BACHELOR OF TECHNOLOGY
(Computer Science & Engineering)

FIFTH SEMESTER EXAMINATION

Code No.	Paper	L	T/P	Credits
THEORY PAPERS				
ETEC 301	Digital Circuits & Systems – II	3	1	4
ETIT 303	Java Programming and Website Design	3	1	4
ETCS 305	Computer Architecture	3	1	4
ETCS 307	Linux and X-Windows Programming	3	1	4
ETCS 309	Database Management Systems	3	1	4
ETMS 311	Organizational Behaviour	3	1	4
PRACTICAL/VIVA VOCE				
ETEC 351	Digital Circuits & Systems – II Lab.	0	2	1
ETIT 353	Java Programming & Website Design Lab.	0	2	1
ETCS 355	Linux & X-Windows Programming Lab.	0	2	1
ETCS 357	Database Management Systems Lab.	0	2	1
ETCS 359	#^Practical Training	0	0	1
	TOTAL	**18**	**14**	**29**

NUES

^Practical training was conducted after fourth semester. However, Viva-Voce for evaluation of Practical Training will be conducted in this semester.

Code No.:	ETEC 301		L	T	C
Paper: Digital Circuits & Systems – II			**3**	**1**	**4**

UNIT – I

Concepts of ASM, Realization through GATES, MUX, PLD devices.
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.: 12]**

UNIT – II

Asynchronous sequential circuits design, Flow table, merger diagram, transition table, 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.: 08]**

TEXT BOOKS:

1.   J. Bhaskar, " A VHDL Primer", Addison Wesley, 1999.
2.   C. H. Roth, "Digital System Design using VHDL", PWS Publishing, 2003.
3.   Moris Mano, "Fundamentals of Logic Design", Pearson Education, 3rd Edition, 2003.

REFERENCES BOOKS:

1.   M. Ercegovac, 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.   Michae John Sebastian Smith, "Application-Specific Integrated Circuits", Addison-Wesley, 2000.
5.   Z. Navabi, " VHDL-Analysis and Modeling of Digital Systems", MGH, 2000.

Code No.:	ETIT 303	L	T	C
Paper: Java Programming and Website Design		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

Introduction to Java: Importance and features of Java, Keywords, constants, variables and Data Types, Operators and Expressions, Decision Making, Branching and Looping: if..else, switch,?: operator, while, do, for statements, labeled loops, jump statements: break, cotnue return. Introducing classes, objects and methods: defining a class, adding variables and methods, creating objects, constructors, class inheritance. Arrays and String: Creating an array, one and two dimensional arrays, string array and methods, Classes: String and String Buffer classes, Wrapper classes: Basics types, using super, Multilevel hierarchy abstract and final classes, Object class, Packages and interfaces, Access protection, Extending Interfaces, packages.   **[No. of Hrs.: 12]**

UNIT – II

Exception Handling: Fundamentals exception types, uncaught exceptions, throw, throw, final, built in exception, creating your own exceptions, Multithreaded Programming: Fundamentals, Java thread model: priorities, synchronization, messaging, thread classes, Run able interface, inter thread Communication, suspending, resuming and stopping threads. Input/Output Programming: Basics, Streams, Byte and Character Stream, predefined streams, Reading and writing from console and files. Using Standard Java Packages (lang, util, io, net). Networking: Basics, networking classes and interfaces, using java.net package, doing TCP/IP and Data-gram Programming   **[No. of Hrs.: 12]**

UNIT – III

Event Handling: Different Mechanism, the Delegation Event Model, Event Classes, Event Listener Interfaces, Adapter and Inner Classes, Working with windows, Graphics and Text, using AWT controls, Layout managers and menus, handling Image, animation, sound and video, Java Applet. Beans: Introduction to Java Beans and Swings, Servlets**[No. of Hrs.: 10]**

UNIT – IV

Website Designing: Overview of Internet and Intranet Services, Sending and Receiving Mails, HTML Tags, Creating Tables, Check Boxes, Text Books, Frames, Graphical and animation techniques, Static & Dynamic Web Pages, Guidelines for a good website design, DHTML, ASP, Javascript   **[No. of Hrs.: 10]**

TEXT BOOKS:
1.   Patrick Naughton and Herbertz Schildt, "Java-2 The Complete Reference", 1999, TMH
2.   Rick Dranell, "HTML 4 unleashed", Techmedia Publication, 2004.
3.   Shelley Powers, "Dynamic Web Publishing", 2nd Ed., Techmedia, 1998.

REFERENCES BOOKS:
1.   E. Balaguruswamy, "Programming with Java: A Primer", TMH, 1998.
2.   Horstmann, "Computing Concepts with Java 2 Essentials", John Wiley, 2004.
3.   Decker & Hirshfield, "Programming Java: A introduction to programming using JAVA", Vikas Publication, 2000.
4.   Tmy Gaddies, "Starting out with Java", Wiley Dreamtech, 2005.
5.   Holzner, "HTML Blackbook", Wiley Dreamtech, 2005.

