Shri Vaishnav Vidyapeeth Vishwavidyalaya
Shri Vaishnav Institute of Information Technology
Choice Based Credit System (CBCS) in the light of NEP-2020
B.Tech. (CSE-Big Data Analytics/Cloud and Mobile Computing/Artificial Intelligence/Data Science/Full Stack Development & Blockchain-IBM)
SEMESTER II (2021-2025)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment *	END SEM University Exam	Teachers Assessment *				
BTMACS 201	BS	Mathematics-II	60	20	20	0	0	3	1	0	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 Educational Objectives (CEOs):

The student will have ability to:
1. To introduce the students with the Fundamentals of the Calculus of Matrices, Differential Equations, Numerical Analysis and Statistics.

Course Outcomes (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes.

The students will be able to
1. Understand and apply the basics of the calculus of matrices.
2. Solve the fundamental problems of the ordinary differential equations.
3. Apply the advanced techniques to find the solution of the ordinary differential equations.
4. Know the techniques of the numerical analysis.
5. Find the numerical solution of the ODE.
6. Understand and apply the basics of the statistical methods.

Syllabus:

UNIT I   10HRS
Calculus of Matrices: Systems of linear equations and their solutions.Matrices, determinants, rank and inverse.Linear transformations. Range space and rank, null space and nullity. Eigenvalues and eigenvectors.Similarity transformations.Diagonalization of Hermitian matrices.

UNIT II   9HRS
Differential Equation: Ordinary Differential Equations: First order linear and nonlinear ordinary differential equations, exactness and integrating factors. Ordinary linear differential equations of n-th order, solutions of homogeneous and non-homogeneous equations.Operator method.Method of undetermined coefficients and variation of parameters.

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UNIT III   8HRS
Numerical Analysis:Interpolation and Curve Fitting: Introduction to Interpolation; Calculus of Finite Differences; Finite Difference and Divided Difference Tables; Newton Gregory Polynomial Form; Lagrange Polynomial Interpolation; Approximation by Least Square Method.
Numerical Differentiation and Integration: Discrete Approximation of Derivatives: Forward and Backward Difference Forms, Numerical Integration, Simple Newton Cotes Rules: Trapezoidal and Simpson's (1/3) Rules; Weddle's Rule.

UNIT IV   7HRS
Numerical Solution of ODE: Euler's Method for Numerical Solution of ODE; Modified Euler's Method; Runge Kutta Method (RK2, RK4); Multistep Method: Predictor-Corrector method.

UNIT V   8HRS
Probability Theory and Random Process : Axiomatic construction of the theory of probability, independence, conditional probability, and basic formulae, random variables, binomial, Poisson and normal random variable, probability distributions, functions of random variables; mathematical expectations, Definition and classification of random processes, discrete-time Markov chains.

Text Books:
1. G. Strang, Linear Algebra And Its Applications, 4th Edition, Brooks/Cole, 2006
2. S. L. Ross, Differential Equations, 3rd Edition, Wiley, 1984.
3. E. A. Coddington, An Introduction to Ordinary Differential Equations, Prentice Hall, 1995.
4. W.E. Boyce and R.C. DiPrima, Elementary Differential Equations and Boundary Value Problems, 7th Edition, Wiley, 2001.
5. E,K. E. Atkinson, Numerical Analysis, John Wiley, Low Price Edition (2004).
6. S. D. Conte and C. de Boor, Elementary Numerical Analysis An Algorithmic Approach, McGraw-Hill, 2005.
7. B. S. Grewal, Higher Engineering Mathematics, Khanna Publishers, Delhi.

