Shri Vaishnav Vidyapeeth Vishwavidyalaya

Bachelor of Technology (Information Technology)

Choice Based Credit System (CBCS) 2016-17

SEMESTER IV

COURSE CODE	Category	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTIT401		DISCRETE STRUCTURE	60	20	20	-	-	3	1	-	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives:

1. To provide the fundamentals of formal techniques for solve the problems in computational domain and algorithm development

Course Outcomes:

1. Understand the notion of mathematical thinking, mathematical proofs, and algorithmic thinking, and be able to apply them in problem solving.
2. Understand the basics of discrete probability and number theory, and be able to apply the methods from these subjects in problem solving.
3. Be able to use effectively algebraic techniques to analyze basic discrete structures and algorithms.
4. Understand asymptotic notation, its significance, and be able to use it to analyze asymptotic performance for some basic algorithmic examples.
5. Understand some basic properties of graphs and related discrete structures, and be able to relate these to practical examples.

Syllabus:

Unit-I: Set Theory
Definition of Sets, Venn Diagrams, complements, Cartesian products, power sets, counting principle, cardinality and countability (Countable and Uncountable sets), proofs of some general identities on sets, pigeonhole principle. Relation: Definition, types of relation, composition of relations, domain and range of a relation, pictorial representation of relation, properties of relation, partial ordering relation. Function: Definition and types of function, composition of functions,

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth Vishwavidyalaya
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Joint Registrar
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

recursively defined functions.

Unit-II: Propositional logic
Proposition logic, basic logic, logical connectives, truth tables, tautologies, contradiction , normal forms(conjunctive and disjunctive), modus ponens and modus tollens, validity, predicate logic, universal and existential quantification. Notion of proof: proof by implication, converse, inverse, contrapositive, negation, and contradiction, direct proof, proof by using truth table, proof by counter example

Unit-III: Graph Theory
Terminology Graph RepresentationGraph isomorphism; Connectedness; Various graph properties; Euler & Hamiltonian graph; Shortest paths algorithms. Trees: Terminology; Tree traversals; prefix codes; Spanning trees; Minimum spanning trees.

Unit-IV: Algebraic Structure
Binary composition and its properties definition of algebraic structure; Groyas Semi group, Monoid Groups, Abelian Group, properties of groups, Permutation Groups, Sub Group, Cyclic Group, Rings and Fields (definition and standard results).

Unit-V: Posets, Hasse Diagram and Lattices
Introduction, ordered set, Hasse diagram of partially, ordered set, isomorphic ordered set, well ordered set, properties of Lattices, bounded and complemented lattices. Combinatorics: Introduction, Permutation and combination, Binomial Theorem, Multimonial Coefficients Recurrence Relation and Generating Function: Introduction to Recurrence Relation and Recursive algorithms , Linear recurrence relations with constant coefficients, Homogeneous solutions, Particular solutions, Total solutions , Generating functions , Solution by method of generating functions.

References:

1. *C L Liu, Introduction to Discrete Mathematics, McGrawHill, 1986 (Reprint by Tata McGraw Hill, 2007).*
2. *K Rosen, Discrete Mathematics and its Applications, 6/e (Special Indian Edition), Tata McGraw-Hill, 2007.*
3. *B Kilman, R Busby, S Ross, N Rehman, Discrete Mathematical Structures, 5/e, Pearson Education, 2006.*

Shri Vaishnav Vidyapeeth Vishwavidyalaya

Bachelor of Technology (Information Technology)

Choice Based Credit System (CBCS) 2016-17

SEMESTER IV

COURSE CODE	Category	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS405		DATABASE MANAGEMENT SYSTEM	60	20	20	30	20	3	1	2	5

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

COURSE OBJECTIVES:

The student will have ability to:

1. To understand the dissimilar issues concerned in the intend and implementation of a database system.
2. To learn the physical and logical database design, database modeling, relational, hierarchical, and network models
3. To understand and develop data manipulation language to query, modernize, and manage a database
4. To expand an understanding of necessary DBMS concepts such as: database security, integrity, concurrency,
5. To intend and build a straightforward database system and show competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.

