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विज्ञान एवं प्रौद्योगिकी स्कूल

(स्वामी राम हिमालयन विश्वविद्यालय की एक शैक्षणिक इकाई)

School of Science & Technology

[A Constituent Academic Unit of Swami Rama Himalayan University]

SRHU/SST/Int./2026-024

Dated: 19th January 2026

Circular

Dear Faculty Members,

We are pleased to inform you that the School of Science & Technology is organizing a National-Level Online Faculty Development Program (FDP) in association with Spoken Tutorial, IIT Bombay, on "**Scilab**", scheduled from **21st January 2026 to 05th February 2026**. The Mode of Training will be Online, remote learning through audio-video lectures, as per self-learning pace.

In this regard, the inaugural session will be held on 21st January 2026 at 03:30 PM. All faculty members are kindly requested to attend the inaugural session.

The meeting link and schedule is as following:

Google Meet Link	Date & Time for Inaugural Event
https://meet.google.com/brf-kymr-akf	21 st January 2026 (Wednesday) , 03:30 PM onwards

For further details, please contact:

- **Single Point of Contact (SPOC) - Dr. Anupama Mishra**, Department of Computer Science and Engineering, School of Science & Technology, Email: anupamamishra@srhu.edu.in; Mobile: 9639601234

Pramod Kumar
19/01/2026
Prof. (Dr.) Pramod Kumar
Dean
School of Science & Technology



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COLLABORATE. COMPUTE. CREATE.

21ST
JANUARY
2026

TO

05TH
FEBRUARY
2026

A Two-Week
Online National Level
Faculty Development
Program on Scilab
in association with
Spoken Tutorial,
IIT Bombay

Organized by: **School of Science & Technology**

In association with **Spoken Tutorial, IIT Bombay**



SWAMI RAMA HIMALAYAN UNIVERSITY
OFFICE OF THE REGISTRAR

SRHU/Reg./Int./2026- 48

Date: 17.01.2026

The Dean
School of Science and Technology
Swami Rama Himalayan University

1. This has reference to your letter No. SRHU/SST/Int./2026-20 dated 14.01.2026, seeking approval for organizing a **Two-Week Online National Level Faculty Development Programme (pre-recorded sessions)** in association with Spoken Tutorial, IIT Bombay on the topic "**Scilab**" for Automation and Scientific Computing, proposed to be held from **21st January 2026 to 5th February 2026 at SRHU** without any financial assistance from the University and wherein external faculty participants shall be required to pay a registration fee of Rs. 599/.

2. The permission of the competent authority, is hereby conveyed, for the above said purposes.


17/01/2026
Registrar

Copy to:

Hon'ble President

Hon'ble Vice-Chancellor

Director General (Academic Development)

Pro-Vice Chancellor

Finance Officer

} for kind information please

FACULTY DEVELOPMENT PROGRAM (FDP)

Online Inauguration Session

Organized by



NAAC A+

School of Science & Technology

Swami Rama Himalayan University,
Uttarakhand



SESSION DETAILS

 **Date:** 21 January 2026

 **Time:** 3:30 PM

 **Mode:** Online

 **Topic:** Scilab

Esteemed Speaker



Mrs. Anubha

Operation Manager

Spoken Tutorial, EduPyramids | SINE, IIT Bombay



ACADEMIC LEADERSHIP

Faculty Coordinator:

Dr. Anupama Mishra

Dean (Academics):

Dr. Pramod Kumar

ABOUT THE SESSION

Introducing faculty to **Scilab**, an open-source software for numerical computation, widely used in teaching, research, and engineering applications.

Join us online & make this session a success!



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Report

Two Week Online National Level Faculty Development Program (FDP) on "Scilab" in collaboration with Spoken Tutorial, IIT Bombay has been organized by School of Science & Technology. The details are mentioned below:

Name of Activity: Two Week Online National Level Faculty Development Program (FDP) on "Scilab" in collaboration with Spoken Tutorial, IIT Bombay

Dates : 21st January, 2026 to 05th February, 2026

Objectives : The primary objectives of this FDP are to:

- Introduce participants to the fundamentals of Scilab programming with a focus on automation and numerical computing.
- Provide hands-on training in using Scilab for tasks such as data analysis, mathematical modeling, simulation, report generation, and system-level computations.
- Enable faculty members to effectively apply Scilab-based techniques in teaching, research activities, and institutional processes to enhance efficiency, accuracy, and productivity.

No of Beneficiary: 28

Summary

The School of Science & Technology organized Two Week Online National Level Faculty Development Program (FDP) on "Scilab" in collaboration with Spoken Tutorial, IIT Bombay, from 21st January 2026 to 05th February 2026. The program commenced with an inaugural session that highlighted the objectives of the FDP, the significance of open-source software, and the structured learning process through the Spoken Tutorial platform. Participants were also informed about the certification process and engagement guidelines.