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BTMACS 201	BS	Mathematics-II	60	20	20	0	0	3	1	0	4

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
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References:

1. E. Kreyszig, Advanced Engineering Mathematics, 9th Edition, Wiley, 2005.
2. R. G. Bartle and D. R. Sherbert, Introduction to Real Analysis, 5th Ed, Wiley,1999.
3. J. Stewart, Calculus: Early Transcendentals, 5th Ed, Thomas Learning (Brooks/ Cole), Indian Reprint, 2003.
4. J. Stoer and R. Bulirsch, Introduction to Numerical Analysis, 2nd Edition, Texts in Applied Mathematics, Vol. 12, Springer Verlag, 2002.
5. J. D. Hoffman, Numerical Methods for Engineers and Scientists, McGraw Hill, 2001.
6. M.K Jain, S.R.K Iyengar and R.K Jain, Numerical methods for scientific and engineering computation (Fourth Edition), New Age International (P) Limited, New Delhi,2004.
7. S. C. Chapra, Applied Numerical Methods with MATLAB for Engineers and Scientists, McGraw Hill2008.

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| COURSE CODE | CATE GORY | COURSE NAME | TEACHING & EVALUATION SCHEME | | | | | L | T | P | CREDITS |
| | | | THEORY | | | PRACTICAL | | | | | |
			END SEM University Exam	Two Term Exam	Teachers Assessmen t*	END SEM University Exam	Teachers Assessmen t*				
HUCS101	SEC	Communication Skills	60	20	20	30	20	1	0	2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical;   **C** - Credit;
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Course Educational Objectives (CEOs):

1. Develop the second language learners 'ability to enhance and demonstrate LSRW Skills.
2. Enable students to acquire English Language Skills to further their studies at advanced levels.
3. Prepare students to become more confident and active participants in all aspects of their under graduate programs

Course Outcomes (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes.

The students will be able to

1. Enhance confidence in their ability to read, comprehend, organize, and retain written in formation.
2. Write grammatically correct sentences for various forms of written communication to express oneself.

Syllabus:

UNIT I   **10HRS**
   C**ommunication**: Nature, Meaning, Definition,Verbal and Non Verbal Communication Barriers to Communication.

UNIT II   **9HRS**
   Basic Language Skills: Grammar and usage- Parts of Speech, Tenses, S-V Agreement, Preposition, Article.

UNIT III   8**HRS**

   Basic Language Skills: Types of Sentence, Direct - Indirect, Active - Passive voice, Phrases& Clauses.

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HUCS101	SEC	Communication Skills	60	20	20	30	20	1	0	2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical;   **C** - Credit;
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UNIT IV   **7HRS**
  Business Correspondence: Business Letter, Parts & Layouts of Business Resume and Job application, E-mail writing.

UNIT V   **8HRS**
  Report Writing: Importance of Report, Types of Report, Structure of a Report.

List of Practical's:
  1. SelfIntroduction
  2. Reading Skills and ListeningSkills
  3. OralPresentation
  4. Linguistics andPhonetics
  5. JAM (Just aMinute)
  6. GroupDiscussion

Suggested Readings:
  1. Ashraf Rizvi.(200**5).**EffectiveTechnical Communication. NewDelhi:TataMcGrawHill
  2. Adair, John (2003). Effective Communication. London: Pan Macmillan Ltd.
  3. A.J.ThomsonandA.V.Martinet(1991).APracticalEnglishGrammar(4thed).Newyork:Ox-fordIBH Pub.
  4. Kratz, Abby Robinson (1995). Effective Listening Skills. Toronto: ON: Irwin Professional Publishing.
  5. Prasad, H. M.(2001) How to Prepare for Group Discussion and Interview. New Delhi: Tata McGraw-Hill.
  6. Pease, Allan. (1998).Body Language. Delhi: SudhaPublications.

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BTCS201N	DCC	Data Structure and Algorithms	60	20	20	30	20	3	1	2	5

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Course Educational Objectives (CEOs):

1. To understand efficient storage mechanisms of data for an easy access.
2. To design and implementation of various basic and advanced data structures.
3. To introduce various techniques for representation of the data in the real world.
4. To develop application using data structures.
5. To understand the concept of protection and management of data.

Course Outcomes (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes.

The students will be able to

1. Get a good understanding of applications of Data Structures.
2. Develop application using data structures.
3. Handle operations like searching, insertion, deletion, traversing mechanism etc.on various data structures.
4. Decide the appropriate data type and data structure for a given problem.
5. Select the best algorithm to solve a problem by considering various problem characteristics, such as the data size, the type of operations, etc.

