

Jabalpur Engineering College, Jabalpur
(Declared Autonomous by MP Govt., Affiliated to RGPV, Bhopal)
(AICTE Model Curriculum Based Scheme)
Bachelor of Technology (B.Tech.) V Semester (Information Technology)

w.e.f. July 2023

S.No.	Subject Code	Category Code	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours Per Week			Total Credits
				Theory			Practical			L	T	P	
				End. Sem.	Mid Sem. Exam.	Quiz/ Assignment	End Sem.	Lab Work					
1	IT51	PEC	Professional Elective Course-I	70	20	10	-	-	100	3	1	-	4
2	IT52	PCC	Computer Network	70	20	10	30	20	150	3	-	2	4
3	IT53	PCC	Operating System	70	20	10	30	20	150	3	-	2	4
4	IT54	PCC	Data Base Management System	70	20	10	30	20	150	3	-	2	4
5	IT55	PCC	Internet and Web Technology	70	20	10	-	-	100	3	1	-	4
	BT51	HSMC	Professional Ethics (Audit Subject)	-	-	-	-	-	-	2	-	-	-
Total				350	100	50	90	60	650	17	2	6	20
6	IT56	DLC	Self-Learning Presentation (SWAYAM/NPTEL/MOOC)	-	-	-	-	-	-	-	-	-	8
7	IT57	MC	NSS/NCC/Swathhata Abhiyan/Rural Outreach	Qualifier									
Additional Course for Honours or Minor Specialization				Permitted to opt for maximum 8 credits against additional MOOC courses in subject code IT56 for the award of Honours (Minor Specialization).									

Note: 01. Departmental BOS will decide list of three/four optional subjects those are available in MOOC as well for PEC.
02. MOOC/NPTEL subjects shall be taken with permission of HOD/Coordinator.

Professional Elective Course-I		
S.No.	Subject Code	Subject Name
1	IT51A	Automata and Compiler Design
2	IT51B	Computer Graphics and Multimedia
3	IT51C	Management Information System

1 hour lecture (L) = 1 credit

1 hour Tutorial (T) = 1 credit

2 hour Practical (P) = 1 credit

PEC: Professional Elective Course, PCC: Professional Core Course, DLC: Distance Learning Course, MC: Mandatory Course


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		End Sem	Mid Sem Exam	Quiz Assignment	End Sem	Lab Work					
IT51A	Automata And Compiler Design	70	20	10	-	-	100	3	1	-	4

Module I

Introduction: Alphabets, Strings and Languages; Automata and Grammars, Deterministic finite Automata (DFA)- Formal Definition, Simplified notation: State transition graph, Transition table, Language of DFA, Nondeterministic finite Automata (NFA), Equivalence of NFA and DFA, Minimization of Finite Automata, Regular expression, Regular Grammar, Regular languages, closure properties of Regular languages.

Module II

Context free grammars, Properties of context free languages. Pushdown Automata: Non deterministic push down automata: Definition of a push down automata, the language accepted by a push down automata, Push down automata for context free languages, CFG's for PDA, Deterministic Push down automata and Deterministic Context free languages.

Module III

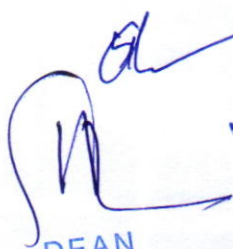
Compiler Structure: Compilers and Translators, Various Phases of Compiler. Lexical Analysis: The role of Lexical Analyzer, A simple approach to the design of Lexical Analyzer, Implementation of Lexical Analyzer. The Syntactic Specification of Programming Languages: CFG, Derivation and Parse tree, Ambiguity, Capabilities of CFG. Basic Parsing Techniques: Top-Down parsers with backtracking, Recursive Descent Parsers, Predictive Parsers, Bottom-up Parsers, Shift-Reduce Parsing, Operator Precedence Parsers, LR parsers (SLR, Canonical LR, LALR).

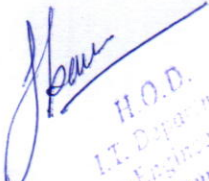
Module IV

Intermediate Code Generation: Different Intermediate forms: three address code, Quadruples & Triples. Syntax Directed translation mechanism and attributed definition. Translation of Declaration, Assignment control flow, Boolean expression, Array References in arithmetic expressions, procedure calls, case statements, postfix translation.