The FDP was designed to provide faculty members with comprehensive knowledge of Scilab for numerical computing, data analysis, modeling, simulation, and automation. The sessions covered fundamental concepts such as installation, vector and matrix operations, conditional statements, scripting, and 2D plotting, followed by advanced topics including Xcos simulations, numerical methods, optimization techniques, control systems, toolbox development, and integration with external libraries. Each day included practical demonstrations and hands-on exercises to ensure effective learning and application.

Through structured modules and real-time practice, participants developed proficiency in solving mathematical problems, simulating dynamic systems, performing numerical analysis, and utilizing Scilab in teaching and research activities. The FDP successfully enhanced the technical competencies of 28 faculty members, promoting the use of open-source tools for academic and institutional efficiency.

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The details of the covered topics 15 Days are as following:

Day1: Introduction to Scilab and its benefits & Self learning of Scilab through Spoken Tutorials

- About Scilab and its benefits
- Scilab is reliable
- Use of Scilab in CNES
- Use of Scilab for space mission analysis and flight dynamics
- Industrial application of Scilab
- Matrix calculation in Scilab

Day2: The amazing resource of Scilab Textbook Companion & Scilab Lab migration, Toolboxes and Forums

- Opensource software problem, no good documentation for FLOSS
- Solution: Textbook companion project
- Scilab code for standard textbooks
- Demo of Textbook companion
- Download Scilab code from scilab website
- Use of TBC
- Demo of Scilab on Cloud
- Scilab code search
- Scilab Lab migration, Toolboxes and Forums - English
- Lab migration
- Demo of Lab migration on FOSSEE Scilab website
- Download PDF for lab solution
- Scilab Toolboxes
- FOSSEE Optimisation toolbox available on atoms website
- IEEE paper on Scilab toolbox
- Demo of Xcos on cloud

Day3: Installing & Getting Started

- Show where to download from and how to decide which version to choose (OS and 32/64bit) (www.scilab.org/download)
- Windows installation (Internet Connection is necessary) Linux installation (using package manager- show only Debian/Ubuntu as example (sudo apt-get install scilab) as well as generic binary) Mac

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- Expressions: Show mathematical expressions with numbers
- Variables
- Diary command
- Define symbolic constants.
- Basic functions
- suppressing output(;;)

Day4: Vector & Matrix Operations

- Define vector
- Calculate length of a vector.
- Perform mathematical operations on Vectors such as addition, subtraction and multiplication.
- Define a matrix.
- Calculate size of a matrix.
- Perform mathematical operations on Matrices such as addition, subtraction and multiplication.
- Access the elements of Matrix
- Determine the determinant, inverse and eigen values of a matrix.
- Define special matrices.
- Perform elementary row operations.
- Solve the system of linear equations.

Day5: Conditional Branching & Iterations

- 'if' and 'then' with the example
- use of the 'else' keyword
- use of the 'elseif' keyword
- example for select
- Explain syntax of 'for' statement- tell that the variable iterates over a list/vector/matrix (or an expression that evaluates to any of these).
- Give example: for i = 1:5, disp (i), end
- Then explain break condition. Use example: for i = 1:10, disp(i), if (i==5), break, end, end
- Then explain continue condition. Use example: for i = 1:10, if (i<=5) then continue, else disp(i), end, end
- Explain while condition.
- Give example: i = 0; while(i <=5), i = i + 1;

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Day6: Scripts and Functions, and Plotting 2D Graph

- Introduction to the file formats in Scilab.
- SCRIPT files.
- sce versus .sci
- Inline functions.
- How to use cbind and rbind function
- About linspace: linspace is a linearly spaced vector.
- Plot a simple graph: $x=\text{linspace}(12,34,10)$, $y=\text{linspace}(-.1,2,10)$, $\text{plot}(x,y)$
- plot2d
- Using clf() clear the graphic window.
- Configure the title for the plot
- Configure a legend
- Divide a graphic window into a matrix of sub-windows using subplot(mnp)

Day7: Xcos Introduction and File Handling

- What is XCOS.
- What is palette.
- To collect the blocks from the palette and connect them to construct the block diagram.
- Set the parameters of different blocks.
- To setup the simulation parameters.
- Simulate the constructed block diagram.
- Writing to a file using write()
- Reading from a file using read()
- Opening an existing file using fopen()
- Closing an already opened file using fclose()

Day8: User Defined I/O and Integration

- Input Function.
- fprintf()
- save() and load()
- Used to quit scilab midway through calculation and continue at later stage.
- Develop Scilab code for different Composite *Numerical Integration algorithms
- Divide the integral into equal intervals
- Apply the algorithm to each interval
- Calculate the composite value of the integral

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Day9: Solving Non linear Equations and Linear equations Gaussian Methods

- Learn how to solve nonlinear equations using numerical methods
- Learn Bisection method
- Learn Secant method
- Learn how to develop Scilab code for solving nonlinear equations
- Explain Gauss Elimination method algorithm
- Explain code for Gauss Elimination method and solve an example using this code
- Explain Gauss Jordan method algorithm
- Explain code for Gauss Jordan method and solve an example using this code