Syllabus:

UNIT I   10HRS
Introduction: Overview of Data structures, Types of data structures, Primitive and Non Primitive data structures and Operations, Introduction to Algorithms & complexity notations. Characteristic of Array, One Dimensional Array, Operation with Array, Two Dimensional Arrays, Three or Multi-Dimensional Arrays, Sparse matrix, Drawbacks of linear arrays. Strings, Array of Structures, Pointer and one dimensional Arrays, Pointers and Two Dimensional Arrays, Pointers and Strings, Pointer and Structure.

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UNIT II   9HRS
Linked List: Linked List as an ADT, Linked List Vs. Arrays, Dynamic Memory Allocation & De-allocation for a Linked List, Types of Linked List: Circular & Doubly Linked List. Linked List operations: All possible insertions and deletion operations on all types of Linked list Reverse a Single Linked List; Divide a singly linked list into two equal halves, Application of Linked List.

UNIT III   8**HRS**
Stack: The Stack as an ADT, Stack operation, Array Representation of Stack, Link Representation of Stack, Application of stack – Recursion, Polish Notation . Types of Recursion, problem based on Recursion: Tower of Hanoi
The Queue :The Queue as an ADT, Queue operation, Array Representation of Queue, Linked Representation of Queue, Types of Queue :Circular Queue & Dequeue, Introduction of Priority Queue, Application of Queues.

UNIT IV   7HRS
Tree: Definitions and Concepts of Binary trees, Types of Binary Tree, Representation of Binary tree: Array & Linked List. General tree, forest, Expression Tree. Forest and general tree to binary tree conversion. Binary Search Tree Creation, Operations on Binary Search Trees: insertion, deletion & Search an element, Traversals on Binary SEARCH TREE and algorithms. Height balanced Tree: AVL, B-Tree, 2-3 Tree, B+Tree: Creation, Insertion & Deletion.
Graph: Definitions and Concepts Graph Representations: Adjacency MATRIX, Incidence matrix, Graph TRAVERSAL (DFS & BFS), Spanning Tree and Minimum Cost Spanning Tree: Prim's & Kruskal's Algorithm.

UNIT V   8**HRS**
Sortings: Sorting Concept and types of Sorting, Stable & Unstable sorting. Concept of Insertion Sort, Selection sort, Bubble sort, Quick Sort, Merge Sort, Heap & Heap Sort, Shell Sort & Radix sort. Algorithms and performance of Insertion, selection, bubble, Quick sort & Merge sort.

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Text Books:
1. Ashok N. Kamthane, "Introduction to Data structures", 2nd Edition, Pearson Education India,2011.
2. Tremblay & Sorenson, "Introduction to Data- Structure with applications", 8th Edition, Tata McGrawHill,2011.
3. Bhagat Singh & Thomas Naps, "Introduction to Data structure", 2nd Edition, Tata Mc-GrawHill 2009.
4. Robert Kruse, "Data Structures and Program Design",2nd Edition,PHI,1997.
5. Lipschutz Seymour,"Data structures with C" ,1st Edition ,Mc- GrawHill,2017.

References:
1. Rajesh K. Shukla ,Data Structures Using C & C++, Wiley-India 2016.
2. ISRD Group ,Data Structures Using C, TataMcGraw-Hill 2015.
3. E. Balagurusamy ,"Data Structure Using C" ,Tata McGraw-Hill 2017.
4. Prof. P.S. Deshpande, Prof. O.G. Kakde, C & Data Structures, Charles River Media 2015 .
5. Gav Pai, Data Structures, Tata McGraw-Hill, 2015.

