Eklavya University

SESSION

2023-24

B.C.A. III YEAR

SYLLABUS

OF

NEP

School of Basic and Applied Sciences

EKLAVYA UNIVERSITY, DAMOH (M.P.)

School of Basic and Applied Sciences

Scheme of Examination B.CA III Year (Discipline Specific Elective (DSE)) (Major)

For batch admitted in Academic Session 2023-24

Subject wise distribution of marks and corresponding credits

S. No.	Subject Name	DSE GROUP	Subject Code	Paper Name	Maximum Marks Allotted										Total Marks	Contact Periods Per week			Total Credits
					Theory Slot				Practical Slot										
					External Assesment	Internal Assesment /Class test /Assignment/Seminar			Internal Assesment			External Assesment							
					(End Term Exam)	Internal Assesment I	Internal Assesment II	Internal Assesment III	Class test/ Interaction	Attendance	Assignment/ Presentation	VivaVoce	Practical Record	Lab Work/ Sessional		L	T	P	
1	DSE	DSE GROUP A	EUS3BCAA1D	Computer Graphics	70	10	10	10							100	4	_	0	4
			EUS3BCAA1Q	Computer Graphics (Practical)					10	10	10	10	10	50	100	_	_	2	2
			EUS3BCAA2D	Python Programming	70	10	10	10							100	4	_	0	4
			EUS3BCAA2Q	Python Programming (Practical)					10	10	10	10	10	50	100	_	_	2	2
		DSE GROUP B	EUS3BCAA3D	Data Warehousing & Mining	70	10	10	10							100	4	_	0	4
			EUS3BCAA3Q	Data Warehousing & Mining (Practical)					10	10	10	10	10	50	100	_	_	2	2
			EUS3BCAA4D	Web Techonologies	70	10	10	10							100	4	_	0	4
			EUS3BCAA4Q	Web Techonologies (Practical)					10	10	10	10	10	50	100	_	_	2	2

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EKLAVYA UNIVERSITY, DAMOH (M.P.)

School of Basic and Applied Sciences

Scheme of Examination B.CA III Year (Minor)

Session 2023-2024

Subject wise distribution of marks and corresponding credits

S. No.	Subject Name	Subject Code	Paper Name	Minor										Total Marks	Contact Periods Per week			Total Credits
				Theory Slot				Practical Slot							L	T	P	
				External Assesment	Internal Assesment [Class test (Descriptive & Objective)/ Assignment/ Seminar]			Internal Assesment			External Assesment							
				Minor (End Term Exam)	Internal Assesment I	Internal Assesment II	Internal Assesment III	Class test/ Interaction	Attendance	Assignment/ Presentation	VivaVoce	Practical Record	Lab Work/ Sessional					
1	Minor	EUS3BCAB2T	Cloud Computing	70	10	10	10							100	6	_	0	6

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EKLAVYA UNIVERSITY, DAMOH (M.P.)

School of Basic and Applied Sciences

Scheme of Examination BCA III Year (Elective)

Session 2023-2024

Subject wise distribution of marks and corresponding credits

S. No.	Subject Name	Subject Code	Paper Name	Elective										Total Marks	Contact Periods Per week			Total Credits
				Theory Slot				Practical Slot										
				External Assesment	Internal Assesment [Class test (Descriptive & Objective)/ Assignment/ Seminar]			Internal Assesment			External Assesment				L	T	P	
				Minor (End Term Exam)	Internal Assesment I	Internal Assesment II	Internal Assesment III	Class test/ Interaction	Attendance	Assignment/ Presentation	VivaVoce	Practical Record	Lab Work/ Sessional					
1	Elective	EUS3BCAC1G	Multimedia and Animation	70	10	10	10							100	4	_	0	4
		EUS3BCAC1R	Multimedia and Animation (Practical)	-	-	-	-	10	10	10	10	10	50	100	-	-	2	2
		EUS3BCAC2G	Cyber Security	70	10	10	10							100	6	_	0	6
		EUS3BCAC3G	Programming in C#	70	10	10	10							100	4	_	0	4
		EUS3BCAC3R	Programming in C# (Practical)	-	-	-	-	10	10	10	10	10	50	100	-	-	2	2
		EUS3BCAC4G	MYSQL	70	10	10	10							100	4	_	0	4
		EUS3BCAC4R	MYSQL (Practical)	-	-	-	-	10	10	10	10	10	50	100	-	-	2	2

EKLAVYA UNIVERSITY, DAMOH (M.P.)

School of Basic and Applied Sciences

Scheme of Examination B.Sc III Year (Vocational)

Session 2023-2024

Subject wise distribution of marks and corresponding credits

S. No.	Subject Name	Subject Code	Paper Name	Vocational						Contact Periods Per week			Total Credits
				Theory Slot				Practical Slot	Total Marks	L	T	P	
				External Assesment	Internal Assesment [Class test (Descriptive & Objective)/Assignment/								
				End Term Exam	Internal Assesment I	Internal Assesment II	Internal Assesment II						
	Vocational	EUV3HSC BTYT	Skin and Facial Beauty Care	70	10	10	10	100	200	2	_	2	4
1		EUV3BOTMPLT	Plants Used in Therapy	70	10	10	10	100	200	2	_	2	4
		EUV3FOOFPPT	Food Processing: Beverages manufacturing and Management	70	10	10	10	100	200	2	_	2	4
		EUV3HORORGT	Process of Organic Farming	70	10	10	10	100	200	2	_	2	4
		EUV3PSYDEVT	Personality Development	70	10	10	10	100	200	2	_	2	4
		EUV3COMTALT	Computerized Accounting	70	10	10	10	100	200	2	_	2	4
		EUV3ZOOVERT	Advancements in Vermi Composting	70	10	10	10	100	200	2	_	2	4

Eklavya University Damoh (M.P.)
School of Basic and Applied Sciences
Scheme of Examination BCA. III Year NEP Foundation Course
Session - 2023-2024
Subject Wise Distribution of makes and Corresponding Credits

S.no	Course	Subject Code	Subject Name	Foundation Course Maximum Marks Alloted Theory Slot				Total Marks	Contact Periods Per Week			Total Credits
				EA (UE)	IA/CCE (Class Test)	Assignment/ Presentation)	Pratical		L	T	P	
1	Foundation Course	EUFC3A	Bhasha our Sanskriti(Hindi), English Language and Communication	100 (50+50)	0	0	0	100	4(2+2)	0	0	4
2	Foundation Course	EUFC3B	Personality Development and Character Building, Digital Awareness Cyber Security	100 (50+50)	0	0	0	100	4(2+2)	0	0	4

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EKLAVYA UNIVERSITY, DAMOH (M.P.)

