

Department of Mathematics
Government Engineering College, Nawada

Class: B. Tech. II Semester

Branch: EE

Course: Mathematics-II

Course Code: 103202

Session: 2019-20

Course Instructor: Dr. Rajnesh Kumar

MATRICES (Module 1)

ALGEBRA OF MATRICES	https://www.youtube.com/watch?v=L4crGhtEX14#action=share https://www.youtube.com/watch?v=L4crGhtEX14#action=share
INVERSE AND RANK OF A MATRIX	https://www.youtube.com/watch?v=RDF7My0Lfg#action=share https://www.youtube.com/watch?v=xBYboiUP1ZI#action=share
RANK-NULLITY THEOREM	https://www.youtube.com/watch?v=u_KmBRu0xFI#action=share
SYSTEM OF LINEAR EQUATIONS	https://www.youtube.com/watch?v=DaMpZ3IEmwE#action=share https://www.youtube.com/watch?v=HOXWRNuH3BE#action=share https://www.youtube.com/watch?v=NEpvTe3pFIk#action=share
DETERMINANTS	https://www.youtube.com/watch?v=05AX4L2KOGY#action=share
EIGENVALUES AND EIGENVECTORS	https://www.youtube.com/watch?v=h5urBuE4Xhg#action=share
DIAGONALIZATION OF MATRICES	https://www.youtube.com/watch?v=k7rjICzxJ24#action=share https://www.youtube.com/watch?v=OcaBepcbvR8#action=share
CAYLEY-HAMILTON THEOREM	https://www.youtube.com/watch?v=MEsOhv1Wubc#action=share
QUADRATIC TO CANONICAL FORMS	https://www.youtube.com/watch?v=HXm4h-xvx1w#action=share https://www.youtube.com/watch?v=05AX4L2KOGY#action=share

NUMERICAL METHODS (Module 2 & 3)

Topic	Link
SOLUTION OF POLYNOMIAL AND TRANSCENDENTAL EQUATIONS	http://egyankosh.ac.in/bitstream/123456789/10560/1/Unit-2.pdf https://www.youtube.com/watch?v=88ys5ZlolsG#action=share https://www.youtube.com/watch?v=oYsb4rW2GUU#action=share
BISECTION METHOD	https://www.youtube.com/watch?v=WbmLBRbp0zA#action=share https://www.youtube.com/watch?v=3FhE9De2_o#action=share https://www.youtube.com/watch?v=nHb5e-SvU6Q#action=share https://www.youtube.com/watch?v=XcPIQzWZ_1g#action=share
NEWTON-RAPHSON	https://www.youtube.com/watch?v=ZcbFQz_Kwog#action=share