COURSE OUTCOMES:

Upon completion of the subject, students will be able to:

1. Evaluate business information problem and find the requirements of a problem in terms of data.
2. Understand the uses the database schema and need for normalization.
3. Design the database schema with the use of appropriate data types for storage of data in database.
4. Use different types of physical implementation of database
5. Use database for concurrent use.
6. Backup data from database.

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Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya

Bachelor of Technology (Information Technology)

Choice Based Credit System (CBCS) 2016-17

SEMESTER IV

SYLLABUS:

UNIT–I
INTRODUCTION TO DATABASE CORE CONCEPTS AND APPLICATIONS:

What is database system, purpose of database system, view of data, relational databases, database architecture, transaction management, Introduction to File and Database systems- Database system structure , Data Models , Introduction to Network and Hierarchical Models , ER model , Relational Model , Relational Algebra and Calculus.

UNIT–II
RELATIONAL DATA STRUCTURE: SQL

Relations, Domains, Attributes, Keys, Extensions and Intentions, Base Table, Indexes, System R, Data Manipulation, Retrieval, Operations, Built-in-Functions, Update Operations, Introduction of SQL, Multi table Queries, Nested Queries or Sub queries, Multiple Row Nested Queries, Data Manipulation Language, The Create Table Statement

UNIT–III
DATA STORAGE AND QUERY PROCESSING:

Record storage and Primary file organization- Secondary storage Devices- Operations on Files- Heap File- Sorted Files- Hashing Techniques , Index Structure for files ,Different types of Indexes- B-Tree - B+Tree ,Query Processing.

UNIT–IV
RELATIONAL DATABASE DESIGN AND TRANSACTION MANAGEMENT:

Relational algebra, Traditional Set operations, Attribute Name for Derived Relations, Special Relational Operations, Relational Calculus, Type Oriented Relational Calculus, Further Normalization, Functional Dependence, First, Second and Third Normal forms, Relations with more than one candidate key, Good and Bad Decompositions, Fourth Normal Form, Fifth Normal Form. Transaction Processing: Introduction- Need for Concurrency control- Desirable properties of Transaction- Schedule and Recoverability- Serializability and Schedules , Concurrency Control , Types of Locks- Two Phases locking- Deadlock- Time stamp based concurrency control , Recovery Techniques , Concepts- Immediate Update- Deferred Update - Shadow Paging.

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Joint Registrar
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya

Bachelor of Technology (Information Technology)

Choice Based Credit System (CBCS) 2016-17

SEMESTER IV

UNIT–V
THE NETWORK APPROACH AND SECURITY AND INTEGRITY:

The architecture of an IMS system, Background, Architecture, IMS Data Structure, Physical Database, The Database Description, Hierarchical Sequence, IMS data manipulation, Defining the Program Communication Block (PCB). The DL/I Examples, Constructing the Segment Search Argument, using more than one PCB. Object Oriented Databases , Need for Complex Data types- OO data Model- Nested relations- Complex Types- Inheritance Reference Types - Distributed databases- Homogenous and Heterogenous- Distributed data Storage , XML , Structure of XML-Data- XML Document- Schema- Querying and Transformation. , Data Mining and Data Warehousing. Introduction, Security and Integrity Violations, Authorization, Granting of Privileges, Security Specification in SQL

Text Books:

1. *A Silberschatz, H Korth, S Sudarshan, "Database System and Concepts", fifth Edition McGraw-Hill ,*
2. *Rob, Coronel, "Database Systems", Seventh Edition, Cengage Learning.*
3. *Date C J, "An Introduction To Database System", Pearson Educations*
4. *Elmasri, Navathe, "Fundamentals Of Database Systems", Pearson Educations*

Reference Books:

