Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Information Technology
B.Tech. (CSE-Cloud and Mobile Computing-IBM)
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SEMESTER VII

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME					Th	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BBAI501	AECC	Human Values and Professional Ethics	60	20	20	0	0	4	0	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 objective of the course is to disseminate the theory and practice of moral code of conduct and familiarize the students with the concepts of "right" and "good" in individual, social and professional context.

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. Help the learners to determine what action or life is best to do or live.
2. Right conduct and good life.
3. To equip students with understanding of the ethical philosophies, principles, models that directly and indirectly affect business.

Syllabus

Unit-I Human Value
10HRS
1. Definition, Essence, Features and Sources
2. Sources and Classification

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BBAI501	AECC	**Human Values and Professional Ethics**	60	20	20	0	0	4	0	0	4

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3. Hierarchy of Values
4. Values Across Culture

Unit II   9HRS
1. Definition, Moral Behavior and Systems
2. Characteristics of Moral Standards
3. Values Vs Ethics Vs Morality
4. Impression Formation and Management

Unit-III   8HRS
1. Leadership, Characteristics
2. Leadership in Business (Styles), Types of Leadership (Scriptural, Political, Business and Charismatic)
3. Leadership Behaviour, Leadership Transformation in terms of Shastras (Upanihads, Smritis and Manu-smriti).

Unit-IV   7HRS
1. Business Ethics its meaning and definition
2. Types, Objectives, Sources, Relevance in Business organisations.
3. Theories of Ethics, Codes of Ethics

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BBAI501	**AECC**	**Human Values and Professional Ethics**	60	20	20	0	0	4	0	0	4

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

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Unit-V   **8HRS**

1. Sources of Indian Ethos & its impact on human behavior
2. Corporate Citizenship and Social Responsibility – Concept (in Business),
3. Work Ethics and factors affecting work Ethics.

Suggested Readings

1. Beteille, Andre (1991). *Society and Politics in India*. AthlonePress:New Jersey.

2. Chakraborty, S. K. (1999). *Values and Ethics for Organizations*. oxford university press

3. Fernando, A.C. (2009). *Business Ethics - An Indian Perspective .*India: Pearson Education: India

4. Fleddermann, Charles D. (2012). *Engineering Ethics*. New Jersey: Pearson Education / Prentice Hall.

5. Boatright, John R (2012). *Ethics and the Conduct of Business.*Pearson. Education: New Delhi.

6. Crane, Andrew and Matten, Dirk (2015). *Business Ethics*. Oxford University Press Inc:New York.

7. Murthy, C.S.V. (2016). Business *Ethics – Text and Cases*. Himalaya Publishing House Pvt. Ltd:Mumbai

8. Naagrajan, R.R (2016). *Professional Ethics and Human Values*. New Age International Publications:New Delhi.

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BTCS601	**DCC**	**Compiler Design**	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 Educational Objectives (CEOs):

1. To introduce the major concept areas of language translation and compiler design
2. To enrich the knowledge in various phases of compiler and its use
3. To provide practical programming skills necessary for constructing a compiler

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. Ability to apply the knowledge of lex tool &yacc tool to develop a scanner & parser
2. Ability to design and develop software system for backend of the compiler
3. Ability to comprehend and adapt to new tools and technologies in compiler design

Syllabus

UnitI   **10HRS**

Introduction to Compiling: Compilers–Analysis of the source program**,** Phases of a compiler**,** Cousins of the Compiler, Grouping of Phases and Compiler construction tools, Lexical Analysis, Role of Lexical Analyzer, Input Buffering, Specification of Tokens.

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UnitII   **9HRS**

Syntax Analysis: Role of the parser, Writing Grammars, Context-Free Grammars, Top Down parsing, Recursive Descent Parsing, Predictive Parsing, Bottom-up parsing, Shift Reduce Parsing, Operator Precedent Parsing, LR Parsers, SLR Parser – Canonical LR Parser – LALR Parser.

