Shri Vaishnav Vidyapeeth Vishwavidyalaya

B.Tech.(CSE-Big Data Analytics/Cloud and Mobile Computing/Artificial Intelligence-IBM)

Choice Based Credit System (CBCS) 2019-20

SEMESTER III

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY		PRACTICAL		
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTIT401	**UG**	**Discrete Structures**	3	1	0	4	60	20	20	0	0

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 provide the fundamentals of formal techniques for solve the problems in computational domain and algorithm development
2. Apply appropriate mathematical and statistical concepts and operations to interpret data and to solve problems
3. Formulate and evaluate possible solutions to problems, and select and defend the chosen solutions
4. Construct graphs and charts, interpret them, and draw appropriate conclusions

Course Outcomes:

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

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, 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 Representation Graph Isomorphism; Connectedness; Various Graph Properties; Euler and 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, Multinomial 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.

Text Books:

1. C.L.Liu, "Elements of Discrete Mathematics",4th Edition, Tata McGraw-Hill, 2012.
2. Kenneth H. Rosen, "Discrete Mathematics and its applications", 7th Edition,Tata McGraw-Hill, 2012.
3. V. Krishnamurthy, "Combinatories:Theory and Applications", 2nd Edition,East-West Press, 2008.
4. Seymour Lipschutz, M.Lipson, "Discrete Mathemataics",3rd Edition, Tata McGraw Hill, 2009.

Reference Books:

1. Trembley, J.P &Manohar; "Discrete Mathematical Structure with Application CS", Tata McGraw Hill.
2. Bisht, "Discrete Mathematics",Oxford University Press, 2015.
3. Biswal,"Discrete Mathematics & Graph Theory",3rd Edition, PHI, 2011.

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B.Tech.(CSE-Big Data Analytics/Cloud and Mobile Computing/Artificial Intelligence-IBM)

Choice Based Credit System (CBCS) 2019-20

SEMESTER III

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY		PRACTICAL		
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTCS302	**UG**	**Data Communication**	3	1	0	4	60	20	20	0	0

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 concepts of data communications.
2. To be familiar with the Transmission media and Tools.
3. To study the functions of OSI layers.
4. To learn about IEEE standards in computer networking.
5. To get familiarized with different protocols and network components.

Course Outcomes:

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

1. Understand the Process and functions of data communications
2. Understand Transmission media and Tools
3. Understand the functions of OSI layers
4. Understand IEEE standards in computer networking
5. Understand different protocols and network components

Syllabus:

UNIT I

Introduction: Data Communication Components, Types of Connections, Transmission Modes, Network Devices, Topologies, Protocols and Standards, OSI Model, Transmission Media, Bandwidth, Bit Rate, Bit Length, Baseband and Broadband Transmission, Attenuation, Distortion, Noise, Throughout, Delay and Jitter.

UNIT II

Data Encoding: Unipolar, Polar, Bipolar, Line and Block Codes. Multiplexing: Introduction and History, FDM, TDM, WDM, Synchronous and Statistical TDM.Synchronous and Asynchronous transmission, Serial and Parallel Transmission.

UNIT III

Error Detection & Correction: Correction, Introduction–Block Coding–Hamming Distance, CRC, Flow Control and Error Control, Stop and Wait, Error Detection and Error Go Back– N ARQ, Selective Repeat ARQ, Sliding Window, Piggybacking, Random Access, CSMA/CD,CDMA/CA

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B.Tech.(CSE-Big Data Analytics/Cloud and Mobile Computing/Artificial Intelligence-IBM)

Choice Based Credit System (CBCS) 2019-20

SEMESTER III

UNIT IV

Network Switching Techniques: Circuit, Message, Packet and Hybrid Switching Techniques.X.25, ISDN.Logical Addressing, Ipv4, Ipv6, Address Mapping, ARP, RARP, BOOTP and DHCP, User Datagram Protocol, Transmission Control Protocol, SCTP.

UNIT V

Application Layer Protocols: Domain Name Service Protocol, File Transfer Protocol, TELNET, WWW and Hyper Text Transfer Protocol, Simple Network Management Protocol, Simple Mail Transfer Protocol, Post Office Protocol v3.

Text books:

1. Behrouz A. Forouzan, "Data communication and Networking", FourthEdition,Tata McGraw Hill, 2011.

Reference Books:

1. Larry L.Peterson, Peter S. Davie, "Computer Networks", Fifth Edition,Elsevier, 2012.
2. William Stallings, "Data and Computer Communication", Eighth Edition, Pearson Education,2007.
3. James F. Kurose, Keith W. Ross, "Computer Networking: A Top–Down Approach Featuring theInternet", Pearson Education, 2005.