1. *Understanding SQL by Martin Gruber, BPB.*
2. *SQL- PL/SQL by Ivan bayross.*
3. *Oracle – The complete reference – TMH /oracle press.*
4. *Atul Kahate , " Introduction to Database Management System", Pearson Educations.*
5. *Oracle 9i Database Administration Fundamental-I, Volume I, Oracle Press, TMH.*
6. *Paneerselvam,"DataBase Management System", PHI Learning.*
7. *Sanjeev Sharma, Jitendra Agarwal, Shikha Agarwal, "Advanced DBMS", Dreamtech Publication*

List of Experiments:

1. Design a Database and create required tables. For e.g. Bank, College Database
2. Apply the constraints like Primary Key , Foreign key, NOT NULL to the tables.
3. Write a sql statement for implementing ALTER,UPDATE and DELETE
4. Write the queries to implement the joins
5. Write the query for implementing the following functions: MAX(),MIN(),AVG(),COUNT()
6. Write the query to implement the concept of Integrity constrains

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Joint Registrar
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

7. Write the query to create the views 8) Perform the queries for triggers
8. Perform the following operation for demonstrating the insertion , updation and deletion using the referential integrity constraints
9. Write the query for creating the users and their role.

Shri Vaishnav Vidyapeeth Vishwavidyalaya

Bachelor of Technology (Information Technology)

Choice Based Credit System (CBCS) 2016-17

SEMESTER IV

COURSE CODE	Category	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
ML301		ENVIRONMENT AND ENERGY STUDIES	60	20	20	-	-	4	-	-	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives:
The students will be able to:

1. To understand sources of information required for addressing environmental challenges
2. To identify a suite of contemporary tools and techniques in environmental informatics
3. To apply literacy, numeracy and critical thinking skills to environmental problem-solving

Course Outcomes:
The students should be able to:

1. Apply the principles of ecology and environmental issues that apply to air, land and water issues on a global scale.
2. Develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment.
3. Demonstrate ecology knowledge of a complex relationship between predators, prey, and the plant community.

Syllabus:

Unit-I: Environmental Pollution and Control Technologies
Environmental Pollution & Control: Classification of pollution, Air Pollution: Primary and secondary pollutants, Automobile and industrial pollution, Ambient air quality standards. Water pollution: Sources and types, Impacts of modern agriculture, degradation of soil. Noise Pollution: Sources and Health hazards, standards, Solid Waste management composition and characteristics

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Indore

of e - Waste and its management. Pollution control technologies: Wastewater Treatment methods: Primary, Secondary and Tertiary.

Unit-II: Natural Resources

Classification of Resources: Living and Non - Living resources, water resources: use and over utilization of surface and ground water, floods and droughts, Dams: benefits and problem, Mineral resources: use and exploitation, environmental effects of extracting and using mineral resouces, Land resources: Forest resources, Energy resources: growing energy needs, renewable energy source, case studies..

Unit-III: Ecosystems

Definition, Scope and Importance ecosystem. Classification, Structure and function of an ecosystem, Food chains, food webs and ecological pyramids. Energy flow in the ecosystem, Biogeochemical cycles, Bioaccumulation, ecosystem value, devices and carrying capacity, Field visits.

Unit-IV: Biodiversity and its Conservation

Introduction - Definition: genetic, species and ecosystem diversity. Bio-geographical classification of India - Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values - . Biodiversity at global, National and local levels. - . India as a mega diversity nation - Hot-sports of biodiversity - Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts; Conservation of biodiversity: In-situ and Exsitu conservation. National bio diversity act.

Unit-V: Environmental Policy, Legislation & EIA

Environmental Protection act, Legal aspects Air Act- 1981, Water Act, Forest Act, Municipal solid waste management and handling rules, biomedical waste management and handling rules, hazardous waste management and handling rules. EIA: EIA structure, methods of baseline data acquisition. Overview on Impacts of air, water, biological and Socio- economical aspects. Strategies for risk assessment, Concepts of Environmental Management Plan(EMP).

