

Department of Physics
Sacred Heart College, Thevara

Value Added Course : Learning Physics on Linux

Course Code: 14PHYVAC01

AIM: The Course is aimed to bring about the importance of open source software and motivate young minds to explore the Linux systems and also make them comfortable in programming and plotting and thus helping them to learn physics in an interactive manner.

COURSE OBJECTIVES:

This course introduces the open source software and help them to explore the Linux systems and make them comfortable in solving various physics problems using Python programming, plotting using xmgrace and to carry out work from the command line.

Learning Physics on Linux

- Module-1: Introduction to Linux (10 Hours)

Overview, History of Linux , Unix and Linux , Using Linux distributions, Introduction to text editors, vi editor, emacs editor, Introduction to file systems, Shells, Pipes, Command Substitution and Expressions, Shell, Bash, command lines.

- Module-2: Introduction to python (10 hrs)

Introduction, Operators, input, Conditional execution, modify loops, arrays and matrices, Data visualization.

- Module-3: Plotting in Linux using xmgrace (10 Hrs)

Invoking xmgrace, plotting data, saving the work, using various fitting techniques, refining the plot – data sets, axis properties, titles, legend etc.

Outcome of the Course: At the end of the course the student will be able to

- Use the command line well in the linux operating system
- Execute simple physics problems via Python programming
- Visualise the results obtained from solving various problems using Python data visualization or using xmgrace.

Mode of Evaluation: Attendance, Practical, Assignments, Test etc.



A handwritten signature in blue ink, appearing to be "Dr. Johnson X Palackappillil".

A handwritten signature in green ink, appearing to be "Dr. Johnson X Palackappillil". Below it is a blue ink stamp that reads "Dr. Johnson X Palackappillil", "Principal", "Sacred Heart College (Autonomous)", "Thevara, Kochi-682 013".