Name of the faculty : Dr. Reena Garg

Class/Discipline :B.Tech(EIC)(4th semester)

Subject: Computational Technique

Lecture Plan Duration:14 weeks(Jan 15 , 2018 –April 2018)

Workload Lecture : 04/week

Week	Theory	
	Lecture Day	**Topic**
I	**I**	Introduction to Computational methods , its need and uses, Solution of Algebraic and Transcendental equations using **Bisection method**, Questions based on it
	II	**Method of False Position** to solve Algebraic and Transcendental equations, Question based on it
	III	**Secant Method** and Question based on it
	IV	**Iteration Method** to find solution of Algebraic and Transcendental equations, Question based on it
II	**I**	**Newton's Raphson Method, Generalised Newton-Raphson Method ,**Question based on it
	II	**Jacobi's Method**, Question based on it
	III	**Gauss-Seidal Method**, Question based on it
	IV	**Relaxation Method**, Question based on it
III	**I**	**Various difference Operators and Relation between them** , Question based on it
	II	**Newton's forward Interpolation formulae**, Question based on it
	III	**Newton's backward Interpolation formulae** , Question based on it
	IV	**Central difference Interpolation formula**, Question based on it
IV	**I**	**Gauss Forward and Backward Interpolation formulae**, Question based on it.

	II	**Langrage's Interpolation formula** , Question based on it
	III	**Newton's divided difference Formulae**, Question based on it
	IV	**Formula for derivatives:Trapezoidal Rule**, Question based on it
V	I	Continue……
	II	**Simpson's 1/3rd Rule**, Question based on it
	III	Continue…..
	IV	**Simpson's 3/8th Rules**, Question based on it
VI	I	Continue…..
	II	**Boole's Rule** , Question based on it
	III	Continue…..
	IV	**Weddle's Rule**, Question based on it
VII	I	Continue……
	II	**Romberg's Integration**, Question based on it
	III	Continue…..
	IV	**Taylor's Method**, Question based on it
VIII	I	Continue…..
	II	**Picard's Method**, Question based on it
	III	Continue……
	IV	**Euler's Method**, Question based on it
IX	I	**Modified Euler's Method**, Question based on it
	II	Continue……
	III	**Runge-Kutta Method of second Order**, Question based on it
	IV	**Runge-Kutta fourth order Method**, Question based on it
X	I	**Predictor Corrector Method**, Question based on it
	II	**Predictor Corrector Method(Adams-Bashforth)**, Question based on it
	III	**Predictor Corrector Method (Milne's method)**, Question based on it
	IV	Finite difference approximations of partial derivatives, Question based on it
XI	I	**Solution of Laplace Equation (Standard 5-Point formula only)**, Question based on it
	II	Continue……
	III	**One-dimensional Heat Equation (Schmidt Method)**, Question based on it

	IV	**One-dimensional Heat Equation (Crank-Nicolson Method)** , Question based on it
XII	**I**	**One-dimensional Heat Equation (Dufort Method)** , Question based on it
	II	**One-dimensional Heat Equation (Frankel Method)**, Question based on it
	III	**Solution of Wave Equation**, Question based on it
	IV	Continue….

Two Weeks are required for class Test –I and class Test -II