Reference Books:

1. *Agarwal, K.C.,(latest edition).Environmental Biology, Bikaner :Nidi Pub. Ltd.,*
2. *Brunner R.C.(latest edition) Hazardous Waste Incineration, McGraw Hill Inc.*
3. *Clank R.S. .,(latest edition. Marine Pollution, Clanderson Press Oxford (TB).*
4. *Environmental Encyclopedia, Jaico Pub. Mumbai,*
5. *De A.K(latest edition) Environmental Chemistry, Wiley Wastern Ltd.*
6. *ErachBharucha(2005).Environmental Studies for Undergraduate Courses by for University Grants Commission.*

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Indore

7. *R. Rajagopalan(2006).Environmental Studies. Oxford University Press.*
8. *M. AnjiReddy(2006).Textbook of Environmental Sciences and Technology. BS Publication.*
9. *Richard T. Wright(2008).Enviromental Science: towards a sustainable future PHL Learning Private Ltd. New Delhi.*
10. *Gilbert M. Masters and Wendell P. Ela .(2008).Environmental Engineering and science. PHI Learning Pvt Ltd.*
11. *Daniel B. Botkin& Edwards A. Keller(2008).Environmental Science Wiley INDIA edition.*
12. *AnubhaKaushik(2009).EnviromentalStudies. New age international.*

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Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya

Bachelor of Technology (Information Technology)

Choice Based Credit System (CBCS) 2016-17

SEMESTER IV

COURSE CODE	Category	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTIT404		PRINCIPLES OF DATA COMMUNICATION	60	20	20	30	20	3	1	2	5

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives:

1. Explain the importance of data communications and the Internet in supporting business communications and daily activities.
2. Explain how communication works in data networks and the Internet.
3. Recognize the different internetworking devices and their functions.

Course Outcomes:

Upon completion of the subject, students will be able to

1. Understand and be able to explain the principles of a layered architecture model; be able to identify and describe the system functions in the correct protocol layer and further describe how the layers interact.
2. Understand, explain and calculate digital transmission over different types of communication media.
3. Understand, explain and solve mathematical problems for data-link and network protocols.
4. Understand and be able to describe for common services, system services, such as name and address lookups, and communications applications.

Syllabus:

Unit-I: Data Communication Fundamentals

Layered Network Architecture; Mode of communication, topology, Data and Signal; Transmission Media: Guided, Unguided; Transmission Impairments and Channel Capacity;

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Indore

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Indore

Transmission of Digital Data: Interfaces-DTE-DCE, MODEM, Cable MODEM; The telephone network system and DSL technology.

Unit-II: Data communication concepts

Data transmission – Parallel and serial transmission, synchronous, and Asynchronous transmission, Simplex, half duplex and full duplex , unipolar and polar line codes, Nonreturn to zero codes, return to zero codes, bipolar line codes, bauds, Line configurations-Point to point and point to multipoint configuration.

Unit-III: Telephone Network

Network topology, signaling-SS7,dial-up modems, modem standard, digital subscriber line – ADSL,SDSL,VDSL .Multiplexing, Frequency division multiplexing, time division multiplexing and wavelength division multiplexing, pulse code modulation, pleisochronous digital hierarchy (PDH), synchronous digital hierarchy (SDH) ,STM -1 frame, virtual container, mapping of data signals on STM.

Unit-IV: Switching Techniques

Circuit, packet and hybrid switching, Types of error, single bit error, burst error, Error detection , Vertical redundancy check, Longitudinal redundancy check, cyclic redundancy check, error correction, Integrated services digital network, ISDN interface, ISDN devices, reference points, ISDN services, ISDN Protocols.

Unit-V: Transmission media

Guided and unguided media, twisted pair ,Unshielded twisted pair and Shielded twisted pair, coaxial cable and fiber optic cable, radio waves, microwaves and infrared transmission RJ-45, Network interface card, rack, cable standard-Category 5,6,and 7,cross connection, straight connection cable coding standards.