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B.Tech.(CSE-Big Data Analytics/Cloud and Mobile Computing/Artificial Intelligence-IBM)

Choice Based Credit System (CBCS) 2019-20

SEMESTER III

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							THEORY		PRACTICAL		
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTIT305	**UG**	**Analysis and Design of Algorithms**	3	1	2	5	60	20	20	30	20

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 Objective:
The student will have ability to:

1. Ability to analyze asymptotic runtime complexity of algorithms including formulating recurrence relations. How to develop efficient algorithms for simple computational tasks and reasoning about the correctness of them?
2. The emphasis is on choosing appropriate data structures and designing correct and efficient algorithms to operate on these data structures.
3. Write rigorous correctness proofs for algorithms.
4. Synthesize efficient algorithms in common engineering design situations.

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

1. Define the basic concepts of algorithms and analyze the performance of algorithms.
2. Discuss various algorithm design techniques for developing algorithms.
3. Discuss various searching, sorting and graph traversal algorithms.
4. Understand NP completeness and identify different NP complete problems.
5. Discuss various advanced topics on algorithms.

Syllabus:

UNIT 1
Algorithms Designing: Algorithms, Analyzing Algorithms, Asymptotic Notations, Heap and Heap Sort,Brief Review of Graphs, Sets and Disjoint Set Union, Sorting and Searching Algorithms and their Analysis in terms of Space and Time Complexity. Divide and Conquer: General Method, Binary Search, Merge Sort, Quick Sort, Selection Sort, Strassen's Matrix Multiplication Algorithms.

UNIT II
Greedy Method: General Method, Knapsack Problem, Job Sequencing with Deadlines, Minimum-Cost Spanning Trees, Single Source Shortest Paths.

UNIT III
Dynamic Programming: General Method, Optimal Binary Search Trees, O/1 Knapsack, Traveling Salesperson Problem, All Pairs Shortest Paths.

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UNIT IV

Backtracking: General Method, 8-Queens Problem, Graph Coloring, Hamiltonian Cycles, Sum of Subsets. Branch and Bound: Method, O/1 Knapsack Problem, Traveling Salesperson Problem, Efficiency Considerations, Techniques for Algebraic Problems, Some Lower Bounds on Parallel Computations.

UNIT V

NP Hard and NP Complete Problems: Basic Concepts, Cook's Theorem, NP Hard Graph and NP Scheduling Problems, Some Simplified NP Hard Problems.

Text Books:

1. Ellis Horowitz and SartajSahni, "Fundamental of Computer Algorithms", 2nd Edition, Galgotia Publication, 2001.
2. Thomas H Cormen, Charles E Leiserson and Ronald L Rivest "Introduction to Algorithms",3rd Edition, MIT Press. 2009.
3. Donal E Knuth, "Fundamentals of Algorithms: The Art of Computer Programming" Vol l,3rd Edition, Pearson Educatio, 1997.

Reference Books:

1. Goodman, S.E. &Hedetnieni,"Introduction to Design and Analysis of Algorithm", Tata McGraw Hill, 1977.
2. S. Dasgupta, C. H. Papadimitriou, and U. V. Vazirani,"Algorithms",Tata McGraw Hill, 2006.
3. J.E Hopcroft, J.D Ullman, "Design and analysis of algorithms" TMH Publication.
4. Michael T Goodrich and RobartoTamassia "Algorithm Design", Wiely India.

List of Practical:

1. Write a program for Iterative and Recursive Binary Search.
2. Write a program for Merge Sort.
3. Write a program for Quick Sort.
4. Write a program for Strassen's Matrix Multiplication.
5. Write a program for minimum spanning trees using Kruskal's algorithm.
6. Write a program for minimum spanning trees using Prim's algorithm.
7. Write a program for single sources shortest path algorithm.
8. Write a program for Floyd-Warshal algorithm.
9. Write a program for traveling salesman problem.
10. Write a program for Hamiltonian cycle problem.