School of Basic and Applied Sciences

Scheme of Examination BCA III Year (Internship)Session 2023-24

Subject wise distribution of marks and corresponding credits

S. No.	Subject Name	Subject Code	Paper Name	Internship		Total Marks	Contact Periods Per week			Total Credits
				External Assesment	Internal Assesment		L	T	P	
				Field Work	Written Work					
1	Internship	EVIN-SHIP3	Internship	70	30	100	–	–	4	4

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EKLAVYA UNIVERSITY
ज्ञान प्राप्तये लक्ष्य संधानम्

School of Basic and Applied Sciences

Class	**B.C.A**
Semester/Year	**III Year**
Subject & Subject code	**Computer Graphics (Group A - Paper-I) & EUS3BCAA1D**
Max. Marks	**70 (ETE) + 30 (I) = 100**

Credits			Total Credits
L	T	P	4
0	2	2	

Course Outcome:

On successful completion of this course, the students will be able to :-

1.Understand the basics of computer graphics, different graphics systems and applications of computer graphics..
2.Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis.
3.Use of geometric transformations on graphics objects and their application in composite form.
4 Extract scene with different clipping methods and its transformation to graphics display ddevice.
5.Explore projections and visible surface detection techniques for display of 3D scene on 2D screen.
6. Render projected objects to naturalize the scene in 2D view and use of illumination models for this.

Unit	Syllabus	Periods
UNIT - I	Introduction to computer Graphics: Application of computer graphics, Interactive and Passive Graphics. Graphic Systems: Display Processor, Cathod Ray Tube (CRT) Random Scan vs Raster Scan, Color CRT Monitors, Direct View Storage Tubes, Flt Panel Display. Input-output Devices: Input Devices, Trackball, Lightpen, Image Scanner, Output Devices, Plotters.	12
UNIT - II	**Scan Conversion a line:** Scan Conversion Definition, Scan Converting a Point, Scan converting a straight Line, DDA Algorithm. **Scan Conversion Circle:** Defining a Circle, Defining a Circle using Polnomial Method, Definng a Circle using Polar Coordinates Method, Bresenham's Circle Algorithm, Midpoint Circle Algorithm..	12
UNIT - III	**Filled Area Primitives:** Boundary Fill Algorithm, Flood Fill Algorithm, Scan Line Polygon Fill Algorithm. **2D Trausformations:** Introduction of Transformation, Translation, Scaling, Rotation, Reflection, Shearing, Matrix Representation, Homogeneous Coordinates, Composite Transfformation, Pivot Point Rotation. **2D-Viewing:** Window, Window to Viewport Co-ordinate Transformation, Zooming, Planning.	12
UNIT - IV	**Clipping Techniques:** Clipping, Point Clipping, Line Clipping, Midpoint Subdivision Algorithm, Text Clipping, Polygon, ?Sutherland-Hodgeman Polygen Clipping, Weiler-Atherton Polygon Clipping. **Pointing & Positioning:** Pointing & Positioning Techniques, Elastic or Rubber Band Techniques, Dragging. Shading: Introduction of Shading, Constant Intensity Shading, Gouraud Shading, Phong Shading.	12

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UNIT - V	**Animation:** Animation, Application Areas of Animation, Animation Functions. 3D Computer Graphics: Three Dimensional Graphics, Three Dimensional Transformations, Scaling, Rotation, Rotation about Arbitray Axis, Inverse Transformations, Reflecting, Shearing. **Hidden Surfaces:** Hidden Surface Removal, Back Face Removal Algorithm, Z--Buffer Algorithm, Painter's Algorithm, Scan Line Algorithm, Subdivision Algorithm.	12

Suggested Readings:

1 Hearn: Computer Graphics C Version, Pearson Education India; 2nd edition, 2002.

2 John Hughes, Andries van Dam, Mogan McGuire, David Sklar, james Foley: Computer Graphics: Principles and Practice, Addison-Wesley Professional, 3rd Edition, 2013.

3 Zhigang Xiang, Roy Plastock; Computer Graphic, McGraw Hill Education, 2nd Edition, 2006

Suggestive digital platforms/ web links:

1. www.eshiksha.mp.gov.in/mpdhe
2. https://epgp.inflibnet.ac.in
3. https://nptel.ac.in/courses/106103224
4. https://nptel.ac.in/courses/106106090

Class				**B.C.A**
Semester/Year				**III Year**
Subject & Subject code				**Computer Graphics (Group A - Paper-I) & EUS3BCAA1Q** (Practical)
Max. Marks				**70 (E) + 30 (I) = 100**
Credits			**Total Credits**	
L	**T**	**P**		
0	0	2	2	

Course Outcome:

On successful completion of this course, the students will be able to :-

1.Understand the basics of computer graphics, different graphics systems and applications of computer graphics..
2.Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis.
3.Use of geometric transformations on graphics objects and their application in composite form.
4 Extract scene with different clipping methods and its transformation to graphics display ddevice.
5.Explore projections and visible surface detection techniques for display of 3D scene on 2D screen.
6. Render projected objects to naturalize the scene in 2D view and use of illumination models for this.

