Part A Introduction

Program: Degree		Class : UG	Year: III	Session: 2023-24
Subject: BCA				
1	Course Code	S3-BCAA3D		
2	Course Title	**Data Warehousing & Mining** (Theory) (Group B - Paper-I)		
3	Course Type (Core Course/ Discipline Specific Elective/Elective/Generic Elective/Vocational/.....)	Discipline Specific Elective (DSE)		
4	Pre-requisite (if any)			
5	Course Learning outcomes (CLO)	**On successful completion of this course, the students will be able to:** 1. Understand the basics of data warehouse, it's storage fundamentals and knowledge discovery in databases 2. Apply data mining techniques over different datasets. 3. Implement clustering algorithms and build classification models 4. Select appropriate DM tools and apply the concepts of Data Warehouse and DM techniques for clustering, association, and classification 5. Explore recent trends in data mining such as web mining, spatial-temporal mining.		
6	Credit Value	Theory 4		
7	Total Marks	Max. Marks: 30 + 70		Min. Passing Marks:35

Part B- Content of the Course

Total No. of Lectures =60 (3 hours/ lecture per week)

Unit		Topics	No. of Lectures (1 Hour Each)
I		Data Warehouse Basic: Data ware housing Definition, usage and trends, DBMS vs. data warehouse, statistical databases vs. data warehouses. Data marts, Metadata, Multidimensional data model, Data cubes, Schemas for Multidimensional Database: stars, snowflakes and fact constellations	12
II		Storage and Architecture of Data Warehouse: Data warehouse process & architecture, OLTP vs. OLAP, ROLAP vs. MOLAP types of OLAP, servers, 3 – Tier data warehouse architecture, distributed and virtual data warehouses, data warehouse manager, data consolidation, ware house internals, storage and indexing, Operations, materialized , online analytical	12

Dr Goswami

	processing(OLAP) system.	
III	Data Mining Basic: Data mining definition & task, KDD versus data mining, tools and applications. Data mining query languages, Preprocessing, pattern presentation & visualization specification, data mining techniques, tools and applications. Data mining techniques: Statistical perspective, Regression, Bayes Theorem, Hypothetical testing.	12
IV	Classification and Clustering: Issues in classification, Statistical –Based Algorithms, Distance–Based Algorithms, Decision Tree–Based Algorithms, ID3,C4.5, Evaluating the performance. Clustering: Basic concepts, Partition algorithms, Agglomerative Hierarchical algorithms, DBSCAN, BIRCH, CURE algorithm. Clustering with categorical attributes, Comparison	12
V	Association Rules: Frequent Itemset generation, Apriori Algorithm. Rule generation, Compact representation of frequent Itemset. Advanced Topics: Dimensionality Reduction, overview of Principle Component Analysis and SVD, Spatial mining, Web mining, Temporal mining.	12

Keywords/Tags:

Part C-Learning Resources
Text Books, Reference Books, Other resources

Suggested Readings:

1. Data Mining: Concepts and Techniques, Han and Kamber, Morgan Kaufmann Publications.
2. Data Mining Techniques, A. K. Pujari, Universities Press Pvt. Ltd
3. Data Warehousing" by Amitesh Sinha
4. Data Warehousing in the real world " by Sam Anahory & Dennis Murray
5. Jiawei Han & Micheline Kambe :Data Mining – Concepts & Techniques;
6. Margaret H. Dunham, S. Sridhar:Data Mining Introductory and Advanced Topics
7. Pang-Ning Tan, Michael Steinbach, Vipin Kumar: Introduction to Data Mining
8. Kimball R, Reeves L , Ross M etc – Data Warehouse life cycle tool kit, John Wiley.
9. Anahory: Data Warehousing in Real World, Addision Wesley
10. Adriaans: Data Mining, Addision Wesley.
11. Jayee Bischaff & Ted Alexender : Data Warehouse: Practical advice from the Expert, Prentice Hall, New Jursey.
12. मध्य प्रदेश हिन्दी ग्रंथ अकादमी की पुस्तकें।

Suggestive digital platforms/ web links
1. https://nptel.ac.in/courses/106105174
2. https://onlinecourses.swayam2.ac.in/cec20_cs12/preview

3. *https://www.tutorialspoint.com/data_mining/index.htm*
4. *https://www.javatpoint.com/data-warehouse*

Suggested equivalent online courses:
1. *https://www.udemy.com/*
2. *https://www.coursera.org/specializations/data-mining*
3. *https://www.edx.org/learn/data-mining*
4. *https://www.classcentral.com/subject/data-mining*

Part D-Assessment and Evaluation

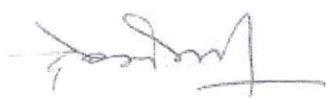*Suggested Continuous Evaluation Methods:*