List of Practical:
1. To develop a program to find an average of an array using AVG function.
2. To implement a program that can insert, delete and edit an element in array.
3. To implement an algorithm for insert and delete operations of circular queue and implement the same using array.
4. Write a menu driven program to implement the push, pop and display option of the stack with the help of static memory allocation.
5. Write a menu driven program to implement the push, pop and display option of the stack with the help of dynamic memory allocation.
6. Write a menu driven program to implementing the various operations on a linear queue with the help of static memory allocation.
7. Write a menu driven program to implementing the various operations on a linear queue with the help of dynamic memory allocation.
8. Write a menu driven program to implement various operations on a linear linked list.
9. Write a menu driven program to implement various operations on a circular linked list

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BTCS201N	DCC	Data Structure and Algorithms	60	20	20	30	20	3	1	2	5

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10. Write a program for implementation of Bubble sort
11. Write a program for Insertion sort
12. Write a program for Merge Sort
13. Write a program to implement Heap sort
14. Write a program to implement Quick sort
15. Write a program to Construct a Binary Search Tree and perform deletion, inorder traversal on it
16. Write a program to develop an algorithm for binary tree operations and implement the same.
17. Write a program to design an algorithm for sequential search, implement and test it.
18. Write a program to develop an algorithm for binary search and perform the same.

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BTIT201N	DCC	Data Communication	60	20	20	0	0	3	1	0	4

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Course Educational Objectives (CEOs):

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 (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes.

The 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   **10HRS**

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.

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BTIT201N	DCC	Data Communication	60	20	20	0	0	3	1	0	4

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UNIT–II   9HRS

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   8HRS

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

UNIT–IV   7HRS

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   8HRS

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.

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REFERENCES:
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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BTIBM202N	DCC	Agile Development Methodologies (DevOps + Agile)	60	20	20	30	20	2	0	2	3

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Course Educational Objectives (CEOs):

The student will have ability to:
1. This course makes student learn the fundamental principles and practices associated with each of the agile development methods.
2. To apply the principles and practices of agile software development on a project of interest and relevance to the student.
3. To understand the key Concepts of Agile Development, Agile Project Delivery and Agile Project Management.
4. To understand the difference between Agile and Traditional Project Delivery.
5. To Understand Key Methodologies including scrum and Kanban.

Course Outcomes (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes. The students will be able to

1. Analyzing the philosophy and principles of Agile.
2. Understanding the life cycle of a project, including alternative configurations and other project management models.
3. Analyzing the roles and responsibilities within agile projects.
4. Understanding how the Agile Project Management process can enable planning, management and control for predictable agile project deliveries.
5. Implementing the software projects in a continuous and faster way.
6. Executing the various tools used in DevOps and applying them in project development.

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BTIBM202N	DCC	Agile Development Methodologies (DevOps + Agile)	60	20	20	30	20	2	0	2	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical;   **C** - Credit;
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SYLLABUS

UNIT I   10 HRS
DevOps Fundamentals, Git, Maven, Docker: -
What is a Project: Project Definition, Project vs Operations,Project, Program and Portfolio Relationship,Project Features,Project Phases, Project Execution Methodologies: Waterfall Model,V-Model,Agile,Agile vs Waterfall. Agile Deep Dive: Agile Methodology Overview, Agile Manifesto Introduction and Guiding Principles, Agile Team Roles, Agile Frameworks. DevOps Fundamentals: Introduction to DevOps, Introduction to Continuous Integration/Continuous Delivery/Continuous Deployment, DevOps Tools-Git, Maven, Docker: Git, Maven, Docker.

UNIT II   9 HRS
Scrum framework, Scrum Artifacts: -Scrum: Scrum Foundation, Scrum Team, Roles of Scrum Team, Sprints. Scrum Artifacts: Product Backlog, Sprit Backlog,Sprint Burndown chart, Impediment List,Product Increment.

UNIT III   8 HRS
Sprint Planning, Scrum Meetings, PBR, Sprint Goal, User Stories, Definition of Done, Team Velocity, Defect Density, Scrum Scaling, Scrum Practices, Scrum Vs Kanban, Xtreme Programming, Xtreme Programming vs Scrum: -Scrum Ceremonies: Sprint Planning, Daily Scrum Meeting, PBR, Sprint Review. Scrum Sprint Planning: Sprint Goal,User Stories, Estimate User Stories, Definition of Done. Scrum Metrics: Sprint Goal Success, Team Velocity, Sprint Burn Down Charts, Defect Density, Scrum Scaling, Distributed Scrum Practices, Agile Environments and tools, Scrum vs Kanban, Xtreme Programming vs Scrum.