References Books:

1. *Data communication and networking, Forouzan, TMH 4 theditior*
2. *Data communication and Computer Networks, Prakash C Gupta, PHI Learning*
3. *Computer Networks -Tanenbaum, PHI Learning.*
4. *Communication Networks-Fundamental concepts and key Architecture, Leon-Garcia, Widjaja, TMH*
5. *Computer Communications & Networking Technologies-Michael A. Gallo & William M. Hancock*
6. *-Cengagepearsen publications*
7. *Network for computer scientists & engineers-Youluzheng&shakilakhtar , Oxford pub*

Shri Vaishnav Vidyapeeth Vishwavidyalaya

Bachelor of Technology (Information Technology)

Choice Based Credit System (CBCS) 2016-17

SEMESTER IV

COURSE CODE	Category	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS504		SOFTWARE ENGINEERING PROJECT MANAGEMENT	60	20	20	30	20	3	1	2	5

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives:
The student will have ability to:

1. Knowledge of basic software engineering methods and practices.
2. Define software requirements and requirement engineering.
3. Apply approaches for various designs and their principle.
4. Explore testing in various domains.
5. Development of significant teamwork and project based experience.

Course Outcomes:
Upon completion of the subject, students will be able to:

1. Compare various software process models and identify where these models are applicable.
2. Define and analyze software project management, the framework and the dimensions of software project management.
3. Comprehend System modeling using UML.
4. Identify software testing strategies by using testing tools.
5. Analyze software risks and risk management strategies.

Syllabus:
Unit-I:
Nature of software, software engineering, software process, A Generic process model, process assessment and improvement, prescriptive process models-waterfall model, incremental models, evolutionary models, concurrent models, Specialized Process Model, Unified Process, Personal and team process models, process technology, Agile development.

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Board of Studies
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Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Unit-II:
Functional and Non-functional requirements, Requirement Sources and Elicitation Techniques, Analysis Modeling for Function-oriented and Object-oriented software development, Use case Modeling, System and Software Requirement Specifications, Requirement Validation, Traceability.

Unit-III:
The Software Design Process, Design Concepts and Principles, Software Modeling and UML, Architectural Design, Architectural Views and Styles, User Interface Design, Function-oriented Design, SA/SD Component Based Design, Design Metrics.

Unit-IV:
Software testing strategies-Approach, issues, validation testing and their criteria, system testing, alpha-beta testing, system testing, debugging, Testing conventional applications, Testing object oriented applications ,Testing web applications.

Unit-V:
Need and Types of Maintenance, Software Configuration Management (SCM), Software Change Management, Version Control, Change control and Reporting, Program Comprehension Techniques, Re-engineering, Reverse Engineering, Tool Support. Project Management Concepts, Feasibility Analysis, Project and Process Planning, Resources Allocations, Software efforts, Schedule, and Cost estimations, Project Scheduling and Tracking, Risk Assessment and Mitigation, Software Quality Assurance(SQA). Project Metrics.

Text Books:

1. *Roger S. Pressman, "Software Engineering – A Practitioner's Approach", Tata McGraw-Hill seventh edition, 2009.*
2. *Richard Fairley, "Software Engineering Concepts" –, Tata Mcgraw Hill, 2008.*
3. *PankajJalote ,"An Integrated Approach to Software Engineering", Narosa Pub, 2005.*
4. *Richard H.Thayer,"SoftwareEnginerring& Project Managements",Willey India*

References Books:

1. *Bernd Bruegge, Allen H. Dutoit," Object-Oriented Software Engineering" Using UML, Patterns, and Java, PEARSON Third Edition, 2017.*
2. *Waman S.Jawadekar,"Software Enginerring", TMH*
3. *Ian Sommerville, "Software Engineering", Seventh Edition, Pearson Education Asia, 2007.*
4. *Rajib Mall, "Fundamentals of Software Engineering" Second Edition, PHI Learning.*

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Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya

Bachelor of Technology (Information Technology)

