Allied Subjects offered by B.Sc. Data Science department to other department students

Semester I : Allied I: Theory : Database Management System
Allied I Practical : Database Management System Lab
Semester II: Allied II: Theory: Office Automation
Allied II Practical : Office Automation Lab
Semester III: Allied III: Theory: Operations Research
Allied III : Practical: Operations Research Lab
Semester IV: Allied IV: Theory: Internet and Web Design
Allied IV : Practical: Internet and Web Design Lab

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
23BDSA1	**Database Management System**	Allied	3	-	-	-	3	3	25	75	100

	Learning Objectives	
LO1	To enable the students to learn the designing of data base systems, foundation on the relational model of data and normal forms.	
LO2	To understood the concepts of data base management system, design simple Database models	
LO3	To learn and understand to write queries using SQL, PL/SQL.	
LO4	To enable the students to learn the designing of data base systems, foundation on the relational model of data and normal forms.	
LO5	To understood the concepts of data base management system, design simple Database models	
	Contents	**No. of Hours**
UNIT I	**Database Concepts:**Database Systems - Data vs Information - Introducing the database -File system - Problems with file system – Database systems. Data models - Importance - Basic Building Blocks - Business rules - Evolution of Data models - Degrees of Data Abstraction	6
UNIT II	**Design Concepts:** Relational database model - logical view of data-keys - Integrity rules - relational set operators - data dictionary and the system catalog - relationships -data redundancy revisited -indexes - codd's rules. Entity relationship model - ER diagram	6
UNIT III	**Normalization of Database Tables**: Database tables and Normalization – The Need for Normalization –The Normalization Process – Higher level Normal Form. **Introduction to SQL**: Data Definition Commands – Data Manipulation Commands – SELECT Queries – Additional Data Definition Commands – Additional SELECT Query Keywords – Joining Database Tables.	6
UNIT IV	**Advanced SQL**:Relational SET Operators: UNION – UNION ALL – INTERSECT - MINUS.SQL Join Operators: Cross Join – Natural Join – Join USING Clause – JOIN ON Clause – Outer Join.**Sub Queries and Correlated Queries**: WHERE – IN – HAVING – ANY and ALL – FROM. SQL Functions: Date and Time Function – Numeric Function – String Function – Conversion Function	6
UNIT V	**PL/SQL**:A Programming Language: History – Fundamentals – Block Structure – Comments – Data Types – Other Data Types – Variable Declaration – Assignment operation –Arithmetic operators.**Control Structures and Embedded SQL**: Control Structures – Nested Blocks – SQL in PL/SQL – Data Manipulation – Transaction Control statements. **PL/SQL Cursors and Exceptions**: Cursors – Implicit Cursors, Explicit Cursors and Attributes – Cursor FOR loops – SELECT…FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.	6

	Total	30
Course Outcomes		**Programme Outcomes**
CO	On completion of this course, students will	
CO1	Understand the various basic concepts of Data Base System. Difference between file system and DBMS and compare various data models.	PO1
CO2	Define the integrity constraints. Understand the basic concepts of Relational Data Model, Entity-Relationship Model.	PO1, PO2
CO3	Design database schema considering normalization and relationships within database. Understand and construct database using Structured Query Language. Attain a good practical skill of managing and retrieving of data using Data Manipulation Language (DML)	PO4, PO6
CO4	Classify the different functions and various join operations and enhance the knowledge of handling multiple tables.	PO4, PO5, PO6
CO5	Learn to design Data base operations and implement using PL/SQL programs. Learn basics of PL/SQL and develop programs using Cursors, Exceptions	PO3, PO5
Text Book		
1	Coronel, Morris, Rob, "Database Systems, Design, Implementation and Management", Ninth Edition	
2	Nilesh Shah, "Database Systems Using Oracle", 2nd edition, Pearson Education India, 2016	
Reference Books		
1.	Abraham Silberschatz, Henry F.Korth and S.Sudarshan,"Database System Concepts", McGraw Hill International Publication ,VI Edition	
2.	Shio Kumar Singh , "Database Systems ",Pearson publications ,II Edition	
Web Resources		
1.	Web resources from NDL Library, E-content from open-source libraries	

Mapping with Programme Outcomes:

CO/ PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	**3**	**2**	**1**	**2**	**1**	**2**
CO2	**3**	**3**	**2**	**2**	**3**	**3**
CO3	**3**	**3**	**2**	**3**	**3**	**2**
CO4	**3**	**2**	**3**	**2**	**2**	**3**
CO5	**3**	**2**	**2**	**2**	**3**	**3**
Weightage of course contributed to each PSO	**15**	**12**	**10**	**11**	**12**	**13**

S-Strong-3 M-Medium-2 L-Low-1

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
23BDSAP1	**Database Management System lab**		-	-		-	2	2	25	75	100

Learning Objectives	
LO1	To enable the students to learn the designing of data base systems, foundation on the relational model of data and normal forms.
LO2	To understood the concepts of data base management system, design simple Database models
LO3	To learn and understand to write queries using SQL, PL/SQL.
LO4	To enable the students to learn the designing of data base systems, foundation on the relational model of data and normal forms.
LO5	To understood the concepts of data base management system, design simple Database models

	List of Exercises:	**No. of Hours**	**Course Objective**
II	***I. SQL*** 1. DDLCOMMANDS 2. DMLCOMMANDS 3. TCLCOMMANDS ***II. PL/SQL*** 4. FIBONACCI SERIES 5. FACTORIAL 6. STRING REVERSE 7. SUM OF SERIES 8. TRIGGER ***III. CURSOR*** 9. STUDENT MARK ANALYSIS USING CURSOR ***IV. APPLICATION*** 10. LIBRARY MANAGEMENTSYSTEM 11. STUDENT MARK ANALYSIS		30
	Total		**30**

Course Outcomes		**Programme Outcomes**
CO	On completion of this course, students will	
CO1	Understand the various basic concepts of Data Base System. Difference between file system and DBMS and compare various data models.	PO1
CO2	Define the integrity constraints. Understand the basic concepts of Relational Data Model, Entity-Relationship Model.	PO1, PO2
CO3	Design database schema considering normalization and relationships within database. Understand and construct database using Structured Query Language. Attain a good practical skill of managing and	PO4, PO6

	retrieving of data using Data Manipulation Language (DML)	
CO4	Classify the different functions and various join operations and enhance the knowledge of handling multiple tables.	PO4, PO5, PO6
CO5	Learn to design Data base operations and implement using PL/SQL programs. Learn basics of PL/SQL and develop programs using Cursors, Exceptions	PO3, PO4
Text Book		
1	Coronel, Morris, Rob, "Database Systems, Design, Implementation and Management", Ninth Edition	
2	Nilesh Shah, "Database Systems Using Oracle", 2nd edition, Pearson Education India, 2016	
Reference Books		
1.	Abraham Silberschatz, Henry F.Korth and S.Sudarshan,"Database System Concepts", McGraw Hill International Publication ,VI Edition	
2.	Shio Kumar Singh , "Database Systems ",Pearson publications ,II Edition	
Web Resources		
1.	Web resources from NDL Library, E-content from open-source libraries	

Mapping with Programme Outcomes:

CO/ PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	**3**	**2**	**3**	**3**	**3**	**2**
CO2	**3**	**3**	**1**	**2**	**2**	**2**
CO3	**2**	**2**	**3**	**3**	**3**	**3**
CO4	**2**	**2**	**3**	**3**	**3**	**1**
CO5	**2**	**3**	**3**	**3**	**3**	**3**
Weightage of course contributedto each PSO	**12**	**12**	**13**	**14**	**14**	**11**

S-Strong-3 M-Medium-2 L-Low-1

Semester II Allied II (Offered by B.Sc. Data Science Dept to other departmentS)

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
23BDSA2	**Office Automation**	A-II Allied Theory	3	-	-	-	3	3	25	75	100

Learning Objective	
LO1	To acquire basic knowledge on word, spread sheet, Access and powerpoint software packages.
LO2	To learn and use the features of Word processor
LO3	To learn and use the features of Excel
LO4	To learn and use the features of Access
LO5	To learn and use the features of Power Point

