

## Lesson Plan for 3<sup>rd</sup> sem Students (New syllabus 2018 onwards)

Sub:- Eng Math-III

Full mark-100 No of periods-60

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PERIOD NO	TOPICS	SUB TOPICS
1	<b>COMPLEX NUMBER</b>	INTRODUCTION OF IMAGINARY NUMBER $i$ AND COMPLEX NUMBERS . CONJUGATE , MODULUS OF A COMPLEX NUMBER.
2		GEOMETRICAL REPRESENTATION OF COMPLEX NUMBER .
3		DETERMINATION OF AMPLITUDE OF COMPLEX NUMBER.
4		PROPERTIES OF COMPLEX NUMBER AND PROBLEM ON IT.
5		CONVERSION OF COMPLEX NUMBER TO ITS POLAR FORM.
6		DETERMINATION OF RECIPROCAL OF A COMPLEX NUMBER.
7		SQUARE ROOT OF A COMPLEX NUMBER.
8	<b>MATRICES</b>	SQUARE ROOT OF A COMPLEX NUMBER.CUBE ROOTS OF UNITY AND PROBLEM ON IT.
9		STATE DEMOVIRE'S THEOREM AND PROBLEMS ON IT.
10		PROBLEMS ON DEMOVIRE'S THEOREM.
11		MATRICES AND TYPES OF MATRICES. SUBMATRIX AND RANK OF A MATRIX
12		DETERMINATION OF RANK OF MATRIX USING DEFINITION.ELEMENTARY ROW/COLUMN OPERATIONS.ROW REDUCED ECHELON FORM.
13		DETERMINATION OF RANK OF A MATRIX BY REDUCING IT TO ITS ECHELON FORM
14	<b>DIFFERENTIAL EQUATION</b>	STATE ROUCHE'S THEOREM FOR CONSISTENCY OF A SYSTEM . TESTING CONSISTENCY AND SOLVE SYSTEM OF LINEAR EQUATION.
15		SOLVING PROBLEM OF LINEAR SYSTEM OF EQUATION IN 3 VARIABLES.
16		SOLVING LINEAR SYSTEM OF EQUATION
17		DEFINATION OF HOMOGENOUS AND NON HOMOGENOUS DIFF EQUATION WITH CONSTANT COEFFICIENT WITH EXAMPLES.
18		DETERMINATION OF C.F. OF DIFF EQUATION. DETERMINATION OF P.I. INTERMS OF OPERATOR $D$ , FOR DIFFERENT FUNCTION.
19		DETEMINATION OF PI FOR DIFFERENT FUNCTIONS
		SOLUTION OF DIFF EQUATION.
		SOLVING PROBLEMS OF DIFF EQUATION
		DEFINE PARTIAL DIFFERENTIAL EQUATION . FORMATION OF PDE BY ELIMINATING ARBITRARY CONSTANTS AND FUNCTIONS.