Practical

List of Practicals:-

1. Write a proram to dras basic graphics construction like line, cirle, ar, ellipse and rectngle.
2. Write a program of Translation, rotation, and scaling using Composite Transformation.
3. Write a progra to draw a Cirle using midpoint implementation Method.
4. Write a Program to draw Bezier curve.
5. Program to rotate a rectangle about its midpoint.
6. Program to clip a line using Liang Barsky Method.
7. Program to implement Standard Perspective Projective in 3-Dimensions.
8. Program to implement Parallel Projection in 3-Dimensions.
9. Write a Program to implement Digital Clock.
10. Write a Program to draw animation using increasing circles filled with different colors and patterns.
11. Write a program control a ball using arrow keys.
12. Write a program to implement Bouncing Ball in vertical direction.

Suggested Readings:

1 Hearn: Computer Graphics C Version, Pearson Education India; 2nd edition, 2002.
2 John Hughes, Andries van Dam, Mogan McGuire, David Sklar, james Foley: Computer Graphics: Principles and Practice. Addison-Wesley Professional. 3rd Edition. 2013.
3 Zhigang Xiang, Roy Plastock; Computer Graphic, McGraw Hill Education, 2nd Edition, 2006

Suggestive digital platforms/ web links:

1. www.eshiksha.mp.gov.in/mpdhe
2. https://epgp.inflibnet.ac.in
3. https://nptel.ac.in/courses/106103224
4. https://nptel.ac.in/courses/106106090

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Assessment and Evaluation			
Suggested Continous Evaluation Methods:			
Internal Assessment	**Marks**	**External Assesssment**	**Marks**
Class Interaction/Quiz	30	Viva Voce on Practical	70
Attendance		Practical Record File	
Assignment (Charts/Model Seminar/Rural Service/ Technology Dissemination/ Report of Excursion/Lab Visits/ Survey/ Industrial Visit)		Table Work/Experiment	
Total	**100**		

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Class				**B.C.A**
Semester/Year				**III Year**
Subject & Subject code				**Python Programming (Group A - Paper-II) & EUS3BCAA2D**
Max. Marks				**70 (ETE) + 30 (I) = 100**
Credits			**Total Credits**	
L	**T**	**P**		
0	2	2	4	

Course Outcome:

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

1.Develop and execute simple Python programs
2. Structure a Python program into functions.
3. Using Python lists, tuples to represent compound data
4. Develop Python Programs for file processing

Unit	Syllabus	Periods
UNIT - I	What is Python? WHY PYTHON? History, Features - Dynamic, Interpreted, Object oriented, Embeddable, Extensible, Large standard libraries, Free and Open source. Download & Python Installation Process in Windows, Unix, Linux and Mac, Online Python IDLE, Python Realtime IDES like Spyder, Jupyter Note Book, PyCharm, Rodeo, Comments in Python. Input output operation in python.	12
UNIT - II	Control Statements: Conditional control statements-if, If- else, If-elif-else, Loop control statements- for, while, Data Structure & Collection-String. List. Tuple, Set, Dictionary, Comparison of List, Tuple and Set, Function in python. types of function in python, map, reduce, filter function. Lamda Function	12
UNIT - III	Importance of modular programming. What is module? Types of Modules Pre defined, User defined. User defines module creation, OS. Date-time, math modules. organizing python project into packages, Types of packages- pre defined user defined. Package v/s Folder. File and Directory handling in Python.	12
UNIT - IV	Procedural v/s Object oriented programming, Principles OOP Encapsulation, Abstraction of (Data Hiding), Polymorphism, Inheritance. Inner Classes Exception handling and types of errors, try, except, finally, raise, and Need to Custom exceptions, Case studies, regular expression.	12
UNIT - V	Multithreading and multiprocessing in python. Threading module, Creating thread inheriting Thread class, Using callable object, Life cycle of thread, Single threaded application, Multithreaded application, Can we call run() directly? Need to start() method, Sleep & Join(). Synchronization Lock class acquire(), release() functions. Garbage collection. Python Data Base Communications (PDBC), Introduction of Numpy, Pandas & MatPlotLib, Drawing plots.	12

Suggested Readings:

1.Mark Lutz, Learning Python
2. Tony Gaddis, Starting Out With Python
3. Kenneth A. Lambert, Fundamentals of Python
4. JamesPayne, Beginning PythonusingPython2.6and Python32.

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Suggestive digital platforms/ web links:

1. www.javatpoint.com
2. www.w3school.com
3. www.python.org
4. https://www.tutorialspoint.com/python/index.htm

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School of Basic and Applied Sciences

Class	**B.C.A**
Semester/Year	**III Year**
Subject & Subject code	**Python Programming (Group A - Paper-II) & EUS3BCAA2Q (Practical)**
Max. Marks	**70 (ETE) + 30 (I) = 100**

Credits			Total Credits
L	T	P	4
0	2	2	

Course Outcome:

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

1.Develop simple Python programs
2. Knowledge of conditional and loop statements.
3. Learning of Tuple, List, Directory in Python.
4. Knowledge of files and Oops Concept in Python.
5. Introductory knowledge of Pandas, PDBC and Numpy.

Practical

List of Practicals:-

1. Write a program to demonstrate different number data types in Python.
2. Write a program to perform different Arithmetic Operations on numbers in Python
3. Write a program to create, concatenate and print a string and accessing sub-string from a given string.
4. Write a python script to print the current date in the following format a. "Fri Oct 11 02:26:23 IST2019"
5. Write a program to create, append, and remove lists in python.
6. Write a program to demonstrate working with tuples in python.
7. Write a program to demonstra dictionaries in python. working with
8. Write a python program numbers. find largest of three
9. Write a Python program to construct the following pattern, using a nested for loop ment

```
*
**
***
****
***
**
*
```

10. Write a Python script that prints prime numbers less than20.
11. Write a python program to define a module to find Fibonacci Numbers and import the module to another program.
12. Write a python program to define a module and import a specific function in that module to another program.
13. Write a program that inputs a text file. The program should print all of the unique words in the file in alphabetical order.
14. Write a python class to convert an integer to a roman numeral.
15. Write a python class to reverse a string word by word.

Suggested Readings:

1.Mark Lutz, Learning Python
2. Tony Gaddis, Starting Out With Python
3. Kenneth A. Lambert, Fundamentals of Python
4. JamesPayne, Beginning PythonusingPython2.6and Python32.

