BACHELOR OF COMPUTER APPLICATIONS (BCA)

(Revised Syllabus)

BCA(Revised Syllabus)/ASSIGN/SEMESTER-V

ASSIGNMENTS

(July - 2026 & January - 2027)

(BCS-051, BCS-052, BCS-053, BCS-054, BCS-055

BCSL-056, BCSL-057, BCSL-058)

SCHOOL OF COMPUTER AND INFORMATION SCIENCES
INDIRA GANDHI NATIONAL OPEN UNIVERSITY
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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-058**
Course Title	**:**	**Computer oriented Numerical techniques Lab**
Assignment Number	**:**	**BCA(V)/L-058/Assignment/2026-27**
Maximum Marks	**:**	**50**
Weightage	**:**	**25%**
Last Dates for Submission	**:**	**31st October, 2026 (For July 2026 Session)**
	:	**30th April, 2027 (For January 2027 Session)**

This assignment has eight problems of 40 marks, each of 5 marks. All problems are compulsory. 10 marks are for viva voce. Please go through the guidelines regarding assignments given in the programme guide for the format of presentation.

Q1: Write a Program to find the solution of a system of linear equations using Gaussian Elimination Methods: **(5 Marks)**

$$X + Y + Z = 2$$
$$X - 2Y + 3Z = 14$$
$$X + 3Y - 6Z = -23$$

Q2: Write a program to implement the Gauss-Seidel method for finding the roots of linear equations. **(5 Marks)**

Q3: Write a program to implement the Bisection method for finding a positive root of the equation $X^2 - 9x + 21 = 0$. You have to make a suitable choice for the bounds. **(5 Marks)**

Q4: Write a program in C for the demonstration of Bessel's Formula for Interpolation. **(5 Marks)**

Q5: Write a program in C for the demonstration of Lagrange's Interpolation method for finding f(x) for a given input value of x. **(5 Marks)**

Q6: Write a program in C to approximate first and second derivatives of $y = f(x)$ at $x = x_0$ using Newton's Forward Difference Formula (FD). **(5 Marks)**

Q7: Write a program in C to find the approximate value of the following definite integral using the Trapezoidal formula: **(5 Marks)**

$$\int_0^{\Pi/4} tanx\, dx$$

Q8: Write a program in C to demonstrate Newton's Divided Difference method. **(5 Marks)**