Saraswati Mahila Mahavidyalaya, Palwal

 **Lesson Plan**

**Name of the Assistant/Associate Professor: Ms. Amrita Aggrawal**

**Class and Section: B.SC III (N.M) 6TH Sem.**

**Name of subject: Numerical Analysis (Paper -3)**

**Subject Lesson Plan : 18 weeks(from January 2018 to April 2018)**

**(Note: Prepare as per list of holidays declared by Haryana govt.)**

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| **WEEK 1** |
| **ASSIGNMENT:** |
| **WEEK 1,DAY1 ,DATE :01/01/2018(MONDAY)** |
| **Finite Difference operators : Introduction** |
| **WEEK 1 ,DAY 2 ,DATE :02/01/2018(TUESDAY)** |
| **Forward & Backward Differences & Table Construction** |
| **WEEK 1,DAY 3 ,DATE :03/01/2018(WEDNESDAY)** |
| **Properties of operator**  |
| **WEEK 1 ,DAY 4 ,DATE :04/01/2018(THURSDAY)** |
| **Results based on Properties of and their Proofs.** |
| **WEEK 1,DAY 5 ,DATE :05/01/2018(FRIDAY)** |
|  **Holiday on account of Guru Govind Singh’s Birthday** |
| **WEEK 1 ,DAY 6 ,DATE :06/01/2018(SATURDAY)** |
| **Illustrations of Operator, their relations** |
| **WEEK 2** |
| **ASSIGNMENT: Problems based on forward & Backward Diff. Table** |
| **WEEK 2,DAY1 ,DATE :08/01/2018(MONDAY)** |
| **Operator E & its properties** |
| **WEEK 2 ,DAY 2 ,DATE :09/01/2018(TUESDAY)** |
| **Illustrations based on E operator** |
| **WEEK 2,DAY 3 ,DATE :10/01/2018(WEDNESDAY)** |
| **Effect of an error in a Tabular value with examples** |
| **WEEK 2 ,DAY 4 ,DATE :11/01/2018(THURSDAY)** |
| **One or More Missing Terms with examples** |
| **WEEK 2,DAY 5 ,DATE :12/01/2018(FRIDAY)** |
| **Problem Discussion** **Checking & Discussion of assignment** |
| **WEEK 2 ,DAY 6 ,DATE :13/01/2018(SATURDAY)** |
| **Interpolation with equal Intervals : Introduction** |
| **WEEK 3** |
| **ASSIGNMENT: Previous & Imp. Ques. Of error & Missing Terms problems** |
| **WEEK 3,DAY1 ,DATE :15/01/2018(MONDAY)** |
| **Newton – Gregory formulas for forward Interpolation : Formula Proof** |
| **WEEK 3 ,DAY 2 ,DATE :16/01/2018(TUESDAY)** |
| **Problems based on Newton forward Interpolation** |
| **WEEK 3,DAY 3 ,DATE :17/01/2018(WEDNESDAY)** |
| **Newton – Gregory formula for Backward Interpolation : Formula Proof** |
| **WEEK 3 ,DAY 4 ,DATE :18/01/2018(THURSDAY)** |
| **Problems based on Newton Backward Interpolation** |
| **WEEK 3,DAY 5 ,DATE :19/01/2018(FRIDAY)** |
| **Sub.- Division of intervals with examples** |
| **WEEK 3 ,DAY 6 ,DATE :20/01/2018(SATURDAY)****Illustrations & Problem Discussion** **Discussion & Checking of Assignment** |
| **WEEK 4** |
| **ASSIGNMENT: Problems based on Newton – Gregory forward & Backward Interpolation** |
| **WEEK 3,DAY1 ,DATE :22/01/2018(MONDAY)** |
|  **Holiday on account of Basant Panchmi.** |
| **WEEK 4 ,DAY 2 ,DATE :23/01/2018(TUESDAY)** |
| **Class Test on Interpolation with equal Intervals** |
| **WEEK 4,DAY 3 ,DATE :24/01/2018(WEDNESDAY)** |
|  **Holiday on account of Sir Chotu Ram Jayanti.** |
| **WEEK 4 ,DAY 4 ,DATE :25/01/2018(THURSDAY)** |
| **Interpolation with Unequal Interval : Introduction of Divided differences & its various Methods** **Checking & Discussion of Assignment** |
