

GOPAL KRISHNA COLLEGE OF ENGINEERING&TECHNOLOGY
GOURAHARI VIHAR, PO: RANIPUT, JEYPORE – 764 005

LESSON PLAN

Name of the Subject: Mathematics-II

Name of the Faculty: Mohit Kumar Aruk

Semester: 2nd Semester

Branch: All

Semester From: feb to april

No. of Weeks: 14 Weeks

Week	Day	Theory/ Practical Topics	Classes
		Unit 1 – FIRST ORDER ODE :	10
1	1	Exact ODE and ordinary differential equation.	1
	2	Integrating factors.	1
	3	Linear first order ODEs	1
	4	Linear first order ODE and 2 nd order differential equation	1
2	5	Nonlinear first order ODE	1
	6	Bernoulli's equations	1
	7	Bernoulli's equations and application	1
	8	Applications to Population growth	1
	9	Newton's law of cooling	1
	10	RL circuit.	1
		Unit 2- SECOND ORDER ODE:	08
3	11	Second order linear equation.	1
	12	Second order linear differential equations	1
	13	Second order linear differential equations with constant coefficients	1
	14	Euler-Cauchy equations	1
4	15	method of undetermined coefficients,	1
	16	,Solution by variation of parameters	1
	17	. Power series solutions of ODEC	1
	18	Legendre's equations (explicit solution only)	1
		. Unit-3 VECTOR CALCULUS :	08
6	19	Vector and Scalar Functions	1
	20	Scalar Functions and Fields,	1
7	21	Derivatives,	1
	22	Gradient of a Scalar Field,	1
	23	, Directional Derivative and applications.	1

	24	, Divergence of a Vector Field	1
8	25	Curl of a Vector Field,	1
	26	, Line Integrals, Path Independence of Line Integrals,	1
	27	Double Integrals, Green's Theorem in the Plane (Statement and	1
		Unit 4 – COMPLEX ANALYSIS :	09
9	28	Limit, Continuity,	1
	29	,Derivative	1
	30	, Analytic Function	1
	31	Cauchy-Riemann Equations	1
11	32	Laplace's Equation,	1
	33	Exponential Function	1
	34	Trigonometric functions	1
	35	Trigonometric functions and equation.	1
	36	logarithm functions	1
		Unit 5-:	10
12	37	Line Integral .	1
	38	Line Integral in the Complex Plane,	1
	38	, Cauchy's Integral Theorem,	1
	39	Cauchy's Integral Formula,	1
13	40	Derivatives	1
	41	Derivatives of Analytic Functions,	1
	42	Laurent series and with examples	1
	43	, Residue	1
14	44	Residue theorem.	1
	45	Residue theorem with simple problems	1

RECOMMENDED BOOKS

1. G.B. Thomas and R.L. Finney, Calculus and Analytic geometry, 9th Edition, Pearson, 2002.
 2. Erwin Kreyszig, Advanced Engineering Mathematics, 10th Edition, John Wiley & Sons, 2006.
- Supplementary Reading:**
1. E.M. Stein, Fourier Analysis: An Introduction (Princeton Lectures in Analysis)
 2. Veerarajan T., Engineering Mathematics for first year, Tata McGraw-Hill, New Delhi, 2008.
 3. S. L. Ross, Differential Equations, 3rd Edition, Wiley India, 1984.
 4. E. A. Coddington, An Introduction to Ordinary Differential Equations, Prentice Hall India, 1995.
 5. N.P. Bali and Manish Goyal, A text book of Engineering Mathematics, Laxmi Publications, Reprint, 2008.