Module V

Run Time Memory Management: Static and Dynamic storage allocation, stack based memory allocation schemes, Symbol Table management. Code Optimization and Code Generation: Local optimization, Loop optimization, Peephole optimization, Basic blocks and flow graphs, DAG, Data flow analyzer, Machine Model, Order of evaluation, Register allocation and code selection.


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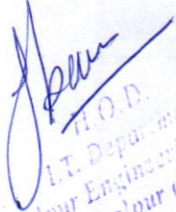
References Books :

1. Louden, "Compiler construction", Cengage learning .
2. Alfred V Aho, Jeffrey D. Ullman, "Principles of Compiler Design", Narosa.
3. A.V. Aho, R. Sethi and J.D Ullman, "Compiler: principle, Techniques and Tools", AW.
4. Michal Sipser, "Theory of Computation", Cengage learning.
5. H.C. Holub, "Compiler Design in C", Prentice Hall Inc.

Course Outcomes:

- CO 1. Illustrate the concept of Automata and Compiler Design and minimization of finite Automata.
- CO 2. Formulate using CFC's for PDA and NPDA concept also define push down Automata.
- CO 3. To understand compiler structure and basic parsing techniques.
- CO 4. Classify intermediate Code Generation Techniques.
- CO 5. Explain Run time memory management and data flow analyzer machine model.



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IT51B	Computer Graphics and Multimedia	70	20	10	-	-	100	3	1	-	4

Module I

Fundamentals: Introduction to Raster Scan displays, Pixels, Frame buffer, Vector & Character generation, Random Scan systems, Display devices, Scan Conversion techniques, Line Drawing: simple DDA, Bresenham's Algorithm, Circle Drawing Algorithms: Midpoint Circle drawing and Bresenham's Algorithm, Polygon fill algorithm: Boundary-fill and Flood-fill algorithms.

Module II

2-D Transformation: -1 Translation, Rotation, Scaling, Shearing, Reflection. Inverse Transformation, Homogenous coordinate - system, Matrices Transformation, Composite Transformation. Windowing & Clipping: World Coordinate System, Screen Coordinate System, Viewing Transformation, Line Clipping & Polygon Clipping Algorithms.

Module III

3-D Transformations: Translation, Rotation and Scaling. Parallel & Perspective Projection: Types of Parallel & Perspective Projection, Hidden Surface elimination: Depth comparison, Back face detection algorithm, Painter's Algorithm, Z-Buffer Algorithm.

Module IV


Curve Generation and color model: Curve generation, Bezier and Bspline methods. Basic Illumination Model: Diffuse reflection, specular reflection, Phong Shading, Guard shading, Ray Tracing, Color models like RGB, YIQ, CMY, HSV.

Module V

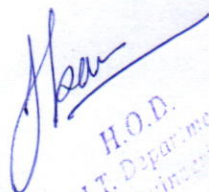
Multimedia & Animation: Text -Types, Unicode Standard, text Compression, Text file formats, Audio file formats, Image file formats, Digital Video processing, Video file formats. Compression techniques. Animation: Principles of Animation, Computer based animation, 2D and 3D Animation, Animation file formats, Animation software.

Reference Books:

1. Rogers, "Procedural Elements of Computer Graphics", Tata McGraw Hill.
2. Donald Hearri and M.P. Bgcker "Computer Graphics" Pearson Pub.
3. Parekh "Principles of Multimedia" Tata McGraw Hill.


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Course Outcomes:

- CO 1. Calculate and determine various scan conversion algorithms.
- CO 2. Compare various clipping and windowing techniques.
- CO 3. Understanding to identify basic illumination models.
- CO 4. Understanding various Curve Generation Techniques and color models.
- CO 5. Familiarizing with various multimedia formats.

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IT51C	Management Information System	70	20	10	-	-	100	3	1	-	4

Module I

Information System and Organization: Matching the Information System Plan to the Organizational Strategic Plan – Identifying. Key Organizational Objective and Processes and Developing an Information System. Development – User role in Systems Development Process – Maintainability and Recoverability in System Design.