| **WEEK 4,DAY 5 ,DATE :26/01/2018(FRIDAY)** |
|  **Holiday on account of Republic Day.** |
| **WEEK 4 ,DAY 6 ,DATE :27/01/2018(SATURDAY)** |
| **Newton’s Divided Difference formula with illustrations** |
| **WEEK 5** |
| **ASSIGNMENT: Problems Based on Newton’s divided Diff. Formula**  |
| **WEEK 5,DAY1 ,DATE :29/01/2018(MONDAY)** |
| **Lagrange’s Interpolation formula** **Distribution & Discussion of class Test** |
| **WEEK 5 ,DAY 2 ,DATE :30/01/2018(TUESDAY)** |
| **Illustrations of Lagrange’s Interpolation formula** |
| **WEEK 5,DAY 3 ,DATE :31/01/2018(WEDNESDAY)** |
|  **Holiday on account of Guru Ravi Dass Jayanti** |
| **WEEK 5 ,DAY 4 ,DATE :01/02/2018(THURSDAY)** |
| **Hermite formula****Problem Discussion, Checking & Discussion of Assignment** |
| **WEEK 5,DAY 5 ,DATE :02/02/2018(FRIDAY)** |
| **Central Difference Interpolation Formula:****Introduction of various methods & formula for solving this** |
| **WEEK 5 ,DAY 6 ,DATE :03/02/2018(SATURDAY)****Gauss Forward Interpolation : Formula & illustrations** |
| **WEEK 6** |
| **ASSIGNMENT: Newton’s Divided & Lagrange’s Method – Formula Proof** |
| **WEEK 6,DAY1 ,DATE :05/02/2018(MONDAY)** |
| **Gauss Backward interpolation formula & its illustrations** |
| **WEEK 6 ,DAY 2 ,DATE :06/02/2018(TUESDAY)** |
| **Sterling formula & its illustrations** |
| **WEEK 6,DAY 3 ,DATE :07/02/2018(WEDNESDAY)** |
| **Bessel’s formula & its illustrations** |
| **WEEK 6 ,DAY 4 ,DATE :08/02/2018(THURSDAY)** |
| **Some More illustrations Based on these** |
| **WEEK 6,DAY 5 ,DATE :09/02/2018(FRIDAY)** |
| **Problem Discussion** **Checking & Discussion of Assignment** |
| **WEEK 6 ,DAY 6 ,DATE :10/02/2018(SATURDAY)** |
|  **Holiday on account of Maharshi Dayanand Saraswati Jayanti.** |
| **WEEK 7** |
| **ASSIGNMENT: Problems Based on Central Diff. interpolation** * **Imp. Previous year Questions**
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| **WEEK 7,DAY1 ,DATE :12/02/2018(MONDAY)** |
| **Numerical Differentiation : Introduction** |
| **WEEK 7 ,DAY 2 ,DATE :13/02/2018(TUESDAY)** |
| **Holiday on account of Maha Shivaratri.** |
| **WEEK 7,DAY 3 ,DATE :14/02/2018(WEDNESDAY)** |
| **Formulae for Derivative** |
| **WEEK 7 ,DAY 4 ,DATE :15/02/2018(THURSDAY)** |
| **Illustrations based on Derivative Formulae** |
| **WEEK 7,DAY 5 ,DATE :16/02/2018(FRIDAY)** |
| **Continuing the same with more examples** |
| **WEEK 7 ,DAY 6 ,DATE :17/01/2018(SATURDAY)** |
| **Maxima & Minima of a Tabulated function**  **Problem – Discussion** **Checking & Discussion of Assignment** |
| **WEEK 8** |
| **ASSIGNMENT: Prob. Based on Numerical Differentiation** |
| **WEEK 8,DAY1 ,DATE :19/02/2018(MONDAY)** |
| **Eigen value Problems : Introduction Illustrations of finding eigen values**  |
| **WEEK 8 ,DAY 2 ,DATE :20/02/2018(TUESDAY)** |
| **Power Method** |
| **WEEK 8,DAY 3 ,DATE :21/02/2018(WEDNESDAY)** |
| **Jacobi’s Method for Symmetric Matrix** |
| **WEEK 8 ,DAY 4 ,DATE :22/02/2018(THURSDAY)** |
| **Given’s Method** |
| **WEEK 8,DAY 5 ,DATE :23/02/2018(FRIDAY)** |
| **House – holder’s Method** |
