

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4101	3	1	3	3 HOURS	40	60	4

ADVANCED OPERATING SYSTEM

UNIT I

GENERAL OVERVIEW OF THE SYSTEM: Introduction to Multi user System, History of UNIX, features & Benefits, Variants, UNIX Commands - who, pwd, cd, mkdir, rm, rmdir, ls, mv, ln, chmod, cp, grep, tr, etc. Vi Editor: Command & edit Mode, Invoking Vi, deleting & inserting Line, Deleting & Replacing Character, Searching for Strings, Introduction to sed. Bourne Shell, C Shell, Shell Variables, Scripts, Meta Characters, If & CASE Statements, For, While and Until loops. AWK Pattern Scanning and Processing, AWK Arithmetic and Variables, built in functions and Operators, Arrays, Strings.

UNIT II

DESIGN OF OPERATING SYSTEM: System Structure, User Perspective, Operating System Services Assumption about Hardware, the Kernel and Buffer Cache Architecture of UNIX Operating System, System Concepts, Buffer Headers, Structure of the Buffer Pool, Scenarios for Retrieval of the Buffer, Reading and Writing Disk Blocks, Advantages and Disadvantages of Buffer Cache.

UNIT III

INTERNAL REPRESENTATION OF FILES: Overview of File system, System Calls for the File System, INODES, Structure of Regular File, Directories, Conversions of a Path, name to an INODE, Super Block, INODE Assignment to a New File, Allocation of Disk Blocks. Open, Read, Write, File and Record Close, File Creation.

UNIT IV

STRUCTURES OF PROCESSES AND PROCESS CONTROL: Process States and Transitions Layout of System Memory, The Context of a Process, Manipulation of the Process Address Space, Sleep Process Creation/Termination, The User ID of a Process, Changing the Size of a Process.

UNIT V

DISTRIBUTED OPERATING SYSTEM: Design of distributed OS, Resource sharing, Distributed OS architectures, software layers, Architectural Model, The Operating System Layer, Protection, Processes and Threads, Communication and invocation, Distributed File System: File Service Architecture, Sun Network File System, the Andrew File System, and Recent Advances.

List of Books:

1. The Design of Unix Operating System, Maurice J. Bach, Pearson Education
2. Advance UNIX, a Programmer's Guide, S. Prata, BPB Publications, New Delhi.
3. Shell Programming, Yashvant Kanitkar, BPB Publications, New Delhi.
4. UNIX Concepts and Applications, Sumitabh Das.
5. Distributed OS, A.S Tanenbaum, PHI.

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4102	3	1	3	3 HOURS	40	60	4

INTRODUCTION TO .NET TECHNOLOGY

UNIT I

Introduction to .NET framework, Managed Code and the CLR- Intermediate Language, Metadata and JIT Compilation, Automatic Memory Management, CLR, The Framework Class Library, IDE of .Net, Introduction to C# Language

UNIT II

.Net Elements, Variables and constants, Data types, Operators , Loops and Program flow, Decision statements Type, Arrays with various types , Collections , Windows Forms , Windows controls – Button, Check box, Combo box, Label, List box, Radio Button, Text box, Various Events , Creating menus – menu items – context menu - Common dialog boxes & MDI

UNIT III

Architecture of ADO.NET – ADO.NET providers – Connection – Command – Data Adapter – Dataset. Connecting to Data Source, Accessing Data with Data set and Data Reader - Create an ADO.NET application - Using Stored Procedures.

UNIT IV

ASP.NET Features, IIS Configuration, ASP.Net Web Controls - HTML Controls, Using Intrinsic Controls, Using Input Validation Controls, Selecting Controls for Applications - Adding Web controls to a Page.

UNIT V

XML Serialization in the .NET Framework, Introduction to Web services and AJAX, Crystal Reports.