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UNIT IV   **7 HRS**

Puppet, Jenkins, Junit, Nagios, Introduction of a Use case for CI/CD Pipeline, Problem Solving with DevOps: -More on DevOps Tools: Puppet, Jenkins, Junit, Nagios. DevOps Use-case: Introduction of a Use-case for CI/CD Pipeline, Problem Solving with DevOps.

UNIT V   **8 HRS**
Advanced DevOps Concepts, Automatic Rollback, Automatic Provisioning, what is Cloud, IBM Cloud, DevOps using IBM Cloud: -Advanced DevOps Concepts: Automatic Rollback, Automatic Provisioning. Introduction to DevOps on IBM Cloud: What is Cloud, IBM Cloud, DevOps Using IBM Cloud.

TEXTBOOKS:

1. Eric Ries, The Lean Startup, Publisher: Current, 1st edition, September 13, 2011
2. Roman Pichler, Agile Product Management with Scrum, Publisher: Addison Wesley, 1 st edition, 22 March 2010
3. Robert C. Martin, Clean Code: A Handbook of Agile Software Craftsmanship. Publisher : PHI; First edition , 25 September 2017
4. Anju Singhal, Jai Singhal, Book: Scrum Guide, Publisher: Agiliants Inc, First edition, 13 August 2013
5. Robert C. Martin, Agile Software Development, Principles, Patterns and Practices, Publisher: PHI; Subsequent edition 15 October 2002

REFERENCES:
1. IBM Softcopy(ppt,pdf,docx)
2. http://www.katacoda.com
3. https://www.edureka.co/blog/docker-commands/mirantis.com/tag/docker
4. https://www.scalyr.com/blog/create-docker-image/
5. https://www.howtoforge.com/tutorial/how-to-create-docker-images-with-dockerfile/

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LIST OF EXPERIMENTS:

1. Installation of GIT and Creating GIT Repository.
2. By which method we can supply a commit message to a commit? Describe in brief.
3. Write the way to check state of local git repository since last commit.
4. Give the command to initialize a new git repository.
5. Write the command that removes the target directory with all the build data before starting the build process.
6. Create a As-is scenario Map taking any example you like.
7. Creating a Maven Project.
8. Installation and setting up puppet.
9. Installing Docker and Creating Docker Image.
10. Process all docker commands.
11. Setting up DevOps on IBM Cloud.
12. For Designing a better way for cab booking from start to finish. Create a List of Stake holders, Empathy Map and As-is Scenario Map
13. Create a 2-3 Sprint with entire team.
14. Create a To-be Scenario for any organization.
15. Discuss the empathy Map in design thinking.

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BTIBM203N	DCC	Design Thinking	60	20	20	30	20	3	1	2	5

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Course Educational Objectives (CEOs):

The student will have ability to:
1. To learn the concepts of Business Process Manager.
2. To emphasizing the concepts of reuse, ease of maintenance, and high-quality development strategies.
3. To create a simple case and a business process definition (BPD) from business requirements.

Course Outcomes (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes. The students will be able to

1. Define business process management (BPM).
2. List and describe the phases in the BPM lifecycle Procedure.
3. Define process modeling
4. Create a process application
5. Describe IBM Business Process Manager product components
6. Understand what came before Design Thinking
7. See how design thinking is introduced in an organization
8. Learn how it built upon previous approaches
9. Get an overview of the whole approach to design thinking
10. Understand the principles, loop, and keys

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BTIBM203N	DCC	**Design Thinking**	60	20	20	30	20	3	1	2	5

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UNIT I   **10 HRS**
INTRODUCTION TO BUSINESS PROCESS MANAGEMENT &AS-IS BUSINESS PROCESS Define business process management (BPM), List and describe the phases in the BPM lifecycle procedure, Define process modeling., Describe how to use IBM Business Process Manager to accomplish process modeling goals, Explain how to create and modify process applications in the Process Center, Create a process application, Explain case management, Describe the purpose and function of Blue works Live, List and describe the core notation elements that are used in IBM Process Designer, Create a business process definition (BPD) from the process and nested process tasks and responsible, Explain how to create and modify process models with the Designer view of the IBM Process Designer.