Unit-III   **8HRS**

Intermediate Code Generation: Intermediate languages**,** Declarations, Assignment Statements, Boolean Expressions, Case Statements, Back patching, Procedure calls.

Unit-IV   **7HRS**

Code Optimization and Run Time Environments: Introduction, Principal Sources of Optimization, Optimization of basic Blocks, DAG representation of Basic Blocks - Introduction to Global Data Flow Analysis, Runtime Environments, Source Language issues, Storage Organization, Storage Allocation strategies, Access to non-local names, Parameter Passing, Error detection and recovery.

Unit-V   **8HRS**

Code Generation: Issues in the design of code generator, The target machine, Runtime Storage management, Basic Blocks and Flow Graphs, Next-use Information, A simple Code generator, Peephole Optimization.

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BTCS601	**DCC**	**Compiler Design**	60	20	20	30	20	3	1	2	5

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***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Text Books:
1. Alfred V. Aho, Jeffrey D Ullman, "Compilers: Principles, Techniques and Tools", Pearson
2. Education Asia, 2012
3. Jean Paul Tremblay, Paul G Serenson, "The Theory and Practice of Compiler Writing", BS Publications, 2005
4. Dhamdhere, D. M., "Compiler Construction Principles and Practice", 2nd edition, Macmillan India Ltd., New Delhi, 2008

References:
1. Allen I. Holub, "Compiler Design in C", Prentice Hall of India, 2003
2. C. N. Fischer and R. J. LeBlanc, "Crafting a compiler with C", Benjamin Cummings, 2003
3. HenkAlblas and Albert Nymeyer, "Practice and Principles of Compiler Building with C", PHI, 2001
4. Kenneth C. Louden, "Compiler Construction: Principles and Practice", Thompson Learning, 2003

List of Experiments:
1. To study the Lex Tool.
2. To study the Yacc Tool.
3. Write a program to implement Lexical Analyzer to recognize few patterns of C.
4. Write a program to implement the Recursive Descent Parser.

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BTCS601	**DCC**	**Compiler Design**	60	20	20	30	20	3	1	2	5

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5. Write a program to implement the Computation of FIRST and FOLLOW of variables of grammar.
6. Write a program to compute the leading and trailing symbols of grammar.
7. Write a program to implement Operator Precedence Parser.
8. Write a program to implement SLR parser.
9. Write a program to check the data types.
10. Write a program to implement the generation of three address code.
11. Write a program to implement the computation of postfix notation.
12. Write a program to implement the computation of Quadruple

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BTIBMA702	DCC	Deep Learning	60	20	20	0	0	2	0	0	2

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Course Educational Objectives (CEOs):

1. To provide an overview of an exciting field of Deep Learning
2. Develop an understanding of the complete process of deep learning project and its near term future direction
3. To introduce the tools required to manage and analyse deep learning project like: Jupyter Notebook and tensor flow.
4. To teach the fundamental techniques and principles in achieving deep learning with scalability and streaming capability.
5. To enable students to have skills that will help them to solve complex real-world problems in for business decisions with neural networks.

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 concept of Deep Learning from a global context.
2. To understand and apply Neural Networks in Market perspective of Deep Learning Projects. Applying and analyzing architecture of Convolution Neural Networks to achieving data learning models.
3. Be able to design and implement recurrent neural network and LSTM systems.

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| | | | THEORY | | | PRACTICAL | | | | | |
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BTIBMA702	DCC	Deep Learning	60	20	20	0	0	2	0	0	2

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4. Be able to design and implement RBM sand understand auto encoders concept in deep learning. Be able to design and implement various Neural Networks model in a range of real-world applications. Creating projects and research activities based on Neural Networks Deep Learning using Python.

Syllabus

UnitI   **10HRS**
Introduction to Deep Learning
Why Deep Learning? Introduction to Neural Networks. Neural Network Architecture. Full-cycle of a Deep Learning Project. Activation Functions. Forward and Backward Propagation. Loss function and optimization functions.

