



Govt. of West Bengal  
Office of the Principal

# Government General Degree College, Nakashipara

Muragachha, Nadia, Pin – 741154

PhoneNo.:03474-268008web: <https://muragachhagovtcollege.in/> e-mail:[mgnadia2015@gmail.com](mailto:mgnadia2015@gmail.com)

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Date : .....

## Course Title: Basics of Scilab

Course Duration: 14.06.2023 to 27.06.2023

**Course Description:** This course provides an introduction to Scilab, emphasizing its use for numerical computation, data analysis, and visualization. Participants will learn fundamental concepts such as variables, matrices, functions, plotting, and basic programming constructs. Hands-on exercises and practical examples will be used to reinforce learning.

**Prerequisites:** No prior programming experience required, but familiarity with basic mathematics and computer operations is recommended.

**Learning Objectives:** By the end of this course, participants will be able to:

1. Understand the basic features and capabilities of Scilab.
2. Perform numerical computations and manipulate data using Scilab.
3. Create and customize plots to visualize data effectively.
4. Write and execute scripts to automate tasks in Scilab.
5. Apply Scilab for solving mathematical problems and conducting basic simulations.

### Day-wise Outline:

#### Day 1: Introduction to Scilab

- Overview of Scilab software and its applications
- Installing Scilab and setting up the environment
- Scilab console and integrated development environment (IDE)
- Basic operations: arithmetic calculations, variables, and assignments

#### Day 2: Working with Matrices

- Introduction to matrices in Scilab
- Creating matrices: row vectors, column vectors, and matrices
- Matrix operations: addition, subtraction, multiplication, and division
- Accessing elements and slicing matrices

#### Day 3: Functions and Scripts

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- Defining and using functions in Scilab
- Passing arguments to functions
- Scope of variables: local and global variables
- Writing and executing Scilab scripts

## Day 4: Plotting Data

- Introduction to plotting in Scilab
- Basic plotting commands: plot(), scatter(), bar()
- Customizing plots: labels, titles, colors, and styles
- Multiple plots and subplots

## Day 5: Control Structures

- Conditional statements: if, else if, else
- Logical operators and relational operators
- Looping structures: for loop, while loop
- Using loops for numerical computations and data processing

## Day 6: Advanced Plotting and Visualization

- Advanced plotting techniques: 3D plots, contour plots
- Plotting functions and parametric curves
- Exporting plots and figures
- Interactive plotting with graphics properties editor

## Day 7: File I/O and Data Handling

- Reading data from files: text files, CSV files
- Writing data to files
- Data manipulation: sorting, filtering, and basic statistics

## Day 8: Numerical Methods and Simulations

- Using Scilab for numerical computations
- Solving equations: roots, optimization
- Simulating mathematical models: differential equations

## Day 9: Review and Project

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- Review of concepts covered throughout the course
- Final project assignment: Implement a small application using Scilab to demonstrate understanding of basic concepts
- Q&A session and wrap-up

## Assessment:

- Daily exercises and quizzes: 50%
- Final project: 50%

## Textbook:

- "Getting Started with Scilab" by Sandeep Nagar (latest edition)

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Government of West Bengal

## Government General Degree College, Nakashipara

Department of Physics

MURAGACHHA, NADIA, PIN- 741154


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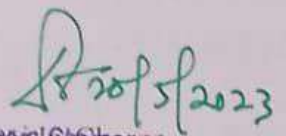
Dated: 20.05.2023

### NOTICE

This is to notify all concerned that the Department of Physics is going to organize a certificate course on 'Understanding The 'Basics of Scilab' from 14.06.2023 to 27.06.2023., free of cost. Certificate will be provided to the participating students after successful completion of the said course. Students of the Physics department of this college are requested to meet the course coordinator and enrol their names before commencement of the course.

  
20/05/2023  
Course Coordinator  
(Nasiruddin Ahammed)

Government General Degree College, Nakashipara

  
20/05/2023  
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