| SAMRAT ASHOK TECHNOLOGICAL INSTITUTE | | | | | | | | | | |
|---|--|--|--|---|--|--|--|---|----------------------------|--------------------------------|
| A CAT | | | (Engine | eering Co | ollege), | VIDISHA | M.P. | | | |
| (An Autonomous Institute Affiliated to RGPV Bhopal) | | | | | | | | | | |
| Department of Applied Science | | | | | | | | | | |
| Semester/Year Third/Fourth Program B.Tech. | | | | | | | | | | |
| Subject Departmental Subj | | Subject | ct Subject Numerical Met | | | l Meth | od ∫ | | | |
| Category | Core | Code: | e: Name: Transforms | | | | | | | |
| Maximum Marks Allotted Con | | | | | | | ontac | t | | |
| Theory | | | | Practical | | Total | H | ours | | Total |
| End Sem | Mid-Sem | | Quiz | End Sem | Lab- Work | Marks | L | Т | Ρ | Credits |
| 60 | 20 | | 20 | - | - | 100 | 2 | 1 | - | 3 |
| Prerequisites: | | | | | | | | | | |
| Basic knowledge of Mathematics: Simultaneous Equations, Differentiation, Integration, Matrices | | | | | | | | | | |
| Course Objective: | | | | | | | | | | |
| The objective of this course is to familiarize the prospective engineers with techniques in Integral Transforms | | | | | | | | | | |
| and Numerical Methods. It aims to equip the students to deal with advanced level of mathematics and | | | | | | | | | | |
| applications that would be essential for their disciplines. | | | | | | | | | | |
| Course Outcomes: | | | | | | | | | | |
| I his course primarily contributes to applied mathematics program outcomes that develop students abilities to: | | | | | | | | | | |
| Linterpolation will help them to find the solution of various types of problems like census problems, weather | | | | | | | | | | |
| 2 It is useful | .c. I to solve various dif | fferentiatio | n and integ | ration prol | hlems usi | ng numeric | al techi | nique | c | |
| 2. It is useful to solve various unreferination and integration problems using numerical techniques. | | | | | | | | | | |
| 4 Students will learn the expansion of functions and various transformations | | | | | | | | | | |
| 5. It will help them to solve various physical science and engineering with the application of Laplace transform. | | | | | | | | | | |
| 1. | | ···· [· /· ··· | | 0 | 0 | | | | | |
| 5.lt will | be very much usefu | ul to solve v | arious boui | ndary valu | e probler | ns. | | | | |
| UNITs | | | Descrip | otions | | | | H | lrs. | CO's |
| | Interpolation : Finite Differences, Factorial Notations , Newton's Forward | | | | | | | d | | |
| | Interpolation Formula, Newton's Backward Interpolation Formula, Gauss | | | | | | | | | |
| I | Forward Interpolation Formula, Gauss Backward Interpolation Formula, | | | | | | | S | | |
| | Bessel's Formula, Sterling Formula, Newton's Divided Difference Interpolation | | | | | | | s a, | 8 | 1 |
| | Formula, Lagrange's Interpolation Formula. | | | | | | | | 8 | 1 |
| | | Sterling For e's Interpola | nula, Gaus rmula, New ation Formu | kward Int ss Backwa /ton's Divio ula. | erpolatio ard Inter ded Diffe | n Formula rpolation F rence Inter | , Gaus Formula polatio | s a, n | 8 | 1 |
| | Numerical Differe | Sterling For e's Interpola entiation: I | mula, Gaus rmula, New ation Formu Methods of | kward Int ss Backwa /ton's Divio ula. f Numerica | erpolatio ard Inter ded Diffe al Differe | n Formula polation F rence Inter ntiation, Nu | , Gaus Formula polatio | s a, n al | 8 | 1 |
| II | Numerical Differe | Sterling For e's Interpola entiation: I drature For | nula, Gaus rmula, New ation Formu Methods of mula, Trape | kward Int ss Backwa /ton's Divid ula. f Numerica ezoidal Rul | erpolatio ard Inter ded Diffe al Differe e, Simpso | n Formula rpolation F rence Inter ntiation, Nu on's One-thi | , Gaus ormula polatio imerica ird Rule | s a, n al 2, | 8 | 1 |