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Suggestive digital platforms/ web links:

1. www.javatpoint.com
2. www.w3school.com
3. www.python.org
4. https://www.tutorialspoint.com/python/index.htm

Assessment and Evaluation			
Suggested Continous Evaluation Methods:			
Internal Assessment	**Marks**	**External Assesssment**	Marks
Class Interaction/Quiz	30	Viva Voce on Practical	70
Attendance		Practical Record File	
Assignment (Charts/Model Seminar/Rural Service/ Technology Dissemination/ Report of Excursion/Lab Visits/ Survey/ Industrial Visit)		Table Work/Experiment	
Total	**100**		

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School of Basic and Applied Sciences

Class				**Bachelor of Computer Application (BCA)**
Semester/Year				**III YEAR**
Subject & Subject Code				**Data Warehousing & Mining (Group B- Paper 1) & EUS3BCAA3D**
Max. Marks				**70(ETE)+30(IA)=100**
Credit			**Total Credits**	
L	**T**	**P**	**4**	
4	**0**	**0**		

Course Objectives:

1. Build an understanding of the fundamental concepts of computer networking.
2. Introduce the students to advanced networking concepts, preparing the student for entry into an advanced course in computer networking.
3. Independently understand basic computer network technology.

Course Outcome:

Aftercompletingthiscoursestudentswillbeableto:

1. Understand the basics of a data warehouse its storage fundamentals and knowledge discovery in database
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.

Unit	Syllabus	Periods
UNIT - I	Data warehouse Basic: Data warehousing. 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
UNIT - II	storage and architecture of data warehouse: data warehouse process & architecture. OLTP vs. OLTP ROLAP vs. MOLAP type of OLAP, servers 3–tier Data warehouse architecture, distributed and virtual data warehouse. Data warehouse manager, data consolidation warehouse internal storage and indexing Operation, materialized, online Analytical	12

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UNIT - III	Data Mining Basic: Data mining definition & task KDD versus data mining tool and application. Data mining query language. preprocessing, pattern presentation & Visualization specification, and mining techniques, tools, and application Data mining techniques: Statistical perspective Regression, Bayes theorem Hypothetical testing.	12
UNIT - IV	Classification and Clustering: Issues in classification Statistical-Based Algorithms Distance–Based algorithms, Decision Tree-Based Algorithms ID3,C4.5. Evaluation of the performance. Clustering Basic concepts, partition algorithmsagglomeration Hierarchical algorithms, DBSCAN, BIRCH, CURE algorithm. Clustering with categorical attributes, Comparison.	12
UNIT - V	Association Rules: Frequent Itemsetgeneration Apriorialgorithm Rule generation, Compact representation of frequent Itemset. Advanced Topics: Dimensionality Reduction, an overview of principal componentsanalysisand SVD, Spatial mining, Web mining, Temporal mining.	12

Suggested Readings:

1. Data mining concepts and Techniques Ha and Kamber, Morgan Kaufmann publication
2. Data mining Techniques A.K. pujari, Universities press pvr.Ltd.
3. Data warehousing ByAmitesh Sinha
4. Data warehousing in the real world "by Sam Anahory& Dennis Murray
5. Jiawei Han & Micheline kambe : Data Mining – Concepts &Technique&Techniques :
6. Margaret H . Dunham, S Sridhar data mining Introduction to Data Mining
7. Pang-Ning Tan Michael Steinbach Vipin kumar : Introduction to data .mining

Suggestive digital platforms/web links:

1. https://neptl.ac in /courses/ 106105174
2. https :// onlinecoursesswayam 2. Ac .in/cec 20 cs 12/preview
3. https://www.tutorialspoint .com /data mining /index.htm

Suggested equivalent online courses:

1. https://www. Udemy .com/
2. https://www.coursera. Org/specialization/ data-mining
3. https://www.edx.org/learn/data-mining
4. https://www.classcentral.com/subject/data-mining
5. http://www.javatpoint.com/data - warehouse

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School of Basic and Applied Sciences

Class				**Bachelor of Computer Application (BCA)**
Semester/Year				**III YEAR**
Subject & Subject Code				**Data Warehousing & Mining (Practical) (Group B- Paper 1) & EUS3BCAA3Q**
Max. Marks				**70(ETE)+30(IA)=100**
Credit			**Total Credits**	
L	**T**	**P**	**2**	
0	**0**	**2**		

Course Outcome:

On successful completion of this course, the student will be able to:

1. Understand the basics of a data warehouse its 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 the appropriate DM tool and apply the concept 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.

Topics

1. Installing Weka and understanding Weka environment using inbuilt function.
2. Loading and importing different type of database 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 Naïve Bayes algorithms.
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 set.
11. Apply the apriori algorithm to find out association rules in the 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.

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Suggested Readings:

1. Data Mining Concepts and Techniques Ha and Kamber, Morgan Kaufmann publication.
2. Data Mining Techniques A.K. Pujari, Universities press pvt.Ltd.
3. Data Warehousing ByAmitesh Sinha
4. Data Warehousing in the real world "by Sam Anahory& Dennis Murray
5. Jiawei Han & Micheline kambe : Data Mining – Concepts &Technique&Techniques :
6. Margaret H .Dunham , S Sridhar : data mining Introduction to Data Mining
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 WorldAddisionWesley
10. Adriaans: data mining, Addision Wesley
11. JayeeBischaff& Ted Alexender: Data warehouse: practical advice from the Expert, prentice hall New jursey.
12. म्ध्यप्रदेषहिन्दीग्रंथअकादमी की पुस्तके

Suggestive digital platforms/web links

1. https://neptl.ac.in/courses/106105174
2. https ://onlinecourses.swayam2.ac.in/cec20_cs12/preview
3. https://www.tutorialspoint.com/data_mining/index.htm
4. http://www.javatpoint.com/data-warehouse

Suggested equivalent online courses:

1. https://www.Udemy.com
2. https://www.coursera.Org/specialization/data-mining
3. https://www.edx.org/learn/data-mining
4. https://www.classcentral.com/subject/data-mining

EKLAVYA UNIVERSITY
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School of Basic & Applied Sciences

