

- TITLE : **Computational Lab**
- Course Code : MA325
- CONTACT HOURS : 12 x 2 = 24
- CREDITS : [0-0-2] 4 Credits
- SEMESTER OFFERED : Odd (VII)
- PRE-REQUISITES : Numerical Methods, ODE and PDE
- OBJECTIVE : The primary objective of the course is to develop the basic understanding of numerical algorithms and skills to implement algorithms to solve problems in ODE and PDE on the computer.
- COMMITTEE MEMBERS: Dr. G. Rakshit (Convener), Dr. Alpesh Kumar
- COURSE CONTENTS:

Unit	Topics	Sub-topic	No. of sessions
1	Solution of Difference Equations and curve fitting	Solution of Difference Equations, Solution of Difference Equations using Euler Method, Determination of polynomial using method of Least Square Curve Fitting. Solution of system of equations	4
2	Solutions of Ordinary Differential Equations	Theory of differential equations, Euler's method, Modified Euler's method, Runge-Kutta methods.	4
3	Solutions of Partial Differential Equations	Finite difference schemes for Heat Equations, Wave Equations and Laplace Equations.	4
Total			12

- BOOK(s):
 - Numerical Solution of Ordinary Differential Equations* by David Stewart, Kendall Atkinson, and Weimin Han; Wiley .
 - Numerical Solution of Partial Differential Equations* by K. W. Morton and D. F. Mayers ; Cambridge University Press

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