Module II

Representation And Analysis Of System Structure: Models for Representing Systems- Mathematical, Graphical and Hierarchical (Organization Chart, Tree Diagram) Information Flow, Process Flow Methods and Heuristics, Decomposition and Aggregation, Information Architecture, Application of System Representation to Case Studies.

Module III

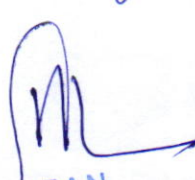
Systems, Information And Decision Theory: Information Theory – Information Content and Redundancy – Classification and Compression – Summarizing and Filtering – Inferences and Uncertainty – Identifying Information needed to Support Decision Making – Human Factors – Problem characteristics and Information System Capabilities in Decision Making. Decision Support Systems for Business Intelligence, Case Study- Business Intelligence tools i.e. IBM Cognos, Microsoft Business Intelligence tools.


Module IV

Information System Application Transaction Processing Applications – Basic Accounting Application – Applications for Budgeting and Planning – Other use of Information Technology: Automation – Word Processing – Electronic Mail – Evaluation Remote Conferencing and Graphics – System and Selection – Cost Benefit – Centralized versus Decentralized Allocation Mechanism.

Module V

Development And Maintenance Of Information Systems: Systems analysis and design – System development life cycle – Limitation – End User Development – Managing End Users– off– the shelf software packages – Outsourcing – Comparison of different methodologies.


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Text Books:



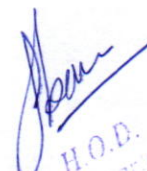
1. Laudon K.C, Laudon J.P, Brabston M.E, "Management Information Systems - Managing the digital firm", Pearson Education, 2004.


References Books:

1. Turban E.F, Potter R.E, "Introduction to Information Technology"; Wiley, 2004.
2. Jeffrey A.Hoffer, Joey F.George, Joseph S. Valachich, "Modern Systems Analysis and Design", Third Edition, Prentice Hall, 2002.

Course Outcomes:

- CO 1. Identify key organizational objectives and processes for developing an Information system
- CO 2. Analyze the models for the representing systems.
- CO 3. Determine and identify information needed to support decision making.
- CO 4. Understanding Transaction Processing Applications based MIS.
- CO 5. Development and maintenance of information systems.




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IT52	Computer Network	70	20	10	30	20	150	3	-	2	4

Module I

Importance of computer networks, broadcast and point to point networks, Local area networks and Wide area networks, Introduction to ISO-OSI reference model, TCP/IP reference model function of each layer, interfaces and services, Protocol data Module, connection oriented and connectionless services, service primitives, comparison of TCP/IP and ISO-OSI reference model, Novel Network, Arpanet, X.25.

Module II

Data-Link layer: - Data link layer design issues, framing, flow & error control, physical addressing, Stop & Wait protocol, Go back N ARQ, selective repeat ARQ, piggybacking and pipelining, HDLC LAN Protocol stack-Logical link control and Media Access Control sub layer, IEEE 802.2 LLC Frame format Data link layer in the internet, Serial line IP and Point to point protocol.

Module III

MAC layer Protocols- static and dynamic allocation, Pure and slotted ALOHA protocols, Carrier sense multiple access, Persistent and non persistent CSMA, IEEE standard 802.3 and Ethernet, 802.3cabling, IEEE 802.4, IEEE 802.5, FDDI Wireless LAN, Comparison of wired and wireless LAN, WIMAX.

Module IV


The Network layer- logical addressing, class full & classless addressing, address mapping, packet delivery & forwarding, unicast routing protocols, multicast routing protocols, Routing algorithm- Least Cost, Dijkstra's, Bellman-ford, congestion control algorithms, Internetworking devices, Introduction to Internet protocol IPv4.

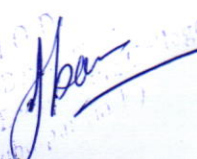
Module V

Transport layer-Transport services, Process to process delivery, UDP, TCP, congestion control, quality of service, Integrated services, Differentiated services LAN-WAN Design and implementation-Configuring TCP/IP, using IP configure, ping command, study of structured LAN, study of internetworking devices and their configuration- switches, hubs, Bridges, routers and Gateways.