Shri Vaishnav Vidyapeeth Vishwavidyalaya

B.Tech.(CSE-Big Data Analytics/Cloud and Mobile Computing/Artificial Intelligence-IBM)

Choice Based Credit System (CBCS) 2019-20

SEMESTER III

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BTIBM401	**UG**	**Cloud Computing: Project Based Learning**	3	1	2	5	60	20	20	30	20

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. Understand the evolution and impact of cloud computing in the world today.
2. Understand the evolution and impact of cloud computing in the world today.
3. Explore end-to-end case studies for every key cloud industry and identify common patterns: public cloud, private cloud, hybrid cloud.
4. Understand technical aspects of cloud solutions: software as a service, platform as services and infrastructure as a service.
5. Build cognitive solutions, leveraging AI and data science in cloud solutions.
6. Understand industry practices to design and build agile cloud solutions, using the cloud Garage methodology.
7. Work in teams jointly exploring real-world cloud scenarios.
8. Prototype bespoke cloud solutions leveraging industry-proven concepts, technologies and mythologies.

Course Outcomes:

1. Understand how deep our industries and societies rely on the cloud computing global infrastructure.
2. Identify the consumer massive adoption of cloud computer application through mobile devices.
3. Understand the role that cloud computing plays in the digital modernization journey of organization today.
4. Validate the different patterns of cloud computing adoption including public cloud services, private enterprise setting and hybrid approaches.
5. Identify common challenges associated with the adoption of cloud computing solutions.

Syllabus:

UNIT I : CLOUD COMPUTING LANDSCAPE

- Cloud impact in our lives
- Cloud enterprise adoption
- Cloud services

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- Summary & resources

CLOUD INDUSTRY ADOPTION

- Drivers for Digital Transformation
- Cloud Impact in Banking
- Cloud Impact in Education
- Summary & resources

UNIT II : API PLATFORM REVOLUTION

- Cloud Culture of Change
- API Platforms Landscape
- APIs driving the Cloud platform revolution
- Summary & resources

UNIT III: DATA IN THE CLOUD

- Where and how will data be used?
- Why use NoSQL?
- Attributes of NoSQL databases
- Summary & resources

UNIT IV: CLOUD AND AI

- AI Industry Adoption
- AI Evolution
- Empowered Cloud Apps with AI

Summary & resources

CLOUD FOR MULTI-CHANNEL

- The Need for a Multi-channel platform
- Multi-channel platform characteristics
- Rapid and Intelligent

Summary and resources

UNIT V: CLOUD SECURITY

- Cloud Security landscape
- Security concerns in microservices
- OAuth protocol

Summary & resources

DEVOPS FRAMEWORK

- What is DevOps?
- DecOps Agile Culture
- DevOps Lifecycle

Text Books:

1. Cloud Computing Bible by Barrie Sosinsky, 2010
2. Cloud Computing: Concepts, Technology & Architecture by Zaigham Mahmood, Ricardo Puttini, Thomas Erl, 2013

Reference Books:

1. Cloud Computing: Saas, Paas, Iaas, Virtualization, Business Models, Mobile, Security and More by Dr Kris

Jamsa , 2012

2. Cloud Computing Paperback – 2019
3. by Mehul Mahrishi Kamal Kant/Ruchi Doshi/ Temitayo Fagbola
4. Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online, 1e Paperback – 2008 by Miller

5. IBM Skills Academy (PDF Provided by IBM)

List of Practical:

- Create an IBM Cloud Account

ACME AIRLINE CLOUD ADOPTION

- Prepare your Environment
- Creating an APP
- Developing an App
- Acme Business Case- Preparing the APP
- Prepare Your Environment
- Creating an App
- Developing an App
- Acme Business Case – Preparing the App

MAINTENANCE CREW CLOUD APP

- Digital App Builder Data Sets
- Cloud Management
- Return to the Digital App Builder
- Preview Dataset in Action

ADD AI TO MAINTENANCE CREW APP

- Create Cloud Cognitive Services
- Connect Services to your App
- Train and Implement Cognitive Services

ADD MULTI-CHANNEL SUPPORT

- Android Studio
- Enabling Android in Digital App Builder
- Preview your APP in Android Device

SECURE THE MAINTENANCE CREW APP

- Login Security
- Mobile Phone Authorization
- Test new security functionality

EXPLORE TOOLCHAINS

- Enable Toolchains
- Create and Explore the Garage Method
- Finalize the Creation of Toolchain
- Agile Planning
- Continuous Integration and Delivery
- Manage IBM Cloud Apps
- Manage App Using New Relic & PagerDuty
- Slack and PagerDuty Integration

- Learn from Users

DEVELOP & TEST MICROSERVICES

- Create Microservices Toolchain
- Configure Tool Integrations
- Configure Tool Integrations
- View Build & Deployment Actibity
- Manager Access
- Configure Pager Duty
- Submit an Issue
- Modify Code