Maximum Marks : 100

Continuous Comprehensive Evaluation (CCE) : 30 Marks University Exam (UE):70 Marks

Internal Assessment : Continuous Comprehensive Evaluation (CCE)	*Class Test Assignment/Presentation*	30
External Assessment : University Exam Section Time : 03.00 Hours	**Section(A)** : Very Short Questions **Section (B)** : Short Questions **Section (C)** :Long Questions	70

Any remarks/ suggestions:

Practical Paper

Part A Introduction			
Program: Degree	**Class :UG**	**Year: III**	**Session: 2023-24**
Subject: BCA			
1	**Course Code**	S3-BCAA3Q	
2	**Course Title**	**Data Warehousing & Mining** (Practical) (Group B - Paper-I)	
3	**Course Type (Core Course/ Discipline Specific Elective/Elective/Generic Elective/Vocational/.....)**	Discipline Specific Elective (DSE)	
4	**Pre-requisite (if any)**		
5	**Course Learning outcomes (CLO)**	**On successful completion of this course, the students will be able to:** 1. Understand the basics of data warehouse, it's storage fundamentals and knowledge discovery in databases 2. Apply data mining techniques over different datasets. 3. Implement clustering algorithms and build classification models 4. Select appropriate DM tools and apply the	

Dr Goswami

		concepts of Data Warehouse and DM techniques for clustering, association, and classification 5. Explore recent trends in data mining such as web mining, spatial-temporal mining.		
6	**Credit Value**	2		
7	**Total Marks**	Max. Marks: 100	Min. Passing Marks:35	

Part B- Content of the Course
Total No. of Lectures =30 (2 hours/ lecture per week)

	Topics	*No. of Lectures (2 Hour Each)*
1.	Installing Weka and understanding Weka environment using inbuilt functions.	
2.	Loading and importing different types of datasets in Weka.	
3.	Implement attribute selection and visualization in Weka	
4.	Perform ETL operation over data set.	
5.	Apply various data pre-processing techniques over the data sets.	
6.	Create a data mart from a data warehouse and apply data cleaning operations.	
7.	Build a classification model to classify data using Naive Bayes algorithm	
8.	Build a classification Model using different decision tree algorithm.	
9.	Apply regression to make marketing forecasts over sales data	
10.	Implement clustering algorithm over different data sets.	
11.	Apply Apriori algorithm to find out association rules in data set.	
12.	Evaluate the performance of different classifier .	
13.	Analyse the performance of various clustering algorithms.	
14.	Build a classifier to identify diabetic and non diabetic patients	
15.	Analyze the IRIS dataset in Weka and apply suitable data mining technique .	

Keywords/Tags:

Part C-Learning Resources
Text Books, Reference Books, Other resources

Suggested Readings:
1. Data Mining: Concepts and Techniques, Han and Kamber, Morgan Kaufmann Publications.
2. Data Mining Techniques, A. K. Pujari, Universities Press Pvt. Ltd
3. Data Warehousing" by Amitesh Sinha
4. Data Warehousing in the real world " by Sam Anahory & Dennis Murray
5. Jiawei Han & Micheline Kambe :Data Mining – Concepts & Techniques;
6. Margaret H. Dunham, S. Sridhar:Data Mining Introductory and Advanced Topics
7. Pang-Ning Tan, Michael Steinbach, Vipin Kumar: Introduction to Data Mining
8. Kimball R, Reeves L , Ross M etc – Data Warehouse life cycle tool kit, John Wiley.
9. Anahory: Data Warehousing in Real World, Addision Wesley
10. Adriaans: Data Mining, Addision Wesley.
11. Jayee Bischaff & Ted Alexender : Data Warehouse: Practical advice from the Expert, Prentice Hall, New jursey.

D-r Goswami

12. मध्य प्रदेश हिन्दी ग्रंथ अकादमी की पुस्तकें।

2. Suggestive digital platforms/ web links
1. https://nptel.ac.in/courses/106105174
2. https://onlinecourses.swayam2.ac.in/cec20_cs12/preview
3. https://www.tutorialspoint.com/data_mining/index.htm
4. https://www.javatpoint.com/data-warehouse

Suggested equivalent online courses:
1. https://www.udemy.com/
2. https://www.coursera.org/specializations/data-mining
3. https://www.edx.org/learn/data-mining
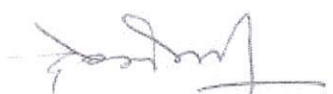4. https://www.classcentral.com/subject/data-mining

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz		Viva Voce on Practical	
Attendance	30	Practical Record File	70
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)		Table work / Experiments	
		Total Marks : 100	