List of Books:

1. Introduction to Visual basic.NET - NIIT Prentice Hall of India,2005
2. Introducing Microsoft .NET- David S. Platt Microsoft Press”, Saarc Edition, 2001
3. Introduction to Microsoft® ASP.NET Work Book - Microsoft- Microsoft Press
4. Developing XML Web Services Using Microsoft® ASP.NET -Microsoft- Microsoft Press
5. Designing Microsoft ASP.NET Applications-Douglas J. Reilly-Microsoft Press
6. ASP.NET-Danny Ryan and Tommy Ryan-Hungry Minds Maran Graphics

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4103	3	1	0	3 HOURS	40	60	4

DATA MINING & WAREHOUSING

UNIT I

Data ware Housing: What is a data warehouse?, definition, Multidimensional data model, OLAP operation, warehouse schema, data ware housing architecture, warehouse serve, metadata, OLAP, engine, Data warehousing backend process, other features.

Data Mining: what is data mining? KDD Vs. data mining, DBMS Vs DM other related areas, DM techniques, other mining problem, issues & challenges in DM, Dm application areas.

UNIT II

Association rules: Methods to discover association rules, apriori algorithm ,partition algorithm, pincer – search algorithm, Dynamic Item set counting algorithm, FP-tree Growth algorithm, Incremental algorithm, Border algorithm, hierarchical association rule, generalized association rules, Association rules with item constraints.

UNIT III

Clustering Techniques: Introduction, clustering paradigms, partitioning algorithms, k-Medoid Algorithm, CLARA, CLARANS, Hierarchical clustering, DBSCAN, BIRCH, CURE, Categorical clustering algorithms , STIRR, ROCK , CACTUS.

UNIT IV

Decision trees: Tree construction principal, Best spilt splitting indices, splitting criteria, Decision tree construction algorithm, CART, ID3, C4.5, CHAID, Decision tree construction with pre-sorting, rainforest, approximate method, CLOUDS, BOAT, pruning technique, integration of pruning & construction, Hierarchcal associatation rule.

UNIT V

Web Mining: Web mining ,web content mining ,web structure mining ,web usage mining ,text mining , unstructured text , Episode rule discovery for texts , Hierarchy of categories , text clustering , Paging algorithm.

List of Books:

1. Data Mining techniques – Arun K Pujari Universities press
2. Data Mining concepts & techniques – Jiawei han , Micheline kamber Morgan Kaufmann publisher Elsevier India –2001
3. Data Mining methods for knowledge Discovery –Cios , Pedrycz , swiniarski Kluwer academic publishers London –1998

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4111	3	1	0	3 HOURS	40	60	4

MULTIMEDIA SYSTEM DESIGN

UNIT I:

An introduction, Multimedia elements, Multimedia Applications, Multimedia System Architecture, Evolving Technologies for Multimedia Systems, Defining Objects for Multimedia systems, Multimedia Data Interface Standard, The need for data Compression, Multimedia databases.

UNIT II:

Compression and Decompression, Types of compression, Binary Image Compression schemes, Color, Gray Scale, Still-video image Compression, Video Image Compression, Audio Compression, Fractal Compression.

UNIT III:

Data and Format Standards, Rich-text Format, TIFF File Format, Resource Interchange File Format (RIFF), MIDI File Format, JPEG DIB File Format for still and Motion Images, MPEG standards Pen Input, Video and Image Display systems, Print Output Technologies, Image Scanners, Digital Voice and Audio, Digital Camera, Video Images and Animation, Full-Motion Video.

UNIT IV:

Storage and Retrieval Technologies, Magnetic Media Technology, Optical Media, Hierarchical Storage Management, Cache management for storage systems, Multimedia Application Design, Multimedia application classes, Types of multimedia systems, Components of multimedia systems, Organizing multimedia databases,

UNIT V:

Unified Communication, video conferencing and Chat, Multimedia Authoring and User Interface, Multimedia authoring system, Hypermedia application design consideration, User interface design, Object display/playback issues, Multimedia Operating Systems Introduction, real time, Resource management, process management, file systems.

