

MATS School of Engineering & Technology

MATS University

Raipur



Syllabus Scheme

(7th Semester)

For

Bachelor of Engineering

In

Computer Science & Engineering

7th Semester (Computer Science)

S.No.	Subject Code	Subject Name
1	BE720	Advanced Computer Architecture
2	BE721	Operation Research
3	BE722	Network Programming
4	BE723	Digital Image Processing
5	Refer Table 2	Professional Elective-2
6	BE725	Soft Computing Lab
7	BE726	Network Programming Lab
8	BE727	Soft ware Technology Lab
9	BE728	Minor Project

Table – 2

Professional Elective –II

S.N.	Subject Code	Subject Name
1	BE7240	Cellular & Mobile Computing
2	BE7241	Internet & Multimedia Technology
3	BE7242	Natural Language Processing
4	BE7243	Software Technology
5	BE7244	Object Oriented Modeling & Design



MATS School of Engineering & Technology
MATS University, Raipur
Scheme of Teaching & Examination
VIIth Semester
Computer Science & Engineering



S. No.	Course code	SUBJECT	Periods per week		Evaluation Scheme		Total Marks
			L	P	IM	ESE	
THEORY							
1	BE720	Advanced Computer Architecture	5	0	30	70	100
2	BE721	Operation Research	5	0	30	70	100
3	BE722	Network Programming	5	0	30	70	100
4	BE723	Digital Image Processing	5	0	30	70	100
5	Refer Table- 2	Professional Elective-2	5	0	30	70	100
PRACTICAL/DESIGN/DRAWING							
6	BE725	Soft Computing Lab	0	3	20	30	50
7	BE726	Network Programming Lab	0	3	20	30	50
8	BE727	Soft ware Technology Lab	0	3	20	30	50
9	BE728	Minor Project	0	3	50	100	150

Table- 2		
Professional Elective-2		
S. No.	Course Code	SUBJECT
1	BE7240	Cellular & Mobile Computing
2	BE7241	Internet & Multimedia Technology
3	BE7242	Natural Language Processing
4	BE7243	Software Technology
5	BE7244	Object Oriented Modeling & Design

L-Lecturer, P-Practical, ESE- End Semester Examination, IM-Internal Marks

ADVANCED COMPUTER ARCHITECTURE

BE720

UNIT I

PIPELINE

Linear pipeline processor, Nonlinear pipeline processor, Instruction pipeline design, Mechanisms, Dynamic instruction scheduling, Arithmetic pipeline design, Super-scalar processors, VLIW architecture.

UNIT II

MEMORY HIERARCHY & I/O ORGANIZATION

Cache memories, Cache coherence, High bandwidth memories, High bandwidth I/O, Disk I/O, Bus specifications and standards.

UNIT III

PARALLEL COMPUTER MODELS & PROGRAM PARALLELISM

Classification of Machines, SISD, SIMD & MIMD, Condition of Parallelism, Data and Resource dependencies, Program partitioning & scheduling, Grain size latency, Control flow versus data control, Data flow architecture.

UNIT IV

SYNCHRONOUS PARALLEL PROCESSING

Vector instruction types, Vector access memory schemes, Vector and symbolic processors, SIMD architecture, SIMD parallel algorithms, SIMD computers and performance enhancements.

UNIT V

SYSTEM INTERCONNECTION

Network properties and routing, Static interconnection networks, Dynamic inter-connection networks, Multiprocessor system interconnection, Multistage & combining networks.

Text Books:

1. Flynn, computer Architecture: Pipelined and parallel processor design, JB, Boston.
2. Computer Architecture & Parallel processing - Kai Hwang & Briggs.(MGH).

Reference Books:

1. R.W. Hockney, C.R. Jesshope, "Parallel Computer 2 –Arch.&Algo.", Adam Hilger.
2. K. Hwang, "Advanced Computer Architecture with Parallel Programming", MGH.
3. Parallel computing- Theory and practice - Michael J Quinn- McGraw Hill

OPERATION RESEARCH

BE721

UNIT I

LINEAR PROGRAMMING

LP formulations, Graphical method for solving LP with 2 variables, Simplex method, Application of simplex method for maximization and minimization of LP problems, Artificial variable technique for finding the initial basic feasible solution, The Big-M method, Degeneracy in simplex method, Duality theory in LP, Dual simplex method.