Class				**Bachelor of Computer Application (BCA)**
Semester/Year				**III YEAR**
Subject & Subject Code				**Web Technologies (Group B- Paper 2) & EUS3BCAA4D**
Max. Marks				**70(ETE)+30(IA)=100**
Credit			**Total Credits**	
L	**T**	**P**	**4**	
0	**4**	**0**		

Course Outcome:

On successful completion of this course, the student will be able to:

1. Understand the basics of Internet,world wide web (www), and Client-server computing, and have information of various protocols
2. Have knowledge of various web browsers, and familiarity 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 style, links to external Documents and different, sections of an HTML page.
4. Develop skills to generate HTML and DHTML pages and have knowledge of Javascript-assisted style sheets (JSSS).
5. Have knowledge of objects, Methods, Events, and functions, and various types of text, style and be able to relate javascript to DHTML

Unit	Syllabus	Periods
UNIT - I	The basics of Internet, world wide web.web page, the home page, web site, static, Dynamic and Active web page, Overview of protocols – simple Mail Transfer protocol,Gopher, Telnet. Email, TFTP, Simple Network Management Protocol, Hyper Text Transfer Protocol, Client server computing concept.	10
UNIT - II	**Web client and web server** Web Browser e.g., Netscape navigator. Internet Explorer, Mozilla Firefox, ClientSide Scripting Language VB script and JavaScript, Active X control and plug–ins; web Server Architecture, Image maps, CGI, API web database connectivity – DBC,ODBC.	12

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UNIT - III	**Introduction to HTML:** 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), Color 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 Sections of a page and, Graphics, Footnote and E-mailing, Creating Table, Frame, From, and Style Sheet.	14
UNIT - IV	**DHTML** 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, and DHTML Events.	12
UNIT - V	**JAVA Script** Objects, Methods, Events and Functions, Tags, Operators, Data Types, Literals, and Type Casting in JAVA Script, Programming Construct, Array and Dialog Boxes, Relating JavaScript to DHTML, Dynamically Changing Text, Style, and Content.	12

Text Books:-

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

References Books:-

1. HTML, XHTML and CSS Bible, 5th edition, Willey India – Steven M. Schafer
2. Struls: 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, GeertjanWelenga.

Suggested equivalent online courses:-

1. Internet technology course by NPYEL nptel.ac.>courses, www. Udemy.com,
2. https://archive.nptel.ac.in/content//storage/106/106106156/MP4/mod01/ec01.mp4{in total there are 22 videos}

EKLAVYA UNIVERSITY
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School of Basic and Applied Sciences

Class				**Bachelor of Computer Application (BCA)**
Semester/Year				**IIIYear**
Subject & Subject Code				**Web Technologies (Practical) & EUS3BCAA4Q**
Max. Marks				**70(ETE)+30(IA)=100**
Credit			**Total Credits**	
L	**T**	**P**	**2**	
0	**0**	**2**		

Course Outcome:

On successful completion of this course, the student will be able to:

1. Perform HTML programming with use of elements and tag.
2. Perform basic and advanced text formatting
3. Able to use image video and sound in HTML document

List of Practicals

1. Acquaintance with elements, tags, and the basic structure of HTML files.
2. Practical basic and advanced text for formation.
3. Practical use of image, video, and sound in HTML documents.
4. Designing of web pages – document layout list tables.
5. Practicing Hyperlinks of web pages, working with frames.
6. Working with forms and controls.
7. Acquaintance with creating style sheets, CSS properties, and styling.
8. Working with background, text, font, and list properties.
9. Working with HTML element box proprieties in CSS.
10. Develop a simple calculator for addition, subtraction, multiplication, and division operation using Javascript.
11. Create an HTML page with Javascript which takes an integer number as input and tells whether the number is odd or even.
12. Create an HTML page that containsa form with fields name Email, mobile number, gender favoritecolor, and button: now write a Javascript code to validate each entry. Also, write code to combine and display the information in the textbox when the button is clicked.
13. Write a PHP program to check if the number is clicked.
14. Write a PHP program to print the first ten Fibonacci numbers.
15. Create a MySQL database and connect it with PHP.
16. Write a PHP Script for storing and retrieving user information from my SQL table.

a. Write an HTML page that takes the name, address, Email, and Mobile number, from the user (register PHP).
b. Store this data in My SQL database.
c. Next page display all user in an HTML table using PHP(display PHP).

17. Using HTML,CSS, Javascript, PHP, and My SQL, design, and authentication modelof a web page.

Suggested Readings:

Texkbok:

1. Web Technologies – Black Book – Dream Tech Press
2. Beginning PHP 5.3 (Wrox –Willey Publishing) by Matt Doyle
3. Beginning HYML, XHTML,CSS and Javascript by John Duckett
4. मध्यप्रदेषहिन्दीग्रंथअकादमी 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, GeertjanWielenga.

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School of Basic and Applied Sciences

Class				**Bachelor of Computer Application (BCA)**
Semester/Year				**III YEAR**
Subject & Subject Code				**Cloud Computing (Minor) & EUS3BCAB2T**
Max. Marks				**70(ETE)+30(IA)=100**
Credit			**Total Credits**	
L	**T**	**P**	**6**	
0	**0**	**6**		

Course Outcome:

Aftercompletingthiscoursestudentswillbeableto:

1. On successful completion of this course, the student will be able to:
2. Learn fundamentals of cloud computing
3. Understand cloud architecture, types, and services.
4. Apply concepts of cloud computing in real applications
5. Gain deep insight into security in cloud computing
6. Have Knowledge of market-based management of Clouds.

