FIRST-YEAR OF BACHELOR OF COMPUTER SCIENCE MAJOR & MINOR PRACTICAL REVISED SYLLABUS
ACCORDING TO CBCS NEP2020

COURSE TITLE: PRACTICAL OF DATABASE SYSTEM AND DATA STRUCTURE
SEMESTER-II, W.E.F. 2023-2024

Recommended by the Board of Studies in Computer Science
And
Approved by the Academic Council
Devrukh Shikshan Prasarak Mandal's
Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and
Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh.
Tal. Sangameshwar, Dist. Ratnagiri-415804, Maharashtra,
India

Academic Council Item No: _____

Name of the Implementing Institute	:	Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh. Tal. Sangameshwar, Dist. Ratnagiri-415804,
Name of the Parent University	:	University of Mumbai
Name of the Programme	:	Bachelor of Science
Name of the Department	:	Computer Science
Name of the Class	:	First Year
Semester	:	Second
No. of Credits	:	02
Title of the Course	:	Practical of database system and Data Structure
Course Code	:	S106CSP
Name of the Vertical in adherence to NEP 2020	:	Major and Minor
Eligibility for Admission	:	Any 12th Pass seeking Admission to Degree Programme in adherence to Rules and Regulations of the University of Mumbai and Government of Maharashtra
Passing Marks	:	40%
Mode of Assessment	:	Formative and Summative
Level	:	UG
Pattern of Marks Distribution for TE and CIA	:	50:50
Status	:	NEP-CBCS
To be implemented from Academic Year	:	2023-2024
Ordinances /Regulations (if any)		

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Syllabus for First Year of Bachelor of Science in Computer Science

(With effect from the academic year 2023-2024)

SEMESTER-II   **Paper No.– 3**

Course Title: Practical of Database system & Data Structure   **No. of Credits - 02**

Type of Vertical: Major and Minor   **COURSE CODE: S106CSP**

Module No.	Content	Credits	No. of Lectures
	COURSE CONTENT		

1	**Practical of Database System**
	1. For given scenario
	 Draw E-R diagram and convert entities and relationships to table.
	2. Write relational algebra queries on the tables created in Practical-1
	3. Perform the following:
	   1. Viewing all databases
	   2. Creating a Database
	   3. Viewing all Tables in a Database
	   4. Creating Tables (With and Without Constraints)
	   5. Inserting/Updating/Deleting Records in a Table
	   6. Saving (Commit) and Undoing (rollback)
	4. Perform the following:
	   1. Altering a Table
	   2. Dropping/Truncating/Renaming Tables
	   3. Backing up / Restoring a Database
	   4. 5. Perform the following:
	   5. Simple Queries
	   6. Simple Queries with Aggregate functions
	   7. Queries with Aggregate functions (group by and having clause)
	6. Queries involving
	   1. Date Functions
	   2. String Functions
	   3. Math Functions
	   8. Join Queries
	   4. Inner Join
	   5. Outer Join
	8. Subqueries
	   1. With IN clause
	   2. With EXISTS clause
	9. Views
	   1. Creating Views (with and without check option)
	   2. Dropping views
	   3. Selecting from a view
	10. DCL statements Granting and revoking permissions
		1	15

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2	**Practical of Data Structure**
	1. 1. Implement Linear Search to find an item in a list.
	2. Implement binary search to find an item in an ordered list.
	3. Implement Sorting Algorithms
	    a) Bubble sort
	    b) Insertion sort
	    c) Quick sort
	    d) Merge Sort
	4. Implement use of Sets and various operations on Sets.
	5. Implement working of Stacks. (pop method to take the last item added off the stack and a push method to add an item to the stack)
	6. Implement Program for a. Infix to Postfix conversion b. Postfix Evaluation
	7. Implement the following a. A queue as a list which you add and delete items from. b. A circular queue. (The beginning items of the queue can be reused).
	8. Implement Linked list and demonstrate the functionality to add and delete items in the linked list.
	9. Implement Binary Tree and its traversals.
	10. Recursive implementation of
	    a) Factorial
	    b) Fibonacci
	    c) c. Tower of Hanoi
		1	15

	Total	**2**	**30**

Required Previous Knowledge

Students should know basic concepts related to computer and computer handling

Access to the Course

The course is available for all the students admitted for Bachelor of Science (Computer Science).

Forms of Assessment

The assessment of the course will be of Formative and Summative type. At the beginning of the course diagnostic assessment will be carried out. The formative assessment will be used for the Continuous Internal Evaluation whereas the summative assessment will be conducted at the end of the term. The weightage for formative and summative assessment will be 60:40. The detailed pattern is as given below.

Semester End Practical Examination (100 Marks)
Question Paper Pattern
Time: 3 hours

Question No.	Unit/s	Question Pattern	Marks
Q.1	All	Certified Journal	05
Q.2	All	Any two experiments	40
Q.3	All	Viva based on experiments	05
		Total	**50**

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Grading Scale

10 points grading scale will be used. The grading scale used is O to F. Grade O is the highest passing grade on the grading scale, and grade F is a fail. The Board of Examinations of the college reserves the right to change the grading scale.

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