METHOD	https://www.youtube.com/watch?v=b74LVxOazIO#action=share https://www.youtube.com/watch?v=f_EqOpgRwRM#action=share https://www.youtube.com/watch?v=pdTxSwCJVYs#action=share https://www.youtube.com/watch?v=ie4Aj3rEpNQ#action=share
REGULA-FALSI METHOD	https://www.youtube.com/watch?v=6nXaFWVL7SU#action=share https://www.youtube.com/watch?v=he8w9-GLnCS#action=share https://www.youtube.com/watch?v=Xgffy7UTfh0#action=share https://www.youtube.com/watch?v=Tj1sPw73R1U#action=share
FINITE DIFFERENCES, RELATION BETWEEN OPERATORS	https://www.youtube.com/watch?v=uYIr6rICX4c#action=share
INTERPOLATION USING NEWTON'S FORWARD AND BACKWARD DIFFERENCE FORMULAE	https://www.youtube.com/watch?v=5WuwBpMJXKQ#action=share https://www.youtube.com/watch?v=Xb9Ypn77LBo#action=share https://www.youtube.com/watch?v=GLSdCEwP2LI#action=share https://www.youtube.com/watch?v=A1voit-xBN0#action=share https://www.youtube.com/watch?v=Lp2MdAvk2MY#action=share https://www.youtube.com/watch?v=nhfCY43iAP0#action=share https://www.youtube.com/watch?v=zvqXMA8OKYA#action=share https://www.youtube.com/watch?v=B6SxZ1g0dHU#action=share
INTERPOLATION WITH UNEQUAL INTERVALS: NEWTON'S DIVIDED DIFFERENCE	https://www.youtube.com/watch?v=DnfC0IUuUe4#action=share https://www.youtube.com/watch?v=2pr9PMKXsIw#action=share https://www.youtube.com/watch?v=7BWFgJNNkA#action=share
LAGRANGE'S FORMULAE	https://www.youtube.com/watch?v=IabG-Icfe5M#action=share
NUMERICAL DIFFERENTIATION	https://www.youtube.com/watch?v=bnUsBhPLekE#action=share https://www.youtube.com/watch?v=YFxFekwJBOQ#action=share https://www.youtube.com/watch?v=syojMQ9fY1A#action=share https://www.youtube.com/watch?v=tmx2vVaBYNE#action=share
NUMERICAL INTEGRATION	https://www.youtube.com/watch?v=csgvZol6Wfw#action=share
TRAPEZOIDAL RULE	https://www.youtube.com/watch?v=UzZsOaLAdT4#action=share
SIMPSON'S $1/3^{\text{RD}}$ AND $3/8$ RULES	https://www.youtube.com/watch?v=p1U0zRz-BE#action=share https://www.youtube.com/watch?v=1eo9t36M2iI#action=share
ORDINARY DIFFERENTIAL EQUATIONS	https://www.youtube.com/watch?v=j5h-rFoiBgI#action=share https://www.youtube.com/watch?v=3rWEcy21sIg#action=share https://www.youtube.com/watch?v=Pq1Wb4sNSds#action=share https://www.youtube.com/watch?v=NihKCpJx2_0#action=share
TAYLOR'S SERIES	https://www.youtube.com/watch?v=Atv3IsQsak8#action=share https://www.youtube.com/watch?v=Y7VWyyZ6B0g#action=share
EULER AND MODIFIED EULER'S METHODS	https://www.youtube.com/watch?v=ht1Bo1PI3Vc#action=share
RUNGE-KUTTA METHOD	https://www.youtube.com/watch?v=bXrcpyREWM4#action=share

MILNE'S ADAM'S PREDICATOR- CORRECTOR METHODS	AND	https://www.youtube.com/watch?v=aLS27UG_Eyo#action=share
PARTIAL DIFFERENTIAL EQUATIONS		https://www.youtube.com/watch?v=2vYX1V8pXtw#action=share
FINITE DIFFERENCE SOLUTION TWO DIMENSIONAL LAPLACE EQUATION AND POISSON EQUATION		https://www.youtube.com/watch?v=vWiaOcTnOwo#action=share https://www.youtube.com/watch?v=d_snLGgfZZM#action=share https://www.youtube.com/watch?v=QxcMnQqe1ow#action=share https://www.youtube.com/watch?v=fLrNQQm9sfA#action=share https://www.math.ubc.ca/~peirce/M257_316_2012_Lecture_8.pdf http://www.iitg.ac.in/gtm/files/chap2.pdf http://www.egyankosh.ac.in/bitstream/123456789/12560/1/Unit-11.pdf
IMPLICIT AND EXPLICIT METHODS FOR ONE DIMENSIONAL HEAT EQUATION (BENDER-SCHMIDT AND CRANK- NICHOLSON METHODS),		https://www.youtube.com/watch?v=P5wAP5c4YxE#action=share https://www.youtube.com/watch?v=YnMWAA35Sh4#action=share https://www.youtube.com/watch?v=NyTsklFe3YU#action=share https://www.youtube.com/watch?v=IoILPEndTy4#action=share
FINITE DIFFERENCE EXPLICIT METHOD FOR WAVE EQUATION		http://www.iitg.ac.in/gtm/files/chap2.pdf http://www.egyankosh.ac.in/bitstream/123456789/12560/1/Unit-11.pdf

