Mahakaushal University, Jabalpur (M.P.)

Syllabus For B.Sc (Information Technology) 2021-22

Course Code : BSC(IT)

Department of Computer Science Faculty of Computer Science Application

Duration of Course: 3 Years

Examination Mode: Year Examination

System: Non Grading

Mahakaushal University
Village-Aithakheda ,Mukunwara Road, Post- Tilwara
Jabalpur (M.P.)482003

Mahakaushal University, Jabalpur (M.P.)

Class : B.A./B.Sc./B.Com./BBA/BCA --- **I Year**
Subject : Foundation Course
Paper : I
Paper Name : (Hindi Language & Moral Values) –I
Paper code : FC101-T

Particulars

Unit-I	हिन्दी भाषा स्वतंत्रता पुकारती (कविता) – जयशंकर प्रसाद पुष्प की अभिलाषा (कविता) – माखनलाल चतुर्वेदी वाक्य संरचना और अशुद्धियां (संकलित)
Unit-II	हिन्दी भाषा नमक का दरोगा (कहानी) – प्रेमचंद एक थे राजा भोज (निबंध) – डॉ त्रिभुवननाथ शुक्ल पर्यायवाची, विलोम, एकार्थी, अनेकार्थी एवं शब्दयुग्म शब्द (संकलित)
Unit-III	हिन्दी भाषा भगवान बुद्ध (निबंध) – स्वामी विवेकानंद लोकतंत्र एक धर्म है (निबंध) – डॉ. सर्वपल्ली राधाकृष्णन नही रूकती है नदी – हीरालाल बाछोतिया पल्लवन
Unit-IV	हिन्दी भाषा अफसर (निबंध) – शरद जोशी हमारी सांस्कृतिक एकता (निबंध) – रामधारी सिंह दिनकर (एक भारत श्रेष्ठ भारत के अन्तर्गत) संक्षेपण (संकलित)
Unit-V	नैतिक मूल्य नैतिक मूल्य परिचय एवं वर्गीकरण (आलेख) – डॉ. शशि राय आचरण की सभ्यता (निबंध) – सरदार पूर्णसिंह अंतर्ज्ञान और नैतिक जीवन (लेख) – स्वामी श्रद्धानंद

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Class : B.A./B.Sc./B.Com./BBA/BCA --- **I Year**
Subject : Foundation Course
Paper : II
Paper Name : English Language - I
Paper code : FC102-T

Particulars

Unit-I	Where the mind is without fear : Rabindranath Tagore. The Hero: R.K. Narayan. Tryst with Density Jawaharlaal Nehru. Indian weavers : Sarojnini Naidu. The portrait of a lady : Khushwant Singh. The Solitary Reaper : Willian Wordsworth.
Unit-II	Basic Language Skills : Vocabulary, Synonyms, Antonyms, Word formation, Prefixes Suffixes.
Unit-III	Basic Language Skills : Uncountable nouns, verbs, tenses, adverbs.
Unit-IV	Comprehension / Unseen Passage.
Unit-V	Composition and Paragraph writing.

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Class : B.A./B.Sc./B.Com./BBA/BCA --- **I Year**
Subject : Foundation Course
Paper : III
Paper Name : (Entrepreneurship Development)
Paper code : FC103-T

Particulars

Unit-I	Entrepreneurship Development - Concept and importance, function of enterpriser, Goal determination- Problems Challenges and solutions.
Unit-II	Project Proposal - need and Objects – Nature of organization, Production Management, Financial Management, Marketing Management, Consumer Management.
Unit-III	Role of regulatory Institutions, Role of development Organizations and self employment oriented schemes, Various growth schemes.
Unit-IV	Financial Management for Project – Financial institution and their role, Capital estimation and arrangement, cost and price determination, accounting management
Unit-V	Problem of entrepreneur – Problem relating capital, Problem relating Registration, administration problem and how to overcome

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BBIT101-T
Computing Logics & Reasoning

UNIT-I **Marks -10**

Number Systems Natural numbers integers rational numbers real numbers Complex arithmetic module a positive integer (binary, octal, decimal & hexadecimal number systems) radix & representation of integers, representing negative & rational numbers, floating point notation

UNIT-II **Marks -10**

Binary arithmetic, 2'5 Complement arithmetic, conversion of numbers from one of binary / octal / decimal / Hexadecimal number system to other number systems codes (natural BCD, Excess -3 gray, octal, hexadecimal alphanumeric – EBCDIC & ASCIT) error codes

UNIT-III **Marks -10**

Low of formal logic, connectivity, propositions, conditional WFF, tautology, Contradiction, Logical equivalence, Law of Logic, duality, Logical in placations Normal forms, Sets, Sub-sets, finite & infinite Sets universal , Power, disjoint sets, Property of sets, union intersection sets, distributive Compliment & Property of Complement , Venn diagram , difference, Cartioan Product Setc.

UNIT-IV **Marks -10**

Relation Property, irreflexsive, asymmetric, compatible universal complementary relation, equivalence class, co-ordinate diagram, transitivity, extension, closure matrix representation and diagraph, functions, mapping composition of functions, associative mapping composition of functions, associative mapping, inverse mapping characteristics functions, functions, recursions linear recursions relation, non – homogenous relations

UNIT-V **Marks -10**

Partial ordering, total order set, dual order, hassle Diagram, lexicographic ordering, Least & greatest element, minimal & maximal element, Upper & lower bound, well – order Set , Operations well – ordering theorem, lattice property, Bound, lattices, direct product, Boolean algebra, homomorphism minimization function, gates, Boolean algebra & applications

TEXT & REFERENCE BOOKS:

- *COMPUTERS TODAY, BY S.K BASANDRA, GALGOTIA PUBLICATIONS. FUNDAMENTALS OF INFORMATION TECHNOLOGY ALEXIS LEON & MATHEWS LEON, , VIKAS PUBLISHING*
- *DOS QUICK REFERENCE RAJEEV MATHUR, GALGOTIA PUBLICATIONS*

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BBIT101-P
Computing Logics LAB

- **Boolean Algebra**:
  - Simplify the Boolean expression (A + B)(A' + C) using Boolean algebra laws.
- **Logic Gates**:
  - Implement a 4-bit binary adder circuit using only NAND gates.
- **Boolean Functions and Minimization**:
  - Minimize the Boolean function F(A, B, C, D) = Σ(0, 2, 4, 5, 6, 8, 10, 14) using K-maps.
- **Combinational Circuits**:
  - Design a 3-to-8 decoder circuit using logic gates.
- **Sequential Circuits**:
  - Design a 4-bit binary counter using D flip-flops.
- **Finite State Machines (FSMs)**:
  - Design a sequential circuit to detect a sequence of binary inputs using a Mealy machine.
- **Digital Arithmetic**:
  - Perform binary multiplication of two 4-bit binary numbers.
- **Memory and Storage**:
  - Explain the difference between RAM and ROM, and discuss the advantages and disadvantages of each.
- **Digital Signal Processing (DSP)**:
  - Write a program in MATLAB to filter a noisy signal using a digital filter.
- **Microprocessor Architecture**:
  - Explain the architecture of a simple microprocessor, including the role of the ALU, registers, control unit, and memory.

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BBIT102-T
Computer Networks

UNIT-I **Marks -10**

Introduction to Computer Networks:- Overview of computer networks, Network topologies, Network models: OSI and TCP/IP, Internet history and growth, Network protocols.

UNIT-II **Marks -10**

Data Link Layer:- Framing, Error detection and correction, Flow control, Media Access Control (MAC),Ethernet and IEEE 802 standards.