| | Numerical Different Integration : Quad Simpson's Three-F | Sterling For e's Interpola entiation: I drature For Eight Rule a | nula, Gaus rmula, New ation Formu Methods of mula, Trape nd Weddle | kward Int ss Backwa rton's Divio Jla. Mumerica zoidal Rul 's Rule. | erpolatio ard Inter ded Diffe al Differe e, Simpso | n Formula rpolation F rence Inter ntiation, Nu on's One-thi | , Gaus ormula polatio imerica ird Rule | s a, n al | 8 | 1 |
| | Numerical Different Integration : Quad Simpson's Three-H Solution of Simpson | Sterling For e's Interpola entiation: I drature For Eight Rule a Itaneous Lin | nula, Gaus rmula, New ation Form Methods of mula, Trape nd Weddle | kward Int ss Backwa rton's Divid la. f Numerica ezoidal Rul rs Rule. ions : Solo | erpolatio ard Inter ded Diffe al Differe e, Simpso ution of s | n Formula rpolation F rence Inter ntiation, Nu on's One-thi | , Gaus ormula polatio imerica ird Rule | s a, n al 2, r | 8 | 1 |
| | Numerical Different Integration : Quad Simpson's Three-It Solution of Simul equations by Gau | Sterling For e's Interpola entiation: I drature For Eight Rule a Itaneous Lin uss eliminati | nula, Gaus rmula, New <u>ation Formu</u> Methods of mula, Trape nd Weddle near Equat | kward Int ss Backwa vton's Divid ula. f Numerica ezoidal Rul 's Rule. ions : Soli Jordan, Cr | erpolatio ard Inter ded Diffe al Differe e, Simpso ution of s out's Me | n Formula rpolation F rence Intern ntiation, Nu on's One-thi simultaneou thods, Jaco | , Gaus Formula polatio Imerica ird Rule Is linea bi's an | s a, n ll e, r d | 8 8 8 | 1 2 3 |
| | Numerical Different Integration : Quart Simpson's Three-It Solution of Simul equations by Gau Gauss-Siedel Itera | Sterling For erist Interpola entiation: I drature For Eight Rule a Itaneous Lin ss elimination etive Metho | nula, Gaus rmula, New ation Formu Methods of mula, Trape nd Weddle near Equati ion, Gauss d. | kward Int ss Backwa zton's Divio ula. f Numerica ezoidal Rul 's Rule. ions : Solo Jordan, Cr | erpolatio ard Inter ded Differe al Differe e, Simpso ution of s out's Me | n Formula rpolation F rence Inter ntiation, Nu on's One-thi simultaneou thods, Jaco | , Gaus formula polatio imerica ird Rule us linea bi's an | s a, n al e, r d | 8 8 8 | 1 2 3 |
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| V | Numerical Different Integration : Quad Simpson's Three-H Solution of Simul equations by Gau Gauss-Siedel Itera Fourier Series and Range Sine and C Fourier Cosine Transform | Sterling For e's Interpola entiation: If drature Forn Eight Rule a Itaneous Lin uss elimination etive Metho d Fourier Tr Cosine Serie: ansform. | nula, Gaus rmula, New ation Formu Methods of mula, Trape nd Weddle near Equati ion, Gauss d. ransform : I s, Fourier T | kward Int ss Backwa /ton's Divid Ja. f Numerica ezoidal Rul 's Rule. ions : Solid Jordan, Cr Fourier Sel ransform, | erpolatio ard Inter ded Differe e, Simpso ution of s out's Me ries, Char Fourier S | n Formula rpolation F rence Inter ntiation, Nu on's One-thi simultaneou thods, Jaco nge of Inter Sine Transfo | , Gaus Formula polatio Imerica ird Rule us linea bi's an val, Ha prm an | s a, n al l c d d | 8 8 8 8 | 1 2 3 4 |
| V | Numerical Different Integration : Quad Simpson's Three-fe Solution of Simul equations by Gau Gauss-Siedel Itera Fourier Series and Range Sine and C Fourier Cosine Tra Laplace Transform | Sterling For e's Interpola entiation: I drature For Eight Rule a ltaneous Lin ass eliminati ative Metho d Fourier Tr cosine Series ansform. m: Laplace m: Change | nula, Gaus rmula, New <u>ation Formu</u> Methods of mula, Trape nd Weddle near Equati ion, Gauss d. ransform : s, Fourier T Transform | kward Int ss Backwa vton's Divid ula. f Numerica ezoidal Rul 's Rule. ions : Solu Jordan, Cr Fourier Sel 'ransform, of Elemen' property | erpolatio ard Inter ded Differe e, Simpso ution of s out's Me ries, Char Fourier S tary Func | n Formula rpolation F rence Inter ntiation, Nu on's One-thi simultaneou thods, Jaco nge of Inter Sine Transfo | , Gaus cormula polatio umerica ird Rule us linea bi's an val, Ha orm an erties co | s a, n il c, d lf d | 8 8 8 8 | 1 2 3 4 |
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