

SWARNANDHRA

COLLEGE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF MATHEMATICS

TEACHING PLAN

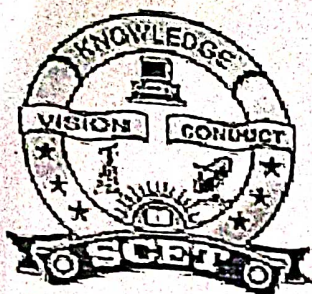
Course Code	Course Title	Semester	Branches	Contact Periods/Weeks	Academic Year	Date of commencement of Semester
20MA3T04	TRANSFORM TECHNIQUES	III	EEE	54 /16	2021-22	25-10-2021

COURSE OUTCOMES

At the end of the course, the student will be able to

- 1 CO1:solve many problems in engineering with the knowledge of Laplace transforms (K3)
- 2 CO2:apply the Inverse Laplace transforms for different types of functions(K3)
- 3 CO3: express a function as a Fourier series (K3)
- 4 CO4: state how the Fourier Transforms of a function depends on whether that function is even or odd or neither.(K3)
- 5 CO5:solve the problems on Z-transforms and Fourier transforms (K1, K3)

UNIT	OutComes / Bloom'sLevel	Topics No.	Topics/Activity	Text Book/ Reference	Cont act Hour	Delivery Method	
I	CO1: solve many problems in engineering with the knowledge of Laplace transforms (K3)	Unit I: Laplace Transforms					Chalk & Talk, Active Learning, PPT & Tutorial
		1.1	Introduction – definition	T1, R1& R2	1		
		1.2	conditions for the existence	T1, R1& R2	1		
		1.3	Laplace transforms of elementary functions	T1, R1& R2	1		
		1.4	Laplace transforms of elementary functions and related problems	T1, R1& R2	1		
		1.5	Properties of Laplace transforms	T1, R1& R2	1		
		1.6	Laplace Transforms of derivatives and related problems	T1, R1& R2	1		
		1.7	Laplace Transforms of integrals and related problems	T1, R1& R2	1		
		1.8	Multiplication by t^n	T1, R1& R2	1		
		1.9	Division by t	T1, R1& R2	1		
		1.10	Evaluation of integrals by Laplace transforms	T1, R1& R2	1		
12							
II	CO2:apply the Inverse Laplace transforms for different types	Unit II:Inverse Laplace Transforms					
		2.1	Introduction – definition	T1, R1& R2	1		
		2.2	Method of partial fractions	T1, R1& R2	1		



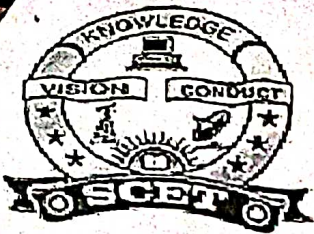
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	of functions(K3)	2.3	Other methods of finding inverse transforms	T1, R1& R2	1				
			Practice problems	T1, R1& R2	1				
		2.4	Convolution theorem	T1, R1& R2	1				
			Practice problems	T1, R1& R2	1				
		2.5	Application to differential equations	T1, R1& R2	1				
			Practice problems	T1, R1& R2	1				
		Total					12		
		III	CO3: express a function as a Fourier series (K3)	3.1	Unit- III Fourier Series			Chalk & Talk, Active Learning, PPT & Tutorial	
					Definition, Euler's formulae, Conditions for Fourier expansion		T1, R1& R2		1
				3.2	Functions having points of discontinuity		T1, R1& R2		1
Practice problems	T1, R1& R2				1				
3.3	Change of interval			T1, R1& R2	1				
	Practice problems			T1, R1& R2	1				
3.4	Expansions of odd and even periodic functions			T1, R1& R2	1				
	Practice problems			T1, R1& R2	1				
3.5	Half- range series			T1, R1& R2	1				
					1				
Total					12				
IV	CO4: state how the Fourier Transforms of a function depends on whether that function is even or odd or neither. (K3)			Unit IV: Fourier Transforms					Chalk & Talk, Active Learning, PPT & Tutorial
		4.1	Introduction, Definition, Fourier integrals- Fourier Sine and cosine integrals	T1, R1& R2	1				
			Practice problems	T1, R1& R2	1				
		4.2	Fourier Transforms	T1, R1& R2	1				
			Practice problems	T1, R1& R2	1				
		4.3	Fourier Sine Transforms	T1, R1& R2	1				
		4.4	Fourier Cosine Transforms	T1, R1& R2	1				
			Practice problems	T1, R1& R2	1				
4.5	Properties of Fourier Transforms	T1, R1& R2	1						
4.6	Convolution theorem for Fourier	T1, R1& R2	1						



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		Transforms				
		Unit V: Z- transforms	Total	9		
V	CO5:solve the problems on Z-transforms and Fourier transformis (K1, K3)	5.1	Introduction – definition, some standard Z-transforms	T1, R1& R2	1	Chalk & Talk, Active Learning, PPT & Tutorial
		5.2	Properties – Linearity property	T1, R1& R2	1	
		5.3	Damping rule, shifting rules	T1, R1& R2	1	
		5.4	Multiplication by n	T1, R1& R2	1	
		5.5	Initial and final value theorems	T1, R1& R2	1	
		5.6	Convolution theorem	T1, R1& R2	1	
		5.7	Inverse Z-transforms by Partial fraction method	T1, R1& R2	1	
		5.8	Evaluation of inverse Z-transforms by other methods	T1, R1& R2	1	
		5.9	Application to difference equations	T1, R1& R2	1	
Total				9		

CUMULATIVE PROPOSED PERIODS **54**

Text Books:

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	T1: B. S. Grewal, Higher Engineering Mathematics, 42/e, Khanna Publishers, 2012.

Reference Books:

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	R1: Erwin Kreyszig, Advanced Engineering Mathematics, 9/e, John Wiley & Sons, 2013.
2	R2: N.P. Bali and Manish Goyal, A text book of Engineering Mathematics, Laxmi Publications, 2008.

Web Details

1	Second Semester Math.pdf (nitsri.ac.in)
2	fouriertransform.pdf (umn.edu)
3	laplace.pdf (stanford.edu)
4	ilaplace.pdf (unl.edu)
5	Chapter 6 - The Z-Transform (narod.ru)

S.No.		Name	Signature with Date
i.	Faculty	Dr. S. Dharaja Devi (EEE)	
ii.	Course Coordinator	Dr. S. Dharaja Devi	
iii.	Module Coordinator	Mr. Ch. Peddi Raju	
iv.	HOD of Mathematics	Dr. S. Dharaja Devi	

Principal