UNIT-III **Marks -10**

Network Layer:- IP addressing and subnetting, Routing algorithms, IPv4 and IPv6, Routing protocols: RIP, OSPF, BGP, ICMP and ICMPv6.

UNIT-IV **Marks -10**

Transport Layer:- Transport services and protocols, TCP and UDP, Flow control and congestion control, Socket programming.

UNIT-V **Marks -10**

Network Management :- Network architecture and design, Network monitoring and troubleshooting, SNMP, Network performance optimization, Network virtualization.

Reference Books:-

1. "Computer Networking: A Top-Down Approach" by James F. Kurose and Keith W. Ross
2. "Computer Networks" by Andrew S. Tanenbaum and David J. Wetherall
3. "TCP/IP Illustrated, Volume 1: The Protocols" by W. Richard Stevens
4. "Data Communications and Networking" by Behrouz A. Forouzan
5. "Network Security Essentials: Applications and Standards" by William Stallings

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BBIT103-T

Office Automation PC Software

UNIT-I **Marks -10**

MS-windows: Introduction to MS-Windows, concept of GoI, Windows explorer control panel, accessories, running applications under ms-windows.

UNIT-II **Marks -10**

MS word: Introduction to MS- word standard toolbar, word wrap, text formation, formatting paragraphs applying effects to text, applying Animation tect.

UNIT-III **Marks -10**

Introduction to MS- Excel, working with toolbar, formation, formulas, data management, graphs &
charts, macros & other additional functions.

UNIT-IV **Marks -10**

MS- Power Point: Introduction to power point, slide creating slideshow, adding graphics, formation customizing & printing

UNIT-V **Marks -10**

MS- Access: Introduction, understanding data bases, creation a database & tables automatically, creating and customizing a form adding, editing, sorting & Searching of records creating & printing reports, queries, creation a database & application, linking, importing & exporting data form, creating reports, creating charts & pivot tables

TEXT & REFERENCE BOOKS:

- *WINDOWSXP COMPLETE REFERENCE. BPB PUBLICATIONS MS OFFICE XP COMPLETE BPB PUBLICATION*
  MS WINDOWS XP HOME EDITIONCOMPLETE, BPB PUBLICATION.
- *JOE HABRAKEN, MICROSOFT OFFICE 2000, 8 IN 1, BY, PRENTICE HALL OF INDIA*
- *I.T TOOLS AND APPLICATIONS, BY A. MANSOOR, PRAGYA PUBLICATIONS, MATURA*

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BBIT103-P

PC Software LAB

- **Operating Systems**:
  - Introduction to different operating systems (e.g., Windows, macOS, Linux) and their features, file systems, and basic operations.
- **Office Suites**:
  - Understanding and using office productivity software suites like Microsoft Office (Word, Excel, PowerPoint, Outlook) or LibreOffice.
- **Web Browsers**:
  - Exploring web browsers (e.g., Google Chrome, Mozilla Firefox, Microsoft Edge) and their features, extensions, and settings.
- **Email Clients**:
  - Setting up and using email clients (e.g., Microsoft Outlook, Thunderbird) for sending, receiving, and managing emails.
- **Graphics Editing Software**:
  - Introduction to graphic design tools like Adobe Photoshop, GIMP, or Canva for image editing and manipulation.
- **Programming Environments**:
  - Exploring Integrated Development Environments (IDEs) like Visual Studio Code, Eclipse, or JetBrains IntelliJ IDEA for programming in various languages.
- **Version Control Systems**:
  - Understanding version control concepts and using version control systems like Git and GitHub for code collaboration and management.
- **Data Analysis Tools**:
  - Introduction to data analysis software like Microsoft Excel, Google Sheets, or Python libraries (e.g., pandas, NumPy) for data manipulation and visualization.
- **Virtualization Software**:
  - Exploring virtualization tools like VirtualBox, VMware, or Docker for running multiple operating systems or applications on a single physical machine.
- **Security Software**:

- Learning about antivirus software, firewalls, and encryption tools for protecting personal and organizational data from security threats.

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BBIT104-T

Fundamentals of Information Technology

UNIT-I **Marks -10**

Introduction to Information Technology:- Overview of information technology, Evolution and history of computing, IT infrastructure and components, Role of IT in various sectors.

UNIT-II **Marks -10**

Computer Hardware:- Basics of computer hardware, Central Processing Unit (CPU), Input and output devices, Storage devices: HDD, SSD, and others, Computer memory: RAM, ROM, Cache.

UNIT-III **Marks -10**

Software and Operating Systems:- Introduction to software, System software vs. application software, Operating system concepts, Types of operating systems: Windows, macOS, Linux, File systems and file management.

UNIT-IV **Marks -10**

Networking and Internet:- Basics of computer networks, Network devices: routers, switches, modems, Internet protocols: TCP/IP, HTTP, FTP, DNS, Cloud computing fundamentals, Cybersecurity basics: threats, vulnerabilities, and countermeasures.

UNIT-V **Marks -10**

Information Technology Applications:- Office productivity software: Microsoft Office, Google Workspace, Database management systems (DBMS), Web development fundamentals, Introduction to programming concepts, Emerging technologies: AI, IoT, blockchain.

Reference Books:

a. ***"Information Technology for Management: Advancing Sustainable, Profitable Business Growth" by Efraim Turban, Linda Volonino, and Gregory R. Wood***

b. ***"Introduction to Information Technology" by Pearson***

c. ***"Information Technology Project Management" by Kathy Schwalbe***

d. ***"Information Technology Essentials: Basic Foundations for IT Professionals" by Eric Frick***

e. ***"Fundamentals of Information Systems" by Ralph Stair and George Reynolds***

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BBIT105-T

Object Oriented Technology & C++ Programming

UNIT-I **Marks -10**

Introduction to Object-Oriented Programming (OOP):- Basics of OOP, Object, class, and abstraction, Encapsulation and information hiding, Inheritance and polymorphism, Advantages of OOP over procedural programming.

UNIT-II **Marks -10**

C++ Basics:- Introduction to C++, Data types, variables, and constants, Control structures: if-else, switch, loops, Functions and parameter passing,
Arrays and strings.

UNIT-III **Marks -10**

Object-Oriented Concepts in C++:- Classes and objects in C++, Constructors and destructors, Operator overloading, Inheritance and access specifiers, Polymorphism: function overloading and overriding.

UNIT-IV **Marks -10**

Advanced C++ Programming:- Templates and generic programming, Exception handling, File handling in C++, Standard Template Library (STL), Smart pointers and memory management.

UNIT-V **Marks -10**

Object-Oriented Design Principles:- SOLID principles,Design patterns, UML diagrams: Class diagram, sequence diagram, Software development methodologies, Case studies and practical applications.