UNIT II

TRANSPORTATION MODEL

North-West corner rule, Least cost method, Vogel's Approximation method, Modi Method, Assignment problem, Dynamic Programming: Basic concepts, Bellman's optimality principle, Dynamic programming approach in decision making, Optimal subdivision problem.

UNIT III

INVENTORY MODELS

Introduction to the inventory problem, Deterministic models, The classical EOQ (Economic order quantity) model, Purchasing model with no shortage, Manufacturing model with no shortage, purchasing model with shortage, Manufacturing model with shortage, Inventory models with probabilistic demand.

UNIT IV

SEQUENCING AND QUEUING THEORY

Sequencing problem, Johnson's algorithm for processing N-jobs through 2 machine problem, N-jobs through 3 machine problem, 2-job through N machine by graphical method, Characteristics of queuing system, Steady state M/M/1, M/M/1K and M/M/C queuing models.

UNIT V

CPM and PERT

Arrow network, Time estimation: Earliest expected time, Latest allowable occurrence time and slack, Critical path, Probability of meeting scheduled date of completion of project, Calculation on CPM network, Various floats for activities, Critical Path, Updating project, Operation time cost trade off curve & project time cost trade off curve, Selection of schedule based on cost analysis.

Text Books:

1. Operation Research-2ed, Panneerselvam, Prentice Hall of India
2. Operation Research: An Introduction - 8rd, Hamdy a. Taha, Prentice Hall of India

Reference Books:

1. Gillett B.E, Introduction to Operation Research- A Computer Oriented algorithmic approach, McGraw Hill.
2. Kanti Swarup, Gupta.P.K., Man Mohan, Operations Research, Sultan Chand & Sons.
3. Vohra N.D., Quantitative Techniques in Management, T.M.H., 1990.
4. Zojnts. S., Linear & Integer Programming, Prentice Hall, 1975.

NETWORK PROGRAMMING

BE722

UNIT I

NETWORKING & TCP/IP

Communication protocols, Network architecture, UUCP, XNS, IPX/SPX for LANs, TCP & IP headers, IPv4 & v6 address structures, Programming Applications: Time & date routines, Internet protocols: Application layer, Transport layer, Network layer, Data link layer protocols, Chat, Email, Web server working method & programming.

UNIT II

SOCKET PROGRAMMING

Creating sockets, Posix data type, Socket addresses, Assigning address to a socket, Java socket programming, Thread programming, Berkeley Sockets: Overview, socket address structures, byte manipulation & address conversion functions, elementary socket system calls—Socket, Connect, Bind, Listen, Accept, Fork, Exec, Close, TCP ports (ephemeral, reserved), Berkeley Sockets: I/O asynchronous & multiplexing models, Select & Poll functions, Signal & Fcntl functions, Socket implementation (client & server programs), UNIX domain protocols.

UNIT III

APIS & WINSOCK PROGRAMMING

Windows socket API, window socket & blocking I/O model, Blocking sockets, Blocking functions, Timeouts for blocking I/O, API overview, Different APIs & their programming technique, DLL & new API's, DLL issues, Java Beans.

UNIT IV

WEB PROGRAMMING & SECURITY

Java network programming, Packages, RMI, Overview of Java script, WAP architecture & WAP services, Web databases, Component technology, CORBA concept, CORBA architecture, CGI programming, Firewall & security technique, Cryptography, Digital Signature.

UNIT V

CLIENT SERVER PROGRAMMING

Client side programming: Creating sockets, Implementing generic network client, Parsing data using string Tokenizer, Retrieving file from an HTTP server, Retrieving web documents by using the URL class. Server side programming: Steps for creating server, Accepting connection from browsers, Creating an HTTP server, Adding multithreading to an HTTP server.

Text Books:-

1. Steven W. R: UNIX Network Programming, PHI (VOL I& II)
2. Window Socket Programming by Bobb Quinn and Dave Schutes

Reference Books :-

1. Davis R.: Windows Network Programming, Addison Wesley
2. NETWORK PROGRAMMING With Windows Socket By Baner .P., PH New Jersey

DIGITAL IMAGE PROCESSING

BE723

UNIT I

INTRODUCTION

Image formation model, Spatial & Gray level resolution, Image enhancement in special domain: Piecewise transformation functions, Histogram equalization, Histogram specification, image averaging, Spatial filter, Smoothing and sharpening, Laplacian filter, Canny edge detector.

