks	: 100

PART - A

Unit - 1

Introduction, Sources of power dissipation, designing for low power. Physics of power dissipation in MOSFET devices – MIS Structure, Long channel and sub-micron MOSFET, Gate induced Drain leakage.

6 Hours



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12 Hours
PART - B
Unit – 5&6
Design and Test of Low-Voltage CMOS Circuits: Introduction, Design style, Leakage current in Deep sub-micron transistors, device design issues, minimizing short channel effect, Low voltage design techniques using reverse V
, steep sub threshold swing and multiple threshold voltages, Testing with elevated intrinsic leakage, multiple supply voltages.
12 Hours
Unit - 7
Low energy computing: Energy dissipation in transistor channel, Energy recovery circuit design, designs with reversible and partially reversible logic, energy recovery in adiabatic logic and SRAM core, Design of peripheral circuits – address decoder, level shifter and I/O Buffer, supply clock generation.

Written by Administrator

Saturday, 07 November 2009 05:33 -8 Hours Unit - 8 **Software design for low power:** Introduction, sources of power dissipation, power estimation and optimization. 6 Hours Text Book: Low-Power CMOS VLSI Circuit Design, Kaushik Roy and Sharat C Prasad, Wiley 1. Inter science, 2000.

Written by Administrator
Saturday, 07 November 2009 05:33 -

MODERN CONTROL THEORY

Subject Code				:
IA Marks		: 25]	
No. of Lecture Hr	s/Week			: 04
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Exam Hours		: 03]	
Total no. of Lectu	re Hrs.			: 52
Exam Marks		: 100]	

Written by Administrator Saturday, 07 November 2009 05:33 -

PART - A

Unit - 1

Linear Spaces and Linear Operators: Introduction, Fields, Vectors and Vector Spaces, Linear Combinations and Bases, Linear Transformations and Matrices,

Scalar Product and Norms, Solution of

Linear Algebraic Equations, Eigen values, Eigen vectors and a Canonical-Form, Functions of a Square Matrix.

7 Hours

Unit - 2

State Variable Descriptions: Introduction, The Concept of State, State Equations for Dynamic Systems, Time-Invariance and Linearity, Non uniqueness and State Model, State diagrams.

6 Hours

Written by Administrator Saturday, 07 November 2009 05:33 -

Unit - 3

Physical Systems and State Assignment: Introduction, Linear Continuous-Time Models, Linear Discrete-Time Models, Nonlinear Models, Local Linearization of Nonlinear Models, Plant Models of some Illustrative Control Systems.

6 Hours

Unit - 4

Solutions of State Equations: Introduction, Existence and Uniqueness of Solutions to Continuous –Time State Equations, Solution of Nonlinear Continuous-Time Equations, Solution of Linear Time-Varying Continuous –Time State Equations, Solution of Linear Time- Invariant continuous-Time State Equations, Solution of Linear Discrete-Time State Equations, State Equations of Sampled –Data Systems.

7 Hours

PART - B

Unit - 5

Written by Administrator Saturday, 07 November 2009 05:33 -

Controllability and Observability: Introduction, General Concept of Controllability, General Concept of Observability, Controllability Tests for Continuous-Time Systems, Observability Tests for Continuous-Time Systems, Controllability and Observability of Discrete-Time Systems, Controllability and Observability of State Model in Jordan Canonical Form, Loss of Controllability and Observability due to Sampling, Controllability and Observability, Canonical Forms of State Model.

7 Hours

Unit - 6

Relationship between State Variable and Input-Output Descriptions: Introduction, Input-output Maps from State Models, Output Controllability, Reducibility, State models from Input-Output Maps.

7 Hours

Unit - 7

Stability: Introduction, Stability Concepts and Definitions, Stability of Linear Time-Invariant Systems, Equilibrium Stability of Nonlinear Continuous-Time Autonomous Systems, The Direct

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Written by Administrator Saturday, 07 November 2009 05:33 -

Method of Lyapunov and the Linear Continuous-Time Autonomous Systems, Aids to Finding Lyapunov Functions for Nonlinear Continuous-Time Autonomous Systems, Use of Lyapunov to Estimate Transients, The Direct Method of Lyapunov and the **Functions** Discrete-Time Autonomous Systems.

