

CE 401: DISCRETE MATHEMATICS

| Teaching Scheme | | | Examination Scheme | | | | | | | |
|-----------------|------|-------|--------------------|---------|-----|-------|-----------|---------|-------|-------------|
| Lect | Prac | Total | Theory | | | | Practical | | | Grand Total |
| | | | Int Ass | Sem End | | Total | Int Ass | Sem End | Total | |
| | | | | Marks | Hrs | | | | | |
| 3 | - | 3 | 30 | 70 | 3 | 100 | - | - | - | 100 |

Predicate Calculus :

Introduction, Objectives, Predicates, Statement Functions, Variable and Quantifiers, Free and Bound Variables, Special Valid Formulas Involving Quantifiers - Theory Of Inference For The Predicate Calculus.

Fuzzy Sets:

Some Useful Definitions, Basic Operations On Fuzzy Sets Image and Inverse Images, I-V Fuzzy Sets, Fuzzy Relations.

Group Theory :

Definition and Examples Of Semigroups, Monoids and Groups. Abelian Group, Cyclic Group; Subgroup, Permutation Groups, Coset Decomposition Of Groups, Normal Subgroups, Lagranges Theorem.

Lattices :

Poset, Lattice As A Poset, Properties Of Lattices, Lattices as Algebraic Systems, Sublattices, Direct Product and Homomorphism, Complete Lattices, Bounds Of Lattices, Distributive Lattices, Complemented Lattice.

Boolean Algebra :

Introduction, Definition and Properties, Sub-Boolean Algebra Direct Product and Homomorphism, Atoms, Stone's Representation Theorem. Boolean Expressions and Their Equivalences. Minterm and Max Terms. Boolean Algebra, Values Of Boolean Expressions, Canonical Forms, Boolean Functions, Symmetric Boolean Functions.

Graph Theory :

Basic Concept of Graph Theory, Basic Definitions. Path, Reachability and Connectedness, Matrix Representation Of Graphs, Trees

Reference Books:

1. Discrete Mathematical Structures With Application To Computer Science
By Tremblay, J.P. & Manohar, McGraw Hill - New Delhi
2. Discrete Mathematics and Its Applications
By Rosen, Kenneth L., McGraw Hill - New Delhi
3. Applied Discrete Structures For Computer Science
By Alan Doerr & Kenneth, Galgotia Publications Pvt.Ltd. New Delhi
4. Discrete Mathematical Structures For Computer Science
By Kolman, B & Busby R.C., Prentice Hall Of India Pvt Ltd., New Delhi
5. Fuzzy Sets and Fuzzy Logic. Theory and Applications
By Georg J. Klir/Bo Yuan

CE 402: OPERATING SYSTEMS

| Teaching Scheme | | | Examination Scheme | | | | | | | |
|-----------------|------|-------|--------------------|---------|-----|-------|-----------|---------|-------|-------------|
| Lect | Prac | Total | Theory | | | | Practical | | | Grand Total |
| | | | Int Ass | Sem End | | Total | Int Ass | Sem End | Total | |
| | | | | Marks | Hrs | | | | | |
| 4 | 2 | 6 | 30 | 70 | 3 | 100 | 25 | 25 | 50 | 150 |

Introduction To OS:

OS Services and Kernel, Batch OS, Multiprogramming and Time Sharing, Multiprocessing, Operating System structures

Process Management:

Process Concepts, Interprocess communication, Classical IPC Problems, Threads Concepts, Process Scheduling.

Deadlocks

Memory Management:

swapping, Paging and Segmentation, Virtual Memories, Page replacement Algorithms, Modelling paging Algorithms, Design Issues for paging systems

I/O and Device Management

File Management

Case study: Linux

Reference Books:

1. Operating System Concepts
By A Silberschatz and Peter B Galvin , Addison-Wesley
2. Modern Operating Systems
By Andrew s Tanaunbaum , Prentice Hall Of India Pvt Ltd
3. Operating Systems
By William Stallings , Prentice Hall Of India Pvt Ltd

CE 403: MICROPROCESSORS AND INTERFACING

| Teaching Scheme | | | Examination Scheme | | | | | | | |
|-----------------|------|-------|--------------------|---------|-----|-------|-----------|---------|-------|-------------|
| Lect | Prac | Total | Theory | | | | Practical | | | Grand Total |
| | | | Int Ass | Sem End | | Total | Int Ass | Sem End | Total | |
| | | | | Marks | Hrs | | | | | |
| 4 | 2 | 6 | 30 | 70 | 3 | 100 | 25 | 25 | 50 | 150 |

Review Of Computer Number Systems, Codes And Digital Devices:

Computers, Microcomputers And Microprocessors:

Computers, an introduction of 8086, 8088 & other microprocessors, 8086 internal architecture.