	Contents	**No. of Hours**
UNIT I	MS Word: Working in the Word Environment – Opening, Moving Around in, and closing Document – Creating and Saving A Document – Previewing and Printing Document – Editing and Proofreading Documents: Making Changes to document – Inserting Saved Text – Finding the Most Appropriate Word – Reorganizing a Document Outline – Finding and Replacing Text – Correcting spelling and Grammatical errors – Finalizing Document.	15
UNIT II	Word: Changing the Look of Text: Quickly Formatting Text and Paragraphs – Manually changing the look of characters – Manually changing the look of paragraphs – Creating and modifying Lists- Presenting Information in Columns and Tables : Presenting Information in Columns – Creating Tabular List – Presenting Information in a Table – Formatting Table Information – Performing Calculations in a Table- Using a Table to control Page Layout.	15
UNIT III	Excel Setting Up a Workbook : Creating Workbooks – Modifying Workbooks - Modifying Worksheets – Working with Data and Data Tables : Entering and Revising Data – Moving Data within a Workbook- Finding and Replacing Data – Correcting and Expanding Upon Worksheet Data – Defining a Table – Performing Calculations on Data : Naming Groups of Data – Creating Formulas to Calculate Values – Summarizing Data that meets Specific Conditions –Finding and Correcting Errors in Calculations- Changing Document Appearance.	15
UNIT-IV	Access: Introduction – Parts of an Window: - Creating a New Data Base – Table Wizard – Renaming – Saving the Database – Relationships – Query – Form – Reports – Exiting MS-Access.	15
UNIT-V	PowerPoint Starting a New Presentation – Working with Slide Text : Entering Text – Editing Text – Adding and Manipulating Text Boxes – Correcting and Sizing text – Checking Spelling – Finding and replacing text and fonts – Changing the size, Alignment, Spacing – Adjusting the Slide Layout, Order and Look : Changing the Layout of a slide – Rearranging Slides in a Presentation – Applying a theme -Switching to a Different Color Scheme – Adding Shading and texture to the background of a slide – Delivering a Presentation Electronically.	15
	Total	**75**

Course Outcomes		Programme Outcome
CO	On completion of this course, students will	
CO1	Learn to use MS office software suite	PO1,PO3,PO5
CO2	Create reports, letters, mailmerge using Word Processor	PO2,PO3,PO6
CO3	Learn data sorting, filtering and analysis using Excel	PO3,PO4,PO5
CO4	Learn to create database, reports and forms using Access	PO4,PO5,PO6
CO5	Learn to create business presentation using Power Point	PO5,PO6
Text Book		
1	Joan Lambert, Joyce Cox, Curtis Frye, Microsoft Office Professional Step by Step, Pearson Education , 2010	
Reference Books		
1.	David W. Beskeen, Carol Cram, Jennifer Duffy, Lisa Friedrichsen, Elizabeth Eisner Reding, Microsoft Office 2010 Illustrated Introductory, First Course, Course Technology, 2012	
Web Resources		
1.		
2	E-Book: https://abiiid.files.wordpress.com/2011/01/microsoft-office-professional-2010-step-by-step.pdf	

Mapping with Programme Outcomes:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	3	3	3	3
CO 2	3	3	3	2	3	3
CO 3	2	3	2	3	3	2
CO 4	3	3	3	3	3	3
CO 5	3	3	3	3	3	2
Weight age of course contributed to each PSO	14	15	14	14	15	13

S-Strong-3 M-Medium-2 L-Low-1

Semester II

Allied – 1I Practical (Offered by B.Sc. Data Science to other departments)

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
23BDSAP 2	**Office Automation Lab**	A-II Allied Practical	-	-	2	-	2	2	25	75	100

Course Objective	
LO1	To learn the operations to create, save and close documents in MS-Office
LO2	To learn formatting features of Word and Mailmerge
LO3	To learn data analysis features of Excel
LO4	To learn creation of database and adding objects to them
LO5	To learn to make colourful power points for business presentations

	List of Excercises	**No. of Hours**	**Course Objectives**
	MS-WORD Exercises: 1. Create a document and perform formatting/font operations. 2. Design a Greeting Card using Word Art for different festivals. 3. Create your Bio-Data and use page borders and Shading 4. Write steps and perform following tasks: Find and replace, Go to,Spelling& grammer check,Hyperlink, Bookmark 5. Write steps and perform the following taks: Header & footer,Watermark,Page color,Page border, Endnote & footnote 6. Write steps to create a table of 10-15 students using columns: Serial No., students name, roll no, contact number 7. Write steps to insert images/pictures in a word document. 8. Perform mailmerge operation to merge address of students into body of the letter and create form letters.	10	
	MS-Excel Exercises: 9. Create a new worksheet in Excel and perform the following tasks: a. Copy an existing Sheet b. Rename the old sheet c. Insert new sheet into an existing workbook d. Delete the renamed sheet 10. Prepare an attendance sheet of 10 students for four subjects in your degree. Calculate total attendance, percentage of attendance and average attendance for each student. 11. Create student worksheet with columns Regno, Name, Degree and total marks obtained by them in an examination. a. Sort data by Name b. Filter data by degree c. Sub total of number of students in a particular degree 12. Perform computations on excel worksheet data using mathematical functions.	8	
	MS-PowerPoint Exercises: 13. Apply themes and layouts to powerpoint slides and insert pictures. 14. Add transition and animation. Work with master slides 15. Create Slide notes and hand outs.	6	
	MS-Access Exercises: 16. Create a student database and perform query operations on it.	6	