Reference Books:

"C++ Primer" by Stanley B. Lippman, Josée Lajoie, and Barbara E. Moo
"Programming: Principles and Practice Using C++" by Bjarne Stroustrup
"Effective C++: 55 Specific Ways to Improve Your Programs and Designs" by Scott Meyers
"Design Patterns: Elements of Reusable Object-Oriented Software" by Erich Gamma, Richard Helm, Ralph Johnson, and John Vlissides
"Object-Oriented Analysis and Design with Applications" by Grady Booch, Robert A. Maksimchuk, Michael W. Engle, and Bobbi J. Young

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BBIT105-P C++ LAB

- **Basic Syntax and Data Types**:
  - Understanding and using basic C++ syntax, including variable declaration, data types (int, double, char, etc.), and basic input/output operations.
- **Control Structures**:
  - Implementing control structures such as conditional statements (if, else if, else) and loops (for, while, do-while) to control the flow of program execution.
- **Functions and Parameter Passing**:
  - Writing functions with different return types, parameters, and argument passing methods (pass by value, pass by reference).
- **Arrays and Strings**:
  - Working with arrays and strings, including array manipulation, string handling functions, and character array operations.
- **Pointers and Dynamic Memory Allocation**:
  - Understanding pointers, pointer arithmetic, and dynamic memory allocation using new and delete operators.
- **Object-Oriented Programming (OOP)**:
  - Implementing classes, objects, inheritance, polymorphism, encapsulation, and abstraction concepts in C++.
- **Standard Template Library (STL)**:
  - Using STL containers (vector, list, map, etc.) and algorithms (sort, find, etc.) for efficient data storage and manipulation.
- **File I/O Operations**:
  - Reading from and writing to files using file streams (ifstream, ofstream) and manipulating file data.
- **Exception Handling**:
  - Implementing exception handling mechanisms to handle runtime errors and improve program robustness.
- **Data Structures and Algorithms**:
  - Implementing common data structures (linked lists, stacks, queues, trees) and algorithms (sorting, searching, graph algorithms) in C++.

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BBIT106-T
Artificial Intelligence

UNIT-I **Marks -10**

Introduction to Artificial Intelligence:- Definition and brief history of AI, AI techniques and applications, Turing Test and the philosophy of AI, Ethical considerations in AI development and deployment, Current trends and future prospects in AI,

UNIT-II **Marks -10**

Problem Solving and Search Algorithms:- Problem-solving agents, Search algorithms: uninformed and informed search, Heuristic search techniques, Adversarial search: minimax algorithm and alpha-beta pruning, Constraint satisfaction problems.

UNIT-III **Marks -10**

Knowledge Representation and Reasoning:- Knowledge representation techniques: propositional logic, predicate logic, Inference in propositional and predicate logic, Semantic networks, frames, and ontologies, Expert systems and rule-based reasoning,

Uncertainty in AI: probability theory and Bayesian networks.

UNIT-IV **Marks -10**

Machine Learning:- Introduction to machine learning, Supervised learning: regression, classification, Unsupervised learning: clustering, dimensionality reduction,

Reinforcement learning, Neural networks and deep learning.

UNIT-V **Marks -10**

Natural Language Processing and Computer Vision:- Basics of natural language processing (NLP), NLP techniques: tokenization, parsing, sentiment analysis, Machine translation and language generation, Introduction to computer vision, Image processing techniques and object detection.

Reference Books:

"Artificial Intelligence: A Modern Approach" by Stuart Russell and Peter Norvig
"Machine Learning: A Probabilistic Perspective" by Kevin P. Murphy
"Deep Learning" by Ian Goodfellow, Yoshua Bengio, and Aaron Courville
"Natural Language Processing with Python" by Steven Bird, Ewan Klein, and Edward Loper
"Computer Vision: Algorithms and Applications" by Richard Szeliski

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Class : B.A./B.Sc./B.Com./BBA/BCA/ --- **II Year**
Subject : Foundation Course
Paper : I
Paper Name : (Hindi Language & Moral Values) – II
Paper code : FC201-T

Particulars

Unit-I	हिन्दी भाषा वह तोड़ती पत्थर (कविता) – सूर्यकान्त त्रिपाठी निराला दिमागी गुलामी (निबंध) – राहुल सांकृत्यायन वर्ण – (स्वर– व्यंजन, वर्गीकरण, उच्चारण स्थान)
Unit-II	हिन्दी भाषा नारीत्व का अभिशाप (निबंध) – महादेवी वर्मा चीफ की दावत (कहानी) – भीष्म साहनी विराम चिन्ह – (संकलित)
Unit-III	हिन्दी भाषा चली फगुनाहट बौरे आम (ललित निबंध) – विवेकी राय इन्द्रधनुष का रहस्य (वैज्ञानिक लेख) – डॉ. कपूरमल जैन संधि – (संकलित) पल्लवन
Unit-IV	हिन्दी भाषा सपनों की उड़ान (प्रेरक निबंध) – ए.पी.जे. अब्दुल कलाम हमारा सौरमण्डल (संकलित) समास (संकलित)
Unit-V	नैतिक मूल्य शिकागो व्याख्यान (व्याख्यान) – स्वामी विवेकानंद धर्म और राष्ट्रवाद (लेख) – महर्षि अरविन्द सादगी (आत्मकथा) – महात्मा गांधी चित्त जहाँ भय शून्य (कविता) – रवीद्रनाथ टैगोर

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Class : B.A./B.Sc./B.Com./BBA/BCA/ --- **II Year**
Subject : Foundation Course
Paper : II
Paper Name : English Language - II
Paper code : FC202-T

Particulars

Unit-I	Tree: Tina Morris. Night of the Scorpion: Nissim Ezekiel. Idgah : Premchand (translated by khushwant Singh). Letter of God : G.L. Swanteh (translated by Donald A. Yates). My Bank Account : Stephen Leacock. God sees the truth but waits : Leo Tolstoy.
Unit-II	Basic English Language : Idioms, Proverbs and Phrasal Verbs, Tenses, Prepositions, Determiners, Verbs Articles, Nouns & Pronouns.
Unit-III	Short Essay on given topics. Correspondence Skills (Formal & Informal letters and Application)
Unit-IV	Translation of sentences / passage English to Hindi and Hindi to English.
Unit-V	Drafting CV.

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Class	:	B.A./B.Sc./B.Com./BBA/BCA/ --- **II Year**
Subject	:	Foundation Course
Paper	:	III
Paper Name	:	(Environmental Studies)
Paper code	:	FC203-T

Particulars

Unit-I	**Study of Environment and Ecology :** (a.) Definition and importance. (b.) Public participation and public awareness. (c.) Ecology – Introduction. (d.)Ecosystem – Concepts, components, structure & function, energy flow. food chain. food web, ecological pyramids and types.
Unit-II	**Environmental Pollution and Population :** (a.) Air, water, noise, Heat and nuclear pollution. definition, causes, effect and prevention of pollution. (b.)Population growth, disparities between countries. (c.) Population explosion, family welfare programme. (d.)Environment and human health. (e.) Cleanliness and disposal of domestic waste.
Unit-III	**Natural Resources, Problems and Conservation :** (a.) Water Resources. (b.)Forest Resources. (c.) Land Resources. (d.)Food Resources. (e.) Energy Resources.
Unit-IV	Bio-diversity and its Protection (a.) Introduction- Genetic, species and ecosystem diversity. (b.) Value of bio-diversity − Consumable use : Productive use. Social, Moral and Aesthetic values (c.) India as a nation of mega bio-diversity centre. bio-diversity at national and local levels. (d.) Threats to bio-diversity − Loss of habitat, poaching of wildlife, man and wildlife conflicts.
Unit-V	Disaster Management and Environment and Environmental laws : (a.) Disaster Management − flood, earthquake, cyclones and landslides. (b.)Conservation of laws for air and water pollution. (c.) Wildlife conservation laws. (d.)Role of information technology in protecting environment and health.

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BBIT201-T

Web Programming

UNIT-I **Marks -10**

Introduction to Web Technologies:- Overview of web development, Client-side vs. server-side scripting, Introduction to HTML, CSS, and JavaScript, Web browsers and their rendering engines, Web standards and best practices.

UNIT-II **Marks -10**

HTML and CSS:- HTML basics: tags, attributes, and elements, Semantic HTML5 elements, CSS fundamentals: selectors, properties, and values, CSS layout techniques: Flexbox and Grid, Responsive web design principles.

