Integral University, Lucknow
Department of Mathematics

B.Tech: 2nd year IV th **Sem.**

Subject: Mathematical Analysis (For CSE only) **Subject Code: MT206**
(Revised w.e.f. session 2017-18)

L T P
3 1 0
Unit-I **(8)**
Algebraic & Transcendental Equations
Bisection Method, Iteration Method, False Position Method, Newton-Raphson Method.
Rate of Convergence of Methods. Solution of system of linear equations by LU
decomposition method.

Unit-II **(8)**
Interpolation
Finite differences, Newton's forward & backward formula, Gauss forward and backward
formula for equal intervals. Lagrange's and Newton's divided difference formula for
unequal intervals, Numerical differentiation.

Unit-III **(8)**
Numerical Integration & Solution of Ordinary Differential Equations
Numerical Integration by Trapezoidal Rule, Simpson's 1/3 Rule, Simpson's 3/8 Rule,
Boole's & Weddle's Rule.
Numerical solution of ordinary differential equations by Euler's Method, Modified
Euler's Method and Runge-Kutta Method.

Unit-IV **(8)**
 Complex Analysis
Analytic functions, C-R equations, Cauchy's integral theorem, Cauchy's integral formula
for derivatives of analytic functions, Conformal mapping, Bilinear transformation.

Unit- V **(8)**
Statistics and Probability
Correlation and Regression Analysis, Definition of Probability: Classical and
Axiomatic, Conditional Probability, Baye's theorem, Binomial Distribution, Poisson
distribution and Normal Distribution.
Reference Books:
1. Sastry, Introductory method of Numerical Analysis, PHI, New Delhi.
2. Balaguruswamy, Numerical method, TMH, New Delhi.
3. Jain, Iyengar, Jain, Numerical Methods for Scientific & Engineering
    Computations, New Age International, New Delhi.
4. P. Kandasamy, Numerical Methods, S. Chand & Company, New Delhi.
5. H.K. Dass, Introduction to Engineering Mathematics, S. Chand &
    Company, New Delhi.
6. B.S. Grewal, Higher Engineering Mathematics, Khanna Publication.
7. Q.S. Ahmad, Z.Khan & S.A.Khan, Numerical and Statistical
    Techniques, Ane Books Pvt. Ltd., New Delhi.