	17, Create two tables and relate them using primary keys 18. Design a colourful form for data entry 119. Create a report using data in tables.	
	Total	**30**

Course Outcomes		**Programme Outcome**
CO	On completion of this course, students will	
1	Handle MS-Office software package suite	PO1,PO3,PO5
2	Create letters, reports, greeting cards and books, mailmerge and format them suitably	PO2,PO3,PO6
3	Create spreadsheets and perform computations and data analysis	PO3,PO4
4	Create database tables for an applications and perform query operations, form design and data report preparation	PO4,PO5,PO6
5	Create colourful presentation for education and business presentations.	PO4,PO6
Text Book		
1	E-Book: Rajeev Gandhi Youth Computer Saksharta Mission. Download PDF from: https://www.rgycsm.org/uploads/books/MICROSOFT-OFFICE-BOOK.pdf	
Web Resources		
1.	https://tuto-computer.com/office/3-microsoft-excel-2013.html	
2.	Free office tutorial at : https://edu.gcfglobal.org/en/topics/office/	

Mapping with Programme Outcomes:

CO/PSO	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	**PSO 6**
CO 1	3	3	3	3	3	3
CO 2	2	3	3	3	3	3
CO 3	3	3	2	3	3	2
CO 4	3	3	3	3	3	3
CO 5	3	3	3	3	3	3
Weight age of course contributed to each PSO	14	15	14	15	15	14

S-Strong-3 M-Medium-2 L-Low-1

Semester III

Allied – III Theory (offered by B.Sc. Data Science Dept to other departments)

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
23BDSA3	**OPERTAIONS RESEARCH**	A-III Allied Theory	3	-	-	-	3	3	25	75	100

Learning Objective	
LO1	To familiarize the students with optimization techniques
LO2	To understand LP Model and formulate objectives and constraints
LO3	To understand the ways of solving Linear Programming Problems
LO4	To understand and solve transporation problems in different ways
LO5	To understand game theory and strategies for solving them

UNIT	Contents	No. of Hours
I	**UNIT I : Introduction** Operations Research- Meaning-Definition - Origin and History- Characteristic Features – Need-Scope –Steps- Techniques- Application- Limitations	6
II	**UNIT II : Linear Programming Problem (LPP)** Meaning- Requirements- Assumptions- Applications- Formulating Lpp – Advantages- Limitations Formulating LP Model (Simple Problems Only)	6
III	**UNIT III: Methods Of LPP** Obtaining Optimal Solution for Linear Programming Problem (LPP)-Graphical Method - Problems --Simplex Method for Type of LPP and for Slack Variable Case -Maximization Function -Minimization Function (Simple Problem Only)	6
IV	**UNIT IV : Transportation Problems** Meaning –(Initial Basic Feasible Solution)Assumptions -Degenerate Solution - North -West Corner Method- Least Cost Method -Vogels Approximation Method - Assignment Problems- Features -Transportation Problem Vs Assignment Problem - Hungarian Method (Simple Problems Only)	6
V	**UNIT V: Game Theory** Meaning- Types of Games- Basic Assumptions- Finding Value of Game for Pure Strategy - Mixed Strategy -Indeterminate Matrix and Average Method -Graphical Method -Pure Strategy- Saddle Point Payoff Matrix Value of Game (Simple Problems Only)	6
	Total	**30**

Course Outcomes		**Programme Outcome**
CO	On completion of this course, students will	
CO1	To appreciate the use of operation research in decision making	PO1,PO3,PO5
CO2	To formulate linear programming problems	PO2,PO3,PO6
CO3	To solve LP Problems and find optimal solution	PO3,PO4,PO5
CO4	To formulate and solve transportation problems	PO4,PO5,PO6
CO5	To solve different types of game problems using different strategies	PO5,PO6