UNIT-III **Marks -10**

JavaScript Programming:- Introduction to JavaScript, Variables, data types, and operators, Control structures: loops and conditionals, Functions and scope, DOM manipulation and event handling.

UNIT-IV **Marks -10**

Server-Side Development:- Introduction to server-side scripting languages: PHP, Node.js, Python, Basic database operations with SQL, Server-side frameworks and libraries: Express.js, Flask, Django, RESTful APIs and JSON data interchange, Authentication and authorization.

UNIT-V **Marks -10**

Frontend Frameworks and Tools:- Introduction to frontend frameworks: React, Angular, Vue.js, Building single-page applications (SPAs), Version control with Git and GitHub, Task runners and build tools: Gulp, Web pack, Deployment and hosting options for web applications.

Reference Books:

1. "HTML and CSS: Design and Build Websites" by Jon Duckett
2. "JavaScript: The Good Parts" by Douglas Crockford
3. "Eloquent JavaScript: A Modern Introduction to Programming" by Marijn Haverbeke
4. "Node.js Web Development" by David Herron
5. "Learning PHP, MySQL & JavaScript: With jQuery, CSS & HTML5" by Robin Nixon

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BBIT201-P Web Programming-LAB

- **HTML and CSS Basics**:
  - Creating static web pages using HTML for content structure and CSS for styling and layout.
- **JavaScript Fundamentals**:
  - Introduction to JavaScript programming, including variables, data types, control structures, functions, and basic DOM manipulation.
- **DOM Manipulation**:
  - Using JavaScript to interact with the Document Object Model (DOM), dynamically modify HTML content, and handle user events.
- **Responsive Web Design**:
  - Implementing responsive layouts using CSS techniques like media queries to ensure optimal viewing experience across different devices and screen sizes.
- **Client-Side Form Validation**:
  - Implementing client-side form validation using JavaScript to enhance user experience and provide immediate feedback on form input errors.
- **AJAX and Fetch API**:
  - Using AJAX (Asynchronous JavaScript and XML) or the modern Fetch API to make asynchronous HTTP requests to a server and update web page content dynamically without reloading the entire page.
- **Server-Side Scripting**:
  - Introduction to server-side scripting languages like PHP, Python (with frameworks like Django or Flask), or Node.js for dynamic content generation and database interaction.
- **Database Connectivity**:
  - Integrating web applications with databases (e.g., MySQL, PostgreSQL, MongoDB) using server-side scripting languages to perform CRUD operations (Create, Read, Update, Delete).
- **User Authentication and Authorization**:
  - Implementing user authentication and authorization mechanisms using sessions, cookies, and server-side validation to secure web applications.
- **Web Application Frameworks**:
  - Exploring popular web application frameworks like Express.js (Node.js), Flask (Python), or Laravel (PHP) to streamline web development and build scalable and maintainable applications.

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BBIT202-T

Analog Circuits and Communications

UNIT-I **Marks -10**

Power supplies: Rectifiers- Half wove, full wove & bridge rectifiers- efficiency- Ripple tractor- Regulation- Harmonic components in rectified output, Types of filters- choke –input (inductor) filter- Shunt Capacitor filter – Capacitor filter- L Section and O Section filters- Block diagram of regulated Power Supplier- Three terminal regulators (78XX&79XX).

UNIT-II **Marks -10**

Principle and working of Switch mode power supply (SMPS) RC Coupled Amplifier Analysis and frequency response of Single Stage RC Coupled Amplifier Feedback: Positive and negative feedback- Effect of feedback on gain band width , noise input & output impedances.

UNIT-III **Marks -10**

Operational Amplifiers: Differential Amplifier, Block diagram of op- amp, Ideal characteristics of op- Amp- Op- Amp Parameters- Input resistance- output resistance common – mode reiection ratio (CMMR) , Slew rate, offset Voltages Input bier current , Basic op-Amp circuits, inverting Op- Amp virtual ground, Non inverting op- Amp, frequency response of op-Amp, Interpretation of op- Amp datasheets.

UNIT-IV **Marks -10**

Application of op- Amps: Summing amplifier, sub tractor voltage follower Integrator, Differentiator, comparator Logarithmic amplifier, sine wave (we in Bridge) and Square wave (As table) , generators, Triangular wave generator , Mono stable , multi vibrator, Solving Simple second order differential equation Basic op-Amp Series regulator and shunt regulator.

UNIT-V **Marks -10**

Communication: Need for modulation, Types of modulation, Amplitude, frequency & Phase modulation, -side Bands modulation index, Square law diode modulator, De modulation , diode detector. Frequency modulation working of simple frequency of frequency modulation Am & FM radio receivers (Block diagram approach).

References :

A.K Sawhney
Measurements and Instrumentation Electrical and Electronics Measurements and Instrumentation
Electronic instrumentation H.L Kalsi Networks ad systems, D. Roy Chaudhary

Network theory Engineering circuit analysis
William Hayt
Digital design Morris mano

Digital systems
Tocci & Widmer

Digital electronics

Modern digital electronics

Elements of
Electromagnetics

Engineering electromagnetic

Antenna and wave propagation

Elements of engineering eletromagntics
R.P Jain, Sadiku, W.H. Hayt, K.D Prasad, Electromagnetic theory, N.N. Rao
Linear control system B.S Manke Control system engineering
I.J Nagrath
Control systems
Automatic control systems
B.C Kuo

Signal and system

Signals and systems
Alan V Oppenheim

Communication systems Simon Haykins
An introduction to digital and analog communications
Modern digital and analog communication systems
Simon Haykins

Singh and Sapre
Communication systems
Electronic communication systems

B.P. Lathi Integrated electronics
Jacob Millman Microelectronic circuits
Sedra and Smith
Electronic devices and circuits and analog electronics

Electronic devices and circuits

Op amp and digital integraed circuits
Solid state electronic devices Semiconductor devices

J.B Gupta Ramakant Gaekwad Streetma and Banerjee S.M Sze

A textbook on Analog circuits

Analog circuits A.Rajkumar

BBIT203-T
Client Server Technology

UNIT-I Marks -10

Client /Server Computing: Evolution of client /Server concept definition, history, need and inactivation for Client /Server approach, Client/Server environments, characterization of client/server computing, client/server types and Examples.

UNIT-II Marks -10

Client /Server development tools, advantages of Client/ Server Technology, connectivity, user productivity reduction in network traffic, faster delivery of systems.

UNIT-III Marks -10

The Role of Client: Client request for service, dynamic data exchange, ole, common object Cole, Request Broker Architecture (CORBA), Components of Client/ Server applications.

The Role of Server: Server Functions, Network Operating System, System application Architecture, Novel Netware LAN manager, Server operating System.

UNIT-IV Marks -10

Architecture: Components of Client Server Architecture application partitioning the two-layer and three layer architecture Communication between Clients& Servers Use of APIs in Client/Server Computing, middle- ware technology in client / server computing Open System Inter connectivity (OSI) , Inter Process Communication (IPC).

UNIT-V Marks -10

Client/ system Administration, LAN Network Management Privacy and Security Issue, Developing applications on RDBM, GUI design Concepts.