Reference Books:

1. "Local area networks", Forouzan, TMH, 1st edition
2. "Computer Networks" - Tanenbaum, PHI Learning.
3. "Computer Networks", N Olifer and V Olifer, Wiley publication
4. "Computer Communications & Networking Technologies"-Michael A. Gallo & William M. Hancock -Cengage pearson publications.
5. "Computer Networks: Protocols, Standards and Interfaces"- By Black, PHI learning pub


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List of Experiment :

1. Establishment and configuration of LAN.
2. Color coding standard of CAT 5, 6, 7 and crimping of cable in RJ-45.
3. Study of WAN.
4. Case study of STOP AND WAIT Protocols.
5. Study of sliding window protocol.
6. Study of IEEE 802.3, 802.4, 802.5.
7. Study of FDDI.
8. Study of basic networking commands like ping, ipconfig, etc.
9. Case study of various Routing Strategies.
10. Case studies of various Network Topologies.
11. Establishing & studying the various parameters of a home LAN Network.
12. Study of IOS of routers.
13. Configuring routers, bridges and switches and gateways.

Course Outcomes:

- CO 1. Infer the importance of computer networks and ISO-OSI reference model.
- CO 2. Compare various logical link control protocols.
- CO 3. Outline standard, 802.3 and Ethernet technology.
- CO 4. To classify logical addressing mode and routing methods.
- CO 5. Illustrate TCP, UDP protocols with configuration of internetworking devices.


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IT53	Operating system	70	20	10	30	20	150	3	-	2	4

Module I

Introduction to Operating System: Evolution of Operating System Types of Operating system Batch Processing, Real Time, Multitasking & Multiprogramming, time-sharing system. Operating system services, Operating system structure, System Call & System Boots, Operating system design & Implementations, System protection, Buffering & Spooling.

Module II

Process Management: Basic concepts of CPU scheduling, Scheduling criteria, Scheduling algorithms, algorithm evaluation, multiple processor scheduling. Process concept, operations on processes, threads, inter process communication, precedence graphs, critical section problem, semaphores, classical problems of synchronization. Deadlock problem, deadlock characterization, deadlock prevention, deadlock avoidance, deadlock detection, recovery from deadlock, Methods for deadlock handling.

Module III


Memory Management: Concepts of memory management, logical and physical address space, swapping, Fixed and Dynamic Partitions, Best-Fit, First-Fit and Worst Fit Allocation. Virtual Memory Management- paging, segmentation, and paging combined with segmentation. Cache Memory Organization, demand paging, page replacement algorithms, allocation of frames, thrashing, demand segmentation.


Module IV

File Management: File systems: What is a file, user view of files, file types and file operations, file types in Unix and Microsoft, file operation commands, file access rights, file storage management, Inode or FAT structure, file control blocks, root file system, directory and file paths, blocks, impact of block size selection, contiguous allocation, chained and indexed allocations, Impact of allocation policy on fragmentation, mapping file blocks on the disk platter, cylinder, disk access control and scheduling

Module V

Input Output management & Security: Issues in human centric, device centric and computer centric IO management, input output modes, programmed IO, polling, interrupt mode of IO, various types of interrupts, interrupt servicing, priority interrupts, interrupt vectors, direct memory access (DMA) mode of transfer, setting up DMAs, device drivers, interrupt handling using device drivers, buffer management, device scheduling, disk scheduling algorithms and policies. Role of Operating System in Security, Security Breaches, System Protection, and Password Management


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Text Books:

1. Tanenbaum "Modern Operating System" PHI Learning.

Reference Books:

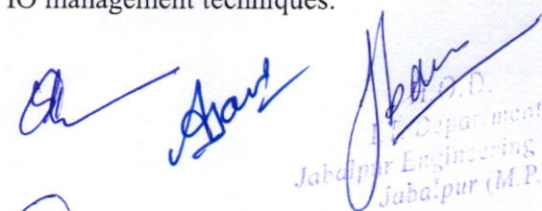
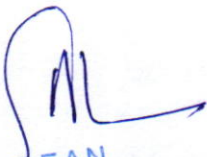
1. M. Flynn "Operating Systems". Cengage Learning.
2. Silberschatz, "Operating system", Willey Pub
3. Dhamdhere, "System Programming and Operating System", TMH.
4. Stuart, "Operating System Principles, Design & Applications", Cengage Learning
5. Operating System : Principle and Design by Pabitra Pal Choudhury, PHI Learnin.