Code No.:	ETCS 305	L	T	C
Paper: Computer Architecture		**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
Introduction and overview: Review of digital components, Evolution of computers.
Register Transfer and Microoperation: Register transfer language, register transfer, bus and memory transfer, arithmetic microoperations, logic microoperations, shift microoperations.
Basic Computer Organization and Design: Instruction codes, computer registers, computer instructions, timing & control, instruction cycle, memory reference instructions, input-output and interrupts, design of basic computer, design of accumulator logic.   **[No. of Hrs: 11]**

UNIT – II
Microprogrammed Control Unit: Control memory, address sequencing.
Central Processing Unit: Introduction, general register organization, stack organization, instruction formats, addressing modes.
Pipeline and vector processing Parallel Processing, pipelining, arithmetic pipeline, RISC Pipeline, Vector Processing, Array Processors.   **[No. of Hrs: 11]**

UNIT – III
Computer Arithmetic: Introduction, addition and subtraction, multiplication algorithms, division algorithms, floating point arithmetic operation, decimal arithmetic unit, decimal arithmetic operations.
Input-Output Organization: Peripheral devices, input-output interface, asynchronous data transfer, modes of data transfer, priority interrupt, direct memory access, input-output processor.   **[No. of Hrs: 11]**

UNIT – IV
Memory organization: Memory hierarchy, main memory, auxiliary memory, associative memory, cache memory, virtual memory, memory management hardware.
Multiprocessors: Characteristics of multiprocessor, Interconnection Structure, Interprocessor Communication & Synchronization   **[No. of Hrs: 11]**

TEXT BOOKS:
1.   M Mano, "Computer System and Architecture", PHI, 1993.

REFERENCES BOOKS:
1.   Malvino, "Digital Computer Electronics: An Introduction to Microcomputers", McGraw Hill, 1993.
2.   J. P. Hayes, "Computer Architecture and Organization", McGraw Hill, 1998.
3.   W. Stallings, "Computer Organization & Architecture", PHI, 2001.
4.   Dandamudi, "Fundamental of Computer Organization & Design", Wiley Dreamtech, 2005.

Code No.: ETCS 307   **L**   **T**   **C**

Paper: Linux & X-Windows Programming   **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

Linux – The Operating System: Linux history, Linux features, Linux distributions, Linux's relationship to Unix, Overview of Linux architecture, Installation, Booting, Login and Shutdown Process, Start up scripts, controlling processes, system processes (an overview), Linux Security, Networking on Linux: Preparing Linux for Networking, Network Installation, configuring network setting after installation. **[No. of Hrs.: 11]**

UNIT – II

User Management: Types of users, The powers of Root, managing users (adding and deleting): using the command line, shell scripts and GUI tools.

The Linux File System: Basic Princples, Pathnames, Mounting and Unmounting File Systems, Different File Types, File Permissions, Disk Usage Limits, Directory Structure, The Ext2 and Ext3 File Systems, Check and Repair File Systems. **[No. of Hrs.: 12]**

UNIT – III

Shell in Linux: Available shells under Linux (viz. Bash, TCSH, Korn or so on), different shell features, editors, shell commands, shell scripts: shell variables, environmental variables, purpose of shell scripts, writing, storing and executing scripts, Filters- The grep family, advanced filters-sed and awk. **[No. of Hrs.: 11]**

UNIT – IV

Using the X-Windows System: What is X clients, servers and Windows Management, Exploring X Applications X – Lib Programming Model, creating and managing windows, handling events: key board and mouse management, an overview of drawing graphics, text handling colormap and manipulation. **[No. of Hrs.: 10]**

TEXT BOOKS:
1. N. Barkakati, "X-Windows System Programming", PHI, 2001
2. K. Cox, "Red Hat Linux Administrator's Guide", PHI, 2001
3. Michael Jain, "Red Hat Linux 9", BPB Publications, 2003.
4. Peterson Richard, "The Complete References Linux", 2nd Ed., Tata McGraw Hill, 2002.

REFERENCES BOOKS:
1. O'Reilly and Associates Vol. 0: Protocol Reference Manual, 1992
2. O'Reilly and Associates Vol. 1: Xlib Programming Manual, 1992
3. O'Reilly and Associates Vol. 2: Xlib Programming Manual, 1992
4. Bach, "The Design of the Unix Kernel", PHI, 2000.

Code No.: ETCS 309	L	T	C
Paper: Database Management Systems	3	1	4

UNIT – I

Basic Concepts and Conceptual Database Design: Database administrator & Database Users, Characteristics of the Database, Database Systems, Concepts and Architecture, Data Models, Schemes & Instances, DBMS Architecture & Data Independence, Database Languages & Interfaces, Overview of Hierarchical, Network & Relational Data Base Management Systems, Data Modelling Using The Entity-Relationship Model – Entities, Attributes and Relationships, Cardinality of Relationships, Strong and Weak Entity Sets, Generalization, Specialization, and Aggregation, Translating your ER Model into Relational Model

[No. of Hrs.: 11]

UNIT – II

Relational Model, Languages & Systems: Relational Data Model & Relational Algebra, Relational Model Concepts, Relational Model Constraints, Relational Algebra, SQL – A Relational Database Language, Data Definition in SQL, View and Queries in SQL, Specifying Constraints and Indexes in SQL, Practicing SQL commands using ORACLE.