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21		SOLVING PDE IN THE FORM $Pp+Qq=R$
22		SOLVING PDE BY LAGRANGE'S MULTIPLIER METHOD
23		SOLUTION OF PDE
24	LAPLACE TRANSFORM	REVISION OF COMPLEX NUMBER, MATRIX, ODE AND PDE DOUBT CLEARING
25		DEFINE GAMMA FUNCTION. EVALUATION OF GAMMA FUNCTION AT $1/2$ AND NATURAL NUMBERS. CALCULATION OF GAMMA FUNCTION AT DIFFERENT POINTS USING RECURRENCE RELATION
26		LAPLACE TRANSFORMATION, EXISTENCY OF LT, FORMULAS FOR LT OF SOME STANDARD FUNCTIONS
27		1 <sup>ST</sup> SHIFTING THEOREM AND PROBLEM ON IT, FORMULAS ON MULTIPLICATION BY $t^n$ and division by $t$ , FORMULAS ON DERIVATIVE AND INTEGRATION OF FUNCTION
28		FINDING LT OF FUNCTIONS USING FORMULAS
29		FINDING LT OF FUNCTIONS USING FORMULAS
30		DEFINE INVERSE LT OF STANDARD FUNCTIONS AND FINDING INVERSE LT OF SOME FUNCTIONS
31		INTRODUCTION TO PARTIAL FRACTION METHOD FOR FINDING INVERSE LT
32		FINDING INVERSE LT BY PF METHOD
33		STATE REVERSE OF 1 <sup>ST</sup> SHIFTING AND OTHER FORMULAS ON LT, SOLVING PROBLEM ON IT
34		SOLVING PROBLEM ON INVERSE LT.
35		SOLVING PROBLEM ON INVERSE LT USING FORMULAS.
36		PRACTICING PROBLEMS ON LT AND DOUBT CLEARING.
37	FOURIER SERIES	CLASS TEST ON MATRICES, COMPLEX NUMBER, DIFF EQUATION AND LT.
38		PERIODIC FUNCTION. EXPLANATION OF GENERALISED BY PARTS RULE AND SOME TRIGONOMETRIC FORMULAS. DEFINE FOURIER SERIES AND EULER'S FORMULA FOR FINDING FOURIER COEFFICIENTS.
39		DETERMINE FOURIER SERIES OF FUNCTIONS. DETERMINATION OF FOURIER SERIES OF ODD AND EVEN FUNCTIONS.
40		DISCUSSION OF PROBLEMS OF FOURIER SERIES
41		DISCUSSION OF PROBLEMS OF FOURIER SERIES. STATE DIRICHLET'S CONDITION FOR FINDING CONVERGENCY OF A FOURIER SERIES. FIND FOURIER SERIES OF FUNCTIONS HAVING SOME POINTS OF DISCONTINUITY.
42		DISCUSSION OF PROBLEMS OF FOURIER SERIES OF FUNCTIONS HAVING DISCONTINUITIES.
43		DISCUSSION OF PROBLEMS OF FOURIER SERIES OF FUNCTIONS HAVING DISCONTINUITIES
		REVISION OF FOURIER SERIES CHAPTER WITH PRACTICING MORE PROBLEMS.

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44	NUMERICAL METHODS	DISCUSSION OF LIMITATION OF AN ANALYTICAL METHOD OF SOLUTION OF ALGEBARIC EQUATION AND INTRODUCTION OF NUMERICAL METHODS. EXPLANATION OF BISECTION METHOD.
45		PROBLEMS ON BISECTION METHOD.
46		EXPLANATION OF NEWTON RAPHSON METHOD AND DISCUSSION OF PROBLEM.
47		DISCUSSION OF PROBLEMS ON NEWTON RAPHSON METHOD.
48		EXPLANATION OF FINITE DIFFERENCES AND FORM TABLE OF FORWARD AND BACKWARD DIFFERENCE. DEFINE SHIFT OPERATOR AND STATE RELATIONSHIPS BETWEEN DIFFERENT OPERATOR.
49		DEFINE INTERPOLATION AND FIND MISSING VALUES FORM TABLE.
50		STATE NEWTON'S FORWARD AND BACKWARD INTERPOLATION FORMULA FOR EQUISPACED INTERVALS AND SOLVE PROBLEM ON THEM
51		SOLVE PROBLEMS OF FORWARD AND BACKWARD INTERPOLATION.
52		STATE LAGRANGE'S INTERPOLATION FORMULA FOR UN EQUAL INTERVALS AND PRACTICE PROBLEM ON IT.
53		PRACTICING PROBLEMS ON INTERPOLATION AND DOUBT CLEARING.
54		EXPLAIN NUMERICAL INTEGRATION. STATE NEWTON COTE'S FORMULA. STATE TRAPEZOIDAL RULE AND COMPOSITE TRAPEZOIDAL RULE.
55		FIND INTERGRATIONS USING COMPOSITE TRAPEZOIDAL RULE.
56		STATE SIMPSON'S 1/3 RULE AND COMPOSITE 1/3 RULE AND SOLVE PROBLEM ON IT.
57		SOLVE PROBLEMS OF NUMERICAL INTERGRATION AND DOUBT CLEARING.
58	TEST	TEST ON LAPLACE TRANSFORM
59		TEST ON FOURIER SERIES
60		TEST ON NUMERICAL METHODS.

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