Unit	Syllabus	Periods
UNIT - I	Cloud Computing Fundamental: Cloud Computing definition, private public, and hybrid cloud. Cloud types: IaaS, PaaS, SaaS. Benefits and challenges of cloud computing, public vs private clouds. Advantages and disadvantages of cloud computing.	18
UNIT - II	Basics of services Management in cloud Computing, Data Management in Cloud Computing. Cloud Computing Architecture: Cloud Reference Model, Layer, and Types of Cloud, Architectural Design of Compute and Storage Clouds	18
UNIT - III	Overview of cloud management & Virtualization: Fundamental concepts of compute, storage, networking, desktop and application virtualization, the role of virtualization in enabling the cloud Virtualization benefits, server virtualization benefits, server virtualization, Block and file level storage virtualization	18
UNIT - IV	Cloud Security: Cloud Information security fundamentals, Cloud security services, Design principles, secure Cloud software Requirements, Policy Implementation, Cloud Computing Security Challenges, Virtualization security Management Cloud Computing Security Architecture	18

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UNIT - V	Market-Based Management of Cloud, Federated Cloud/Inter Characterization & Definition, Cloud Federation Stack, Third party Cloud Services. Case study: Google App Engine, Microsoft Azure, Hadoop, Amazon, Aneka	18

Suggested Readings:

1. A. Srinivasan, J. Suresh, Cloud Computing – A practical for learning and implementation, Pearson, Pearson India, [ISBN-978131776513]
2. GautamShroff, Enterprise Cloud Computing Technology Architecture Application [ISBN: 978-0521137355]
3. Kumar Saurabh "Cloud Computing v- insights in New- Era Infrastructure: Wiley India,2011
4. Dimitris N. Chorafas, Cloud Computing Strategies [ISBN: 1439834539]
5. Buyya, selvi, Mastering Cloud Computing, TMH Pub
6. Krutz, Vnes, Cloud Security, Wiley Pub

Suggestive digital platform/ web links

1. https://onlinecourses.nptel.ac.in/noc22/priview
2. https://nptel.ac.in/courses/106105223
3. https://nptel.ac.in/courses/106104182

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School of Basic and Applied Sciences

Class				**Bachelor of Computer Application (BCA)**
Semester/Year				**III YEAR**
Subject & Subject Code				**Multimedia and Animation (Elective 1) & EUS3-BCAC1G**
Max. Marks				**70(ETE)+30(IA)=100**
Credit			**Total Credits**	
L	**T**	**P**	**4**	
4	**0**	**0**		

Course Outcome:

After completing this course students will be able to:

1. Gain Knowledge about the basics of multimedia tools and their application
2. Understand the fundamentals of multimedia and animation
3. Explore various applications of designing using coral draw
4. Apply the acquired Knowledge in the development of animation using Photoshop and CorelDraw

Unit	Syllabus	Periods
UNIT - I	Multimedia System, Multimedia element, Multimedia application, Global structure, Evolving Technologies for Multimedia system.	12
UNIT - II	Multimedia: Media & Data Streams Medium Main properties of a multimedia system, Traditional data stream characteristics, Data stream characteristics for continuous media, information unit, Image and Graphics Image File Formates, Sound / Audio Basic sound concepts, Video & Animation Basic concepts	12
UNIT - III	Coral Draw - Drawing –lines, shapes inserting pictures, objects, tables, templates, Use of various tools such as pick tools, Zoom tools, Freehandtools, square tools, rectangle tools, Text tools, Fill tools, etc. And all fonts used in designing monograms, logos, posters, stickers, greeting cards, wedding cards, visiting cards, etc	12
UNIT - IV	Introductionto Photoshopthe file menu, the tools, Drawing lines & shapes. Photo editing/insertingstarts with setting UP, the introduction of layers Understanding Design principles and color theory Basic Image Manipulation in Photoshop Scanning images, editing their resolution and size, learning about bitmap and vector images, creating new images color Modes, color management, color mode conversion color picker functions.	12

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UNIT - V	Photoshop Painting Tools, Brush settings, Locking layers, linking and stacking layers, creating layer sets, video editing Animation GIF Images for the Web.	12

Suggested Readings:

1. P.K. Andleigh, Kiran Thakrar Multimedia System Design
2. Ralf Steinmetz, & Klara Nashtedt Multimedia Computing Communcation & Application
3. Corel draw the official Guide By Gray David Botton, Corel Press

Suggestive digital platforms/web links:

1. https://onlinecourses.swayam2.ac.in/cec20_cs8/preview
2. https://www.youtube.com/watch?=LHNnEibdrpk
3. https://www.youtube.com/watch?=FJYgNUYUvZc
4. https://www.youtube.com/watch?=DvZOLe8SUNO
5. https://www.youtube.com/watch?=YmQJbN5MLY8

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School of Basic and Applied Sciences

Class				**Bachelor of Computer Application (BCA)**
Semester/Year				**III YEAR**
Subject & Subject Code				**Cyber Security (Elective-2) & EUS3BCAC2G**
Max. Marks				**70(ETE)+30(IA)=100**
Credit			**Total Credits**	
L	**T**	**P**	**6**	
6	**0**	**0**		

Course Outcome:

After completing this course students will be able to:

1. Identify the key components of cyber security network architecture.
2. Employ, design and policies to protect computers and digital information
3. Analyze threats and risks within the context of the cyber security architecture.
4. Apply cyber security architecture principles.
5. Gain familiarity with prevalent network and distributed system attacks.

Unit	Syllabus	Periods
UNIT - I	Cyber Security: Introduction, Need for security, Basics of Cryptography: Plain text, Substitution techniques, Caesar Cipher, Mono-alphabetic Cipher, Polygram, Polyalphabetic Substitution, Playfair, Hill Cipher, Transposition Cipher. The Architecture of Cyberspace.	18
UNIT - II	Encryption and Decryption, Symmetric Key Algorithms and AES: Brief history of Asymmetric Key Cryptography, Overview of Asymmetric Key Cryptography, RSA algorithm. Overview of Symmetric key Cryptography, Data Encryption Standard (DES)	18
UNIT - III	Network Security, Types of Attacks, Firewalls and virtual private networks: Brief Introduction to TCP/IP Firewalls Virtual Private Networks (VPN), Secure Socket Layer (SSL) Transport Layer Security (TLS), secure Hyper Text Transfer Protocol (SHTTP), Time Stamping Protocol (TSP), Secure Electronic Transaction (SET), E-mail Security	18
UNIT - IV	Introduction to information systems, Types of information systems, Development of information systems, Need for information security, Threats to information systems, information Assurance, Cyber security, and security Risk Analysis	18