Text Book

1	M. Sreenivasa Reddy, Operations Research Designed for Computer Science Students, (2019), Cengage Learning India Private Limited
2	S.Gurusamy(2017),Elements of Operations Research,Vijay Nicole Imprints private Limited, Chennai
Reference Books	
1.	Agarwal NP and Sonia Agarwal, Operations Research and Quantitative Techniques, RBS A Publishers, New Delhi ,2009
2.	Anand Sharma, Operations Research, Himalayan Publishing House, 2014 ,Mumbai
3.	Gupta Pk And Gupta SP(2014), Quantitative Techniques and Operations Research, Sultan Chand and Sons,New Delhi
4.	Kapoor V.K(2012), Operations Research Techniques For Management,Sultan Chand And Sons, New Delhi
5.	Kanti Swarup,P.K. Gupta Man Mohan(2014) ,Operation research, Jain book agency, New Delhi
6.	Sarangi, SK (2014), Applied operations research and Quantitative methods, Himalayan publishing house, Mumbai.
Web Resources	
1.	http://www.learnaboutor.co.uk/
2.	http://www.theorsociety.com/
3.	www.orcompleate.com/
4.	http://www.orsi.in/

Mapping with Programme Outcomes:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	3	3	3	3
CO 2	3	3	3	2	3	3
CO 3	2	3	2	3	3	2
CO 4	3	3	3	3	3	3
CO 5	3	3	3	3	3	2
Weight age of course contributed to each PSO	14	15	14	14	15	13

S-Strong-3 M-Medium-2 L-Low-1

Semester III

Allied – III Practical (offered by B.Sc. Data Science to other departments)

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
23BDSAP3	**OPERATIONS RESEARCH LAB**	A-III Allied Practical	-	-	2	-	2	2	25	75	100

Course Objective	
LO1	Learning to formulate an operations research problem
LO2	Learn to formulate and write a program to solve Linear Programming Problem
LO3	Learn to formulate and write a program to solve Assignment Problem
LO4	Learn to formulate and write a program to solve Transportation Problem
LO5	Learn to understand gaming problems

	List of Excercises	**No. of Hours**	**Course Objectives**
	1. Write a program to find solution to LPP using Simplex method MAX Z = 3x1 + 5x2 + 4x3 subject to 2x1 + 3x2 <= 8 2x2 + 5x3 <= 10 3x1 + 2x2 + 4x3 <= 15 and x1,x2,x3 >= 0 **2.** Write a program to find solution to LPP using Simplex(BigM) method MIN Z = x1 + x2 subject to 2x1 + 4x2 >= 4 x1 + 7x2 >= 7 and x1,x2 >= 0 **3.** Write a program to find solution to LPP using Two-Phase method MIN Z = x1 + x2 subject to 2x1 + x2 >= 4 x1 + 7x2 >= 7 and x1,x2 >= 0 **4.** Write a program to solve the following transporation problem using north-west corner method	10 x 3 = 30	

	D1	D2	D3	D4	Supply
S1	19	30	50	10	7
S2	70	30	40	60	9
S3	40	8	70	20	18
Demand	5	8	7	14	

5. Write a program to solve the following transporation problem using Least-Cost method

	D1	D2	D3	D4	Supply
S1	19	30	50	10	7
S2	70	30	40	60	9
S3	40	8	70	20	18
Demand	5	8	7	14	

6. Write a program to solve the following transporation problem using Vogel's Approximation method

	D1	D2	D3	D4	Supply
S1	19	30	50	10	7
S2	70	30	40	60	9
S3	40	8	70	20	18
Demand	5	8	7	14	

7. A department has five employess with five jobs to be permormed. The time (in hours) each men will take to perform each job is given in the effectiveness matrix

		Employees				
		I	II	III	IV	V
Jobs	A	10	5	13	15	16
	B	3	9	18	13	6
	C	10	7	2	2	2
	D	7	11	9	7	12
	E	7	9	10	4	12

How should the jobs be allocated, one per employee, so as to minimize the total man-hours?

8. A computer centre has four expert programmers and needs to develop four application programmes. The head of the computer centre, estimates the computer time (in minutes) required by the respective experts to develop the application programs as follows:

		Programmes			
		A	**B**	**C**	**D**
Programmers	**1**	120	100	80	90
	2	80	90	110	70
	3	110	140	120	100
	4	90	90	80	90

Find the assignment pattern that minimises the time required to develop the
application programs.