List of Books:

1. Prabhat K.Andleigh & Kiran Thakrar, multimedia system design, Prentice PTR, NJ.
2. Ralf Steinmetz and Klara Nahrstedt multimedia computing communications and applications, innovating technology series by Pearson Edu. Asia.
3. Jerry D.Gibson, multimedia communications directions & innovations, Harcourt India Pvt.Ltd.
4. Borko, Handbook of multimedia computing,CRC Press.
5. Mark J.Bunzel Sandra K.Morris, multimedia applications development McGraw Hill.
6. Ze-Nian Li, Mark S.Drew, fundamentals of multimedia, by Pearson Edu. Asia

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4108	3	1	-	3 HOURS	40	60	4

WIRELESS SENSOR NETWORK

UNIT I

Wireless Sensor Network: Introduction, Architecture, Hardware and Software used in Wireless Sensor Network

UNIT II

Sensor network application: Motion monitoring, Environmental monitoring, Generic Architecture, Sensor network Evolution

UNIT III

Wireless Sensor Network : Design , Goals and Issues , Sensor deployment, Scheduling and coverage issues, self configuration and topology control, Querying, data collection and processing, Collaborative information processing and group connectivity.

UNIT IV

Wireless Sensor Routing Protocols: Data Centric, Hierarchical, Location based, Energy efficient routing,

UNIT V

Sensor Network Challenges – Miniaturization, power management, scalability, remote management, usability, standardization and security, System Challenges- Tiny OS, Network Sensor Platforms

List of Books:

1. Building Wireless Sensor Networks by Robert Faludi Binding: Paperback Publisher: O'reilly Released: 2011
2. Wireless Sensor Networksby Zhao Feng, Guibas Leonidas Binding: Paperback Publisher: Elsevier India Released: 2004
3. Wireless Sensor Networks by C. S Raghavendra, Krishna M. Sivalingam, Taieb Znati Binding: Paperback Publisher: Springer/bsp Books Released: Rpt.2010

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4109	3	1	0	3 HOURS	40	60	4

DIGITAL SIGNAL PROCESSING

UNIT I

Classification of Signals and systems, Classification of signals, Singularity Functions. Amplitude and Phase Spectra, Classification of System, Simple Manipulations of Discrete-time Signals, Representation of Systems, Analog-to-Digital Conversion of Signals. Z-Transforms -Introduction, Definition of the z-transform, Properties of z-transform, Evaluation of the Inverse z-transform.

UNIT II

Linear time invariant systems, Properties of a DSP System, Difference Equation and its Relationship with System Function, Impulse Response and Frequency Response, Frequency Response.

UNIT III

Discrete and fast Fourier transforms. Introduction, Discrete Convolution, Discrete-Time Fourier Transform (DTFT), Fast Fourier Transform (FFT). Computing of Inverse DFT by Direct DFT, Composite-radix FFT, Fast (sectioned) Convolution, Correlation.

UNIT IV

Finite impulse response (fir) filters Introduction, magnitude response and phase response of digital filters. Frequency response of Linear phase FIR filters, design techniques for FIR filters, design of optimal linear phase FIR filters.

Infinite impulse response (iir) filters Introduction, IIR filter designed by approximation of derivatives, IIR filter design by impulse invariant method, IIR filter design by the bilinear transformation, butter worth filters Chebyshev filters, Inverse Chebyshev filters, Elliptic filters, Frequency Transformation.

UNIT V

Realisation of digital linear systems Introduction, basic realisation block diagram, signal-flow graph, basic structures for IIR systems, basic structures for FIR systems applications of digital signal processing ;

Introduction, voice processing, application of radar, applications to image processing, Introduction to Wavelets.

List of Books:

1. Digital signal processing- S. Salivahanan, A. Vallavraj, C. Gnanapriya;TMH
2. Discrete time signal processing- A.V. Oppenheim, Schaffer.

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4110	3	1	0	3 HOURS	40	60	4

IMAGE PROCESSING

UNIT I

INTRODUCTION: digital image representation, electromagnetic spectrum, fundamental step in digital image processing, elements of visual perception structure of human eye, sampling and quantization, basic relationship between pixels, imaging geometry

UNIT II

STATISTICAL PROPERTIES: Histogram means, standard deviation, profile different distributions.
IMAGE TRANSFORM: One and two dimensional DFT the discrete cosine transform, hadamard transform, haar transform

UNIT III

IMAGE ENHANCEMENT: Spatial and frequency domain methods points operations, contrast stretching, bit extraction, range compression, histogram equalization, modification local enhancement, image smoothing spatial operations

UNIT IV

IMAGE RESTORATION: degradation model, Restoration in spatial domain geometric transformation spatial transformation, approach to restoration, image compression: basic of image compression, models, elements of information theory, error free compression, lossy compression,

IMAGE SEGMENTATION: line detection, edge detection, thresholding & region oriented segmentation.