IDENTIFY AN ERROR

- Fix the Problem and Deploy
- Fix the Problem and Deploy
- Explore the DevOps Insights
- Improve Deployment Management
- Improve Visibility
- Delete Tools and Artifacts

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B.Tech.(CSE-Big Data Analytics/Cloud and Mobile Computing/Artificial Intelligence-IBM)

Choice Based Credit System (CBCS) 2019-20

SEMESTER III

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							THEORY		PRACTICAL		
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTIT309	**UG**	**Introduction to Core Java**	2	0	2	3	60	20	20	30	20

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. Understand Java Environment for application development.
2. Understand Programing using Object Oriented Technology,
3. Develop computer program to solve specific problems with high performance.
4. Create debug and run java standalone applications

Course Outcomes:

Students will be able to:

1. Design new applications using object oriented methodologies.
2. Explore various system libraries
3. Analyze and improve performance of applications.
4. Design Data base connectivity program for simple problems

Syllabus:

UNIT I

The Java Environment: Basic History of Java and its Features, JVM, JRE and JDK, its Libraries and Functionalities, Why Java? Installing Java, Java Classes and Objects, Variables and Data Types Conditional and Looping Constructs,Arrays.

UNIT II

The Java Language: Constructors, Inheritance, Packages and Interfaces, Access Specifier, Enumerations, Auto boxing, and Annotations (Metadata) Garbage collection, Nested Classes, Inner Classes

UNIT III

Performance: Understanding Threads, Needs of Multi-Threaded Programming, Thread Life Cycle, Thread Priorities ,Synchronizing Threads, Inter Communication of Threads, The Idea Behind Exception , Exceptions and Errors ,Types of Exception, Control Flow in Exceptions, JVM Reaction to Exceptions, Use of Try, Catch, Finally, Throw, Throws in Exception Handling, In-Built and User Defined Exceptions,Checked and Un Checked Exceptions, Generics, Lambda Expressions.

UNIT IV

The Java Library: String Handling, Exploring Java.Lang, Java.Util – The Collection Framework, Exploring Java.IO, Exploring Java.NIO.

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B.Tech.(CSE-Big Data Analytics/Cloud and Mobile Computing/Artificial Intelligence-IBM)

Choice Based Credit System (CBCS) 2019-20

SEMESTER III

UNIT V

Database Connectivity with JDBC: Introduction to JDBC, JDBC Drivers & Architecture, CRUD Operation using JDBC

Text Books:

1. Kishore Sharan, "Beginning Java 8 Language Features", Apress, 2014
2. E. Balagurusamy, "Programming with java A Primer", Fourth Edition, Tata McGraw Hill, 2009.
3. Sharanam Shah, "Core Java 8 for Beginners", Shroff Publisher, 2015.

Reference Books:

1. Herbert Schildt, "The Complete Reference Java", Ninth Edition, McGraw Hill, 2014
2. Bert Bates, Kathy Sierra, "Head First Java", 2nd Edition, O' Reilly, 2005
3. Cay S Horstman and Gary Cornell, "Core Java", Vol I & II, Pearson Education, 2013

List of Practical:

1. Write a program to show concept of Class in Java?
2. Write a program showing Type Casting
3. Write a program showing Different type of inheritance
4. Write a program showing Different types of Polymorphism
5. Write a program showing Encapsulation
6. Write a program showing Abstraction
7. Write a Multithreaded program
8. Write a program showing Checked and Unchecked Exception
9. Write a program showing Database connectivity.
10. Write a program showing Simple database Operation (CRUD)

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B.Tech.(CSE-Big Data Analytics/Cloud and Mobile Computing/Artificial Intelligence-IBM)

Choice Based Credit System (CBCS) 2019-20

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							THEORY		PRACTICAL		
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTIT406	**UG**	**Unix and Shell Programming Lab**	0	0	2	1	0	0	0	0	50

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 introduction to UNIX Operating System and its File System.
2. To gain an understanding of important aspects related to the SHELL and the process
3. To develop the ability to formulate regular expressions and use them for pattern matching.
4. To provide a comprehensive introduction to SHELL programming, services and utilities.
5. To develop the ability to perform different networking tasks.

Course Outcomes:

On completion of this course:

1. Describe the architecture and features of UNIX Operating System and distinguish it from other Operating System
2. Demonstrate UNIX commands for file handling and process control
3. Write Regular expressions for pattern matching and apply them to various filters for a specific task
4. Analyze a given problem and apply requisite facets of SHELL programming in order to devise a SHELL script to solve the problem.
5. Diagnose network using different networking utilities of UNIX.

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.

