

BACHELOR OF COMPUTER APPLICATIONS (BCA)

(Revised Syllabus)

BCA(Revised Syllabus)/ASSIGN/SEMESTER-V

ASSIGNMENTS

(July-2025 & January-2026 sessions)

(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
MAIDAN GARHI, NEW DELHI – 110 068**

CONTENTS

Course Code	Assignment No.	Submission-Schedule		Page No.
		For July-December Session	For January-June Session	
BCS-051	BCA(V)/051/Assignment/25-26	31 st October,2025	30 th April,2026	3
BCS-052	BCA(V)/052/Assignment/25-26	31 st October,2025	30 th April,2026	5
BCS-053	BCA(V)-53/Assignment/25-26	31 st October,2025	30 th April,2026	6
BCS-054	BCA(V)/054/Assignment/25-26	31 st October,2025	30 th April,2026	9
BCS-055	BCA(V)/055/Assignment/25-26	31 st October,2025	30 th April,2026	12
BCSL-056	BCA(V)/L-056/Assignment/25-26	31 st October,2025	30 th April,2026	15
BCSL-057	BCA(V)/L-057/Assignment/25-26	31 st October,2025	30 th April,2026	16
BCSL-058	BCA(V)/L-058/Assignment/25-26	31 st October,2025	30 th April,2026	19

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/2025-26
Maximum Marks	:	50
Weightage	:	25%
Last Dates for Submission	:	31stOctober,2025(For July Session) 30thApril,2026(For January 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 in C that accepts a decimal number and displays its floating-point equivalent number. You may make assumptions to simplify the program, however, your representation of floating point number should be closer to IEEE 754 standard 32 bit representation. **(5 Marks)**

Q2. Write a program in C to implement Regula-Falsi method. **(5 Marks)**

Q3. Write a program to implement Gauss Elimination method for solving linear equations. Your method should check if a given pivot is zero or not. It should also minimise the floating-point errors. **(5 Marks)**

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

Q5. Write a C Program for solving the following system of equations using Jacobi method:

$$\begin{bmatrix} 5 & -1 & -1 & -1 \\ -1 & 10 & -1 & -1 \\ -1 & -1 & 5 & -1 \\ -1 & -1 & -1 & 10 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{bmatrix} = \begin{bmatrix} -4 \\ 12 \\ 8 \\ 34 \end{bmatrix}$$

Starting with $x^{(0)} = (0, 0, 0, 0)$. The exact solution is $x = (1, 2, 3, 4) T^n$. **(5 Marks)**

Q6. Write a C program to solve the IVP $y' = -ty^2$, $y(2) = 1$ and find $y(2.1)$ and $y(2.2)$ with $h = 0.1$ using improved tangent method (modified Euler method) of $O(h^2)$. **(5 Marks)**

Q7. Write a program in C to find the approximate value of the following definite integral using Trapezoidal rule and obtain a bound for the error. The exact value of $I = \ln_2 = 0.693147$ correct to six decimal places.: **(5 Marks)**

$$\int_0^1 \frac{dx}{1+x}$$

Q8. Write a program in C to solve the equation $x^2y' = 1-xy-x^2y^2$, $y(1) = -1$ from $x=1$ to $x=2$ by using Taylor series method of $O(h^2)$ with $h = 1/3$ and $1/4$ and find the actual error at $x=2$ if the exact solution is $y=-1/x$. **(5 Marks)**