UNIT V

APPLICATION OF IMAGE PROCESSING: Character recognition, diagram understanding, medical imaging, scientific analysis, military guidance & reconnaissance remote sensing, telecommunication, example of field that uses digital image processing

List of Books:

1. Gonzales & Woods, digital image processing Addison Wesley, 1992.
2. Pratt, digital image processing Wiley Int. 1991.
3. Sid Ahmed digital image processing McGraw Hill, 1995.

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4112	3	1	0	3 HOURS	40	60	4

REAL TIME SYSTEM

UNIT I

TYPICAL REAL TIME: Application Digital control High-level control, signal processing, Other Real time Application hard versus soft real time system jobs and processors, release times, deadlines, and timing constraints, hard and soft timing constraints, hard real time system, soft real time systems.

UNIT II

A REFERENCE MODEL OF REAL TIME SYSTEMS Processors and resources, temporal parameters of real-time workload, periodic task model, precedence constraints and data dependency, other type of dependencies, functional parameters, resource parameters of jobs and parameters of resources, scheduling hierarchy commonly used approaches to real-time scheduling Clock-driven approach, weighted round robin approach, priority driven, approach, dynamic versus static system, effective release times and deadlines. Optimative of the EDF and LST algorithms, nonoptimality of the EDF and the LST algorithms, challenges in validating timing constraints, in priority-driven system Off-line versus On-Line Scheduling.

UNIT III

CLOCK-DRIVEN SCHEDULING: Notations and assumptions, static, timer-driven scheduler, general structure of cyclic schedules, cyclic executives, improving the average response time of a periodic jobs, practical considerations and generalizations, algorithm for constructing static schedules, pros and cons of clock-driven scheduling priority-driven scheduling of periodic tasks static assumption, fixed priority versus dynamic priority algorithm maximum schedulable utilization, optimality of the RM and DM algorithms. A schedulability test for fixed priority tasks, with short response times sufficient schedulability condition for the RM and DM algorithm.

UNIT IV

SCHEDULING APERIODIC AND SPORADIC JOBS IN PRIORITY-DRIVEN SYSTEMS: Assumption and approaches, deferrable server, sporadic server, constant utilisation. Total bandwidth, and weighted, fair-queuing server slack stealing in deadline driven system? Slack stealing in fixed-priority system. Scheduling of sporadic jobs, real-time performance for jobs with soft timing constraints, A two-level scheme for integrated scheduling resources and resource access control assumptions on resources and their usage, effect of resource contention and resource access control, nonpreemptive critical sections, basic priority inheritance protocol, basic priority ceiling protocol, stack based, priority ceiling (ceiling priority) protocol, use of priority ceiling protocol in dynamic priority system, pre-emption ceiling protocol, controlling accesses to multiple unit recourses, controlling concurrent accesses to data objects.

UNIT V

TIPROCESSOR SCHEDULING, RESOURCE ACCESS CONTROL, AND SYNCHRONIZATION: Model of multiprocessor and distributed system, task assignment, multiprocessor priority ceiling protocol,

foment of scheduling algorithm for end-to-end periodic task, schedulability of fixed priority end-to-end periodic task, end-to-end task in heterogeneous system, predictability and validation of dynamic multiprocessor system scheduling flexible computations and tasks with temporal distance constraints.

Flexible applications, tasks with temporal distance constraints REAL-TIME communications model of real-time communication. Priority-based service disciplines for switched networks, weighted round-robin service disciplines, medium access control protocol of broad-cast networks, internet and resource reservation protocols, real-time protocol, and communication in multicomputer system.

OPERATING SYSTEM Overview, time services and scheduling mechanisms, other basic operating system functions, processor reserves and resources kernel, open system architecture, capabilities of commercial real-time operating system

List of Books:

1. Jane W.S.Liu.pearson education India.

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4113	3	1	0	3 HOURS	40	60	4

ADVANCED DATABASE DESIGN

UNIT I

OBJECT ORIENTED DATABASE Need, object oriented data model, object oriented languages, Object Relational Databases Nested relations, Inheritance, Reference types, Junctions & procedures, object oriented versus object relational.

