GENERAL DEPARTMENT
GOVERNMENT ENGINEERING COLLEGE, DAHOD
B.E. 2 SEM (All Branches) - EVEN SEMESTER: 2023-24

Subject: Mathematics-II (3110015)

MID semester Exam Syllabus

1	Laplace Transform and inverse Laplace transform, Linearity, First Shifting Theorem (s-Shifting), Transforms of Derivatives and Integrals, ODEs, Unit Step Function (Heaviside Function), Second Shifting Theorem (t-Shifting), Laplace transform of periodic functions, Short Impulses, Dirac's Delta Function, Convolution, Integral Equations, Differentiation and Integration of Transforms, ODEs with Variable Coefficients, Systems of ODEs. Fourier Integral, Fourier Cosine Integral and Fourier Sine Integral.	CO1
2	First order ordinary differential equations, Exact, linear and Bernoulli's equations, Equations not of first degree: equations solvable for p, equations solvable for y, equations solvable for x and Clairaut's type.	CO2
3	Vector Calculus: Parametrization of curves, Arc length of curve in space, Line Integrals, Vector fields and applications as Work, Circulation and Flux, Path independence, potential function, piecewise smooth, connected domain, simply connected domain, fundamental theorem of line integrals, Conservative fields, component test for conservative fields, exact differential forms, Div, Curl, Green's theorem in the plane	CO3
	Reference Books: 1. Erwin Kreyszig, Advanced Engineering Mathematics, 10th Edition, John Wiley and Sons. 2. Peter O'Neill, Advanced Engineering Mathematics, 7th Edition, Cengage. 3. Dennis G. Zill, 4th edition, Advanced Engineering Mathematics, 4th Edition, Jones and Bartlett Publishers. 4. Maurice D. Weir, Joel Hass, Thomas' Calculus, Early Transcendentals, 13e, Pearson, 2014. 5. Howard Anton, Irl Bivens, Stephens Davis, Calculus, 10e, Wiley, 2016.	

CO-1	To apply the Laplace transform as tools which are used to solve differential equations and fourier integral representation.
CO-2	To apply effective mathematical tools for the solutions of first order and higher order ordinary differential equations.
CO-3	To apply mathematical tools needed in evaluating vector calculus and their usage like Work, Circulation and Flux.

CO	CO1	CO2	CO3	Total
Weightage	13	07	10	30

Bloom's Taxonomy level	R	U	A	N	E	C
As per GTU	10	15	35	0	0	0
Actual	9	13	28	0	0	0