

Branch Name:	Information and Communication Technology
Semester/Year:	Semester III / Second Year
Subject Title:	Computational Methods
Subject Code:	1ET1070304
Pre-requisite:	Basic Knowledge of Mathematics and Computer

Course Objectives:

- To make students understand about numerical methods.
- To make students learn about programming for numerical methods
- To make students develop application of computational methods

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
03	00	02	04	70	30	30	20	150

Subject Contents			
Sr. No	Topic	Total Hours	Weight (%)
1	Mathematical and Computational Modeling, System of Equation and Eigenvalues	12	20
2	Solution of Linear Equations, Analytical Methods for Solving Linear Equations, Gauss Elimination Method, Gauss Jordan Method	10	30
3	Iterative Method of Solution, Solution of Algebraic Equations, Root finding and Optimization,	10	20
4	Interpolation, Polynomial Interpolation, Hermite Interpolation, Spline interpolation, Cubic Spline Interpolation, Linear regression	10	15
5	Numerical Differentiation and Numerical Integration	10	15

Course Outcome:

After learning the course the students should be able to:

1. Understand about various numerical methods
2. Understand programming for numerical methods
3. Understand develop applications for computational methods in Engineering

Text Book:

- (1) “Computational Methods in Engineering”, S.P. Venkateshan Prasanna Swaminathan, Elsevier Science and Academic Press
- (2) “Numerical Methods”, Balaguruswamy, TMH

Suggested Laboratory Sessions:

1. Programming in C and C++ for various numerical methods.
2. Application of various numerical methods in Engineering.
3. Case studies of numerical methods in Engineering.
4. Matrix Computations and Applications.