[No. of Hrs.: 11]

UNIT – III

Relational Data Base Design and Oracle Architecture: Functional Dependencies & Normalization for Relational Databases, Functional Dependencies, Normal Forms Based on Primary Keys, (1NF, 2NF, 3NF & BCNF), Lossless Join and Dependency Preserving Decomposition, Oracle 8 Architecture, Database Storage, Oracle Software Structures, Shared Database Access Mechanism, Database Protection.

[No. of Hrs.: 11]

UNIT – IV

Transaction Management: Transaction Concept and State, Implementation of Atomicity and Durability, Concurrent Executions, Serializability, Recoverability, Implementation of Isolation, Concurrency Control Techniques, Lock-Based Protocols, Timestamp-based Protocols, Deadlock Handling, Recovery System, Failure Classification, Storage Structure, Recovery and Atomicity, Log-based Recovery, Shadow Paging, Recovery with Concurrent Transactions, Buffer Management, Indexing, Hashing and Query Processing: Query Processing, Overview, Measures of Query Cost, Selection Operation, Sorting, Join Operation, Other Operations, Evaluation of Expressions, Concepts of Object Oriented Database Management Systems, Distributed Data Base Management Systems.

[No. of Hrs.: 11]

TEXT BOOKS:

1. Korth, Silberschatz, "Database System Concepts", 4th Ed., TMH, 2003.
2. Steve Bobrowski, "Oracle 8 Architecture", TMH, 2000

REFERENCES BOOKS:

1. C. J. Date, "An Introduction to Database Systems", 7th Ed., Narosa Publishing, 2004
2. Elmsari and Navathe, "Fundamentals of Database Systmes", 4th Ed., A. Wesley, 2004
3. J. D. Ullman, "Principles of Database Systems", 2nd Ed., Galgotia Publications, 1999.

Code No.:   ETMS 311   **L   T   C**
Paper: Organizational Behaviour   **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

Meaning & Nature of Management, Management Systems and Processes, Managerial Skills, Tasks & Responsibilities of a Professional Manager.

[No. of Hrs.: 11]

UNIT – II

Planning Types and Process, Management by Objectives, Decision-Making Models, Organizational context of decisions, Problem solving techniques and processes, Controlling: Process and Techniques   **[No. of Hrs.: 11]**

UNIT – III

Organizational Climate, Culture and Managerial ethos, Organisational structure & Design, Managerial Communication.   **[No. of Hrs.: 11]**

UNIT – IV

Individual Determinants of organizational, Behaviours: Perceptions, Learning, Personality, Attitudes & Values, Motivation, Job Anxiety & Stress, Analysing, Interpersonal relations, Group Dynamics, Management of Organizational Conflicts, Management of Change, Leadership Styles & Influence.   **[No. of Hrs.: 11]**

TEXT BOOKS:

1.   Stephen P. Robbins, David & Decenzo, "Fundamentals of Management", 3rd Edition, Pearson Education, 2002.
2.   Stoner, et. al., "Management", 6th Edition, PHI, 2002.
3.   J. S. Chandan, "Organisational Behaviour", Vikas Publishing House, 2004.
4.   John M. Ivancevich, T. N. Duening, "Business & Management: Principles and Guidelines", biztantra, Dreamtech, 2005.

REFERENCES BOOKS:

1.   Joseph W. Weiss, "Organisational Behaviour & Change, Managing Diversrity, Cross-Cultural Dynamics & Ethics", 2nd Edition, Vikas Publishing House, 2003
2.   Richard Pettinger, "Introduction to Management", 3rd Edition, Palgrave McMillan, 2002.
3.   Udai Pareek, "Understanding Organisational Behaviour", 1st Edition, Oxford University Press, 2004.
4.   Fred Luthans, "Organisational Behaviour," 9th Edition, McGraw Hill International Edition, 2004.

Code No. : ETEC 351   **L   P   C**
Paper: Digital Circuits & Systems – II Lab.   **0   2   1**

Practical will be based on Digital Circuits & Systems – II.

Code No. : ETIT 353   **L   P   C**
Paper: Java Programming & Website Design Lab.   **0   2   1**

Practical will be based on Java Programming & Website Design.

Code No. : ETCS 355   **L   P   C**
Paper: Linux & X – Windows Programming Lab.   **0   2   1**

Practical will be based on Linux & X – Windows Programming.

Code No. : ETCS 357   **L   P   C**
Paper: Database Management Systems Lab.   **0   2   1**

Practical will be based on Database Management System.

Code No. : ETCS 359   **L   P   C**
Paper: *Practical Training   **0   0   1**

*NUES
Practical training conducted after fourth semester will be evaluated in the fifth Semester based on Viva-Voce.