UNIT II

XML Database Structure of XML data, XML Document Scheme, Querying and Transformation, Storage of XML data, Applications.

UNIT III

Distributed Databases Homogeneous and heterogeneous, Distributed data storage, Distributed transactions, Commit protocols, Concurrency control in distributed databases, Heterogeneous distributed databases.

UNIT IV

Parallel Databases Introduction, I/O parallelism, Inter query parallelism, Intra query parallelism, intra-operation parallelism, Inter operation parallelism.

UNIT V

Advanced Transaction Processing Transaction processing monitors, Transactional workflows, Real time transaction systems, Long duration transactions.

List of Books:

2. C.J.Date, Introduction to database systems, Seventh edition, Pearson Education Asia.
3. Elmasri & Navathe, Fundamentals of database systems, 3rd Edition, Pearson Education Asia.
4. Silbersshetz, Korth, Sudarshan, Database system concepts, 4th edition, Mcgraw Hill.

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4114	3	1	0	3 HOURS	40	60	4

WEB TECHNOLOGY & E-COMMERCE

UNIT I

Fundamentals of Web, History of the Web, Growth of the Web in post decade, Web function. Security aspects on the web, Computational features encompassing the Web. Working Web Browsers, concepts of search Engines, Searching the Web, Web Servers.

UNIT II

HTML: - Introduction, , content positioning HTML content, Layer object, Handling events using localized scripts, Animating images,HTML List,HTML Table & DHTML. Cascading style sheets.

UNIT III

Active Server Page(ASP) Introduction , Internet Information System , Basic authentication , active server page, asp objects , server objects , file system objects , session ,accessing database with an ASP page, create an ODBC ADO connection object, common methods & Properties events , ADO record set object.

UNIT IV

XML: Introduction, difference between XML & HTML, building application with XML, XML schemas. DTD & XSLT.

UNIT V

Security of E-Commerce transactions, E-Commerce models- B2B, B2C, review of cryptographic tools, authentication,signatures, observers, anonymity, privacy, tractability, key certification, managementetc., EDI, Payment protocols and standards, smart card, e-card, e-wallet technologies, electronic money and electronic payment systems.

List of Books:

1. Minoli and Minoli, Web technology and Commerce, TMH
2. Web Technology, Achyut Godbole, Atul Kahate, TMH
3. Principles of Web Design, Sklar, Cengage
4. Electronic Commerce, Schneider, cengage Learn
5. The E-Business revolution, Daniel Amor, PHI
6. E-Government, Satyanarayana, PHI
7. E-Commerce, Greenstein, TMH
8. Koisur David : Electronic Commerce, Microsoft
9. Ravi Kalakota : Frontiers of Electronic commerce

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4115	3	1	0	3 HOURS	40	60	4

COMPILER DESIGN

UNIT I

Overview of translation process. Lexical analysis: Hand coding and automatic generation of lexical analyzers.

UNIT II

Parsing theory: Top down and bottom of parsing algorithms. Automatic generation of parsers.
Intermediate code generation: Different intermediate forms. Syntax directed translation mechanism and attributed definition.

UNIT III

Run Time Theory Management: static memory allocation and stack based memory allocation schemes. Symbol table management.

UNIT IV

Code Generation: Machine model, order of evaluation, registers allocation and code selection.

UNIT V

Code Optimization: Global data flow analyses, A few selected optimizations like constant expression removal, loop invariant code motion, strength reduction etc.

List of Books:

1. A.V.Aho, Ravi Sethi, J.D.Ullman, Compilers tools and Techniques, Addison Wesley,
2. D.M.Dhamdhare, Compiler Construction-Principles and practice Macmillan, India,
3. Tremblay J.P. and Sorenson, P.G. the theory and practice of compiler writing, Mc Graw Hil,
4. Waite W.N. and Goos G., Compiler construction' springer verlag

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4201	3	1	3	3 HOURS	40	60	4

ARTIFICIAL INTELLIGENCE & EXPERT SYSTEMS

UNIT I

Introduction: AI definition, structure, Application; Production systems-state space search, control strategies, Application; Search methods: Heuristic search, forward and backward reasoning, Hill climbing techniques, Breadth first search, Depth first search, Best search, Game playing.