TRANSFORM CALCULUS (Module 4)

LAPLACE TRANSFORM	https://www.youtube.com/watch?v=sbDuvBc8m8M#action=share https://www.youtube.com/watch?v=1THkFmuIPXM#action=share
PROPERTIES OF LAPLACE TRANSFORM	https://www.youtube.com/watch?v=m7jH0jfRf2I#action=share https://www.youtube.com/watch?v=qI2zf4i7MHw#action=share https://www.youtube.com/watch?v=tkUXm1O88s#action=share https://www.youtube.com/watch?v=a4i_smxSIZE#action=share
LAPLACE TRANSFORM OF PERIODIC FUNCTIONS	https://www.youtube.com/watch?v=qFnoRfZknBY#action=share https://www.youtube.com/watch?v=48Q0G2RyS3I#action=share https://www.youtube.com/watch?v=CwUk9CssscY#action=share https://www.youtube.com/watch?v=paNgVuNEOlK#action=share
FINDING INVERSE LAPLACE TRANSFORM BY DIFFERENT METHODS	https://www.youtube.com/watch?v=ixJxe3j82Vc#action=share https://www.youtube.com/watch?v=NtoBY2vxSCA#action=share
CONVOLUTION THEOREM	https://www.youtube.com/watch?v=4kb4QeDQnFc#action=share
EVALUATION OF INTEGRALS BY LAPLACE TRANSFORM	https://www.youtube.com/watch?v=Tj-47QdFG_g#action=share
SOLVING ODES AND PDES BY LAPLACE TRANSFORM METHOD	https://www.youtube.com/watch?v=i4uYrbw2Www#action=share https://www.youtube.com/watch?v=9FxlLwQI9Yc#action=share https://www.youtube.com/watch?v=abiVk-6aJHg#action=share https://www.youtube.com/watch?v=pe0T9dmrsMo#action=share
FOURIER TRANSFORMS	https://www.youtube.com/watch?v=-Y_0FY-IDrI#action=share
LAPLACE TRANSFORM	https://www.youtube.com/watch?v=sbDuvBc8m8M#action=share https://www.youtube.com/watch?v=1THkFmuIPXM#action=share
PROPERTIES OF LAPLACE TRANSFORM	https://www.youtube.com/watch?v=m7jH0jfRf2I#action=share https://www.youtube.com/watch?v=qI2zf4i7MHw#action=share https://www.youtube.com/watch?v=tkUXm1O88s#action=share https://www.youtube.com/watch?v=a4i_smxSIZE#action=share
LAPLACE TRANSFORM OF PERIODIC FUNCTIONS	https://www.youtube.com/watch?v=qFnoRfZknBY#action=share https://www.youtube.com/watch?v=48Q0G2RyS3I#action=share https://www.youtube.com/watch?v=CwUk9CssscY#action=share https://www.youtube.com/watch?v=paNgVuNEOlK#action=share
FINDING INVERSE LAPLACE TRANSFORM BY DIFFERENT METHODS	https://www.youtube.com/watch?v=ixJxe3j82Vc#action=share https://www.youtube.com/watch?v=NtoBY2vxSCA#action=share
CONVOLUTION THEOREM	https://www.youtube.com/watch?v=4kb4QeDQnFc#action=share
EVALUATION OF INTEGRALS BY LAPLACE TRANSFORM	https://www.youtube.com/watch?v=Tj-47QdFG_g#action=share
SOLVING ODES AND PDES BY LAPLACE TRANSFORM METHOD	https://www.youtube.com/watch?v=i4uYrbw2Www#action=share https://www.youtube.com/watch?v=9FxlLwQI9Yc#action=share https://www.youtube.com/watch?v=abiVk-6aJHg#action=share https://www.youtube.com/watch?v=pe0T9dmrsMo#action=share
FOURIER TRANSFORMS	https://www.youtube.com/watch?v=-Y_0FY-IDrI#action=share