



SCIENTIFIC COMPUTING USING MATLAB

Prof. Mani Mehra

Department of Mathematics
IIT Delhi

TYPE OF COURSE : Rerun | Core | UG/PG

COURSE DURATION : 12 weeks (24 Jan' 22 - 15 Apr' 22)

EXAM DATE : 24 Apr 2022

Prof. Vivek K. Aggarwal

Department of Applied Mathematics
DTU Delhi

PRE-REQUISITES : Some knowledge of any programming language

INTENDED AUDIENCE : UG/PG students

COURSE OUTLINE :

In the first week of this course, an introduction to Matlab is introduced with hands on Matlab software. In the subsequent weeks, topics will be introduced followed by hands on to write the Matlab code of the same topics. This course is very useful for the students who wants to do research projects using numerical techniques to handle data or to solve differential equations.

ABOUT INSTRUCTOR :

Prof. Mani Mehra is presently working as an Associate Professor in the department of Mathematics, IIT Delhi. She earned her PhD from IIT Kanpur in 2005.

Prof. Vivek Kumar Aggarwal in presently worked as an Assistant Professor dept. of Applied Mathematics, DTU Delhi. He earned his PhD in Mathematics from IIT Kanpur in 2005.

COURSE PLAN :

Week 1: Introduction to Matlab

Week 2: Error estimation and methods of roots finding

Week 3: Order of convergence of various methods

Week 4: Solving System of Linear Algebraic equations

Week 5: Continuing...Solving System of Linear Algebraic equations

Week 6: Curve fitting and Interpolation

Week 7: Continuing... Curve fitting and Interpolation

Week 8: Continuing... Curve fitting and Interpolation

Week 9: Numerical differentiation

Week10: Numerical Integration

Week 11: Numerical solution to ordinary differential equations (ODE's)

Week 12: Continuing with numerical solution to ODE's