

	SLO-2	Solution of first order non-linear partial differential equations-standard type III $F(x, p, q) = 0$	Fourier series -half range sine series related problems $(0, \pi)$	One dimensional Wave Equation-initial displacement with non-zero initial velocity Type 2 Trigonometric function	Fourier sine Transforms applications	Initial value theorem
	SLO-1	Solution of first order non-linear partial differential equations-standard type-IV separation of variable f(x, p) = g(y, q)	Fourier series-half range sine series related problems $(0, l)$	Wave Equation-initial displacement with non-zero initial velocity Type 3 split function	Properties of Fourier cosine Transforms	Final value theorem
	SLO-2	Lagrange's linear equation: Method of grouping	Parseval's Theorem (without proof)-related problems in Fourier series	One dimensional heat equation and its possible solutions	Fourier cosine Transforms applications	Inverse Z-transform- long division method
	SLO-1	Lagrange's linear equation: Method of multipliers	Parseval's Theorem (without proof)-related problems in cosine series	One dimensional heat equation related problems	Convolution of two function	Inverse Z-transform, related problems, long division method
	SLO-2	More problems in Lagrange's linear equation: Method of multipliers	Parseval's Theorem (without proof)-related problems in sine series	One dimensional heat equation -Steady state conditions	Convolution Theorem	Inverse Z-transform, Partial fraction method
	SLO-1	Problem solving using tutorial sheet 2	Problem solving using tutorial sheet 5	Problem solving using tutorial sheet 8	Problem solving using tutorial sheet 11	Problem solving using tutorial sheet 14
	SLO-2	Linear Homogeneous partial differential equations of second and higher order with constant coefficients-C-F and P1 Type 1: e^{ax+by}	Introduction to Harmonic Analysis	One dimensional heat equation -Steady state conditions more problems	Parseval's Identity for Fourier transform	Inverse Z-transform, Partial fraction method related problems
	SLO-2	P1 Type2: $\sin(ax+by)$ or $\cos(ax+by)$	Harmonic Analysis for finding harmonic in $(0, 2\pi)$	One dimensional heat equation -Steady state conditions with zero velocity	Parseval's Identity for Fourier sine & cosine transforms	Inverse Z-transform - residue theorem method
	SLO-1	Type 3: P1 of polynomial	Harmonic Analysis for finding harmonic in $(0, 2l)$	One dimensional heat equation -Steady state conditions with zero velocity more problems	Parseval's Identity for Fourier sine & cosine transforms applications	Inverse Z-transform - residue theorem method-problems
	SLO-2	Type 4 Exponential shifting $e^{ax+by} f(x, y)$	Harmonic Analysis for finding harmonic in periodic interval $(0, T)$	One dimensional heat equation -Steady state conditions with zero velocity more related problems	Fourier Transforms Using Differentiation	Convolution theorem (without proof)
	SLO-1	Linear Homogeneous partial differential equations of second and higher order with constant coefficients type 3 General rule	Harmonic Analysis for finding cosine series	Steady state conditions and Non-zero boundary conditions- related problems	Solving integral equation	Convolution theorem applications
	SLO-2	Applications of Partial differential equations in Engineering	Harmonic Analysis for finding sine series	Steady state conditions and Non-zero boundary conditions- more problems	Self-reciprocal using Fourier Transform, sine and cosine transform	Solution of linear difference equations with constant coefficients using Z-transform
	SLO-1	Problem solving using tutorial sheet 3	Problem solving using tutorial sheet 6	Problem solving using tutorial sheet 9	Problem solving using tutorial sheet 12	Problem solving using tutorial sheet 15
	SLO-2	Problem solving using tutorial sheet 3	Problem solving using tutorial sheet 6	Problem solving using tutorial sheet 9	Problem solving using tutorial sheet 12	Problem solving using tutorial sheet 15

Learning Resources
 1. B. H. Erwin Keyzsz, *Advanced Engineering Mathematics, 10th Edition*, John Wiley & Sons, 2006
 2. B.S Grewal, *Higher Engineering Mathematics*, Khanna Publishers, 43rd Edition, 2013
 3. Veerarajan T., *Transforms and Partial Differential Equations*, Tata McGraw-Hill, New Delhi, 2012
 4. Ramana B.V., *Higher Engineering Mathematics*, Tata McGraw Hill New Delhi, 3rd Edition, 2010
 6. N.P. Balli and Manish Goyal, *A text book of Engineering Mathematics, for third semester, Laxmi Publications, 3rd Edition, 2014*

Learning Assessment		Continuous Learning Assessment (50% weightage)								Final Examination (50% weightage)	
Level of	Bloom's	CLA – 1 (10%)		CLA – 2 (15%)		CLA – 3 (15%)		CLA – 4 (10%)#		Theory	
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice		
Level 1	Remember	40 %	-	30 %	-	30 %	-	30 %	-	30%	-
Level 2	Apply	40 %	-	40 %	-	40 %	-	40 %	-	40%	-
Level 3	Evaluate	20 %	-	30 %	-	30 %	-	30 %	-	30%	-
	Create										
	Total	100 %		100 %		100 %		100 %		100%	

CLA - 4 can be from any combination of these: Assignments, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, MOOCs, Certifications, Conf. Paper etc.,

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