

BACHELOR OF COMPUTER APPLICATIONS (BCA)

(Revised Syllabus)

BCA(Revised Syllabus)/ASSIGN/SEMESTER-III

ASSIGNMENTS

(July-2025 & January-2026 sessions)

MCS-021,MCS-023,MCS-014,BCS-031,BCSL-032,BCSL-033,BCSL-034



**SCHOOL OF COMPUTER AND INFORMATION SCIENCES
INDIRA GANDHI NATIONAL OPEN UNIVERSITY
MAIDAN GARHI, NEW DELHI – 110 068**

CONTENTS

Course Code	Assignment No.	Submission-Schedule		Page No.
		For July-December Session	For January-June Session	
MCS-021	BCA(III)/021/Assignment/25-26	31stOctober, 2025	30thApril,2026	3
MCS-023	BCA(III)/023/Assignment/25-26	31stOctober, 2025	30thApril,2026	5
MCS-014	BCA(III)/014/Assignment/25-26	31stOctober, 2025	30thApril,2026	7
BCS-031	BCA(III)/031/Assignment/25-26	31stOctober, 2025	30thApril,2026	8
BCSL-032	BCA(III)/L-032/Assignment/25-26	31stOctober, 2025	30thApril,2026	9
BCSL-033	BCA(III)/L-033/Assignment/25-26	31stOctober, 2025	30thApril,2026	10
BCSL-034	BCA(III)/L-034/Assignment/25-26	31stOctober, 2025	30thApril,2026	11

Important Notes

1. Submit your assignments to the Coordinator of your Study Centre on or before the due date.
2. Assignment submission before due dates is compulsory to become eligible for appearing in corresponding Term End Examinations. For further details, please refer to BCA Programme Guide.
3. To become eligible for appearing the Term End Practical Examination for the lab courses, it is essential to fulfill the minimum attendance requirements as well as submission of assignments (on or before the due date). For further details, please refer to the BCA Programme Guide.

Course Code	:	BCSL-034
Title	:	DBMS Lab
Assignment Number	:	BCA(III)/L-034/Assignment/2025-26
Maximum Marks	:	50
Weightage	:	25%
Last Date of Submission	:	31stOctober,2025(for July Session) 30thApril,2026(for January Session)

This assignment has only one question. Answer the question. This question carries 40 marks. Rest 10 marks are for viva voce. You may use illustrations and diagrams to enhance the explanation. Assumptions can be made wherever required. Please go through the guidelines regarding the assignments given in the programme guide for the format of presentation.

Q1.

Design and implement a database system using any relational DBMS for a **Student Academic Records Management System**, demonstrating fundamental DBMS concepts such as **table creation, relationships, CRUD operations, and SQL queries** for data manipulation and retrieval.

Create Database Schema:

(15 Marks)

Create the following tables:

Students Table

- student_id (Primary Key, INT, Auto Increment)
- first_name (VARCHAR)
- last_name (VARCHAR)
- date_of_birth (DATE)
- email (VARCHAR, Unique)
- phone (VARCHAR)

Courses Table

- course_id (Primary Key, INT, Auto Increment)
- course_name (VARCHAR)
- credits (INT)
- semester (VARCHAR)

Enrollment Table

- enrollment_id (Primary Key, INT, Auto Increment)
- student_id (Foreign Key, INT)
- course_id (Foreign Key, INT)
- enrollment_date (DATE)
- grade (VARCHAR)

Relationships:

- A student can enroll in multiple courses.
- A course can have multiple students.

Draw an **ER-diagram** for the system.

(5 Marks)

Perform the following **CRUD operations** on your database:

(7 ½ Marks)

- Insert new records into all tables.
- Read/display records from each table.
- Update existing records (e.g., grade, contact details).
- Delete a student or a course entry.

SQL Queries

(12½ Marks)

Write and execute the following SQL queries:

1. List all students with their enrollment details.
2. Retrieve all courses in which a specific student is enrolled.
3. Calculate the number of students enrolled in each course.
4. Find students who have secured grade 'A' in any course.
5. Retrieve the average grade (as alphabet, assuming A=4, B=3...) per course.
6. List all students who have not enrolled in any course.
7. Find courses that have the highest number of enrollments.
8. Retrieve student details sorted by last name.
9. Find all courses offered in a specific semester.
10. Retrieve total number of courses each student has enrolled in.
11. Display enrollment count per semester.
12. List students along with the number of courses they failed (assume F as fail).
13. Find the student who has scored the most A grades.
14. Display all students born before the year 2000.
15. Retrieve course-wise average grade for all enrolled students.

Documentation Checklist:

- Screenshot of table designs and data entry
- SQL query outputs (screenshots or printed result)
- ER-diagram (drawn using any tool or by hand)
- Short explanation of each query
- Summary of observations and learning

Note: You must perform the above said activities and also take prints of screenshots of the layouts, sample input and output along with the necessary documentation for this practical question. Assumptions can be made wherever necessary.