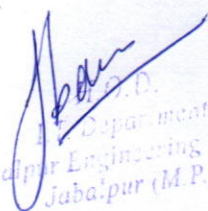
List of Experiments:

1. Program to implement FCFS CPU scheduling algorithm.
2. Program to implement SJF CPU scheduling algorithm.
3. Program to implement Priority CPU Scheduling algorithm.
4. Program to implement Round Robin CPU scheduling algorithm.
5. Program to implement classical inter process communication problem (producer consumer).
6. Program to implement classical inter process communication problem (Reader Writers).
7. Program to implement classical inter process communication problem (Dining Philosophers).
8. Program to implement FIFO page replacement algorithm.
9. Program to implement LRU page replacement algorithm.
10. Program to implement LFU page replacement.
11. Program to implement Optimal page replacement.

Course Outcomes:

- CO 1. To introduce various types of OS and its services.
- CO 2. To analyze and discuss various CPU scheduling algorithms.
- CO 3. To give overview of deadlock prevention, avoidance and detection techniques.
- CO 4. To compare various memory management techniques.
- CO 5. To understand the file system and various IO management techniques.



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IT54	DATA BASE MANAGEMENTSYSTEM	70	20	10	30	20	150	3	-	2	4

Module I

Basic Concepts: DBMS Concepts and architecture Introduction, Database approach v/s Traditional file accessing approach, Advantages of database systems, Data models, Schemas and instances, Data independence, database users and DBA.

Module II

Data models and their Comparison, Entities and attributes, Entity Sets, Relationships, Extended E-R, Features Defining the E-R diagram of database Relational Data models: Domains, Tuples, Attributes, Relations, and Integrity constraints. Key (super key, candidate key, primary key, foreign key, and referential key).

Module III


Structured Query Language , Relational Query languages: Relational algebra, Relational algebra operations like select, Project, Join, Division, outer union. SQL: DDL, DML and their commands, Aggregate function, nested subquery, views in SQL, join Data retrieval queries, accessing SQL from programming language.


Module IV

Database Design Data Base Design: Introduction to normalization, Normal forms, Functional dependency, Decomposition, Dependency preservation and lossless join, multi-valued dependencies.

Module V

Transaction Processing Concepts: - Transaction System, Testing of Serializability, Serializability of schedules, conflict & view serializable schedule, recoverability, Recovery from transaction failures. Log based recovery. Checkpoints deadlock handling. Concurrency Control Techniques: - Concurrency Control, locking Techniques for concurrency control, time stamping protocols for concurrency control, validation based protocol, multiple granularity. Multi version schemes, Recovery with concurrent transaction. Introduction to Distributed databases, data mining, data warehousing.


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- 1) Database System Concepts, Silberschatz, Korth and Sudarshan
- 2) Fundamental of database system by Elmasri / Navathe the Benjamin / Cunnings Publishing companyinc.

Reference Books:

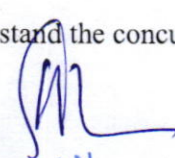
- 3) Data Base Management System by C.J. Date
- 4) Data Base Management System by Ullman
- 5) Data base design by Gio Wiederhold. McGraw Hill
- 6) Fundamental of Data Base Management System by Leon & Leon, Vikas Publishing House Pvt. Ltd.
- 7) Oracle 9i Database Administration Fundamental-I, Volume I, Oracle Press, TMH.