8086 Family Assembly Language Programming:

Program development steps, constructing machine codes, ALP development tools, debugging, procedures, macros.

8086 Instruction Set & Assembler Directives:

8086 System Connections, Timing And Troubleshooting:

8086 hardware review, addressing memory and ports in microcomputer systems, 8086 timing parameters, troubleshooting of simple 8086 based microcomputer.

Interrupts & Interrupt Service Procedures:

8086 interrupts & interrupt responses, hardware interrupt applications, DOS interrupts and their services.

Digital Interfacing :

Programmable parallel ports and handshake I/O, Interfacing a microprocessor to keyboards, to alphanumeric displays

Introduction To Other 16 And 32 Bit Microprocessors.

Introduction To Microcontrollers.

Reference Books:

1. Microprocessors & Interfacing – Programming & hardware B
By D. V. Hall , Prentice Hall Of India Pvt Ltd
2. The 8088 AND 8086 microprocessors
By Walter A. Trebel & Avtar Singh , Prentice Hall Of India Pvt Ltd
3. IBM PC assembly language and programming
By Peter Abel
4. The Intel Microprocessors 8086/8088,80186/80188,80286,80386,80486,Pentium, And Pentium Pro Processor. Architecture, Programming and Interfacing.
By Barry B.Brey , Prentice Hall Of India Pvt Ltd

CE 404 : BASICS OF COMMUNICATION SYSTEM

| Teaching Scheme | | | Examination Scheme | | | | | | | |
|-----------------|------|-------|--------------------|---------|---|-------|-----------|---------|-------|-------------|
| Lect | Prac | Total | Theory | | | | Practical | | | Grand Total |
| | | | Int Ass | Sem End | | Total | Int Ass | Sem End | Total | |
| Marks | Hrs | | | | | | | | | |
| 4 | 2 | 6 | 30 | 70 | 3 | 100 | 25 | 25 | 50 | 150 |

Introduction

Data Communications, Networks, Data Representation, Data Flow, Distributed Processing, Network Criteria, Physical Structures, Network Models, Categories of Networks, Intranet, The Internet, Protocols and Standards

Network Models

Layered Tasks, Sender, Receiver and Carrier Hierarchy, The OSI Model, Layers in the OSI Model, TCP/IP Protocol suit, Addressing – Physical, Logical, Port and Specific Addresses

Data and Signals

Analog and Digital Signals, Periodic and Nonperiodic Signals, Sine Wave, Phase, Wavelength, Time and Frequency Domains, Composite Signals, Bandwidth, Bit Rate, Bit Length, Transmission of Digital Signals, Transmission Impairment, Data Rate Limits, Performance – Bandwidth, Throughput, Latency, Bandwidth-Delay Product, Jitter

Digital Transmission

Digital-to-Digital Conversion, Line Coding, Line Coding Schemes, Block Coding, Scrambling, Analog-to-Digital Conversion, PCM, DM, Transmission Modes – Parallel and Serial Transmission

Analog Transmission

Digital-to-Analog Conversion, Amplitude Shift Keying, Frequency Shift Keying, Phase Shift Keying, Quadrature Amplitude Modulation, Analog-to-Analog Conversion, Amplitude Modulation, Frequency Modulation, Phase Modulation

Bandwidth Utilization : Multiplexing and Spreading

Frequency-Division Multiplexing, Wavelength-Division Multiplexing, Synchronous and Statistical Time-Division Multiplexing, Spread Spectrum

Transmission Media

Guided Media – Twisted Pair, Coaxial and Fiber-Optic Cable, Unguided Media – Radio Waves, Micro Waves and Infrared