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6 Hours
Unit - 8
Model Control: Introduction, Controllable and Observable Companion Forms, The effect of State Feedback on Controllability and Observability, Pole Placement by State Feedback, Full-Order Observers, Reduced-Order Observers, Deadbeat Control by State Feedback, Deadbeat Observers
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6 Hours
Text Book:

Modern Control System Theory - M. Gopal: 2nd Edition; New Age Int (P) Ltd. 2007

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	rol System – Richard Dorf	& Robert Bishop Pearson Education/	
PHI. 2. Modern Cont	rol Engineering - K. Ogata	Pearson Education / PHI	
Digital Systems Desigi	n Using VHDL		
Subject Code		:	
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IA Marks	: 25		
No. of Lecture Hrs/We	eek	: 04	
Exam Hours	: 03		
Total no. of Lecture H	rs.	: 52	

Written by Administrator Saturday, 07 November 2009 05:33 -

Exam Marks	: 100
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Unit - 1

Introduction: VHDL description of combinational networks, Modeling flip-flops using VHDL, VHDL models for a multiplexer, Compilation and simulation of VHDL code, Modeling a sequential machine, Variables, Signals and constants, Arrays, VHDL operators, VHDL functions, VHDL procedures, Packages and libraries, VHDL model for a counter.

7 Hours

Unit - 2

Designing With Programmable Logic Devices: Read-only memories, Programmable logic arrays (PLAs), Programmable array logic (PLAs), Other sequential programmable logic devices (PLDs), Design of a keypad scanner.

Written by Administrator Saturday, 07 November 2009 05:33 -

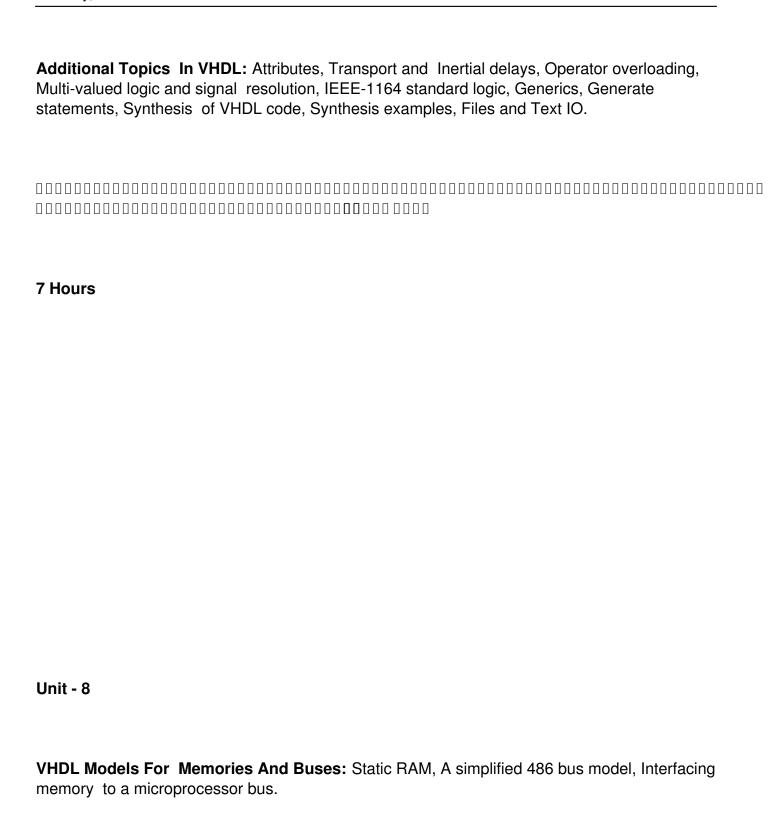
6 Hours
Unit - 3
Design Of Networks For Arithmetic Operations: Design of a serial adder with accumulator, State graphs for control networks, Design of a binary multiplier, Multiplication of signed binary numbers, Design of a binary divider.
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6 Hours
Unit - 4
Digital Design with SM Charts: State machine charts, Derivation of SM charts, Realization of SM charts. Implementation of the dice game, Alternative realization for SM charts using microprogramming, Linked state machines.
7 Hours
PART - B

Written by Administrator Saturday, 07 November 2009 05:33 -Unit - 5 Designing With Programmable Gate Arrays And Complex Programmable Logic Devices: Xlinx 3000 series FPGAs, Designing with FPGAs, Xlinx 4000 series FPGAs, using a one-hot state assignment, Altera complex programmable logic devices (CPLDs), Altera FELX 10K series COLDs. 6 Hours Unit - 6 Floating - Point Arithmetic: Representation of floating-point numbers, Floating-point multiplication, Other floating-point operations.

Unit - 7

7 Hours

Written by Administrator Saturday, 07 November 2009 05:33 -



Written by Administrator Saturday, 07 November 2009 05:33 -



Text Book:

1. **Digital Systems Design using VHDL**, Charles H. Roth. Jr.; Thomson Learning, Inc, 9th reprint, 2006.

Reference Books:

- 1. **Fundamentals of Digital Logic Design with VHDL**, Stephen Brwon & Zvonko Vranesic, Tata McGrw-Hill, New Delhi, 2
 Ed., 2007
 - 2. Digital System Design with VHDL, Mark Zwolinski, 2 Ed, Pearson Education., 2004
 - 3. Digital Electronics and Design with VHDL Volnei A Pedroni, Elsivier Science, 2009