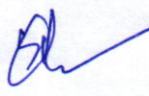
List of Experiments :

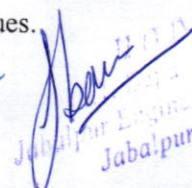
1. Introduction to SQL.
2. Write a programme of SQL queries like create- table, drop-table, truncate-table, insert - into, update-table and delete- table.
3. Program of SQL SELECT query with various Clauses and Study of various SQL queries for inserting deleting, updating a table (full or partial).
4. Program of Set operations (SQL).
5. Program of Join (SQL).
6. Program of SQL Primary key, Foreign key, View and index.
7. Program of SQL Functions.
8. Basic Structure of PL/SQL.
9. Write a PL/SQL CODE block that will accept an account number from the user, check if the users balance is less than the minimum balance ,only than deduct Rs 100/-from the balance. The process is fired on the ACCT_MSTR table.
10. Create a loop such that a message is displayed when a loop exceeds a particular value.

Course Outcomes:

- CO 1. Fundamentals of Database management system.
- CO 2. Understand the various data models and relational data model.
- CO 3. Understanding relational algebra and query language to apply different operations over the relations using various queries.
- CO 4. Obtaining the normalized relation by using different normal forms.
- CO 4. Recognize and understand the concurrency and transaction control techniques.


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IEC, Jabalpur (M.P.)


Head of Institution
Jabalpur Engineering College
Jabalpur (M.P.)


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Jabalpur Engineering College, Jabalpur
(Declared Autonomous by MP Govt., Affiliated to RGPV, Bhopal)
(AICTE Model Curriculum Based Scheme)
Bachelor of Technology (B.Tech.) V Semester (Information Technology)

w.e.f. July 2023

COURSE CONTENT

Subject Code	Subject Name and Title	Maximum Marks Allotted						Hours/Week			Total Credits
		Theory			Practical		Total	L	T	P	
		End Sem	Mid Sem Exam	Quiz Assignment	End Sem	Lab Work					
IT55	INTERNET AND WEB TECHNOLOGY	70	20	10	-	-	100	3	1	-	4

Module I

An Introduction to Web Engineering, History of web Development, Time line, Motivation, Categories of Web Applications, Characteristics of Web Applications. Evolution and Need for Web Engineering, Web Engineering Models, Software Engineering v/s Web Engineering. Introduction to Browser and search engines, Search fundamentals, Search strategies, Directories search engines and Meta search engines, Working of the search engines, Miscellaneous Web Browser details.

Module II

Introduction to Web Servers: Features of web servers, caching, case study-IIS, Apache, Configuring web servers.

Module III

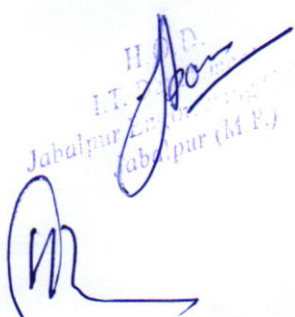
Technologies for Web Applications: HTML and DHTML, HTML Basic Concepts, Static and dynamic HTML, Structure of HTML documents, HTML Elements, Linking in HTML, Anchor Attributes, Image Maps, Meta Information, Image Preliminaries, Layouts, Backgrounds, Colors and Text, Fonts, Tables, Frames and layers. Database integration, CSS, Positioning with Style sheets. Introduction to JAVA SCRIPT, Cookies Creating and Reading Cookies. Technologies for Web Applications: Introduction of XML, Validation of XML documents, DTD, Ways to use XML, XML for data files, HTML Vs XML, Embedding XML into HTML documents, Converting XML to HTML for Display, Displaying XML using CSS and XSL, Rewriting HTML as XML.

Module IV

Creating Cohesive Websites: Conceptual Overview of website Development, Website Design issues, Conceptual Design, High-Level Design, Indexing the Right Stuff, Grouping Content. Architectural Page Mockups, Design Sketches, Navigation Systems. Searching Systems Good & bad web design, Process of Web Publishing. Phases of Web Site development, enhancing your web-site, submission of website to search engines. Web security issues, security audit of websites, Web effort estimation, Productivity, Measurement, Quality usability and reliability.

Module V

Requirements Engineering for Web Applications: Introduction, Fundamentals, Requirement Source, Type, Notations Tools. Principles Requirements Engineering Activities, Adapting RE Methods to Web Application. Introduction to http and https, http vs. https, Dynamic Web Content, Introduction of ASP.Net, PHP, Database connectivity (MySQL/Oracle).