Switching

Circuit-Switched Networks, Telephone Networks, Datagram Networks, Routing Table, Datagram Networks, Virtual-Circuit Networks, Structure of a Switch

Telephone and Cable Networks for Data Transmission

Telephone Network, Dial-up Modems, Digital Subscriber Line, Cable TV Networks, HFC Network, CM and CMTS, DOCSIS

Reference Books:

1. Data Communication and Networking – 4th Edition
By – Behrouz A Forouzan
2. Data and Computer Communications – 7th Edition
By – William Stalling
3. Computer Networks – 4th Edition
By – Andrew S Tanenbaum

CE 405:DBMS - II

| Teaching Scheme | | | Examination Scheme | | | | | | | |
|-----------------|------|-------|--------------------|---------|-----|-------|-----------|---------|-------|-------------|
| Lect | Prac | Total | Theory | | | | Practical | | | Grand Total |
| | | | Int Ass | Sem End | | Total | Int Ass | Sem End | Total | |
| | | | | Marks | Hrs | | | | | |
| 3 | 2 | 5 | 30 | 70 | 3 | 100 | 25 | 25 | 50 | 150 |

Query Processing:

Overview , Measures of Query Cost

Query Optimization:

Overview

Transactions:

Transaction Concept , Transaction State , Implementation of Atomicity and Durability , Concurrent Executions , Serializability , Recoverability

Concurrency Control:

Lock-Based Protocols , Time Stamp – Based Protocols , Multiple Granularity * , Deadlock Handling

Recovery System:

Failure Classification , Storage Structure , Recovery and Atomicity , Log – Based Recovery Shadow Paging

Database System Architecture:

Centralized and Client-Server Architectures , Server System Architectures , Parallel Systems , Distributed Systems

Distributed Databases:

Homogeneous and Heterogeneous Databases , Distributed Data Storage Distributed Transactions , Commit Protocols

PL/SQL

Text Book:

1. Database System Concepts : Fourth Edition
By Silberschatz, Korth, Sudarshan.

Reference Book:

1. An Introduction to Database Systems : Seventh Edition
By C. J. Date
2. Sql, PL/SQL The Programming Language of ORACLE : Second Edition
By Ivan Bayross.

CE 406: APPLICATION DEVELOPMENT TOOLS

| Teaching Scheme | | | Examination Scheme | | | | | | | |
|-----------------|--------------|-------|--------------------|---------|-----|-------|------------|------------|-------|----------------|
| Lect | Prac/ Tut | Total | Theory | | | | Practical | | | Grand Total |
| | | | Int Ass | Sem End | | Total | Int Ass | Sem End | Total | |
| | | | | Marks | Hrs | | | | | |
| 2 | 2 | 4 | 15 | 35 | 2 | 50 | 25 | 25 | 50 | 100 |

Introduction:

The Windows Graphical User Interface, Procedural, Event Driven, and Object Oriented Programming languages.

Introduction To .Net Framework:

The Common Language Runtime, Elements of a .NET application, Versioning and deployment, Memory management, Cross language Integration

The Visual Studio Environment:

The IDE Start Page, The New Project Dialog, The IDE Main Window, The Toolbars, The Document Window, The Form Designer, The Solution Explorer Window, The Properties Window, The Toolbox, Help, Design Time, Run Time, and Break Time

Variables, Constants And Calculations:

Data: Variables and Constants, Arrays, Scope of variables, Calculations, Formatting Data, Handling Exceptions

Working With Controls:

Using command buttons, text boxes, labels, picture box, image box, list box, combo box, file list box, drive and dir list boxes, scroll bars, rich text box, timer, shape, frames, checkbox, radio button.

Decisions Making, Loops And Debugging:

If Statements, Conditions, Nested If Statements, Select statement, Input Validation, Do/Loops, For/Next Loops, Calling Event Procedures, Debugging Visual Basic Projects.

Sub Procedures, And Functions:

Creating Context Menus, working with toolbar, Writing General Procedures.

Working With ADO.Net:

Understanding connection, Adapter, commands, Tables, Views and Data Readers.

References Books:

1. Professional VB.NET 2003 Wrox Publications
2. Professional ASP.NET 2003 Wrox Publications