UnitII   **9HRS**
Convolutional Networks
Introduction to convolutional networks. CNN Architecture. Understanding Convolutions. CNN for Classification.

Unit-III   **8HRS**
Recurrent Neural Network
Introduction   to   RNN   model.   What   is   Sequential   Problem?   The   LSTM   model

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BTIBMA702	DCC	Deep Learning	60	20	20	0	0	2	0	0	2

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Unit-IV   **7HRS**
Restricted Boltzmann Machines and Auto encoders
Introduction to RBMs. Training RBMs. Introduction to auto encoders. Structures of auto encoders.

Unit-V   **8HRS**
PROJECT
Research Activities on Deep Learning with projects and research letters.

Text Books:
1. Deep Learning with Python by François Chollet
2. Hands-On Machine Learning with Scikit-Learn, Keras and Tensor Flow: Concepts, Tools   and Techniques to Build Intelligent Systems by Aurelien Geron
3. Deep Learning (Adaptive Computation and Machine Learning series)by Ian Goodfellow

References:
1. Machine learning with Tensor Flow For Dummies by Matthew Scarpino
2. Machine Learning for Big Data: Hands-On for Developers and Technical Professionals" by Jason Bell.

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BTIBMB701	DCC	**Planning Analytics**	60	20	20	0	0	2	0	0	2

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Course Educational Objectives (CEOs):

1. To understand the role of planning analytics in decision-making processes.
2. To apply data cleansing, transformation, and validation techniques.
3. To create and optimize data models using planning analytics tools.
4. To build forecasting models using planning analytics tools.
5. To conduct scenario analysis to evaluate different planning scenarios.

Course Outcomes (COs):

The students will be able to

1. Utilize key features of the planning analytics software.

2. Applying exploratory data analysis and visualization techniques for insights generation

3. Incorporate predictive analytics for enhanced planning and decision-making.

4. Utilize optimization techniques to maximize resource allocation and efficiency.

5. Design performance monitoring dashboards and reports.

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BTIBMB701	DCC	**Planning Analytics**	60	20	20	0	0	2	0	0	2

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Syllabus

UNIT-I: Planning Analytics, Data Acquisition and Preparation: 12HRS

Introduction of Planning Analytics, Roles of Planning Analytics in Decision-Making Process, Key Features of the Planning Analytics Software, Benefits and Applications of Planning Analytics in Different Industries. Identify and Acquire Relevant Data Sources for Planning Analytics. Apply Data Cleansing, Transformation, and Validation Techniques to Ensure Data Integrity and Consistency for Effective Planning Analytics.

UNIT-II: Data Modeling and Analysis: 8HRS
Principles of Data Modeling for Planning Analytics. Create and Optimize Data Models using Planning Analytics Tools. Exploratory Data Analysis and Visualization Techniques to Generate Insights.

UNIT-III: Forecasting and Predictive Analytics   8HRS
Understanding Different Forecasting Methodologies and Techniques. Build Forecasting Models using Planning Analytics Tools. Application of Predictive Analytics in Enhancing Planning and Decision-Making.

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BTIBMB701	DCC	**Planning Analytics**	60	20	20	0	0	2	0	0	2

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UNIT-IV: Scenario Analysis and Optimization: **8HRS**

Conduct Scenario Analysis to Evaluate Different Planning Scenarios. Utilize Optimization Techniques to Maximize Resource Allocation and Efficiency. Interpret and Present Results to Support Decision-Making Processes.

UNIT-V: Performance Monitoring and Reporting: **8HRS**
Design Performance Monitoring Dashboards and Reports to Track Planning Analytics Outcomes. Leverage Key Performance Indicators for Tracking and Evaluation. Automate Reporting Processes for Timely and Accurate Insights Delivery.