| **WEEK 8 ,DAY 6 ,DATE :24/02/2018(SATURDAY)** |
| **QR & Lanczo’s Method** |
| **WEEK 9** |
| **ASSIGNMENT: Prob. of eigen value – Power Method** |
| **WEEK 9,DAY1 ,DATE :26/02/2018(MONDAY)** |
| **Problem Discussion** **checking & Discussion of Assignment of last week** |
| **WEEK 9 ,DAY 2 ,DATE :27/02/2018(TUESDAY)** |
| **More Illustrations based on these Methods** |
| **WEEK 9,DAY 3 ,DATE :28/02/2018(WEDNESDAY)** |
|  **VACATION -II** |
| **WEEK 9 ,DAY 4 ,DATE :01/03/2018(THURSDAY)** |
|  **VACATION -II** |
| **WEEK 9,DAY 5 ,DATE :02/03/2018(FRIDAY)** |
|  **VACATION -II** |
| **WEEK 9 ,DAY 6 ,DATE :03/03/2018(SATURDAY)** |
|  **VACATION -II** |
| **WEEK 10** |
| **ASSIGNMENT: Previous year Ques. of eigen value Problems** |
| **WEEK 10,DAY1 ,DATE :05/03/2018(MONDAY)** |
| **Class Test on Numerical Differentiation & Central Diff. Interpolation Formulae** |
| **WEEK 10,DAY 2 ,DATE :06/03/2018(TUESDAY)** |
| **Numerical Integration : Introduction & Newton - cotes Quadrature Formula** |
| **WEEK 10,DAY 3 ,DATE :07/03/2018(WEDNESDAY)** |
| **Trapezoidal Rule & its illustrations** |
| **WEEK 10,DAY 4 ,DATE :08/03/2018(THURSDAY)** |
| **Simpson’s 1/3 – Rule & its illustrations** |
| **WEEK 10,DAY 5 ,DATE :09/03/2018(FRIDAY)** |
| **Simpson’s 3/8 Rule & its illustrations** **Distribution & Discussion of class Test** |
| **WEEK 10 ,DAY 6 ,DATE :10/03/2018(SATURDAY)** |
| **Gauss Quadrature Formula** **Checking & Discussion of Assignment** |
| **WEEK 11** |
| **ASSIGNMENT: Prob. based on Trapezoidal, Simpson’s 1/3 & 3/8 Rule** |
| **WEEK 11,DAY1 ,DATE :12/03/2018(MONDAY)** |
| **Chebyshev’s Quadrature Formula** |
| **WEEK 11,DAY 2 ,DATE :13/03/2018(TUESDAY)** |
| **Problem – Discuss of examples** |
| **WEEK 11,DAY 3 ,DATE :14/03/2018(WEDNESDAY)** |
| **Numerical solution of ordinary Differential equations : Introduction** |
| **WEEK 11,DAY 4 ,DATE :15/03/2018(THURSDAY)** |
| **Euler’s Method – Proof & Illustrations** |
| **WEEK 11,DAY 5 ,DATE :16/03/2018(FRIDAY)** |
| **Modified Euler’s method** |
| **WEEK 11 ,DAY 6 ,DATE :17/03/2018(SATURDAY)** |
| **Taylor series Method** **Checking & Discussion of Assignment** |
| **WEEK 12** |
| **ASSIGNMENT: Prob. based on Euler’s & Modified Euler’s Method** |
| **WEEK 12,DAY1 ,DATE :19/03/2018(MONDAY)** |
| **Runge – Kutla Method & its fourth order Illustrations** |
| **WEEK 12,DAY 2 ,DATE :20/03/2018(TUESDAY)** |
| **Problem - Discussion** |
| **WEEK 12,DAY 3 ,DATE :21/03/2018(WEDNESDAY)** |
| **Picard’s Method** |
| **WEEK 12,DAY 4 ,DATE :22/03/2018(THURSDAY)** |
| **Predictor – Corrector Method :****Milne – Simpson’s Method** |
| **WEEK 12,DAY 5 ,DATE :23/03/2018(FRIDAY)** |
|  **Holiday on account of Shahidi diwas.** |
| **WEEK 12 ,DAY 6 ,DATE :24/03/2018(SATURDAY)** |
| **Some more examples of Milne – Simpson’s Method****Checking & Discussion of Assignment** |
| **WEEK 13** |
| **ASSIGNMENT: Prob. based on R-K Method – Imp. Questions (prev. year)** |
| **WEEK 13,DAY1 ,DATE :26/03/2018(MONDAY)** |
| **Adam’s Bashforth Method** |
| **WEEK 13,DAY 2 ,DATE :27/03/2018(TUESDAY)** |
| **Problem Discussion** |