Reference Books

1. Hossein Bidgoli Editor-in-Chief

1. Daniel McFarland and

2. Darren B. Nicholson

Client/Server Computing for Technical Professionals: Concepts and Solutions Paperback – Import, 14 Sep 1995

by Johnson M. Hart (Author), Barry J. Rosenberg (Author)

BBIT204-T
Java Programming

UNIT-I **Marks -10**

Introduction to Java, history, Characteristics, abject oriented programming, data types, variables arrays, difference between java and C++

UNIT-II **Marks -10**

Control Statements: Selection, iteration, jump statements operators, Introduction to Classes, fundamentals Constructor methods, Stack, Class, inheritance, creating multilevel hierarchy, method over riding packages and interfaces, exception handling, multithreaded programming I/o applets.

UNIT-III **Marks -10**

Java Library, String handling, string comparison, string buffer, utility Classer, vector stack dictionary applet Class, introduction to AWT, working with frame windows.

UNIT-IV **Marks -10**

Java beans, beans architecture, AWT components, Advantages of Java beans, beans Serialization, JDBC Class & Methods, API Components, IDBC Components Driver, Connectivity to database.

UNIT-V **Marks -10**

Processing result and interfaces, RMI, Comparison of distributed and Non- distributed Java programs, Interfaces, RMI Architecture layer, ODBC, CORBA, CORBA Services and Products, CGI, Structure of CGI.

Reference Books

JAVA THE COMPLETE REFERENCE BY PATRICK NAUGHTON AND HERBERT SCHILDT. TMH PUBLICATION ISBN 0-07-463769-X
PROGRAMMING WITH JAVA BY E. BALAGURUSWAMY TMH PUBLICATIONS ISBN 0-07-463542-5 USING JAVA 1.2 BY JOSEPH WEBER. PHI – ISBN-81-203-1558-9

BBIT204-P
Java LAB

- **Basic Syntax and Data Types**:
  - Writing Java programs to understand basic syntax, data types (primitive and reference types), variables, and operators.
- **Control Flow Statements**:

- Implementing control flow statements such as if-else, switch-case, loops (for, while, do-while) to control program execution.

- **Methods and Functions**:
  - Creating methods (functions) with different return types and parameters to perform specific tasks and promote code reusability.

- **Object-Oriented Programming (OOP)**:
  - Understanding and implementing OOP concepts including classes, objects, inheritance, polymorphism, and encapsulation.

- **Exception Handling**:
  - Writing Java programs to handle exceptions using try-catch blocks and understanding the concept of checked and unchecked exceptions.

- **Collections Framework**:
  - Exploring the Java Collections Framework to work with collections such as lists, sets, maps, and understanding their implementations (e.g., ArrayList, HashSet, HashMap).

- **Generics**:
  - Using generics to create parameterized classes and methods that can work with any data type, ensuring type safety and code reuse.

- **File I/O Operations**:
  - Reading from and writing to files using file streams (FileInputStream, FileOutputStream, FileReader, FileWriter) and handling file exceptions.

- **Multithreading**:
  - Implementing multithreaded Java programs to understand concepts like threads, synchronization, and thread communication.

- **GUI Programming with Swing**:
  - Developing graphical user interfaces (GUIs) using the Swing framework to create interactive Java applications with buttons, labels, text fields, etc.

BBIT205-T
Computer Graphics

UNIT-I **Marks -10**

Graphics Hardware: The functional Characteristics of the systems are emphasized, input devices: keyboard touch panel, light pens, graphic tablets, jay sticks, track ball, data glove, digitizer, image scanner mouse, voice Systems.

UNIT-II **Marks -10**

Hard Copy devices: Impact and non-impact Printers such as line Printer, dot matrix, Laser, inkjet, electrostatic, flat bed and drum plotters.

UNIT-III **Marks -10**

Video display devices: Refresh cathode ray tube, raster- scan displays, random scan displays, color CRT monitors, Direct View Storage tube, flat panel- displays, 3-D view devices, virtual reality, virtual reality, raster scan systems, random scan systems, graphics monitors and work stations.

UNIT-IV **Marks -10**

Scan Conversion Algorithms for line, circle and ellipse Bresenham's algorithms, area filling techniques, character generation,

UNIT-V **Marks -10**

2-dimensional graphics: Cartesian and Homogeneous co- ordinate system, Geometric trans formations (translation, scaling rotation, reflection, shearing, two dimensional viewing trans formation and clipping (line, polygon and text).

Reference Books

1.COMPUTER GRAPHICS : A PROGRAMMING, APPROACH – STEVEN HARRINGLOM (MGH)
2.COMPUTER GRAPHICS : SCHAUM'S OUTLINE SERIES
3.COMPUTER GRAPHICS : DONALD HEAON & M. PAULIVE BAKER (PHI)

BBIT205-T Computer Graphics LAB

- **Basic Drawing**:
  - Introduction to basic drawing techniques using graphics libraries or frameworks (e.g., OpenGL, WebGL) to draw points, lines, and basic shapes (e.g., circles, rectangles) on a canvas.
- **Color Models and Rendering**:
  - Understanding color models (e.g., RGB, CMYK) and techniques for rendering colors, gradients, and patterns on screen.

- **Transformation Matrices**:
    - Using transformation matrices to perform translation, rotation, scaling, and shearing operations on 2D and 3D objects.
- **Clipping and Visibility**:
    - Implementing clipping algorithms (e.g., Cohen-Sutherland, Liang-Barsky) to clip lines and polygons against window boundaries, and techniques for hidden surface removal (e.g., z-buffering).
- **Rasterization and Anti-aliasing**:
    - Implementing rasterization algorithms to convert geometric primitives (e.g., lines, polygons) into pixels, and techniques for anti-aliasing to reduce aliasing artifacts.
- **3D Modeling and Rendering**:
    - Introducing 3D modeling techniques and rendering algorithms for creating and rendering 3D objects, including shading models (e.g., flat shading, Gouraud shading, Phong shading).
- **Texture Mapping**:
    - Understanding texture mapping techniques to apply textures to 3D objects, including texture coordinates, texture filtering, and texture mapping algorithms.
- **Lighting and Shadows**:
    - Implementing lighting models (e.g., ambient, diffuse, specular) and shadowing techniques (e.g., shadow mapping, ray tracing) to enhance the realism of rendered scenes.
- **Animation Techniques**:
    - Exploring animation techniques such as keyframe animation, skeletal animation, and procedural animation to create dynamic and interactive scenes.
- **Graphics Programming Projects**:
    - Assigning projects that integrate various graphics concepts to develop applications such as simple games, 3D modeling software, or interactive simulations.

BBIT206-T

Software Engineering

UNIT-I **Marks -10**

Introduction to Software Engineering:- Definition and scope of software engineering, Software development life cycle models: Waterfall, Agile, Spiral, etc. Software processes and process models, Software requirements engineering, Software project management principles.

UNIT-II **Marks -10**

Software Requirements Analysis:- Requirements elicitation techniques, Requirements specification and documentation, Requirements validation and verification, Use case modeling and user stories, Requirements management and traceability.

UNIT-III **Marks -10**

Software Design and Architecture:- Principles of software design, Modularization and abstraction, Design patterns and architectural styles, UML diagrams: Class diagram, Sequence diagram, etc. Architectural design and trade-offs.

UNIT-IV **Marks -10**

Software Testing and Quality Assurance:- Software testing fundamentals, Testing strategies and techniques: Black-box, White-box, etc. Test case design and execution, Quality assurance and quality metrics, Automated testing tools and frameworks.

UNIT-V **Marks -10**

Software Maintenance and Evolution:- Types of software maintenance,Software reengineering and reverse engineering,Software refactoring techniques, Configuration management and version control, Software evolution and legacy system management.