Text Books:
1. IBM Courseware
2. IBM Knowledge Center

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BTIBMC701	DCC	Web Services	60	20	20	0	0	2	0	0	2

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

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Course Educational Objectives (CEOs):

6. To explain the importance of Web Services and Use of XML JAXB and using SOAP and REST Web Services
7. To learn the importance of Spring Boot and JAVA in Web Services
8. Be able to use POSTMAN accessing dummy URLs as well as self created URLs
9. Able to Secure Web Service using Transport layer and Application Level Security

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

6. Understand the use of SOAP and REST web services in Enterprises from a global context.

7. To understand and Write SOAP web services from industry perspective of Web Services.

8. Applying and analyzing Restful Web Services.

9. To evaluate the application of REST Web Services in university environment by Using JAX-RS and JAX-WS API's in java.

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BTIBMC701	DCC	Web Services	60	20	20	0	0	2	0	0	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.

Creating and Securing Web Services by Using Transport and Application level Security.
Creating projects and research activities based on SOAP & REST API.

Syllabus

Unit-I   **10HRS**
WEB SERVICES INTRODUCTION
Introduction to XMl what is Web Services? Why Web Services? Web Services Fundamentals Services Oriented Architecture; HTTP and XML and SOAP WSDL; UDDI; REST; SOAP vs REST JAXB Overview; JAXB Binding Process;

Unit-II   **9HRS**
INTRODUCTION TO SOAP
SOAP Overview; SOAP Message Exchange Model; Data Encoding, Installing and Configuring Apache SOAP; Server and Client Program; Deployment Descriptor, Describing Web Services with Example; Anatomy of a services; Defining Data types and structures with XML Schemas; Describing Web Services Interface and Implementation; Understanding Message patterns.

Unit-III   **8HRS**
JAVA API FOR RESTFUL SERVICES
Introduction to JAVA API; REST and HTTP; Resource URI; Collection URIs; Method

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BTIBMC701	**DCC**	**Web Services**	60	20	20	0	0	2	0	0	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

Idempotence; What is JAX-RS Introduction to UDDI; UDDI Registry; Technical Architecture; Using UDDI with WSDL.

Dispatching Request to Methods

Class, given that no component shall exceed more than 10 marks.

Creating a Resource; Returing XML Responses; Installing REST API Client; Building Services Stubs; Accessing Path Params; Returning JSON Response; Implementing POST Update and Delete Methods; Pagination and Filtering

Unit-IV   **7HRS**

REST API USING JAVA CLIENT JAX-RS

The Param Annotation; Sending Status codes and location Headers; Handling Exception; Using Web- Application Exception; Content Negotiation and Content Negotiation using HTTP Headers; Content Negotiation using URIs Patterns JAX-RS Client; Creating JAVA Client using JAX-RS; Sending GET/POST Request using JAVA Client.

Unit-V   **8HRS**

WRITING SOAP SERVICES

Initialize a Spring Web Service Application with Spring Boot; Overview of creating SOAP Web Service using Contract First Approach; Define Request and Response XML Structure; Define XSD for Request and Response; Introduction to JAXB and configuration. What are **Secure Web**

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			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTIBMC701	DCC	Web Services	60	20	20	0	0	2	0	0	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

Services?; Transport Level Security and Application Level Security. **Future of Web**

Development; Future of SOAP WSDL and UDDI. **PROJECT**
Create and execute a SOAP project using WSDL. Following should be done on the project:
   I.   Creating SOAP project- adding WSDL during creation or after it is created.
   II. Request and Response verification.

Text Books:
   3. IBM Courseware
   4. IBM Knowledge Center
   5. RESTful Web Services by Leonard Richardson O'Reilly Media

References:
   1. Core Java, Collection Framework IBM Knowledge Center.

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			THEORY			PRACTICAL					
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BTIBMCS707	DCC	Computer Networking	60	20	20	0	0	2	0	0	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 Educational Objectives (CEOs):

The student will have ability to:
1. Understand the general overview of the concepts and fundamentals of computer networks.
2. Understand the various components required to build different networks.
3. Familiarize the students with the standard models for the layered approach to communicationbetween machines in a network and the protocols of the various layers.