UNIT II

Formal Methods: Predicate logic, Resolution question-answering, alpha-beta pruning, mini-max search, statistical and probabilistic reasoning; Informal Methods : Rule based system, frames and scripts, Semantic Nets, conceptual dependency, conceptual graphs.

Unit III

Reasoning: Automated reasoning, Monotonic & Nonmonotonic Reasoning, Default Logic , Probabilistic reasoning ,Bayesian Network, confidence factor, System Interface.

AI languages: Important characteristics of AI languages - PROLOG, LISP.

Unit IV

Introduction to Expert Systems: Structure of an Expert system, Interaction with an expert, Expert system shell, Design of an Expert system, Hardware & software components of Expert system, Application of Expert system in various fields.

Unit V

Neural Network: Basic Structure of a neuron, Perception, Feed forward, Feed back network, Recurrent network; Associative Network: Hopfield, Radial Basis function network, Self organising network.

List of Books:

1. Rich E and Knight K - Artificial Intelligence, TMH New Delhi.
2. Patterson -Artificial Intelligence & Expert System Prentice Hall of India.
3. Artificial Intelligence - R.B. Mishra ,Prentice Hall of India.

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4202	3	1	3	3 HOURS	40	60	4

INFORMATION AND NETWORK SECURITY

UNIT I

A Model for Network Security Services, Mechanisms, and Attacks, Viruses & Worms, The OSI Security Architecture, symmetric cipher model, substitution techniques Transposition techniques, Steganography.

UNIT II

Block ciphers and the data encryption standard , simplified DES , Block cipher principles , The data Encryption Standard , Differential and Linear Cryptanalysis ,Block Cipher Design principles , The AES cipher , Triple DES , blowfish , RC5, Rc4 Stream Cipher

UNIT III

principles of public –Key Cryptosystems , public –Key cryptosystems , Requirements for public –Key Cryptosystems, The RSA Algorithm , Key management , key Distribution ,Hash Functions SHA, MD5. Diffie-Hellman Key Exchange Algorithm

UNIT IV

WEB & IP Security: Web Security Threats, SSL Architecture, SSL Record Protocol, Alert Protocol , Handshake Protocol , Transport Layer Security , Secure Electronic Transaction , IP Security

UNIT V

Intruders : Intrusion Techniques ,Intrusion Detection , Audit Records , Firewall Design principles , Firewall Characteristics , Types of Firewalls .

List of Books:

1. Cryptography and Network Security, Principles and Practice Third edition , William Stallings .
2. Atul Kahate, “ Cryptography and Network Security,” TMH
3. Introduction to network security, Krawetz, Cengage

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4203	3	1	0	3 HOURS	40	60	4

MANAGEMENT INFORMATION SYSTEM

UNIT I

Introduction Of Information System: MIS concept, definition of MIS, role of MIS, MIS and its user, MIS as control system, business Organisation as a system, types of Business system, Approaches of MIS development-top down and bottom up.

UNIT II

Strategic management of business:- Concept of corporate planning, need of strategic planning, types of Strategic short range planning, tools of planning, strategic analysis of business,

UNIT III

Information Recourse Management: Principle of IRM, IRM objective, functional control of IRM, organization of information resource function, application scarce IS resources, A proactive CIO Strategy.

UNIT IV

Information System for Business Operations: Cross Functional Information System, A study of major Financial, Production, Human Resource Information System and Marketing Information System, Inventory Information System.

UNIT V

Management of Information System and End User Computing, Security and Ethical issues of Information System, Major issues in Information System, case studies, MIS Applications.