Class : B.A./B.Sc./B.Com./BBA/BCA/B.A --- **III Year**
Subject : Foundation Course
Paper : I
Paper Name : (Hindi Language & Moral Values) –III
Paper code : FC301-T

Particulars

न्दपज.ए	हिन्दी भाषा मेरे सहयात्री (यात्रा वृतांत) – अमृतलाल बेगड। मध्यप्रदेश की लोक कलाएं (संकलित) लोकोक्तियॉ एवं मुहावरे (संकलित)
न्दपज.ब	हिन्दी भाषा जनसंचार माध्यम (प्रिन्ट, इलै, एवं सोशल मीडिया) टूटते हुए (एकांकी) – सुरेश शुक्ल चंद्र संक्षिप्तियां
न्दपज.ब्ब	हिन्दी भाषा पत्रकारिता के विभिन्न आयाम (संकलित) मध्यप्रदेश का लोक साहित्य (संकलित) पत्र लेखन – आवेदन, प्रारूपण, आदेश परिपत्र ज्ञापन, अनुस्मारक (संकलित)
न्दपज.प्ट	हिन्दी भाषा राजभाषा, हिन्दी (संकलित) हिन्दी की संवैधानिक एवं व्यावहारिक स्थिति दूरभाष और मोबाइल (संकलित) हिन्दी की शब्द सम्पदा (संकलित) अनुवाद : अर्थ प्रकार एवं अभ्यास
न्दपज.ट	नैतिक मूल्य विश्व के प्रमुख धर्म एवं महत्वपूर्ण विशेषताएं (हिन्दू धर्म, जैन धर्म, बौद्ध धर्म, सिक्ख धर्म, ईसाई धर्म, इस्लाम धर्म) सत्य के साथ मेरे प्रयोग (महात्मा गाँधी की आत्म कथा का संक्षिप्त संस्करण)

Class : B.A./B.Sc./B.Com./BBA/BCA/B.A --- **III Year**
Subject : Foundation Course
Paper : II
Paper Name : English Language - III
Paper code : FC302-T

Particulars

Unit-I	Stopping by Woods on a snowy Evening: Robert Frost. Cherry Tree : Ruskin Bond. The Axe : R.K. Narayan. The Selfish Giant : Oscar Whilde On The Rule of the Road : A.G. Gardiner. The song of Kabir : Translated by Tagore
Unit-II	Basic Language Skills : Transformation of sentences, Direct-Indirect Speech, Active. Passive Voice, Confusing Words, Misused words, Similar words with different meaning.
Unit-III	Report Writing, Narration Skills, Narration of events and situations.
Unit-IV	Drafting of E-mails.
Unit-V	Drafting CV.

Class : B.A./B.Sc./B.Com./BBA/BCA/B.A --- **III Year**
Subject : Foundation Course
Paper : III
Paper Name : (Basics of Computer & Information technology)
Paper code : FC303-T

Particulars

Unit-I	**Introduction to Computer :** Basic Organization of Computer system: Block diagram & Functions (Central Processing Unit, Input/ Output Unit, Storage Unit); Characteristics: Capabilities & Limitations. Types of Computing Devices: Desktop Laptop & Notebook smart-Phone, Tablet PC, Server, Workstation & their Characteristics. Primary Memory & Their Types: RAM, ROM, PROM, EPROM EEPROM, Cache Memory. **Peripheral Devices :** Input Devices : Keyboard Mouse, Trackball, Joystick, Digitizer or Graphic tablet, Scanners, Digital Camera, Web Camera, MICR, OCR,OMR, Bar-code Reader, Voice Recognition device Light pen & Touch Screen. Output Devices : Display Devices (CRT, TFT, LCD, LED, Multimedia Projectors): Video Standard : VGA, SVGA, XGA etc, Impact Printers (Daisy Wheel, Dot Matrix & Line Printer); Non impact printer (Inkjet, Laser, Thermal); **Storage Devices :** Magnetic Tape, Cartridge, Data Drives, Hard Disk Drives (Internal & External), Floppy Disks, CD, VCD, CD-RW, Zip Drive DVD, DVD-RW, USB Flash Drive, Blue Ray Disc & Memory cards.
Unit-II	**Operating System (OS)**
	Dos Basic: FAT, File & Directory Structure and naming rules, Booting process, DOS system files, internal & External Dos Commands. Windows Basics (only elementary ideas): Windows 7 & 8: Desktop, Control Panel: saving, remaining, moving copying and searching files & folders, restoring from recycle Bin. Creating shortcut, Establishing Network Connections.
Unit-III	**MS Word** Text editing and formatting using Word file in various file formats: Previewing documents, Printing document to file / page: Protecting document Editing of selected text, Inserting Deleting and Moving text. Formatting documents: page Layout, Paragraph format, Aligning text and Paragraph, Borders and Shading, Headers and Footers.
Unit-IV	**MS Power Point & MS Excel :** Creating presentation using slide master and template in various themes & variants. Working with slide, move, copy, delete, duplicate, slide layouts, presentation views. Format menu: Font, Paragraph, drawing & editing. Printing presentation: Print slides, notes, handouts and outlines. Saving presentation in different file formats. Workbook & worksheet: Entering data into worksheet (General, Number, Currency, Date, Time, Text, Accounting etc.); Renaming, Copying, Inserting, deleting & protecting worksheet. Working with Row & Column (Inserting, deleting, Pasting, Resizing & Hiding), Cell & Cell formatting, and Concept of range.

Unit-V	Internet: World Wide Web Dial up connectivity, leased line, VSAT, Broad Band, WI-FI, URL, Domain name, Web Dial up Browser (Internet Explorer, Firebox, Google Chrome, opera, UC Browser etc.) Search Engine (Google, Bing, Ask etc); Website: Static & Dynamic; Difference between website & Portal. E-mail: Account opening. Sending & Receiving Mails, Managing Contacts & Folders.

E-mail, Internet & Social Networking Ethics.
Types of viruses & antivirus.
Computer security Issues & its protection through firewall & antivirus.
Making secured online transactions.

Text Boks :

1. PC Software for Windows by R.K. Taxali.
2. Fundamental of Computers by P.K. Sinha.
3. Computer Today by Suresh K. Basandra
4. Computer fundamental s and Architechture by B.Ram.
5. Internet Security by Kenneth Einar Himma, 2007.
6. Internet Security Secrets by John R. Vacca, 2007.

BBIT301-T
Digital Electronics and microprocessor

UNIT-I Marks -10

Introduction to member systems, logic gates or , AND, NOT, X-OR, NAND, NOR gates, Truth tables, positive and negative logic, logic families and their characteristics RTL, DTL, TTL and CMOS, Universal building blocks NAND And NOR gates, Laws of Boolean algebra De Morgan's Theorem Boolean identities, simplification of Boolean identities, simplification of Boolean expressions, karnaugh maps, sum of product maps, sum of product (Sop) product of sums (PoS)

UNIT-II Marks -10

Combinational and Sequential Circuits: multiplexer and De multiplexer, Decoder, Half adder, Full adder and Parallel adder circuits, Flip flaps, RS,D Jk and Jk Master, slave (working & Truth tables), Semiconductor memories, organization and working, synchronous and Synchronous binary counters, up/down counters, decade counters (7490), working truth tables and timing diagrams.

UNIT-III Marks -10

Introduction t o microcomputer and microprocessor, Intel 8085 microprocessor, central processing unit CPU Arithmetic logical Unit ALU, Timing and control unit register organization, address, data and control bases pin configuration of 8085 and its description, Timing diagrams, instruction cycle, machine cycle fetch and execute cycles, Instructions set of 8085 instruction and data formals classification of instructions, addressing modes.