Course Outcomes (COs):

After completion of this course the students are expected to be able to demonstrate followingknowledge, skills and attitudes.
The students will be able to
1. Understanding basic computer network technology.
2. Understand the functions of each layer in the OSI and TCP/IP reference model.
3. Obtain the skills of sub netting and routing mechanisms
4. Familiarity with the essential protocols of computer networks, and how they can be applied innetwork design and implementation.

SYLLABUS

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BTIBMC S707	DCC	Computer Networking	60	20	20	0	0	2	0	0	2

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Unit-I   **10 HRS**
Introduction: Importance of Computer Networks, Classifications & Types. Layered Architecture: Protocol hierarchy, Interfaces and Services, Connection Oriented & Connection less Services, ISO- OSI Reference Model, TCP/IP model overview, comparison of TCP/IP and ISO-OSI reference model.

Unit-II   9 HRS
Data Link Layer &MAC Sublayer: Need, Services Provided, Design issues, Elementary data link protocols: simplex protocol, A simplex stop and wait protocol for an error-free channel, A simplex stop and wait protocol for noisy channel. Sliding Window protocols: A one-bit sliding window protocol, A protocol using Go-Back-N, A protocol using Selective Repeat, MAC Addressing, Binary Exponential Back-off (BEB) Algorithm, Distributed Random Access Schemes/Contention Schemes: for Data Services (ALOHA and Slotted- ALOHA), CSMA, CSMA/CA, CSMA/CD.

Unit-III   8 HRS
Network Layer: Need, Services Provided, Design Issues, Routing Algorithms, and types of Routing Algorithm, IPv4, IPv6, Classful and classless Addressing, Subnetting, Supernetting.

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Unit-IV   7 HRS

Transport Layer: Need, Design Issues, Multiplexing and Demultiplexing, transport layer services, UDP,UDP Header Format, Principles of reliable data transfer, TCP, Connection Management, TCP Flow Control, TCP Congestion Control, TCP Header Format, TCP Timer Management, SCTP.

Unit-V   8 HRS

Session layer: Overview, Authentication, Session layer protocols, **Presentation layer:** Overview, Data conversion, Encryption and Decryption, Presentation layer protocols (LPP,Telnet, X.25 packet Assembler/Disassembler), **Application Layer:** Domain name system, SNMP, Electronic Mail; the World WEB, HTTP, FTP.

Text Books:

   1. Andrew S Tanenbaum, Computer Networks, 6th Edition, Pearson Education, 2016.

References:

   1. Behrouz A.Forouzan, TCP/IP-Protocol suite, 4th edition, McGraw-Hill, 2010.
   2. William Stallings, Data and Computer Communication, 10th edition Pearson, 2014.

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***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

3. Comer, Internet working with TCP/IP Volume one, Addison-Wesley, 2015.
4. W. Richard Stevens, TCP/IP Illustrated, Volume 1, 2nd Edition Addison-WesleyProfessional Computing Series.

LIST OF EXPERIMENTS:

1. Demonstrate Different Types of Network Equipment's.
2. Color coding standard of CAT 5, 6, 7 and crimping of cable in RJ-45.
3. LAN installations and Configurations.
4. Experiment with basic Network configuration commands.
5. Write a program for error detection and correction technique.
6. Write a program for framing.
7. Write a program for routing algorithm.
8. Socket Programming.
9. Study about different network simulators.
10. Establish and simulate peer to peer network using packet tracer.
11. Simulate LAN using hub and switch and discuss pros and cons of hub.
12. Router configuration using packet tracer.