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Reference Books:

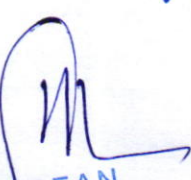
1. Roger S.Pressman, David Lowe, "Web Engineering", Tata Mcgraw Hill Publication, 2007
2. Achyut S Godbole and Atul Kahate, "Web Technologies", Tata McGraw Hill
3. Gopalan N P, Akilandeswari "Web Technology: A Developer s Perspective", PHI
4. NEIL GRAY "Web server Programming" Wiley
5. CHRIS BATES Web Programming: Building Internet applications Wiley
6. Moller, "An Introduction to XML and Web Technologies", Pearson Education New Delhi, 2009
7. Beginning XML 4th Edition Hnter, Rafter, Fawset Wiley India
8. Internet & World Wide Web How to Program, Pearson education, 3rd edition, by: H.M. Deitel, P.J. Deitel, A.B.Goldberg.
9. C. Xavier, "Web Technology & Design ", Tata McGraw Hill. 10 Ivan Bay Ross, "HTML, DHTML, Javascript,Perl CGI", BPB

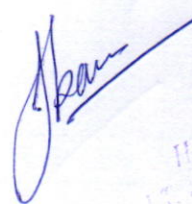
List of Experiments:

1. Introduction to major internet protocol- HTTP, FTP, SMTP.
2. Study of Web Browser- Microsoft Internet Explorer and Netscape Navigator.
3. Their Network options, security features, Cookies, file caching, temporary files etc.
4. HTML-Basics of HTML., text, image, other MIME types, lists, tables.
5. HTTP methods, forms.
6. Multimedia on the Web- Embedding audio and video files in HTML.
7. Java Script- Introduction to Java Script for client side validation.
8. Serves side scripting - Introduction to fundamentals concepts of ASP or JSP or PHP (any one platform depending on instructor).
9. Basics of CGI scripting using Perl or C.
10. Simple examples of request/ response objects.
11. Basic introduction to web solutions architecture.

Course Outcomes:

- CO 1. To have introduction to Web Engineering importance .
- CO 2. To understand Web Servers .
- CO 3. To have command on Web Applications technologies.
- CO 4. To have knowledge of wesite development methods with quality measures.
- CO 5. To understand Web engineering concepts.


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HOD
IT & ECE
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BT51	Professional Ethics	-	-	-	-	-	-	2	-	-	-

Module I

Introduction to Engineering Economics and Managerial Economics Concept of Efficiency, theory of Demand Elasticity of Demand, Supply and Law of Supply indifference Curves, Budget Line, Welfare Analysis, Scope of Managerial Economics, Techniques and Applications of Managerial Economics.

Module II

Market Structure Perfect Competition perfect- Monopolistic, Oligopoly, duopoly sorbent features of price determination and variet conditions Demand Forecasting and cost Estima Forecasting, Forecasting Methods Estimation, Elements of cost. Compatistics of Forecasts, Forecasting Horizons, Steps to tments, Forecasting Performance Measures, Cost rial Variances Break Even Analysis.

Module III

Introduction: Concept, Development, pection and scope of Industrial Management Productivity Definition, measurement, productivity index types of production system, industrial Ownership.


Module IV

Management Aspects, Functions of Management, Project Management, Value Engineering, Project Evaluation, Work simplification process charts and flow diagrams, Production Planning, Decision Making.

Module V

Inventory Control: Inventory, Cost, Deterministic Models Quality Control: Process control. SOC. Controlcharts, Single, Double and Sequential Sampling. Introduction to TQM


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Text Books:

1. Principles of Management by Tripathy and Reddy.
2. Mechanical estimation and costing, TR Banga & S.C.
3. Engineering Economy, Riggs JL McGraw Hill, 2002.
4. Engineering Economy, Thuesen 11.07. PHI, 2002.

Reference Books:

1. Management Fundamentals-Concepts. Application, Skill Development Robers Lasier-ThomsINT


Course Outcomes:

CO1: Understand the key management concepts, principles and contribution by different Management thinkers.

CO2: Analyze and design organization for effective management.

CO3: Application of modern management techniques.


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