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UNIT - V	Security Policies, Why Policies should be developed, WWW policies, Email security policies, Policy Review process-Corporate policies-Sample security Policies, Publishing and Notification Requirement of the Policies Information Security Standards-ISO, IT Act, Copyright Act, Patent Law, IPR	18

Suggested Readings:

1. Bernard Menezes, "Network Security and Cryptography", CEGSAGE learning, ISBN-10:81-315-1349-1, ISBN-13:978-81-315-1349-1.2014.
2. Charles Pfleeger,"Security in Computing", Prentice Hall, 4th Edition, ISBN-10: 0132390779, ISBN-13: 978-013239077444, 2006.
3. Ulysess Black," Internet Security Protocols: IP Traffic", Prentice Hall PTR: 1st edition, ISBN-10: 0130142492, ISBN-10:978-0130142498,2000.
4. William Stallings, "Cryptography and Network Security", Pearson Education, 6th Edition, ISBN 10: 0133354695,2013.
5. Jonathan Rosenoer, "Cyber Law: The law of the Internet", Springer-Verlag, 1997.

Mark F Grady, FransescoParisi, " The Law and Economics of Cyber Security", Cambridge University Press, 2006

Suggestive digital platforms/web links:

1. https://onlinecourese.swayam2.ac.in/nou19_cs08/preview
2. https://nptel.ac.in/courses/106106129
3. https://nptel.ac.in/courses/106105031
4. https://nptel.ac.in/courses/106106199

Suggested equivalent online courses:

1. https://www.Udemy.com/
2. https://www.coursera.Org/specialization/data-mining
3. https://www.edx.org/learn/data-mining
4. https://www.classcentral.com/subject/data-mining
5. http://www.javatpoint.com/data-warehouse

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School of Basic and Applied Sciences

Class				**Bachelor of Computer Application (BCA)**
Semester/Year				**III YEAR**
Subject & Subject Code				**Programming in C# (Elective 3) & EUS3BCAC3G**
Max. Marks				**70(ETE)+30(IA)=100**
Credit			**Total Credits**	
L	**T**	**P**	**4**	
4	**0**	**0**		

Course Outcome:

After completing this course students will be able to:

1. Knowledge of the structure and model of the programming language C#.
2. Determine utilizing iteration, class methods, fields, and properties.
3. Using the programming language C # for various programming technology (understanding).
4. Develop software in C #.
5. Evaluate user requirements for software functionality required to decide whether the programming language C # can meet user requirements.
6. Use of certain technology by implementing them in the C # programming language to solve the given problem.

Unit	Syllabus	Periods
UNIT - I	Introduction to C#: What is C#, C++ vs C#, java vs C#, History, Features, Variables, Data types, Operators, Keyword, Comments. C# Control Statements: if-else, switch, for Loop, While Loop, DO-while Loop, Break, Continue, Goto.	12
UNIT - II	C# Function: Function, Call By Value, Call By Reference, Out Parameter. C# Arrays: Array to function, multidimensional Array, Jagged Arrays, Params, Array class Command Line Args. C# Objects and Class: Constructor, Destructor, this, static class, static constructor, Structs, Enum.	12
UNIT - III	C# Proper5ies. C# Inheritance: Inheritance, Aggregation, C# Polymorphism: Member Overloading, Method Overriding, Base Polymorphism, Seales. C# Abstraction: Abstract, Interface. C# Namespace: Namespaces, Access Modifiers, Encapsulation.	12

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UNIT - IV	C# String. C# Exception: Exception Handing, try/catch, finally, Custom Exception, checked unchecked, System Exception. C# File I/O: FileStream, StreamWriter, StreamReader,TextWriter, TextReader, BinaryWriter, StringWriter, StringReader,FileInfo, DiectoryInfo, Serialization, Deserialization, System.	12
UNIT - V	C# Generics, C# Delegates, C# Reflection. C# Multithreading: Multithreading, Thread Life Cycle, Thread class, Main Thread, Thread Sleep, Thread Join, Thread Name, ThreadPriority. C# Synchronization, C# Web services.	12
Keywords/ Tags: Introduction to C#, C# Control Statements, C# Function, C# Objects and Classes, C# Synchronization, C# Web Service.		

Suggested Readings:

Textbooks:

1. E Balagurusamy: programming in C#, McGraw Hill Education, 4Th edition, 2017.
2. Joydip Kanjilal: Mastering C# 8.0 BPB Publication, 2019.
3. J.G.R. Sathiaseelan: Programming With C Sharp. Net, PHI Learning, 2009.

Reference Book:

1. Bill Wagner: Effective C#, Pearson Education, Third edition, 2017
2. Doyle B: C# Programming From Problem Analysis To Program Design, Cengage, 2014

S. Thamarai Selvi, R. Murugesan: A TextBook on C#, Pearson Education India, 2003.

MILES: Begin to Code with C#, PHI, Learning.

Suggestive digital platforms/web links:

1. https://www.eshiksha.mp.gov/mpdhe
2. http://ict.iitk.ac.in/courses/introdction-to-c-sharp

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School of Basic and Applied Sciences

Class				**Bachelor of Computer Application (BCA)**
Semester/Year				**III YEAR**
Subject & Subject Code				**Programming in C# (Practical) & EUS3BCAC3R**
Max. Marks				**70(ETE)+30(IA)=100**
Credit			**Total Credits**	
L	**T**	**P**	**2**	
0	**0**	**2**		

Course Outcome:

Aftercompletingthiscoursestudentswillbeableto:

1. Knowledge of the structure and model of the Programming language C #.
2. Determine logical alternatives with C# decision structures utilizing iteration, class methods, fields, and Properties.
3. Using the Programming language C # for various Programming technologies (understanding)
4. Develop software in C #.
5. Evaluate user requirements for software functionality required to decide whether the Programming language C # can meet user requirements.
6. Use of certain technologies by implementing them in the C # Programming language to solve the given Problem.