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			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTIBM705	**DCC**	**Private Cloud Deployment**	60	20	20	30	20	3	0	2	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):

1. To explore the considerations for designing and planning a private cloud deployment.
2. To understand the principles and best practices for designing a scalable and resilient private cloud infrastructure.
3. To evaluate different management tools and platforms for private cloud environments.
4. To understand the compliance requirements and frameworks relevant to private cloud deployments.
5. To explore the challenges and considerations in migrating applications and data to a private cloud.

Course Outcomes (COs):

The students will be able to

1. Identify the key components and architecture of a private cloud environment.

2. Configure networking and storage resources to support a private cloud environment.

3. Develop strategies for implementing security controls and ensuring compliance in a private cloud.

4. Learn about the governance frameworks and operational practices for managing a private cloud environment.

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BTIBM705	**DCC**	**Private Cloud Deployment**	60	20	20	30	20	3	0	2	4

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Syllabus

UNIT I: Introduction to Private Cloud   6HRS
Introduction of Cloud Computing, Advantages and Disadvantages of Cloud Computing, Key Components of Cloud Computing, Core Reference Model **/** Architecture of cloud computing.

UNIT II: Infrastructure for Private Cloud: 8HRS
Cloud Deployment models, Concepts of private cloud deployment models, Advantages & Disadvantages of Private Cloud Deployment Model, Factors choosing appropriate deployment models. Comparative analysis of various deployment models. Private cloud Infrastructure Hardware & Software needed for Private Cloud Infrastructure.

UNIT III: Private Cloud Management   8HRS
Cloud Service Delivery models their Pros and Cons, Overview of other services models: Naas, DEaas, Staas, DBaas, Daas, etc. virtualization techniques used in Private Cloud Deployment. Monitoring and Management of performance of Private Cloud.

UNIT IV: Security and Compliance in Private Cloud   8HRS
Security Challenges and threats associated with Private Cloud Deployment, Techniques for security virtualized environment, Various strategies for implementing security control in Private Cloud. Governance frameworks and operational practices for managing Private Cloud Deployment optimization and cost management in Private Cloud Deployment.

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BTIBM705	DCC	Private Cloud Deployment	60	20	20	30	20	3	0	2	4

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UNIT V: Cloud Migration and Governance   **6HRS**
Planning and Execution of a successful Private Cloud Migration, Challenges and Consideration in migrating application and data seven steps model of migration into cloud. Migration risk and mitigation.
Case Study - Microsoft Azure, Google App Engine, Sales Force and Eucalyptus, Open – Nebula, IBM Smart cloud, and open-source clouds.

Text Books:

1. **IBM Courseware:**

- What is Private Cloud? | IBM
- What is a Private Cloud? - Private Cloud Explained - AWS (amazon.com)
- What is a Private Cloud - Definition | Microsoft Azure

2. **IBM Knowledge Center**

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BTIBM705	DCC	Private Cloud Deployment	60	20	20	30	20	3	0	2	4

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List of Experiments:

1. Install virtual box / VM ware workstation with different of window OS.

2. Install a C Compiler in the virtual machine created using virtual box and execute any simple program.

3. Install Google App Engine. Create Hello World App and other simple web applications using Python / Java.

4. Find a procedure to transfer the file from one VM to another VM.

5. Find a procedure to launch VM using Trystack (online-Openstack demo version).

6. To study cloud computing deployment models.

7. To study cloud computing service models.

8. To study cloud architecture Anatomy.

9. Find a procedure to attach virtual box to a virtual machine.

10. Find procedure to run the VM of different configuration. Check now many VMs can be utilized at time.

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BTIBM702	**DCC**	**Big Data Security**	60	20	20	30	20	3	0	2	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 an overview of an exciting field of Big Data Security.
2. To introduce the tool to required concepts of monitoring and auditing data with Guardium.
3. Develop an understanding in depth for Exploring security standard of Big Data for securing and Protecting Data.
4. Data Protection Laws for Big data: This unit gives an overview Protection Data law enforced for Data.
5. To enable students to have skills that will help them to solve security of data in complex real-world problems for better business decisions.