9. A travelling salesman has to visit five cities. He wishes to start from a particular city, visit each city only once and then return to his starting point. The travelling cost of each city from a particular city is given below.

		To city				
		A	B	C	D	E
From city	A	x	2	5	7	1
	B	6	x	3	8	2
	C	8	7	x	4	7
	D	12	4	6	x	5
	E	1	3	2	8	x

10. Solve the following game with payoff matrix using Saddle Point calculation

		Player B		
		B_1	B_2	B_3
Player A	A_1	-1	2	-2
	A_2	6	4	-6

determine the best strategies for players A and B. Also determine the value of game. Is this game saddle point?

	Total	**30**

Course Outcomes		**Programme Outcome**
CO	On completion of this course, students will	
1	be able to formulate real life problems using operation research strategies	PO1,PO3,PO5
2	be able to formulate LP problems and identify optimal	PO2,PO3,PO6

	solutions	
3	be able to solve LP problem using various methods	PO3,PO4
4	be able to solve assignment and transportation problems with different methods.	PO4,PO5,PO6
5	be able to solve game theory based problems in order to minimize overall cost.	PO4,PO6
Web Resources		
1.	Solutions for all the 10 lab problems are available at https://cbom.atozmath.com/Menu/CBomMenu.aspx	
2.	http://www.learnaboutor.co.uk/	
3.	http://www.theorsociety.com/	
4.	www.orcompleate.com/	
5.	http://www.orsi.in/	

Mapping with Programme Outcomes:

CO/PSO	**PSO 1**		**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	**PSO 6**
CO 1	3		3	3	3	3	3
CO 2	2		3	3	3	3	3
CO 3	3		3	2	3	3	2
CO 4	3		3	3	3	3	3
CO 5	3		3	3	3	3	3
Weight age of course contributed to each PSO	14		15	14	15	15	14

S-Strong-3 M-Medium-2 L-Low-1

Semester IV

Allied – IV Theory (offered by B.Sc. Data Science Dept to other departments)

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
23BDSA4	**Internet and Web Design**	A-IV Allied Theory	3	-	-	-	3	3	25	75	100

Learning Objective	
LO1	To familiarize the internet and its capabilities
LO2	To understand the structure Hyper Text Markup Language and handle basic tags for text and image display
LO3	To understand the use of lists and tables
LO4	To understand the necessity of dynamic content on web and screen space management using framesets
LO5	To understand the features of DOM (Document Object Model) and its elements for data capture

UNIT	**Contents**	**No. of Hours**
I	**UNIT I : Introduction to the Internet** Electronic mail – Resource Sharing – Remote Login – World Wide Web – Search Engine – Browsers – Introduction to static, dynamic and active web pages. Introduction to HTML: Designing a Home page - History of HTML - HTML Generations - HTML Documents - Anchor Tag - Hyper links	6
II	**UNIT II : Head and Body Sections** Header Section – Title – Links - Colorful Web page - Comment Lines - Designing the Body Section: Heading – Printing - Aligning the Headings - Horizontal Rule - Paragraph-Tab Settings - Images and Pictures - Embedding Images	6
III	**UNIT III: Ordered and Un Ordered Lists:** Lists – Un Ordered Lists - Headings in a List - Ordered Lists - Nested Lists - Table Handling: Table creation in HTML - width of the Table and Cells - Cells Spanning Multiple Rows/Columns - Coloring Cells - Column Specification	6
IV	**UNIT IV : DHTML and Style Sheets** Defining Styles - Elements of Styles - Linking a Style Sheet to an HTML Document – In-line Styles - Internal and External Style Sheets - Multiple Styles - Frames: Frameset Definition - Frame Definition - Nested Framesets	6
V	**UNIT V: Forms** Action Attribute - Method Attribute - Enctype Attribute - Drop down list - Check Boxes - Radio Buttons - Text Field - Text area - Password and Hidden Fields - Submit and Reset Buttons - Designing Sample Forms	6
	Total	**30**