UNIT II   **9 HRS**
PLAYBACK 0: MODELING PROCESS

List and describe gateways as they are used in IBM Process Designer, List and describe intermediate event types that are used in IBM Process Designer, Model a business process escalation path with an attached timer intermediate event, Describe the Playback 0 validation goals and requirements, Validate that a process model meets Playback 0 goals and Requirements, Describe IBM Business Process Manager product components, Identify the integrations with other IBM products.

UNIT III   **8 HRS**
ENTERPRISE DESIGN THINKING – HISTORY, OVERVIEW
Understand what came before Design Thinking, Identify who did what to bring it about, Learn how it built upon previous approaches, Get an overview of the whole approach to design thinking, Understand the principles, loop, and keys, Determine what is most important.

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UNIT IV   7 HRS

ENTERPRISE DESIGN THINKING –7 KEY HABITS, THE LOOP, USER RESEARCH
Learn 7 key habits of effective thinkers design, Avoid common anti-patterns, Optimize for success with these habits, Understand the importance of iteration, Learn how to observe, reflect, & make, Get ready to drill down & do tomorrow, Understand the importance of user research, Appreciate empathy through listening, Learn key methods of user research.

UNIT V   8 HRS
ENTERPRISE DESIGN THINKING – MAKE, USER FEEDBACK:-
Understand how Make fits into the Loop ,Learn how to leverage Observe information, Learn Ideation, Storyboarding, & Prototyping, Understand user feedback and the Loop, Learn the different types of user feedback, Learn how to carry out getting feedback.

Text Books:

1. IBM COURSEWARE – SKILLS ACADEMY

Reference Books:

1. IBM COURSEWARE – SKILLS ACADEMY

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List of Practical:

1. CREATING YOUR FIRST DISCOVERY MAP IN BLUEWORKS LIVE Study of Process Life Cycle.
2. CREATING PROCESS MODEL IN BLUEWORKS LIVE.
3. ADDING AND VIEWING PROCESS DETAILS IN BLUEWORKS LIVE
4. ENTERPRISE DESIGN THINKING - LISTENING.
5. ENTERPRISE DESIGN THINKING - HMW
6. ENTERPRISE DESIGN THINKING - USER RESEARCH
7. ENTERPRISE DESIGN THINKING – REFLECT
8. ENTERPRISE DESIGN THINKING – IDEATION
9. ENTERPRISE DESIGN THINKING – STORYBOARDING
10. ENTERPRISE DESIGN THINKING - CRAFTING HILLS
11. ENTERPRISE DESIGN THINKING - PROTOTYPING

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BTIT202N	DCC	Web Development Lab-II (PHP/JSP)	0	0	0	30	20	0	0	2	1

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Course Educational Objectives (CEOs):

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.
2. Effective use of format and design for print documents
3. Design dynamic websites that meet specified needs and interests.

Course Outcomes (COs):
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

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 10 HRS

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 of PHP Variables, Data Types and PHP Operators, Apply Control Structures in Programming, Steps to Create User Defined Functions.

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UNIT II   **9 HRS**
Working with in Built Functions: Apply Various In built variable, String, Math, Date, 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   **8 HRS**
Working With Data And Forms: Steps to Create an Input Form, 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   **7 HRS**
Session, Cookies And Error Handling: Use Cookie to Store and Retrieve Data, Use Query string 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: Mysql Commands, Integration of PHP with Mysql, Connection to the Mysql Database, Creating, Updating, Inserting, Deleting Records in Mysql Database Using PHP.

UNIT V   **8 HRS**
Java Server Pages Basics: Integrating Scripts in JSP, JSP Objects and Components, Configuration and Trouble shooting, JSP: Request and Response Objects, Retrieving the Contents of An HTML Form, Retrieving a Query String.

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

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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, 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 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.

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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 JSP Action Tags.

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