Course Outcomes:

After the successful completion of this course students will be able to:

1. Understand the concept of Big Data Security from a globalcontext.
2. To understand and apply Guardium IBM tool in Market perspective of Big Data Security.
3. Applying and analyzing architecture, Capabilities, Threats and Security discipline of Big Data Security.
4. Inventorying and classifying sensitive data, Remediation plans, Security Perimeters, Encryption of data, Introduction to Kerberos, Identity management, Activity Monitoring

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BTIBM702	**DCC**	**Big Data Security**	60	20	20	30	20	3	0	2	4

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and Apache Knox overview in detail.Privacy and Ethics - why does it creep us out when companies market to us? What is privacy, and why is it important?

Syllabus:

UNIT-I   **9HRS**
Introduction to Big Data: This unit explains the concept of Big Data and reviewing capabilities, Architecture, threats and security disciplines of Big Data. After completing this unit, you should be able to: Explain what Big Data is, Reviewing concept of Big data capabilities, Use cases of Big Data, Architecture of Big Data.

UNIT-II   **10**HRS
Securing & Protecting Data: This unit consist more in depth for Exploring security of Big Data - securing and Protecting Data, After completing this unit, you should be able to:, Understand how to identify data for down streaming processes, Understand how to integrate, process, generate data, Understand Security perimeter for security Management.

UNIT -III   **9HRS**
 Threats &Security Disciplines of Big Data: Threats and Security Disciplines of Big Data, There is a particularly focus on how Big Data can support Security like – CIA, 3A, Software attacks, theft of intellectual property, identity theft, theft of equipment or information,

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BTIBM702	**DCC**	**Big Data Security**	60	20	20	30	20	3	0	2	4

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

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sabotage, Social Engineering, and information extortion.

Unit-IV   **8 HRS**
Monitor, Enforce and Audit: This unit introduces concepts of monitoring and auditing data with Guardium After completing this unit, you should be able to: Understand Guardium data activity Monitoring, Benefits of Big Infosphere Guardium, Understand Architecture of Guardium, Hands-on experience with all of them, Know how Access management and Auditing works.

Unit-V   **7 HRS**
Data Protection Laws for Big data: Data Protection Laws for Big data: This unit gives an overview Protection Data law enforced for Data. After completing this unit, you should be able to: Explain GDPR   Laws, Explain ILG (Lifecycle Governance), ISO 27000 Series, HIPAA

TEXT/REFERENCEBOOKS:

1. Mayer-Schonberger and Cukier 2013 Big Data: A Revolution that Will Transform How We Live, Work, and Think.
2. Tom White " Hadoop: The Definitive Guide" Third Edit on, O'reily Media, 2012.
3. SeemaAcharya, SubhasiniChellappan, "Big Data Analytics" Wiley 2015.
4. IBM Content/Books.

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***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Further Suggested Readings:

1. Michael Mineli, Michele Chambers, AmbigaDhiraj, "Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses", Wiley Publications, 2013.
2. ArvindSathi, "BigDataAnalytics: Disruptive Technologies for Changing the Game", MC Press, 2012
3. Paul Zikopoulos ,Dirk DeRoos , Krishnan Parasuraman , Thomas Deutsch , James Giles , David Corigan , "Harness the Power of Big Data The IBM Big Data Platform ", Tata McGraw Hill Publications, 2012.

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BTCS706	**PW**	**Project**	0	0	0	120	80	0	0	8	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.

Guideline and instruction for Project

S.No	Particular
1.	Group formation and Submission of Project Topic (At least three(03))
2.	Guide allotment and Topic Finalization
3.	Presentation –I Contents: 1. Problem Domain 2. Literature Survey 3. Feasibility Study 4. References
4.	Synopsis Submission
5.	Presentation – II Contents: 1. SRS / URD 2. Conceptual Design
6.	Presentation – III Contents: 1. Detail Design 2. Implementation & Test Plan
7.	Project Report Submission

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