Choice Based Credit System (CBCS) 2016-17

SEMESTER IV

List of Experiments:

Select a topic of the project, and then make the report on following points:

1. System Analysis
   1.1. Identification of Need
   1.2. Preliminary Investigation
2. Feasibility Study
   2.1. Technical Feasibility
   2.2. Economical Feasibility
   2.3. Operational Feasibility
3. Literature Survey
   3.1. Work done by other
   3.2. Benefits
   3.3. Proposed Solution
   3.4. Technology used
4. Technical Part
5. Software Engineering Approach
   5.1. Software Engineering paradigm Applied
      5.1.1. Description
      5.1.2. Advantage & Disadvantages
      5.1.3. Reasons for use

5.2 Requirement Analysis

   5.2.1 Software Requirement Specification
      5.2.1.1 Glossary
      5.2.1.2 Supplementary Specifications
      5.2.1.3 Use Case Model
      5.2.1.4 Comparative analysis documents
   5.2.2 Conceptual Level Activity Diagram

5.3 Planning Managerial Issues

   5.3.1 Planning Scope
   5.3.2 Project Resources
   5.3.3 Team Organization
   5.3.4 Project Scheduling
   5.3.5 Estimation
   5.3.6 Risk Analysis
   5.3.7 Security Plan

5.4 Design

   5.4.1. Design Concept
   5.4.2. Design Technique

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5.4.3. Modeling
5.4.3.1. ER Model
5.4.3.2. DFD Model
5.4.3.2.1. DFD Model Level-0 and 1
5.4.3.2.2. DFD Model Level 2 and 3
5.4.3.3. Data Dictionary
5.4.3.4. Activity Diagram
5.4.3.5. Software Architecture

5.5 Implementation Phase
5.5.1. Language Used Characteristics
5.5.2. Coding

5.6 Testing
5.6.1. Testing Objectives
5.6.2. Testing Methods & Strategies used along with test data and the error listed for each test case for each function provided by the system

Shri Vaishnav Vidyapeeth Vishwavidyalaya

Bachelor of Technology (Information Technology)

Choice Based Credit System (CBCS) 2016-17

SEMESTER IV

COURSE CODE	Category	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTIT406		UNIX AND SHELL PROGRAMMING LAB	-	-	-	30	20	-	-	2	1

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives:
The course content should be taught and implemented with the aim to develop required skills so that students are able to acquire following competency:

1. Know the basics of UNIX operating system and shell programming.

Course Outcomes:

1. Work on any Unix platform with confidence
2. Write the code in C language on UNIX platform.
3. Write effective scripts for their day to day jobs
4. Understand and use most of the Unix features and commands

Syllabus:

Unit-I: Introduction to UNIX
The UNIX Operating System, The UNIX Architecture, Features of UNIX, Internal And External Commands, Command Structure. GENERAL-PURPOSE UTILITIES: cal, date, echo, printf, bc, script, passwd, PATH, who, uname, tty, stty, pwd, cd, mkdir, rmdir, od.

Unit-II: Handling Files and C Environment
The File System, cat, cp, rm, mv, more, file, ls, wc, pg, cmp, comm, diff, gzip, tar, zip, df, du, mount, umount, chmod, The vi editor ,security by file Permissions. NETWORKING COMMANDS: ping, telnet, ftp, finger, arp, rlogin. The C compiler, vi editor, compiler options, and run the programs.

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Indore

Unit-III: Shell Basics

Types of shells , Shell functionality, Work Environment, Writing script & executing basic script, Debugging script, Making interactive scripts, Variables (default variables), Mathematical expressions. Conditional statements: If-else-elif, Test command, Logical operators-AND, OR, NOT, Case –esac. Loops: While, For, Until, Break & continue.

Unit- IV: Command Line Arguments and Regular Expression

Command line arguments: Positional parameters, Set & shift, IFS. Functions & file manipulations: Processing file line by line, Functions. Regular Expression & Filters: What is regular expression, Grep, cut, sort commands, Grep patterns.