Any remarks/ suggestions:
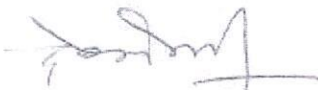
Dor Goswami

Theory Paper

Part A Introduction

Program: Degree	Class : UG	Year: III	Session: 2023-24

Subject:BCA		
1	Course Code	S3-BCAA4D
2	Course Title	**Web Technologies** (Theory) (Group B - Paper-II)
3	Course Type (Core Course/ Discipline Specific Elective/ Elective/ Generic Elective /Vocational/.....)	**Discipline Specific Elective (DSE)**
4	Pre-requisite (if any)	
5	Course Learning outcomes (CLO)	**On successful completion of this course, the students will be able to:** 1. Understand basics of Internet, World Wide Web(WWW), Client server Computing and have information of various Protocols 2. Have Knowledge of various web browsers, familiarize with Java scripting, Client side scripting language, Web server Architecture, Database connectivity(DBC) and ODBC 3. Have knowledge of HTML, it's essential tags, Attributes, Text styles, Links to External Documents and different sections of a HTML page. 4. Develop skills to generate HTML and DHTML page and have knowledge of Java Script assisted style sheets (JSSS) 5. Have knowledge of Objects, Methods, Events and Functions and various types of text, styles and be able to relate JavaScript to DHTML
6	Credit Value	4
7	Total Marks	Max. Marks: 30 + 70 Min. Passing Marks: 35

Part B- Content of the Course

Total No. of Lectures =60 (3 hours/ lecture per week)

Unit	Topics	No. of Lectures (1 Hour Each)
Unit-I	**Topics Basics of Internet and Web:** The basics of Internet, World Wide Web, Web page, Home Page, Web site, Static, Dynamic and Active web page, Overview of Protocols – Simple Mail Transfer Protocol, Gopher, Telnet, Emails, TFTP, Simple Network Management Protocol, Hyper Text Transfer Protocol, Client server computing concepts.	10
Keywords/Tags:	Internet, World Wide Web, Active web Pages, Protocols,	

	HTTP, Client server computing	
Unit -II	**Web Client and Web Sever**	**12**
	Web Browser, Browsers e.g., Netscape navigator, Internet Explorer, Mozilla Firefox, Client Side Scripting Languages- VB Script and Java Script, Active X control and Plug-ins; Web Server Architecture, Image maps, CGI, API web database connectivity-DBC, ODBC	
Keywords/Tags:	Web Browsers, Active X control, plug- ins, image maps CGI, database connectivity.	
Unit -III	**: Introduction to HTML**	**14**
	Introduction to HTML, Essential Tags, Tags and Attributes, Text Styles and Text Arrangements, Text, Effects, Exposure to Various Tags (DIV, MARQUEE, NOBR, DFN, HR, LISTING, Comment, IMG), Colour and Background of Web Pages, Lists and their Types, Attributes of Image Tag, Hypertext, Hyperlink and Hypermedia, Links, Anchors and URLs, Links to External Documents, Different Section of a Page and Graphics, Footnote and e-mailing, Creating Table, Frame, Form and Style Sheet.	
Keywords/Tags:	HTML, Tags, Attributes, Anchors, URLs, sections of a page.	
Unit -IV	**DHTML**	**12**
	Dynamic HTML, Document Object Model, Features of DHTML, CSSP (Cascading Style Sheet Positioning) and JSSS (JavaScript assisted Style Sheet), Layers of Netscape, The ID Attribute, DHTML Events.	
Keywords/Tags:	DHTML, CSSP, JSSS, ID attributes, DHTML Events	
Unit 5:	**Java Script** Objects, Methods, Events and Functions, Tags, Operators, Data Types, Literals and Type Casting in JavaScript, Programming Construct, Array and Dialog Boxes, Relating JavaScript to DHTML, Dynamically Changing Text, Style, Content.	12
Keywords/Tags: Objects, Events, Functions, Tags, Operators, Array, Dialog box, Dynamic changing texts.		

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

D.r Goswami

Textbooks:

1. Web Technologies – Black Book – DreamTech Press
2. Beginning PHP 5.3 (Wrox-Willey Publishing) by Matt Doyle
3. Beginning HTML, XHTML, CSS and Javascript by John Duckett
4.मध्य प्रदेश हिन्दी ग्रंथ अकादमी की पुस्तकें।

Reference Book:

1. HTML, XHTML and CSS Bible, 5th edition, Willey India-Steven M. Schafer
2. Struts: The Complete Reference, 2nd Edition by James Holmes
3. J2EE: The Complete Reference by James Keogh
4. Java EE and HTML-5 Enterprise Application Development (Oracle Press) by John Brock, Arun Gupta, Geertjan Wielenga.