Course Outcomes		**Programme Outcome**
CO	On completion of this course, students will	
CO1	To appreciate the use of internet and design of web pages	PO1,PO3,PO5
CO2	To be able to use all the basic HTML tags used to design web content with multimedia elements	PO2,PO3,PO6
CO3	To be able to create and format different types of lists and tables	PO3,PO4,PO5
CO4	To be able to specify styles for web pages and dynamically	PO4,PO5,PO6

	change the appearance of web pages and manage screen space by defining multiple frames	
CO5	To be able to design web forms for data capture and transmit to the server	PO5,PO6
Text Books		
1	C. Xavier(2000), World Wide Web design with HTML - Tata McGraw Hill Publishing Company Limited ISBN 9780074639719	
2	Ivan Bayross (2012) HTML 5 and CSS 3 Made Simple, BPB Publications ISBN 9788183334419	
Reference Books		
1.	Jon Duckett (2011),HTML and CSS: Design and Build Webs Illustrated, Wiley	
Web Resources		
1.	http://www.pagetutor.com/html_tutor/index.html	
2.	http://www.tutorialspoint.com/html/html_tutorial.pdf	
3.	http://www.htmlcodetutorial.com/	
4.	http://www.w3schools.com	

Mapping with Programme Outcomes:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	3	3	3	3
CO 2	3	3	3	2	3	3
CO 3	2	3	2	3	3	2
CO 4	3	3	3	3	3	3
CO 5	3	3	3	3	3	2
Weightage of course contributed to each PSO	14	15	14	14	15	13

S-Strong-3 M-Medium-2 L-Low-1

Semester IV

Allied – IV Practical (Offered by B.sc. Data Science Dept to other departments)

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
23BDSAP4	**INTERNET AND WEB DESIGN LAB**	A-IV Allied Practical	-	-	2	-	2	2	25	75	100
Course Objective											
LO1	To be familiar with internet principles and HTML tags										
LO2	Learn to design web pages with simple static text displays										
LO3	Learn to design web pages with lists and tables										
LO4	Learn to dynamically control the appearance of the website with style sheets										
LO5	Learn to manage screen space with multiple contents and design forms to capture data from user										

	List of Excercises	**No. of Hours**	**Course Objectives**
	1. Cretae HTML file with tags using an editor and display your name and address in different colors and fonts centered across the screen. 2. Write HTML tags to display images in different height and widths 3. Write HTML tags to play audio file when play button is pressed 4. Write HTML tags to create list of courses availbe in a college and show their features in definition list. 5. Write HTML tags to link another web page to your page 6. Write HTML tags to create a table with text content and format it suitably with colors and features. 7. Write HTML tags to create a table with photographs of animals and show their lifesspan and habits in a different page when mouse is clicked over the photos. 8. Write HTML tags to define inline style sheet and test it. 9. Write HTML tags to define internal style sheet and test it. 10. Write HTML tags to define external style sheet and test it. 11. Write HTML tags to divide the screen space into horizontal and vertical partitions and load a different html file in each partitiion. 12. Write HTML tags to design a form to enable a student to fill up application form for admission to a degree programme in a college. 13. Write HTML tags to design a simple personal website with three or more pages accessible from home page. 14. Write HTML tags to design a simple website to promote a product	30	

	of a company. 15. Write HTML tags to design a simple website showing images of cover page of books and display the details about the book in their own pages when mouse is clicked over the respective photographs	
	Total	**30**
Course Outcomes		**Programme Outcome**
CO	On completion of this course, students will	
1	be able to appreciate the use and necessity of intenet and websites	PO1,PO3,PO5
2	be able to master the HTML tags and display text and multimedia contents on web pages	PO2,PO3,PO6
3	be able to design lists and display them on web pages	PO3,PO4
4	be able to design tables and display colourful and hypertext leading to other pages	PO4,PO5,PO6
5	be able to manage screen space effectively with multiple frames and design web forms	PO4,PO6
Web Resources		
1.	http://www.pagetutor.com/html_tutor/index.html	
2.	http://www.tutorialspoint.com/html/html_tutorial.pdf	
3.	http://www.htmlcodetutorial.com/	
4.	http://www.w3schools.com	

Mapping with Programme Outcomes:

CO/PSO	**PSO 1**		**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	**PSO 6**
CO 1	3		3	3	3	3	3
CO 2	2		3	3	3	3	3
CO 3	3		3	2	3	3	2
CO 4	3		3	3	3	3	3
CO 5	3		3	3	3	3	3
Weight age of course contributed to each PSO	14		15	14	15	15	14

S-Strong-3 M-Medium-2 L-Low-1