UNIT II

IMAGE ENHANCEMENT IN FREQUENCY DOMAIN & IMAGE SEGMENTATION

2D Discrete fourier transform & its inverse, Filtering in frequency domain, Ideal & Gaussian low pass filters, High pass filtering, FFT, Line detection, Edge detection, Edge linking & boundary detection, Thresh holding, Region based segmentation.

UNIT III

MORPHOLOGICAL IMAGE PROCESSING

Logic operations involving binary image, Dialation & Erosion, Opening & Closing, Applications to Boundary extraction, Region filling, Connected component extraction.

UNIT IV

IMAGE COMPRESSION

Coding redundancy, Huffman coding, LZW coding, Run length coding, Lossy compression, DCT, JPEG, MPEG, Video compression.

UNIT V

IMAGE REPRESENTATION & 3D

Boundary descriptors, Shape numbers, Texture, Projective geometry, Correlation based and feature based stereo correspondence, shape from motion, Optical flow.

Text Books:-

1. Ganzalez and Woods, Digital Image Processing, Pearson education.
2. Sonka and Brooks, Image Processing, TSP ltd,

Reference Books:-

1. Jain and Rangachar, Machine Vision, MGH.
2. Schalkoff, Digital Image Processing, John Wiley and sons.

SOFT COMPUTING LAB BE725

1. WRITE MATLAB PROGRAM FOR FOLLOWING.
 - A. $AREA = \pi r^2$ (USING ARITHMETIC OPERATOR).
 - B. $y = \sin^2 \pi/3 + \cos^2 \pi/3$ (USING TRIGONOMETRY OPERATOR).
 - C. $y = \cos \pi/4 + i \sin \pi/4$ (USING COMPLEX NUMBER).
 - D. $y = \log_{10}(10^6)$ (USING LOGARITHMS OPERATOR).
2. Compute y- coordinates of a STRAIGHT LINE $y = mx + c$, where slope of line $m = 0.5$, intercept $c = -2$ and x- coordinates: $x = 0$ to 10 for 0.5 increments.
3. Create following vectors t with 10 elements 1 to 10.
 - a. $x = t \sin(t)$ [A MULTIPLE VECTORS }
 - b. $y = (t-1) / (t+1)$ [A DIVIDE VECTORS }
 - c. $z = [\sin(t^2) / (t^2)]$ [A EXPONENTIAL VECTORS }
4. PLOT $y = \sin x$ where $0 < x < 2$.
5. PLOT $y = e^{-0.4x} \sin x$ where $0 < x < 4$.
6. Write a script file to draw a unit circle.
7. Write a function factorial to compute the factorial $n!$ for any integer n .
8. Write a function factorial to compute the factorial $n!$ using RECURSION for any integer n .
9. Write a function file cross prod to compute the cross product of two vectors u and v .
10. Write a function to compute the geometric series $1 + r + r^2 + r^3 + \dots + r^n$ for given r and n .
11. Write a function that outputs a conversion – table for Celsius and Fahrenheit.
12. Write a function to compute the interest on your account for a given principle amount, period and rate of interest.
13. Check following linear algebra rule for three MATRIX A, B AND C of any ranks.
 - a. ADDITION COMMUTATIVE.
 - b. ADDITION ASSOCIATIVE.
 - c. MULTIPLICATION WITH A SCALAR DISTRIBUTIVE.
 - d. MULTIPLICATION WITH A MATRIX DISTRIBUTIVE
 - e. MATRIX ARE DIFFERENT FROM SCALAR.
14. Find the solution of following linear algebraic equations.
$$\begin{aligned}x + 2y + 3z &= 1 \\3x + 3y + 4z &= 1 \\2x + 3y + 3z &= 2\end{aligned}$$
15. Find Eigen values and eigenvector of a 3×3 matrix.

Text Books:

1. Matlab Programming: B BChaudhri & Singh ; Prentice Hall of India
2. Matlab- Rudrpratap
3. Matlab- Hamitre, Thompson publication

NETWORK PROGRAMMING LAB

BE726

List of Experiments to be performed (UNIX NETWORK PROGRAMMING)

1. Write an echo program with client and iterative server using TCP.
2. Write an echo program with client and concurrent server using TCP.
3. Write an echo program with client and concurrent server using UDP.
4. Write a client and server program for chatting.
5. Write a program to retrieve date and time using TCP.
6. Write a program to retrieve date and time using UDP.
7. Write a client and server routines showing Blocking I/O.
8. Write a client and server routines showing I/O multiplexing.
9. Write an echo client and server program using Unix domain stream socket.
10. Write an echo client and server program using Unix domain Datagram socket.
11. Write a client and server program to implement file transfer.
12. Write a client and server program to implement the remote command execution
13. Write a client program that gets a number from the user and sends the number to server for conversion into hexadecimal and gets the result from the server.

