HBNI-VECC Hybrid Course on

Introduction to Python for scientific computing

November 20, 2025 to February 09, 2026

Time: 14:30 to 15.30

Course Coordinators: Dr. Shashi C. L. Srivastava

Email: shashi@vecc.gov.in

Venue: C&I Building and online

Target students: Ph. D. students and young researchers

Students desirous of attending the course may contact the course coordinator through mail for any clarification.

For registration, send a mail at hbni_office@vecc.gov.in with cc to shashi@vecc.gov.in Before November 17, 2025

Module	Faculty	Dates (Time: 14.30 to 15.30)
Introduction to Python for scientific computing (22 lectures including lab)	Dr. Shashi C. L. Srivastava	November(2025)- 20, 24, 27 December(2025) - 01, 04, 08, 11, 15, 18, 22, 29 January (2026)- 01, 05, 08, 12, 15, 19, 22, 29 February (2026) -02, 05, 09

Final Exam: Would be announced by lecturers

Introduction to Python for scientific computing

Syllabus:

Introduction to Python for scientific computing: (Credit: 1), Total: 22 hrs.

Introduction, Datatypes, Tuples, Lists, Mutability, Dictionaries, Branching, Iteration, Functions, Modules, Functions with variable number of arguments, Lambda function and List comprehension Classes, String Manipulation, File handling, Exception handling, Numpy, Scipy, Matplotlib, Statistical analysis of data using Python.

References:

1. Python for Scientists, 2nd ed., John M. Stewart, Cambridge University Press
2. Learning Scientific Programming with Python, 2nd ed., Christian Hill, Cambridge University Press
3. Practical Numerical Computing Using Python: Scientific and Engineering Applications, Mahendra Verma
4. Scientific Computing in Python, 2nd ed., Abhijit Kar Gupta

Online Resources:

https://docs.python.org/3/
https://numpy.org/doc/stable/
https://docs.scipy.org/doc/scipy/tutorial/
https://lectures.scientific-python.org/
https://matplotlib.org/stable/tutorials/index.html

Course Outcome: After completing the course, students are expected to be able to design and write programming code to solve practical problems of a scientific or engineering nature using python. They will be able to read, test and debug python programs and will develop the ability to use key python libraries like NumPy/SciPy for scientific calculation and matplotlib for visualization

Target students: Ph.D. students and young researches in all disciplines in all CIs/OCC, who are interested to attend this on-line course are welcome to register.