Day10: Linear equations Iterative Methods and Interpolation

- Solve system of linear equations using iterative methods
- Use Jacobi and Gauss Seidel iterative methods
- Learn how to iterate until we converge at the solution
- Learn how Gauss Seidel method is faster than Jacobi method
- Develop Scilab code for these two methods to solve linear equations
- Develop Scilab code for different Numerical Interpolation algorithms
- Calculate new value of function from given data points

Day11: ODE Euler methods and ODE Applications

- Solve ODEs using Euler and Modified Euler methods
- Develop Scilab code to solve ODEs
- Solving ODEs using Scilab ode Function
- Use Scilab ode function
- Solve typical examples of ODEs
- Plot the solution

Day12: Optimization Using Karmarkar Function and Digital Signal Processing

- Use of Scilab function Karmarkar in Optimization
- Plotting continuous and discrete sine waves
- Plotting step function
- Plotting ramp function

Day13: Control and Discrete Systems and Calling User Defined Functions in XCOS and Simulating a PID controller using XCOS

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- Define a continuous time system: second and higher order
- Response plot for step input
- Response plot for sine input
- Bode plot
- Study numer and denom Scilab functions
- Plot poles and zeros of function
- Define discrete time system variable z * Define first order discrete time system * Explain ones, flts, dscr, ss2tf functions
- Write a squaring function
- Use of scifunc block in XCOS
- Use of MUX block
- Call functions having multiple inputs and outputs
- Simulating a PID controller using Xcos:
- Modifying firstorder.xcos file to implement a PID controller
- Closing the loop , Setting PID gains and observing its response

Day14: Developing Scilab Toolbox for calling external C libraries, Developing Scilab Toolbox for calling Python and its functions, Interactive Simulation in Xcos using slider and User-defined variables in Xcos

- About Scithon toolbox About header folder Interfacing between Scilab and Python Files used for starting the python instance and overloaded virtual functions Links
- What is Interactive Simulation?
- Learn about Interactive Simulation using a slider.
- What is TKSCALE block? How to use TKSCALE block as slider, Ways to define variables in Xcos
- Creating a simple simulation
- Importing necessary blocks
- Interconnecting the blocks
- Show error of using variable without defining it
- Load the code file for a simple simulation using the Ramp Input block
- Use the TOWS_c block to the save data values in the workspace
- Comment on the parameters of the TOWS_c block

Day15: Conditional operations in Xcos and Super Blocks in Xcos

- Loading the code file for a simple simulation using Ramp Input block
- Using TOWS_c block to save values in the workspace
- Using WRITEC_f block to save simulation data

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- Use of Super Blocks What is a Super block? Explain CONST, POWBLK_f, AFFICH_m and CLOCK_c blocks of super-initial.xcos file. Change the value of CONST block and run it.

List of participants

Sr. No.	Faculty's Name
1.	Prof. (Dr.) Pramod Kumar
2.	Harvinder Malhotra
3.	Dr. Deepak Srivastava
4.	Dr. Gunjan Chhabra
5.	Dr. Ashutosh Bhatt
6.	Dr. Vibhor Sharma
7.	Rohit Kanauzia
8.	Dr. Gaurav Sharma
9.	Dr. Anupama Mishra
10.	Dr. Pooja Baloni
11.	Dr. Suman Pant
12.	Dr. Swati Rawat
13.	Dr. Shiv Preet
14.	Mr. Satyendra Singh Rawat
15.	Mr. Gaurav Aggarwal
16.	Ms. Shefali Khatri
17.	Mr. Sanjay Kumar
18.	Ms. Princy Tyagi
19.	Ms. Vaishali Gupta
20.	Ms. Shivani Sharma
21.	Ms. Shivani Pant
22.	Mr. Kamal Preet Singh
23.	Mr. Radhe Shankar
24.	Mr. Rachit Lakhera
25.	Ms. Simranjeet Kaur
26.	Dr. Ashutosh Kumar Choudhary
27.	Dr. Vivek Katiyar
28.	Ms. Neelam Danu

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Some glimpses of activity



Figure 1: Banner of FDP



Figure 2: Banner for Inaugural Session



Figure 3: Inaugural Session



Figure 4: Learning from Videos



Figure 5: Learning from Videos (Cont.)



Figure 6: Learning from Videos (Cont.)

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Figure 7: Certificate for participation



Figure 8: Certificate for participation

Dr. Anupama Mishra
SPOC – IIT Bombay
School of Science & Technology

Prof. (Dr.) Pramod Kumar
Dean
School of Science & Technology



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Spoken Tutorial
developed at
IIT Bombay

Certificate of Participation



This is to certify that **Ms. Neelam Danu** has participated in **Faculty Development Program (FDP)** from **21-01-2026** to **05-02-2026** on **Scilab** organized by **Swami Rama Himalayan University** with course material provided by EduPyramids, SINE, IIT Bombay.

This training is offered by EduPyramids, SINE, IIT Bombay.

EduPyramids

Prof. Kannan M Moudgalya
Inventor, Spoken Tutorial
Director, EduPyramids, SINE, IIT Bombay

Spoken Tutorial activity was initiated at IIT Bombay, started with funding from the National Mission on Education through ICT, Ministry of Education, Govt. of India.