List of Practicals:

1. Write a c# program to print Fibonacci series without using recursion and using recursion. .
2. Write a c# program to check prime number.
3. Write a c# program to check palindrome number.
4. Write a c# Program to print factorial of a number.
5. Write a c# program to check Armstrong number.
6. Write a c# program to print sum of digits.
7. Write a c# program to reverse give number.
8. Write a c# program to swap two number without using third variable.
9. Write a c# program to convert decimal number to binary.
10. Write a c# program to print alphabet triangle.
11. Write a c# program to print6 number triangle.
12. Write a c# program to generate Fibonacci in triangle.
13. Write a c# program to convert number in characters.

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Suggested Readings:

1. E Balagurusamy: programming in C#, McGraw Hill Education, 4Th edition, 2017.
2. Joydip Kanjilal: Mastering C# 8.0 BPB Publication, 2019.
3. J.G.R. Sathiaseelan: Programming With C Sharp. Net, PHI Learning, 2009.
4. Bill Wagner: Effective C#, Pearson Education, Third edition, 2017.
5. Doyle B: C# Programming From Problem Analysis To Program Design, Cengage, 2014
6. S. Thamarai Selvi, R. Murugesan: A TextBook on C#, Pearson Education India, 2003.
7. MILES: Begin to Code with C#, PHI, Learning.

Suggested Digital Platform Web links:

1. https://www.eshiksha.mp.gov/mpdhe
2. http://ict.iitk.ac.in/courses/introdction-to-c-sharp

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

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School of Basic and Applied Sciences

Class				**Bachelor of Computer Application (BCA)**
Semester/Year				**III YEAR**
Subject & Subject Code				**MYSQL (Elective 4) & EUS3BCAC4G**
Max. Marks				**70(ETE)+30(IA)=100**
Credit			**Total Credits**	
L	**T**	**P**	**4**	
4	**0**	**0**		

Course Outcome:

Aftercompletingthiscoursestudentswillbeableto:

1. Understand basic concept of how a database stores information.
2. Gain knowledge of SQL.
3. Design database for an organization and apply various SQL Queries and constructs.
4. Apply queries to retries and manipulate data from one or more tables.
5. Learn how to filter data based upon multiple conditions

Unit	Syllabus	Periods
UNIT - I	Introduction to Database and related terms, Introduction to MYSQL, need of SQL< features, DATA Types of SQL statements, the concept of Keys, Null values and Not Null Values.	12
UNIT - II	Handling Database with MySQL Using Query: Create Save edit execute Query for different SQL statements, Use the Where clause Conditional statements, Multiple conditions, Comparison Operators, Logic Values, Null Values, Wildcard characters, Compare Column Values, Distinct Values,Top Values.	12
UNIT - III	Data Wrangling: Group Data, Filtering Grouped Data summarize Group DataPivot and Unpivot Operators Importing and Exporting Data, Update Data.	12
UNIT - IV	Join: Inner Join, Left Join, Full Outer Join, Self-Join Unions, Except and Intersect, Saving the Query Results and Exporting, Generating Reports	12
UNIT - V	MYSQL Function: Data Function, Data Calculations Aggregate Function, String Function, Sort Data, Rank Data, Views in Mysql, Overview of Transactions Triggers, Stored Procedures and User Defined Functions.	12

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Suggested Readings:

1. MYSQL Workbench: Data Modeling & Development" by Michael McLaughlin
2. MYSQL stored Procedure Programming: Building High-Performance Web Applications in MYSQL" by Harrison and Steven Feuerstein
3. MYSQL Administrator's Bible" by Sheeri K Cabral and Keith Murphy
4. MYSQL Cookbook: Solutions for Database Developers and Administrators" by Paul DuBois
5. MYSQL Database Design and Tuning" by Robert D Schneider
6. MYSQL: The Complete Reference Vikram Vaswani.

Suggestive digital platforms/web links:

1. https://www.tutorialspoint.com/mysql/index.htm
2. https://www.javatoint.com/mysql-tutorial
3. https://www.w3school.com/MYSQL/defauit.asp
4. https://www.mysqltutorial.org/

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School of Basic and Applied Sciences

Class				**Bachelor of Computer Application (BCA)**
Semester/Year				**III YEAR**
Subject & Subject Code				**MYSQL (Practical) & EUS3BCAC4R**
Max. Marks				**70(ETE)+30(IA)=100**
Credit			**Total Credits**	
L	**T**	**P**	**2**	
0	**0**	**2**		

Course Outcome:

Aftercompletingthiscoursestudentswillbeableto:

1. Understand basic concepts of how a database store information.
2. Gain knowledge of SQL syntax with MYSQL.
3. Design database for an organization and apply various SQL Queries and constructs.
4. Apply queries to retrieve and manipulate data from one or more tables.
5. Learn how to filter data bases upon multiple conditions

List of Practicals:

1. Create multiple Tables to design a database in MYSQL
2. Insert Data into tables using Queries
3. Update table in MYSQL
4. Apply Delete and truncate query on table.
5. Alter schema using MYSQL
6. Display record using different form of select statement
7. Apply aggregate function ontables.
8. Implement various constraints on database tables.
9. Import and export data in MYSQL
10. Create views using queries in MYSQL
11. Apply Group operations on tables.
12. Sort data in tables using query.
13. Implement various string function on Tables
14. Apply different types of join operations on table

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Suggested Readings:

1. "MYSQL Workbench: Data Modeling & Development" by Michael McLaughlin
2. "MYSQL stored Procedure Programming: Building High-Performance Web Applications in MYSQL" by Harrison and Steven Feuerstein
3. "MYSQL Administrator's Bible" by Sheeri K Cabral and Keith Murphy
4. "MYSQL Cookbook: Solutions for Database Developers and Administrators" by Paul DuBois
5. "MYSQL Database Design and Tuning" by Robert D Schneider
6. MYSQL: The Complete Reference Vikram Vaswani

Suggested Digital Platform Web links:

1. https://www.tutorialspoint.com/mysql/index.htm
2. https://www.javatoint.com/mysql-tutorial
3. https://www.w3school.com/MYSQL/defauit.asp
4. https://www.mysqltutorial.org/

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