List of Books:

1. Management Information System: Solving Business Problems with Information Technology by Gerald V., Post and David L. Anderson [Tata McGraw - Hill Edition]
2. Management Information System : Managing Information Technology in the Internet worked Enterprise by James A. O'Brien [Tata Mcgraw -Hill Edition , Fourth Edition]
3. Management Information System : A Contemporary Perspective by Kenneth C. Laudon and Jane Price Laudon [Maxwell Macmilan International Editions]

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4212	3	1	-	3 HOURS	40	60	4

INTERNETWORKING AND NETWORK PROGRAMMING

UNIT I

Networking & TCP/IP: Communication protocols, Network architecture, TCP & IP headers, IPv4 & IPv6 address structures, Programming Applications: Time & date routines, Internet protocols: Application layer, Transport layer, Network layer, Datalink 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, 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).

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.

UNIT IV

Java network programming: Java socket programming, packages, RMI, Overview of Javascript and JSP, CORBA concept, CORBA architecture.

UNIT V

Internet Programming: Creating a Web server, adding multithreading to an HTTP server. Parsing data using string Tokenizer, Retrieving file from an HTTP server, Retrieving web documents by using the URL class, CGI programming.

List of Books:

1. Steven.W.R: UNIX Network Programming, PHI (VOL I& II)
2. Window Socket Programming by Bobb Quinn and Dave Schutes
3. Davis.R.: Windows Network Programming, Addison Wesley
4. NETWORK PROGRAMMING With Windows Socket By Baner .P., PHI

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4207	3	1	0	3 HOURS	40	60	4

SOFTWARE TESTING AND QUALITY MANAGEMENT

UNIT I

Software Quality: Ethical Basis for software Quality , Total quality Management Principles, Software Processes and Methodologies , Quality Standards , Practices & conventions, Top Down and Bottom Up Approach.

UNIT II

Software management Reviews and Audits, Enterprise Resource Planning Software, Measurement Theory , Software Quality Metrics, designing Software Measurement Programs , Organizational Learning.

UNIT III

Improving Quality with methodologies: Structured information Engineering , Object-Oriented Software , Reverse Engineering , Measuring Customer Satisfaction Defect Prevention , Reliability Models , Reliability Growth Models .

UNIT IV

Software Quality Engineering: Defining Quality Requirements Management, Complexity Metrics and Models, Management issues for software Quality, Project Tracking and Oversight, Use of CASE tool Technology, Role of Groupware, data Quality Control.

UNIT V

Project Configuration management: Configuration Management Concepts, Configuration Management Process, Document Control, Configuration Management plan of the WAR Project.

List of Books:

1. Stephan Kan, Metrics and Models in Software quality, Addison Wesley.
2. Mark Paulik, The capability Maturity Model-guidelines for improving the software Process, Addison Wesley.
3. Michael, Deutsch, Willis, Ronald r-Software Quality Engineering- A Total Technical and Management approach, Prentice Hall.
4. Ginac, Frank P, Customer Oriented Software Quality Insurance, Prentice Hall.
5. Wilson, Rodney C, Software RX secrets of Engineering Quality Software, Prentice Hall.
6. Pressman, Software Engineering-A practitioner's approach
7. Pankaj Jalote, CMM Project

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4208	3	1	0	3 HOURS	40	60	4

INFORMATION TECHNOLOGY FOR AUTOMATION

UNIT I

Basic concepts: Information science technology and automation principles

UNIT II

Computerization and networking: Basic computer communication and interconnection mechanism. Network topology. Networking protocols.

UNIT III

Industrial automation: Flexible manufacturing systems. .Process automation, Design of a distributed architecture for the information processing in different units, plants and factories in an industrial set up

UNIT IV

Office automation: Design and development of a centralized and distributed architecture in different administrative sectors of an organization (University, enterprises and Air traffic system)

UNIT V

Hospital information System: design of different inter connected modules for registration, medical consultancy, ward management, patient care and staff management in a hospital. Tele medicine: web based system for distant medical care.