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 & Regular Expression - Command line arguments: Positional parameters, Set & shift, IFS. Functions & file manipulations: Processing file line by line, Functions. Regular Expression & Filters: 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.

Text Books:

1. Stephen Prata "Advanced UNIX: A Programming's Guide", BPB Publications, 2017.
2. Maurice J. Bach "Design of UNIX O.S. ", PHI Learning, 2015.
3. Brian W. Kernighan & Robe Pike, "The UNIX Programming Environment", PHI Learning, 2015.
4. Sumitabha Das: "YOUR UNIX – The Ultimate Guide", Tata McGraw Hill, 23rdreprint, 2012.
5. Yashavant Kanetkar, "Unix Shell programming", 1st Edition, BPB Publisher, 2010.

Reference Books:

1. Behrouz A. Forouzan, Richard F. Gilbery, "Unix and Shell Programming", 1st Edition, Cengage Learning India, 2003.
2. Graham Glass, King Ables, "Unix for programmers and users", 3rd Edition, Pearson Education, 2009.
3. Sumitabha Das, "Unix Concepts and Applications", 4th Edition. TMH, 2006.
4. N.B. Venkateswarlu, "Advanced Unix programming", 2nd Edition, B S Publications, 2010.

List of Practical:

1. Perform installation of UNIX/LINUX operating system.
2. Study of UNIX general purpose utility commands.
3. Execution of various file/directory handling commands.
4. Working with the vi editor: Creating and editing a text file with the vi text editor using the standard vi editor commands.
5. Write a shell script for calculator (to perform basic arithmetic and logical calculations).
6. Write a shell script sum.sh that takes an unspecified number of command line arguments (up to 9) of ints and finds their sum. Modify the code to add a number to the sum only if the number is greater than 10.
7. Write a shell script that will take an input file and remove identical lines (or duplicate lines from the file).
8. Write a shell script takes the name a path (eg: /afs/andrew/course/15/123/handin), and counts all the sub directories (recursively).
9. Shell scripts to explore system variables such as PATH, HOME etc.

10. Write a shell script that takes a name of a folder as a command line argument, and produce a file that contains the names of all sub folders with size 0 (that is empty sub folders)
11. Execution of various system administrative commands.
12. Write awk script that uses all of its features.
13. Write a shell script to display list of users currently logged in.
14. Write a shell script to delete all the temporary files.
15. Write a shell script to search an element from an array using binary searching.
16. Write shell script to perform different string operations of arrays.

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Choice Based Credit System (CBCS) 2019-20

SEMESTER III

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY		PRACTICAL		
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BTIT407	**UG**	**Web Development Lab-II (PHP/JSP)**	0	0	4	2	0	0	0	30	20

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 inthe students so that they are able to acquire following competencies:

1. Develop interactive web based application using PHP/JSP and MySQL.
2. Effective use of format and design for print documents
3. Design dynamic websites that meet specified needs and interests.

Course Outcomes:

The theory should be taught and practical should be carried out in such a manner that students areable to acquire different learning out comes in cognitive, psychomotor and affective domain toDemonstrate 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 and Test Web Server,Configure Apache to Use PHP, Create Simple PHP Page Using PHP Structure and Syntax, Use ofPHP Variables, Data Types and PHP Operators, Apply Control Structures in Programming, Steps toCreate User Defined Functions.

UNIT-II

Working with in Built Functions: Apply Various Inbuiltvariable(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:

Chairperson
Board of Studies
(Computer Science & Engineering,
Information Technology & Computer Applications)
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

Joint Registrar
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore

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 Deleting Mysql Database Using PHP,Updating, Inserting, Deleting Records in the Mysql Database, Hosting Website (Using "C" Panel,Using FileZillaSoftware)

UNIT-V:

Java Server Pages Basics:Integrating Scripts in JSP, JSP Objects and Components, Configuration and Troubleshooting,JSP: Request and Response Objects, Retrievingthe Contents of An HTML Form, Retrievinga Query String, Working with Beans, Cookies, Creating and Reading Cookies. Using Application Objects and Event Handling.

Text Books:

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

Reference Books:

1. Julie C. Meloni, "Teach yourself PHP, MySQL and Apache All in one", 5th Edition,Pearson Education, 2012
2. Phil Hanna, "JSP 2.0: The Complete Reference", Tata McGrawHill, 2011.

List of Practical's:

1. Write a PHP script to display Welcome message.
2. Write a PHP script to demonstrate arithmetic operators, comparison operator, andlogical 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 intable format on output screen.

13. Write a program to read employee information like emp_no, emp_name, designationand 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