| **WEEK 13,DAY 3 ,DATE :28/03/2018(WEDNESDAY)** |
| **Probability Distribution : Review of Probability****Checking & Discussion of Assignment** |
| **WEEK 13,DAY 4 ,DATE :29/03/2018(THURSDAY)** |
|  **Holiday on account of Mahavir jayanti.** |
| **WEEK 13,DAY 5 ,DATE :30/03/2018(FRIDAY)** |
| **Lab :- Implementation of Numerical Methods in ‘c’ programming Language**  **Discussion of Practicals** |
| **WEEK 13 ,DAY 6 ,DATE :31/03/2018(SATURDAY)** |
| **Lab :- Practical’s based on Numerical Methods** |
| **WEEK 14** |
| **ASSIGNMENT: Prob. based on Prediction – Corrector Method** |
| **WEEK 14,DAY1 ,DATE :02/04/2018(MONDAY)** |
| **Laws of Probability, Random Variable, Probability Distribution** |
| **WEEK 14,DAY 2 ,DATE :03/04/2018(TUESDAY)** |
| **Illustration of Probability Distribution** |
| **WEEK 14,DAY 3 ,DATE :04/04/2018(WEDNESDAY)** |
| **Lab :- Practical** |
| **WEEK 14,DAY 4 ,DATE :05/04/2018(THURSDAY)** |
| **Lab :- Practical** |
| **WEEK 14,DAY 5 ,DATE :06/04/2018(FRIDAY)** |
| **Lab :- Practical** |
| **WEEK 14 ,DAY 6 ,DATE :07/04/2018(SATURDAY)** |
| **Lab :- Practical** |
| **WEEK 15** |
| **ASSIGNMENT: Prob. based on Prob. distribution** |
| **WEEK 15,DAY1 ,DATE :09/04/2018(MONDAY)** |
| **R.V – Mean, Variance, S.D with illustrations** |
| **WEEK 15,DAY 2 ,DATE :10/04/2018(TUESDAY)** |
| **Binomial Distribution : Introduction, Formula & illustrations** |
| **WEEK 15,DAY 3 ,DATE :11/04/2018(WEDNESDAY)** |
| **Lab :- Practical** |
| **WEEK 15,DAY 4 ,DATE :12/04/2018(THURSDAY)** |
| **Lab :- Practical** |
| **WEEK 15,DAY 5 ,DATE :13/04/2018(FRIDAY)** |
| **Lab :- Practical** |
| **WEEK 15 ,DAY 6 ,DATE :14/04/2018(SATURDAY)** |
| **Holiday on account of Vaisakhi & Dr B.R. Ambedkar’s Jayanti.** |
| **WEEK 16** |
| **ASSIGNMENT: Compulsory Ques. of Prev. year Ques. Papers ( Short Ans. Type)**  |
| **WEEK 16,DAY1 ,DATE :16/04/2018(MONDAY)** |
| **Poisson Distribution , fitting a Poisson Distribution** |
| **WEEK 16,DAY 2 ,DATE :17/04/2018(TUESDAY)** |
| **Normal Distribution & its properties & illustrations** |
| **WEEK 16,DAY 3 ,DATE :18/04/2018(WEDNESDAY)** |
| **Holiday on account of Maharshi Pasuram Jayanti** |
| **WEEK 16,DAY 4 ,DATE :19/04/2018(THURSDAY)** |
| **Lab :- Practical** |
| **WEEK 16,DAY 5 ,DATE :20/04/2018(FRIDAY)** |
| **Lab :- Practical** |
| **WEEK 16 ,DAY 6 ,DATE :21/04/2018(SATURDAY)** |
| **Lab :- Practical** |
| **WEEK 17** |
| **ASSIGNMENT: Prob. based on Binomial , Poisson Distribution** |
| **WEEK 17,DAY1 ,DATE :23/04/2018(MONDAY)** |
| **Lab :- Practical** |
| **WEEK 17,DAY 2 ,DATE :24/04/2018(TUESDAY)** |
| **Lab :- Practical** |
| **WEEK 17,DAY 3 ,DATE :25/04/2018(WEDNESDAY)** |
| **Revision & discussion of Previous year Question Papers** |
| **WEEK 17,DAY 4 ,DATE :26/04/2018(THURSDAY)** |
| **Revision & Discussion of important Questions & Methods** |
| **WEEK 17,DAY 5 ,DATE :27/04/2018(FRIDAY)** |
| **Revision & Discussion of Assignments** |
| **WEEK 17 ,DAY 6 ,DATE :28/04/2018(SATURDAY)** |
| **Revision** |
| **WEEK 18** |
| **ASSIGNMENT:** |
| **WEEK 18,DAY1 ,DATE :30/04/2018(MONDAY)** |
| **Revision** |