Text Book:

1. Steven.W.R: UNIX Network Programming, PHI (VOL I& II)

SOFTWARE TECHNOLOGY LAB-1

BE727

List of Experiments to be performed:

1. Write a program in ASP.Net using text box , control, multiline text box & password.
2. Write a program in ASP.Net using events in text box.
3. Write a program in ASP.Net using Labels, Text Box & Button Control.
4. Write a program in ASP.Net using Radio button.
5. Write a program in ASP.Net using Check box list.
6. Write a program in ASP.Net using Drop down list.
7. Write a program in ASP.Net using List box.
8. Write a program in ASP.Net using Data List controls.
9. Write a program in ASP.Net using Data List controls with styles.
10. Write a program in ASP.Net for validation in textbox.
11. Write a program in ASP.Net for insertion using ADO.NET.
12. Write a program in ASP.Net for Searching using ADO.NET.
13. Write a program in ASP.Net for Deletion using ADO.NET.
14. Write a program in ASP.Net for Updation using ADO.NET.
15. Write a program in ASP.Net using HTML Server Controls.
16. Write a program in ASP.Net using Web Server Controls.

Text/Reference Books:

1. Microsoft .NET, Microsoft Press
2. ASP.NET, Techmedia

MINOR PROJECT BE728

Allocation of project:

1. Information regarding broad area must be made available to the students well in advance (may be during previous semester).
2. Information must cover following parameters.
 - i. **Broad area:** Subject or expertise/application area.
 - ii. **Required skills:** Knowledge of subject(s), software, tools & other characteristics.
 - iii. **Type of project:** Hardware, software, design, survey, study based etc.
 - iv. **Guide available:** Name of Guide (S) from Department & Institute.
 - v. **Other related information** depending upon specific branch & institute.
3. It is also recommended to give proper counseling to pick up suitable project.
4. Students must get chance to select projects as per their choice or decided mutually between students and department faculty (HoD) concern.
5. One project group must contain maximum four students.

Monitoring of project:

1. It is recommended to give projects as per the specializations of existing faculty of the department instead of outside person/agency.
2. Project must be allocated, developed and monitored by department / institution itself, but not by outside agencies.
3. Regular review by guide is recommended to ensure development & contribution of students.

Internal Evaluation & Submission of project:

1. Evaluation of project would be as per the examination scheme of the University, which is based on internal as well as external evaluation.
2. Internal assessment requires submission of project report for getting approved by the concern authority. However printing and binding would be as per the conventional format.
3. Evaluation will be based on Live demonstration / presentation and Viva.
4. Final submission of project is expected as:
 - (a) One copy to the Institution central library,
 - (b) One copy to the department.

External Evaluation:

External assessment of project would be like conduction of practical exams of University, and must be executed as per the norms of practical exams.

CELLULAR & MOBILE COMPUTING

BE7240

UNIT I

INTRODUCTION TO MOBILE & WIRELESS DEVICES

Mobile and Wireless Devices, History, Applications, Simplified Reference Model, Wireless Transmission, Frequencies for Radio Transmission, Regulations, Signals, Antennas, Signal Propagation, Multiplexing, Modulation, Wireless LANs And Wireless WANs, Spread Spectrum, FHSS and DSSS Spread Spectrum Technology, Cellular Systems, Radio Spectrum, Cell Size and Achievable Throughput, Medium Access Control, Specialized MAC, SDMA, FDMA, TDMA, CDMA.

UNIT II

TELECOMMUNICATION & BROADCAST SYSTEMS

GSM: Services, System Architecture, Radio Interface, Protocols, Localization and Calling, Handover, Security. New Data Services: DECT, TETRA, UMTS & IMT-2000, CDPD, Data Over Analog and Digital Cellular, Paging and Two-Way Paging, Satellite Systems, Applications, GEO, LEO, MEO, Routing, Localization, Handover, Broadcast Systems, Cyclic Repetition of Data, Digital Audio Broadcasting.

