National Institute of Technology, Agartala

Department of Mathematics

Details Of Lab Facilities

1. Significant Lab Assets (2 no of Departmental Lab):--

- The Departmental Lab possesses the following Significant Assets

Sl. No.	Assets	Quantity
1.	Computer	27
2.	Projector	02 (two normal)
3.	Document Camera	03
4.	Server	01
5.	Smart Table	02
6.	UPS	4 (four online UPS)
7.	Software	Origin, Unscrumbler

- Others Software :----

➢ Computer Lab with 27 computers equipped with various softwares like ***Matlab -12a, Turbo C, Dev C++, Lingo -13.0, LaTex, Origin -15Professional, Mathematica, Unscrambler -10.2 etc.***

2. Lab view

In the Mathematics Department, there are 27 working computers in the Computer Lab where the programming of different branches is executed. C programming (M. Sc 1st, M. Sc 2nd, BS/MS 4th Semester, B. Tech 4th, and 5th Semester) and Matlab programming (M.Sc. 3rd semester) are done by the students in the Computer Lab. Also the computer Lab is used for various Seminars, Conference, Workshop, Project presentation, Online Activities, Mock test for the final year students and for research purpose it is also used.


Vivo V11
AI Dual Camera


Vivo V11
AI Dual Camera

3. Experimental setup

The Department conduct the following experiment (Matlab, C Programming and Data Structure, Numerical Methods)

LIST OF MATLAB PROGRAM

NUMERICAL METHODS (LAB-III), M.Sc-3rd Semester

1. Newton's forward and backward Interpolation Method.
2. Lagrange's and Newton's divided difference interpolation method.
3. Solution of system of simultaneous linear equations by Gauss-elimination method, Jacobi's iteration method, Gauss-Seidel method, LU-decomposition method.
4. Find root using Bisection method, Newton-Raphson, Regula-Falsi method and Muller method.
5. Curve fitting using Least square method
6. Numerical Differentiation using Newton's forward and Backward formula.
7. Numerical Integration using Trapezoidal, Simpson's one third rule, Simpson's three-eighth rule, weddle's rule.
8. Solution of differential equation using Runge-Kutta Method
9. Milne's Predictor-Corrector method, Adam's Bash fourth Predictor-Corrector method
10. Plotting and printing a simple graphs.

LIST OF C- PROGRAM

ADVANCED NUMERICAL METHODS (LAB-II), M.Sc-2nd Semester

1. Graffe's root squaring method to find repeated and complex roots
2. Bairstow's Method to find quadratic factors.
3. Steffenson method for finding root
4. LU-decomposition method
5. Power method for finding the largest eigen value of a matrix
6. Euler's simple, improved and modified methods for solving differential equations.
7. Curve fitting using Least square approximation method(Straight line)
8. Runge-Kutta method of Simultaneous linear differential equations
9. Gauss-elimination/Gauss Seidel/Jacobi's iteration method
11. Romberg's method (Trapezoidal/Simpson)
12. Milne's Predictor-Corrector method and Adam's Bash fourth Predictor-Corrector method.

LIST OF C- PROGRAM

NUMERICAL METHODS (LAB-I), M.Sc-1st Semester

1. Fibonacci numbers and summation
2. To find greatest among n numbers
3. To arrange the given numbers in ascending and descending order.
4. To find the value of Sin(x)/Cos(x) using series
5. To perform addition and multiplication of two matrices
6. To find the transpose of a matrix
7. To find the root of an equation using Bisection, Regula-Falsi and Newton-Raphson methods
8. Numerical integration using Trapezoidal, Simpson's 1/3rd rule
9. Newton's Forward and Backward interpolation method
10. Numerical differentiation using Newton's Forward and Backward interpolation formula
11. Solution of first order differential equation by Runge - Kutta method of 4th order.
12. Lagrange's and Newton's divided difference interpolation method.
13. Milne's Predictor-Corrector method

LIST OF C- PROGRAM

Programming in C (LAB-I), BSMS 3rd Semester

1. Write a C program to find the area of a triangle.
2. Write a C program to find area and perimeter of a circle.
3. Write a C program to find the largest number from given three numbers.
4. Write a C program to find odd and even numbers from 1 to 100.
5. Write a C program to find the average of first 10 natural numbers.
6. Write a C program to find the sum of all odd number in between 100 to 200.
7. Write a C program to find the factorial of any given number.
8. Write a C program to find the multiplication table of the given number.
9. Write a C program to find out root of quadratic equations.
10. Write a C program to find the given number is prime or not.
11. Write a C program to find all the prime numbers in between 100 to 300.

NUMERICAL ANALYSIS (LAB-I), BSMS 4th Semester

1. Write a C program for Bisection Method
2. Write a C program for method of false position and secant method
4. Write a C program for Improved Euler's method
5. Write a C program for Improved Euler's method
6. Write a C program for Euler's method
7. Write a C program for Newton-Raphson method
8. Write a C program for Simpson's three-eighth rule
9. Write a C program for Trapezoidal rule of integration
10. Write a C program for Simpson's one-third rule
11. Write a C program for Runge-Kutta second and fourth order methods
12. Write a C program for Predictor-corrector methods
13. Write a C program for Finite Element Problem
14. Write a C program for Finite Difference Problem
15. Write a C program for Numerical differentiation
16. Write a C program for Everette's formula
17. Write a C program for Newton's forward and backward interpolation
18. Write a C program for Lagrange's interpolation
19. Write a C program for Eigen values and eigen vectors
20. Write a C program for Method of successive approximation
21. Write a C program for Gaussian elimination method
22. Write a C program for Gauss-Seidel iterative method
23. Write a C program for Inversion of a matrix

LIST OF DATA STRUCTURE (Using C) PROGRAM

Data Structure (LAB-I), BSMS 5th Semester

1. Write a program for adjacency Matrix of a graph.
2. Write a program for generating Fibonacci Series.
3. Write a program for Tower Of Hanoi.
4. Write a program for implementing linear queue for insertion, deletion, & Display.
5. Write a program for Implementing Stack for Insertion, Deletion & Display.
6. Write a program for implementing queue using linked list.
7. Write a program for implementing Stack using Linked List.
8. Write a program for implementing Doubly Linked List.
9. Write a program for implementing Binary Tree.

Numerical Lab (LAB-I), BSMS 6th Semester (New)

1. Write a C program for Bisection Method
2. Write a C program for method of false position and secant method
3. Write a C program for Improved Euler's method
4. Write a C program for Euler's method
5. Write a C program for Newton-Raphson method
6. Write a C program for Trapezoidal rule of integration
7. Write a C program for Simpson's one-third rule
8. Write a C program for Simpson's three-eighth rule
9. Write a C program for Runge-Kutta second and fourth order methods
10. Write a C program for Predictor-corrector methods
11. Write a C program for Taylor series method
12. Write a C program for Finite Element Problem
13. Write a C program for Finite Difference Problem
14. Write a C program for Newton's forward and backward interpolation
15. Write a C program for Everette's formula
16. Write a C program for Lagrange's interpolation
17. Write a C program for Numerical differentiation
18. Write a C program for Eigen values and eigen vectors
19. Write a C program for Method of successive approximation
20. Write a C program for Gaussian elimination method
21. Write a C program for Gauss-Seidel iterative method
22. Write a C program for Inversion of a matrix