List of Books:

1. Modern Industrial Automation Software design: Principles and Real-World Applications- By Ling Feng Wong, Kay Chen Tan Publisher John Wiley and sons.
2. Software for automation: Architecture, Integration, and Security, By Jonas Berge, ISA

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4209	3	1	0	3 HOURS	40	60	4

GRID AND CLOUD COMPUTING

UNIT I

Cloud Computing, History of Cloud Computing, Cloud Architecture, Cloud Storage, Why Cloud Computing Matters, Advantages of Cloud Computing, Disadvantages of Cloud Computing, Companies in the Cloud Today, Cloud Services

UNIT II

Web-Based Application, Pros and Cons of Cloud Service Development, Types of Cloud Service Development Infrastructure as a Service, Introduction, Resource Virtualization Server, Storage, Network

UNIT III

On-Demand Computing, Discovering Cloud Services, Development Services and Tools, Amazon Ec2, Google App Engine, IBM Clouds Centralizing Email Communications, Cloud Computing for the Community , Collaborating on Group Projects and Events, Cloud Computing for the Corporation.

UNIT IV

Grid Computing: History, Definition, Types, Architecture and Goals

UNIT V

Applications and Challenges of Grid Computing, Providers of Grid Computing

List of Books:

1. Michael Miller, Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online, Que Publishing, August 2008.
2. Haley Beard, Cloud Computing Best Practices for Managing and Measuring Processes for On-demand Computing.
3. Viktors Berstis , Grid Computing : IBM Red Book

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4210	3	1	0	3 HOURS	40	60	4

CYBER CRIME AND LAWS

UNIT I

Introduction to Cyber Law Evolution of Computer Technology, emergence of Cyber space. Cyber Jurisprudence, Jurisprudence and law, Doctrinal approach, Consensual approach, Real Approach, Cyber Ethics, Cyber Jurisdiction, Hierarchy of courts, Civil and criminal jurisdictions, Cyberspace- Web space, Web hosting and web Development agreement, Legal and Technological Significance of Domain Names

UNIT II

Information technology Act Overview of IT Act, 2000, Amendments and Limitations of IT Act, Digital Signatures, Cryptographic Algorithm, Public Cryptography, Private Cryptography, Electronic Governance, Legal Recognition of Electronic Records, Legal Recognition of Digital Signature, Certifying Authorities, Cyber Crime and Offences, Network Service Providers Liability, Cyber Regulations Appellate Tribunal, Penalties and Adjudication.

UNIT III

Cyber law and related Legislation Patent Law, Trademark Law, Copyright, Software, Copyright or Patented, Domain Names and Copyright disputes, Electronic Data Base and its Protection, IT Act and Civil Procedure Code, IT Act and Criminal Procedural Code, Relevant Sections of Indian Evidence Act, Relevant Sections of Bankers Book Evidence Act, Relevant Sections of Indian Penal Code, Relevant Sections of Reserve Bank of India Act, Law Relating To Employees And Internet, Alternative Dispute Resolution , Online Dispute Resolution (ODR).

UNIT IV

Cyber Security: Definition, Architecture, Types, Policies, Prevention and Attacks.

UNIT V

Application area: business, taxation, electronic payments, supply chain, EDI, E-markets, Emerging Trends

List of Books:

1. Cyber Laws: Intellectual property & E Commerce, Security- Kumar K, dominant Publisher
2. Information Security policy & implementation Issues, NIIT, PHI
3. Cyber CRIME notorious Aspects of the Humans & net Criminals activity in Cyber World Barna Y Dayal D P Dominant Publisher
4. Cyber Crime Impact in the new millennium, Marine R.C. Auther press
5. Spam Attack, Cyber Stalking & abuse, Barna Y, Dayal D P Dominant publisher
6. Frauds & Financial criouses in Cyber space, Barna Y, Dayal D P , Dominant publisher
7. Information Security , NIIT: PHI

SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
IT4211	3	1	-	3 HOURS	40	60	4

ADVANCED COMPUTER ARCHITECTURE

UNIT I:

Flynn's Classification, 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 interconnection networks, Multiprocessor system interconnection, Multistage & combining networks.

List of Books:

1. Flynn, computer Architecture: Pipelined and parallel processor design, JB, Boston.
2. Computer Architecture & Parallel processing - Kai Hwang 7 Briggs. (MGH).
3. R.W. Hockney, C.R. Jesshope, "Parallel Computer 2 –Arch.& Algo.", Adam Hilger.
4. K. Hwang, "Advanced Computer Architecture with ParallelProgramming", MGH.
5. Parallel computing- Theory and practice - Michael J Quinn- Mc Graw Hill