Unit –V: SED and AWK

SED: Scripts, Operation, Addresses, commands, Applications, grep and sed. AWK: Execution, Fields and Records, Scripts, Operations, Patterns, Actions, Associative Arrays, String Functions, String Functions, Mathematical Functions, User – Defined Functions, Using System commands in awk, Applications, awk and grep, sed and awk.

References:

1. *Graham Glass, King Ables, "Unix for programmers and users", 3rd Edition, Pearson Education, 2009.*
2. *N.B Venkateswarlu, "Advanced Unix programming", 2ndEdition, BS Publications, 2010.*
3. *YashwanthKanitkar,"Unix Shell programming", 1stEdition, BPB Publisher, 2010.*
4. *Sumitabha Das, "Unix Concepts and Applications", 4thEdition. TMH, 2006.*
5. *Behrouz A. Forouzan, Richard F. Gilbery, "Unix and shell Programming", 1stEdition, Cengage Learning India, 2003.*

List of Experiments:

1. Installation of Unix/Linux operating system.
2. Study of Unix general purpose utility command list obtained from (man, who, cat, cd, cp, ps, ls, mv, rm, mkdir, rmdir, echo, more, date, time, kill, history, chmod, chown, finger, pwd, cal, logout, shutdown) commands.
3. Study of vi editor.
4. Study of Bash shell, Bourne shell and C shell in Unix/Linux operating system.
5. Write a C program to check whether the given string is palindrome or not using Command line substitution.
6. Write a C program to check the given integer is prime or not.
7. Write a C program to check whether the given number is Avogadro number or not.
8. Write a C program that accept two integers as its arguments and computes the value of first number raised to the power of second number.

9. Write a shell script program to display list of user currently logged in.
10. Write a shell script program to display "HELLO WORLD".
11. Write a shell script program to develop a scientific calculator.
12. Write a shell Script program to check whether the given number is even or odd.
13. Shell script Program to search whether element is present is in the list or not.
14. Shell script program to check whether given file is a directory or not.
15. Shell script program to count number of files in a Directory.
16. Shell script program to copy contents of one file to another.
17. Create directory, write contents on that and Copy to a suitable location in your home directory.
18. Use a pipeline and command substitution to set the length of a line in file to a variable.
19. Write a program using sed command to print duplicated lines of Input.
20. Write a grep/egrep script to find the number of words character, words and lines in a file.
21. Write an awk script to develop a Fibonacci series.
22. Write an awk script to display the pattern of given string or number.
23. Write an egrep script to display list of files in the directory.

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Bachelor of Technology (Information Technology)

Choice Based Credit System (CBCS) 2016-17

SEMESTER IV

COURSE CODE	Category	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTIT407		WEB DEVELOPMENT LAB-II(PHP/JSP)	-	-	-	-	100	-	-	4	2

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives:
The course content should be taught and implemented with the aim to develop required skills in the students so that they are able to acquire following competencies:

1. Develop interactive web based application using PHP/JSP and MySQL

Course Outcomes:
The theory should be taught and practical should be carried out in such a manner that students are able to acquire different learning out comes in cognitive, psychomotor and affective domain to demonstrate following course outcomes.

1. Create small programs using basic PHP concepts.
2. Apply In-Built and Create User defined functions in PHP programming.
3. Design and develop a Web site using form controls for presenting web based content.
4. Debug the Programs by applying concepts and error handling techniques of PHP.
5. Create dynamic Website/ Web based Applications, using PHP, MySQL database.
6. Create dynamic Website/ Web based Applications, using JSP, MySQL database.