UNIT III

WIRELESS NETWORKS

Wireless LAN, Hidden Nodes in Wireless Networks, Ordered MAC Techniques and Wireless Networks, Deterministic MACs for Wireless Networks, Comparison Of MAC Techniques for Wireless Networks, Infrared V/S Radio Transmission, IEEE 802.11: Architecture, Layers, Management, HIPERLAN, Bluetooth, Wireless ATM, Services, Reference Model, Functions, RAL, Handover, Location Management, Addressing, QOS, ACP.

UNIT IV

MOBILE NETWORK AND TRANSPORT LAYERS

Mobile Network Layer, Mobile IP, DHCP, ADHOC Networks, Mobile Transport Layer, Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP, Fast Transmit/Fast Recovery, Transmission/Time Out Freezing, Selective Retransmission, Transaction Oriented TCP.

UNIT V

MOBILE SYSTEM DEVELOPMENT & SUPPORT

File Systems: World Wide Web, HTTP, HTML, System Architecture, WAP & its Architecture, Wireless Datagram Protocol, Wireless Transport Layer Security, Wireless Transaction Protocol, Wireless Session Protocol, Wireless Application Environment, WML, WML script, Wireless Telephony Applications.

Text Books:-

1. Mobile Communications – Schiller, Jochen; 2nd Indian Reprint, Pearson Education Asia – Addison Wesley Longman PTE. Ltd.
2. Wireless and mobile network architecture, Chlamtac, John Wiley and Sons.

Reference Books:-

1. Mobile Data Wireless LAN Technologies – Dayem, Rifaat A.; Prentice Hall International.
2. The Essential Guide To Wireless Communication Applications – Dorman, A.; 1st Indian Reprint, Pearson Education Asia.

INTERNET & MULTIMEDIA TECHNOLOGY

BE7241

UNIT I

THEORY OF INTERNET

Introduction, Evolution of Internet, Internet applications, Internet Protocol: TCP/IP Protocol, Versions, Class full addressing, IP data gram, ICMP & IGMP. Functions of ARP and RARP, User Data gram Protocol (UDP), Transmission Control Protocol (TCP): Flow-Control, Error-Control.

UNIT II

BOUNDED MEDIA FOR INTERNET

Cable media, Telephone network, ISDN: Overview, Interfaces & functions, Physical Layer, Data Link Layer, Network Layer Services, Signaling System Number 7. ATM & B-ISDN: Introduction, Services & Applications, Principles & building blocks of B-ISDN, DIAS network.

UNIT III

UN-BOUNDED MEDIA FOR INTERNET

Wireless media: Components and working of Wireless network, IEEE 802.11 standards and WLAN types, Ad-hoc networks, MACAW Protocol, Features and Goals of Bluetooth, Bluetooth products and security, TCP over Wireless & Ipv6: Mobile IP, support of Mobility on the Internet, Mobile TCP, Traffic Routing in Wireless Networks, Circuit switched Data Services, Packet switched Data services. WLL Architecture, WLL Technologies and frequency spectrum, Local Multipoint Distribution Service (LMDS), Ultra Wideband Technology.

UNIT IV

INTRODUCTION TO MULTIMEDIA

Concept of Non-Temporal and Temporal Media, Hypertext and Hypermedia Presentations: Synchronization, Events, Scripts and Interactivity, Compression. Techniques: Basic concepts of Compression. Still Image Compression, JPEG Compression, Features of JPEG2000, Video Compression, MPEG-1&2 Compression Schemes, MPEG-4 Natural Video Compression. Audio Compression: Introduction to speech and Audio Compression, MP3 Compression Scheme, Compression of synthetic graphical objects.

UNIT V

MULTIMEDIA SYSTEMS TECHNOLOGY

Architecture for Multimedia Support: Multimedia PC/Workstation Architecture, Characteristics of MMX instruction set, I/O systems, IEEE 1394 interface, Operating System Support for Multimedia Data, Resource Scheduling with realtime considerations, File System, I/O Device Management. Multimedia Information Management: Multimedia Database Design, Content Based Information Retrieval, Image Retrieval, Video Retrieval, Overview of MPEG-7, Design of Video-on demand systems.

Text Books:-

1. TCP/IP Protocol Suite By Behrouz A. Forouzan. TMH.
2. Multimedia Concept & Practice, Hartman & Carey, PHI

Reference Books:-

1. Multimedia Technology, TAY Vaughan, McGraw-Hill
2. Virtual Reality Systems, John Vince, Addison Wesley
3. ATM Network by Rainer Handel, Manfred N Huber StijanSchoder, LPE.