UNIT-IV Marks -10

Assembly language programming examples of 8 & 16 bit addition, Subtraction, multiplication and a vision finding the largest and smallest in a data array Programming examples using stacks and subroutines.

UNIT-V Marks -10

Interfacing, peripherals and applications: Programmable peripheral interface c8255, D/A Converters and their interfacing to the microprocessor, stepper motor control, seven segment LED.

Reference Books

1 MICROPRO CESS OR ARCHITECTURE, PROGRAMMING & APPLICATIONS WITH 8085. RAMESH GAONKAR, PENRAM PUBLIS HING LTD.
2 MICROPRO CESS ORS AND INTERFA CING BY D.V. HALL TMH, 2ND EDITION.
3 IBM PC ASSEMBLY LANGUAGE PROGRA MMI NG BY PETER ABLE, PHI
4 FUNDAMENTALS OF MICROPROCESSORS AND MICROCOMPUTERS BY B. RAM, DHANPAT RAI PUBLICA TIONS. 5TH EDN.

BBIT301-P Digital Electronics LAB

- **Logic Gates and Boolean Algebra**:
    - Implementing basic logic gates (AND, OR, NOT) using discrete components (e.g., transistors) and understanding Boolean algebraic expressions.
- **Combinational Circuits**:
    - Designing and analyzing combinational logic circuits such as adders, subtractors, multiplexers, demultiplexers, and encoders/decoders.
- **Sequential Circuits**:
    - Implementing flip-flops (e.g., D flip-flop, JK flip-flop) and designing sequential logic circuits such as counters, shift registers, and state machines.
- **Flip-Flop Applications**:
    - Using flip-flops to design and implement digital circuits for applications like frequency dividers, frequency counters, and binary sequence generators.
- **Arithmetic Circuits**:
    - Designing arithmetic circuits such as binary adders (half adder, full adder), subtractors, and multipliers using basic logic gates and flip-flops.
- **Memory Elements**:
    - Understanding and implementing memory elements like registers and memory cells using flip-flops and latches.
- **Digital Logic Families**:
    - Exploring different digital logic families (e.g., TTL, CMOS) and understanding their characteristics, advantages, and limitations.
- **PLD Programming**:
    - Introduction to Programmable Logic Devices (PLDs) such as PALs (Programmable Array Logic) and CPLDs (Complex Programmable Logic Devices) and programming them using Hardware Description Languages (HDL) like VHDL or Verilog.
- **State Machine Design**:
    - Designing finite state machines (FSMs) using state diagrams and implementing them using flip-flops and combinational logic circuits.
- **Digital System Design Projects**:
    - Assigning projects that involve the design and implementation of complete digital systems for specific applications, such as digital clocks, traffic light controllers, or digital calculators.

BBIT302-T
Operating Systems

UNIT-I Marks -10

Introduction to operating systems, goal of os, batch processing, multiprocessing, time sharing, distributed real time systems.

UNIT-II Marks -10

System calls, system programs, structure of os, layer design- of Dos, Unix, virtual machine of, kernel based os, micro-kernel based os, architecture of window zoo process concept, interacting process, threads process in Unix, process and threads in windows zoo.

UNIT-III Marks -10

Process scheduling, fundamental of scheduling, scheduling- criteria, long medium short term scheduling, scheduling algorithm up to multi- processor scheduling, algorithm evaluation.

UNIT-IV Marks -10

Structure of concurrent system, critical section, critical region, inter process communication, monitor and semaphores, implementation and user.

UNIT-V Marks -10

Unix History, Programmer interface, file manipulation process control, kernel, signals, file system, block in odes, Stream editor, Character transliteration "ed" Vi editor and their commands.

Shell script, variables, file Name expansion, shell commands looping and making decisions, array, sub program C- interface with Unix, simple shell programs,

Reference Books

1. OPERATI NG SYSTEM CONCEPTS By SILBERSCHATZ & GALVIN, ADDISON WESLEY PUBLICA TIO N 6th Edition.
2. OPERATI NG SYSTEM CONCEPTS & DESIGN By MILAN MILEN KOVIC, TMH PUBLICATION

BBIT303-T
E-Commerce

UNIT-I Marks -10

Electronic Commerce Framework, Electronic and media- convergence, Traditional VS Electronic
Business applications The Anatomy of E- commerce Applications.

UNIT-II Marks -10

Overview of mobile computing Technology, mobile data internet and mobile computingApplications.

UNIT-III Marks -10

Networks security and firewalls, client server Network Security Threads, Fire walls and Network
Security, Data Message security , Encrypted Documents and electronic- Mail.

UNIT-IV Marks -10

Architectural Framework for electronic commerce, worldwide web as Architecture, consumer oriented E-commerce, electronic data interchange (EDI), EDI Applications – in Business, EDI Security document management and digital libraries,

UNIT-V Marks -10

Consumer- oriented applications, mercantile process models, mercantile models from the consumer's perspective mercantile models from the merchant's perspective.

TEXT & REFERENCE BOOKS:

- *LEVEL MODULE - M 1.2 - INTERNET & WEB PAGE DESIGNING BY V.K.JAIN - BPB PUBLICATIONS.*
- *E-COMMERCE AN INDIAN PERSPECTIVE (SECOND EDITION) - BY P. T. JOSEPH, S.J. PRESENTICE-HALL OFINDIA*
- *INTERNET FOR EVERYONE - ALEXIS LEON AND MATHEWS LEON, VIKAS PUBLISHING HOUSE PVT. LTD., NEWDELHI*
- *INTERNET FOR DUMMIES - PUSTAK MAHAL, NEW DELHI*
- *A BEGINNERS GUIDE TO HTML AVAILABLE AT: HTMLPRIMERALL.HTML*

BBIT304-T
IT Law and Ethics

UNIT-I **Marks -10**

Introduction to IT Law and Ethics:- Overview of IT Law and Ethics, Historical perspective, Key concepts and terminology.

UNIT-II **Marks -10**

Legal Framework for Information Technology:- Intellectual property rights, Copyright, patents, trademarks, Licensing agreements, Digital rights management.

UNIT-III **Marks -10**

Privacy and Data Protection:- Data protection laws and regulations, Privacy rights and issues, Surveillance and cybersecurity, GDPR and other international regulations.

UNIT-IV **Marks -10**

Cybercrime and Security:- Types of cybercrimes, Legal responses to cybercrimes, Cyber security laws and regulations, Ethical hacking and cybersecurity practices.

UNIT-V **Marks -10**

Ethical Issues in IT:- Ethical theories and principles,Professional codes of conduct, Ethical dilemmas in IT, Ethical considerations in emerging technologies (e.g., AI, biotechnology).

Reference Books:

1. "Cyberlaw: Problems of Policy and Jurisprudence in the Information Age" by Patricia Bellia et al.
2. "Ethics for the Information Age" by Michael J. Quinn
3. "Law and the Internet" by Lilian Edwards and Charlotte Waelde
4. "Intellectual Property in the New Technological Age" by Robert P. Merges and Peter S. Menell
5. "Information Technology Law: The Law and Society" by Andrew Murray
6. "Digital Copyright: Law and Practice" by Simon Stokes
7. "Privacy Law Fundamentals" by Daniel J. Solove et al.
8. "Understanding Privacy" by Daniel J. Solove
9. "Data Protection: A Practical Guide to UK and EU Law" by Peter Carey
10. "Cybercrime: Investigating High-Technology Computer Crime" by Robert Moore
11. "Cybersecurity and Cyberwar: What Everyone Needs to Know" by P.W. Singer and Allan Friedman
12. "Cyber Law: Maximizing Safety and Minimizing Risk in Classrooms" by Tom Turner
13. "Ethics in Information Technology" by George Reynolds
14. "The Right Thing to Do: Basic Readings in Moral Philosophy" by James Rachels
15. "Robot Ethics: The Ethical and Social Implications of Robotics" by Patrick Lin et al.