Syllabus:
Unit-I: Introduction to PHP

Identify relationship between Apache, MySQL and PHP, Steps to install & test web server, Configure Apache to use PHP, Create simple PHP page using PHP structure and Syntax, use of PHP variables, data types and PHP Operators, Apply control structures in programming, steps to create user defined functions

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Bachelor of Technology (Information Technology)

Choice Based Credit System (CBCS) 2016-17

SEMESTER IV

Unit-II :Working with In Built Functions

Apply various InBuilt Variable(gettype, settype, isset, strval, floatval, intval,print_r), String(Chr, ord, strtolower, strtoupeer, strlen, ltrim, rtrim, trim, substr, strcmp, strcasecmp, ctrops, strops, stristr, str_replace, strrev, echo, print), MATH(Abs, ceil, floor, round, fmod, min, max, pow, sqrt, rand), Date (Date, getdate, setdate, checkdate, time, mktime), Array(Count, list, in_array, current, next, previous, end, each, sort, array_merge, array_reverse), File Functions(Fopen, fread, fwrite, fclose) in programming .

Unit-III: Working with data and forms

Steps to create an input form (Text Fields, Text Areas, Check Boxes, Radio Buttons, List Boxes, Password Controls, Hidden Controls, Image Maps, File Uploads, Buttons), Steps to use Using PHP $_Get and $_Post, $_Request method for a given application, Combining HTML and PHP codes together on single page, Redirecting the user

Unit-IV: Session, Cookies and Error Handling

Use cookie to store and retrieve data, Use querystring to transfer data, Create session variable and handle session, Starting and Destroying session Working with session variables, Passing session IDs, Handle runtime errors through exception handling, Error types in PHP.
Database Connectivity using MYSQL: Concepts and Installation of MySQL, MySQL structure and syntax, Types of MySQL tables and Storage engines, MySQL commands, Integration of PHP with MySQL, Connection to the MySQL Database, Creating and DeletingMySQL database usingPHP, Updating, Inserting, Deleting records in the MySQL database, Hosting Website (Using 'C' panel, Using Filezilla Software)

Unit-V: Java Server pages

Basics, Integrating Scripts in JSP, JSP Objects and Components, configuration and troubleShooting, JSP: Request and reponse objects, Retriving the contents of an HTML form, Reteriving a Query String, Working with Beans, Cookies, Creating and Reading Cookies. Using application Objects and Event handling.

References:

1. *Beginning PHP and MySQL, 4th Edition, W. Jason Gilmore, Apress, 2010*
2. *PHP: The Complete Reference, Steven Holzner, McGraw-Hill, 2008*
3. *Learning PHP, MySQL, JavaScript, CSS & HTML5, Third Edition, Robin Nixon, O'reilly Media , 2014*

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4. *Teach yourself PHP, MySQL and Apache All in One , 5th Edition, Julie C. Meloni, Pearson Education, 2012*
5. *JSP – Complete Reference, Phil Hanna, McGraw-Hill*

List of Experiments.

1. Write a PHP script to display Welcome message.
2. Write a PHP script to demonstrate arithmetic operators, comparison operator, and logical operator.
3. Write PHP Script to print Fibonacci series.
4. Write PHP script to demonstrate Variable function
5. Write PHP script to demonstrate string function.
6. Write PHP script to demonstrate Array functions.
7. Create student registration form using text box, check box, radio button, select, submit button. And display user inserted value in new PHP page.
8. Write two different PHP script to demonstrate passing variables through a URL.
9. Write PHP script to demonstrate passing variables with cookies.
10. Write an example of Error-handling using exceptions.
11. Write a PHP script to connect MySQL server from your website.
12. Write a program to read customer information like cust_no, cust_name, Item_purchase, and mob_no, from customer table and display all these information in table format on output screen.
13. Write a program to read employee information like emp_no, emp_name, designation and salary from EMP table and display all this information using table format.
14. Create a dynamic web site using PHP and MySQL.
15. Write a program for JSP scriptlet tag that prints the user name
16. Write a program for JSP expression tag that prints current time
17. Write a program for JSP declaration tag that declares method
18. Write a program for JSP for request and response implicit object
19. Write a program for JSP for session implicit object
20. Write a program for JSP for exception implicit object
21. Write a program for JSP for Simple example of java bean class
22. Write a program for JSP for JSP Action Tags

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