Suggested equivalent online courses:		
Internet technology course by NPTEL nptel.ac.in>courses, www.udemy.com,		
https://archive.nptel.ac.in/content//storage/106/106 106 156/MP4/mod01lec01.mp4 {in total there are 22 videos}		

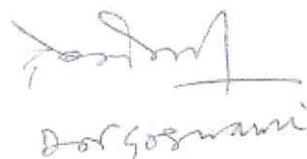**Suggested Continuous Evaluation Methods:**
Maximum Marks : 100
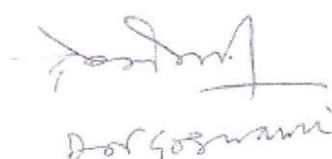Continuous Comprehensive Evaluation (CCE) : 30 Marks   University Exam (UE): 70 Marks

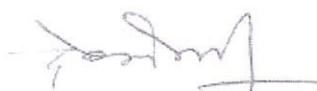| Internal Assessment : Continuous Comprehensive Evaluation (CCE)	Class Test Assignment/Presentation	30
External Assessment : University Exam Section Time : 03.00 Hours	Section(A) : Very Short Questions Section (B) : Short Questions Section (C) : Long Questions	70

Any remarks/ suggestions:

Practical Paper

Part A Introduction			
Program: Degree	Class :UG	Year: III	Session: 2023-24
Subject: BCA			

1	Course Code	S3-BCAA4Q
2	Course Title	**Web Technologies (Practical)** **(Group B - Paper-II)**
3	Course Type (Core Course/ Discipline Specific Elective/ Elective/ Generic Elective /Vocational/.....)	**Discipline Specific Elective (DSE)**
4	Pre-requisite (if any)	
5	Course Learning outcomes (CLO)	**On successful completion of this course, the students will be able to:** 1. Perform HTML programming with use of elements and tags...

		2. Perform basic and advanced text formatting	
		3. Able to use image video and sound in HTML documents	
6	**Credit Value**		**2**
7	**Total Marks**	Max. Marks: 100	Min. Passing Marks:35

Part B- Content of the Course

Total No. of Lectures =30 (2 hours/ lecture per week)

Topics	No. of Lectures (2 Hour Each)

List of Practicals:

1. Acquaintance with elements, tags and basic structure of HTML files.

2. Practicing basic and advanced text for formatting.

3. Practice use of image, video and sound in HTML documents.
4. Designing of web pages- Document layout, list, tables.
5. Practicing Hyperlink of web pages, working with frames.
6. Working with forms and controls.
7. Acquaintance with creating style sheet, CSS properties and styling.
8. Working with background, text, font, list properties.
9. Working with HTML elements box properties in CSS.
10. Develop simple calculator for addition, subtraction, multiplication and division operation using java script.
11. Create HTML page with java script which takes integer number as a input and tells whether the number is odd or even.
12. Create HTML page that contains form with fields name, Email, mobile number, gender, favourite colour and button; now write a java script code to validate each entry. Also writea code to combine and display the information in text box when button is clicked.
13. Write a PHP program to check if number is prime or not.
14. Write a PHP program to print first ten Fibonacci numbers.
15. Create a MySQL data base and connect with PHP.
16. Write PHP script for storing and retrieving user information from my SQL table.

    a. Write a HTML page which takes Name, Address, Email and Mobile number from user (register PHP).
    b. Store this data in MySQL data base.
    c. Next page displays all user in HTML table using PHP (display PHP).
17. Using HTML, CSS, Javascript, PHP, MySQL, design and authentication module of a web page.

Keywords/Tags:

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

Textbooks:

1. Web Technologies – Black Book – DreamTech Press
2. Beginning PHP 5.3 (Wrox-Willey Publishing) by Matt Doyle
3. Beginning HTML, XHTML, CSS and Javascript by John Duckett

4.मध्य प्रदेश हिन्दी ग्रंथ अकादमी की पुस्तकें।

Reference Book:

1. HTML, XHTML and CSS Bible, 5th edition, Willey India-Steven M. Schafer
2. Struts: The Complete Reference, 2nd Edition by James Holmes
3. J2EE: The Complete Reference by James Keogh
4. Java EE and HTML-5 Enterprise Application Development (Oracle Press) by John Brock, Arun Gupta, Geertjan Wielenga.

Suggestive digital platforms/ web links

Suggested equivalent online courses:

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz		Viva Voce on Practical	
Attendance	30	Practical Record File	70
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)		Table work / Experiments	
		Total Marks : 100	

Any remarks/ suggestions:

Dr Goswami