BBIT304-P IT Law LAB

- **Introduction to Legal Frameworks**:
  - Understanding the legal frameworks governing IT, including national laws, international treaties, regulations, and standards.
- **Cybersecurity Laws and Regulations**:
  - Exploring cybersecurity laws and regulations aimed at protecting digital assets, preventing cybercrimes, and ensuring data security and privacy.
- **Privacy Laws and Regulations**:
  - Studying privacy laws and regulations governing the collection, use, and disclosure of personal information by organizations and individuals.
- **Intellectual Property (IP) Laws**:
  - Understanding IP laws related to copyright, trademarks, patents, and trade secrets in the context of IT and digital content.
- **Data Protection Laws**:
  - Exploring data protection laws and regulations governing the processing, storage, and transfer of personal data, such as the GDPR (General Data Protection Regulation).
- **E-Commerce Laws**:
  - Studying legal issues related to electronic commerce, including online contracts, consumer protection, electronic signatures, and dispute resolution.
- **Digital Rights and Freedoms**:
  - Understanding digital rights and freedoms, including freedom of expression, privacy rights, access to information, and internet governance principles.
- **Regulatory Compliance**:
  - Learning about compliance requirements and standards relevant to IT, such as ISO/IEC 27001 for information security management systems (ISMS).
- **Legal Aspects of Cloud Computing**:
  - Exploring legal issues and challenges associated with cloud computing, including data ownership, jurisdictional issues, and liability concerns.
- **Case Studies and Legal Analysis**:
  - Analyzing real-world case studies and legal scenarios related to IT law, and discussing the implications and outcomes of legal disputes and court decisions.

BBIT305-T

System Analysis and Design

UNIT-I **Marks -10**

Introduction to System Analysis and Design:-Overview of systems analysis and design, Systems development life cycle (SDLC), Role of the systems analyst, Requirements gathering techniques.

UNIT-II **Marks -10**

Requirements Analysis:- Understanding user requirements, Functional and non-functional requirements, Requirement modeling techniques (e.g., use cases, data flow diagrams), Requirements validation and management.

UNIT-III **Marks -10**

System Design:- Architectural design, Interface design, Database design, Security design.

UNIT-IV **Marks -10**

System Implementation and Testing:- Coding and programming, Testing strategies (e.g., unit testing, integration testing), System deployment, Maintenance and support.

UNIT-V **Marks -10**

Project Management in System Development:- Project planning and scheduling, Risk management, Team collaboration and communication, Project documentation and reporting.

Reference Books:

1. "Systems Analysis and Design" by Alan Dennis et al.
2. "Modern Systems Analysis and Design" by Jeffrey A. Hoffer et al.
3. "Essentials of Systems Analysis and Design" by Joseph S. Valacich et al.
4. "Software Requirements" by Karl E. Wiegers and Joy Beatty
5. "Requirements Engineering: From System Goals to UML Models to Software Specifications" by Axel van Lamsweerde
6. "Use Case Modeling" by Kurt Bittner and Ian Spence.
7. "Software Architecture in Practice" by Len Bass et al.
8. "Design Patterns: Elements of Reusable Object-Oriented Software" by Erich Gamma et al.
9. "Database Systems: Design, Implementation, and Management" by Carlos Coronel et al.
10. "Software Engineering: A Practitioner's Approach" by Roger S. Pressman
11. "Clean Code: A Handbook of Agile Software Craftsmanship" by Robert C. Martin
12. "Software Testing: Principles and Practices" by Srinivasan Desikan and Gopalaswamy Ramesh

BBIT306-T
Relational Database Management Systems.

UNIT-I Marks -10

Distributed database design, architecture of distributed processing system, of data communication concept, data placement, placement of DDBMS and other components, concurrency , need of recovery, recovery techniques, Serializability. Blocking; dead- locks, introduction to query Optimization.

UNIT-II Marks -10

Query Optimization and processing, algorithm for external sorting. Select and join, object and set operations. Heuristics in query optimization temporal database concept, multimedia database, data mining, association rule, classification applications , data-warehousing, need, architecture, characteristics, data layer.

UNIT-III Marks -10

Introduction to SQL, Security and integrity of databases, security specifications in SQL.

UNIT-IV Marks -10

Oracle RDBMS: Overview of three tier client server- technology, modules of oracle & SQL -Plus Data types, constraints, operators, DDL DML, DCL- Create, Modify, Insert , Delete & update searching, matching and oracle functions) Data Types , Matching and oracle functions) Data types, PL/SQL Functions Error handling in PL/ SQL, Package functions package procedures, oracle transactions, SQL stored procedures.

UNIT-V Marks -10

Data base triggers: Introduction, Use & type of database triggers, triggers VS. Declarative- integrity constraints, BE FORE VS. AFTER Trigger Combinations, Creating a Trigger, Dropping a Trigger.

Reference Books

AN INTRODUCTION TO DATABASE SYSTEM (3RD ED.) BY C.J. DATE DATABASE SYSTEM CONCEPTS BY HENRY F. KORTH
DATABASE MANAGEMENT SYSTEMS BY LEON & LEON, VIKAS PUBLICATIONS. AN INTRODUCTION T O DATABASE SYSTEM BY BIPIN C. DESAI
FUNDAMENTALS OF DATABASE SYSTEM (2ND ED.) BY ELEMESRI AND S. NAVATHE ORACLE A BEGINNERS GUIDE BY MICHAEL ABBEY &MICHAEL J. COREY TMH PUBLICATIONS

BBIT306-P RDMS LAB

- **Database Design**:
    - Students can learn about the process of database design, including identifying entities, attributes, and relationships, and then translating this into an entity-relationship diagram (ERD).
- **Normalization**:
    - Students can practice normalizing a set of tables to remove redundancy and ensure data integrity, starting from an unnormalized table and applying normalization rules.
- **Creating Database Schema**:
    - Students can create a database schema based on the ERD they designed, using SQL DDL (Data Definition Language) statements to define tables, constraints, and relationships.
- **Data Manipulation Language (DML)**:
    - Students can practice writing SQL queries to insert, update, delete, and retrieve data from the database they created, applying filtering, sorting, and joining as needed.
- **Query Optimization**:
    - Students can explore techniques for optimizing SQL queries, such as using indexes, avoiding Cartesian products, and restructuring queries for better performance.
- **Transactions and Concurrency Control**:
    - Students can learn about transactions and concurrency control mechanisms in RDBMS, such as locking, serializability, and isolation levels, and practice implementing them in a simulated multi-user environment.
- **Stored Procedures and Triggers**:
    - Students can create stored procedures and triggers to automate common tasks or enforce business rules within the database, using SQL PL/SQL (Procedural Language/SQL) or a similar language.
- **Database Administration Tasks**:
    - Students can perform common database administration tasks, such as creating and managing user accounts, setting permissions, monitoring database performance, and backup and recovery operations.
- **Database Security**:
    - Students can learn about database security principles and best practices, including authentication, authorization, encryption, and auditing, and implement them in a lab environment.
- **Database Integration and Application Development**:

- Students can integrate the database with a programming language or application framework and develop a simple application that interacts with the database, demonstrating CRUD operations and data manipulation.