NATURAL LANGUAGE PROCESSING

BE7242

UNIT I

INTRODUCTION & SYNTACTIC PROCESSING

The study of Language, Linguistic background, Grammars and Parsing, Features and Augmented Grammars, Grammars for Natural Language, Towards Efficient Parsing, Ambiguity Resolution.

UNIT II

SEMANTIC INTERPRETATION

Semantics and Logical Form, Linking Syntax and Semantics, Ambiguity Resolution, Strategies for Semantic Interpretation, Scoping and the Interpretation of Noun Phrases.

UNIT III

PRAGMATICS

Discourse: Reference Resolution, Syntactic and Semantic Coherence, Text Coherence, An Inference based resolution algorithm. Dialogue and Conversational Agents: What makes dialogue different? Dialogue structure and coherence.

UNIT IV

NATURAL LANGUAGE GENERATION

Introduction to language generation, Architecture for generation, Surface realization, Systemic grammar, Functional unification grammar, Discourse planning.

UNIT V

MACHINE TRANSLATION

Language Similarities and Differences transfer metaphor, Syntactic transformations, Lexical transfer, Idea of Interlingua, Direct translation using statistical Techniques.

Text Books:

1. Speech and Language Processing, by Jurafsky, D. & Martin, J.H.
2. Natural Language Understanding (2nd ed.), Allen, J

Reference Books:

1. Foundations of General Linguistics (2nd ed.) by Atkinson, M, Kilby, D A & Roca, I
2. An Introduction to Language (5th ed.), Fromkin, V & Rodman, R
3. Natural Language Processing for Prolog Programmers, by Covington, M A
4. Natural language processing in Prolog: an introduction to computational linguistics, By Gazdar, G & Mellish, C

SOFTWARE TECHNOLOGY

BE7243

UNIT I

ASSEMBLY LANGUAGE PROGRAMMING

Pentium Assembly Languages- Registers, Memory Model, Addressing mode, 1source Link, Installation, Assembler directives.

ASSEMBLER DESIGN: Simple manual Assembler, Assembler Design Process, Load and Go Assembler, Object File Formats.

UNIT II

LINKERS

Linking: Combining Object Modules, Pass I, Pass II, Library Linking, Position Independent Code (PIC), Shared Library Linking, LOADERS-Binary Image, Types of Loaders.

UNIT III

MACROPROCESSORS

Macro in NASM: Local Labels in Macro Body, Nested Macros, Design of Macro-processors , Major Data Structures, Macro-processing Technique, Simple macro processors without nesting, Nested calls & its definitions.

UNIT IV

COMPILERS

Lexical Analysis, Syntax Analysis, Intermediate Code Generation, Target Code Generation, Optimizing, Transformation.

UNIT V

TEXT EDITORS

Design of a Text Editor, Data Structures for Text Sequence, Text Document Design, and Text view Design.

DEBUGGER: Features, Breakpoint mechanism, Hardware support, Context of Debugger, Check pointing & reverse Execution.

Text Books:

1. SYSTEM SOFTWARE by Santanu Chattopadhyay ; Prentice Hall of India
2. Software Engineering By Roger S Pressman ; Mc -Graw Hill

Reference Books:

1. Foundations of Software Technology and Theoretical Computer Science, By V. (Venkatesh) Raman: Springer
2. Software Visualization by John Stasko; MIT press
3. Software Engineering By Rajib Mall : PHI

OBJECT ORIENTED MODELING & DESIGN

BE7244

UNIT I

Object Orientation, OMT Methodology, Object and Class, Link and Association Generalization, Aggregation, Multiple Inheritance, Packages.

UNIT II

Object Meta modeling, Metadata and Meta models, Functional Modeling Pseudo code, Pseudo code with the Object Navigation Notation, ONN Constructs, Combining ONN Constructs.

UNIT III

Analysis: Object Model, Data Dictionary, Dynamic Model, Functional Model.

UNIT IV

System Design: Devising an Architecture, Database Management Paradigm, Object Identity, Policies for Detailed Design Dealing with temporal data.

UNIT V

Detailed Design: Object Model Transformations, Elaborating the Object Model, Elaborating the Functional Model, Evaluating the Quality of a Design Model.

Reference Book:

1. Object-Oriented Modeling and Design by Michael Blaha/William Premerlani ,Prentice Hall