

III Semester

PDA COLLEGE OF ENGINEERING, KALABURAGI B E. Third Semester Engineering Mathematics for Electrical & Electronics Engineering Stream-III [As per Choice Based Credit System (CBCS) scheme] (From the academic year 2022-23)				
	Course Code	22MATE31	CIE Marks	50
	Credits	03	SEE Marks	50
	Contact Hours/Week (L-T-P)	3-0-0	Total Marks	100
	Contact Hours	42	Exam Hours	03
<p>Course Learning Objectives: To enable the students to obtain the knowledge of Engineering Mathematics in the following topics</p> <ol style="list-style-type: none"> 1. Z-transforms, Fourier Series, Fourier transforms and its application in engineering fields 2. Probability distribution of discrete and continuous random variables 3. Joint probability distributions and discrete and continuous random variables 				
<p style="text-align: center;">Module-I 9hours</p> <p>Difference equations and Z-Transforms :</p> <p>Difference equations –Basic definitions, Z-Transform-Definitions, standard Z-transform, linearity property, damping rule, shifting rule, initial value theorem, final value theorem. Inverse Z-Transform and applications.</p> <p>RBT Levels: L1, L2 & L3</p>				
<p style="text-align: center;">Module-II 8 hours</p> <p>Fourier series:</p> <p>Periodic functions, Fourier series with periods $(0, 2\pi)$, $(-\pi, \pi)$, $(0, 2l)$ and $(-l, l)$. Half range Fourier series, Practical harmonic analysis and problems.</p> <p>RBT Levels: L1, L2 & L3</p>				
<p style="text-align: center;">Module-III 9 hours</p> <p>Fourier Transform:</p> <p>Finite and Infinite Fourier transforms, Fourier sine and cosine transforms, properties, Inverse Fourier transforms and problems</p> <p>RBT Levels: L1, L2 & L3</p>				

Module –IV		8 hours
Probability distributions:		
Random variable (Discrete and continuous) p.d.f., c.d.f., Binomial distribution, Poisson distributions, Normal distribution and problems.		
RBT Levels: L1, L2 & L3		
Module –V		8 hours
Joint probability distributions:		
Concept of joint probability distribution, discrete and continuous random variables independent random variables .problems on expectation and variance		
RBT Levels: L1, L2 & L3		
<p>Text books:</p> <p>1 Higher Engineering Mathematics by B.S.Grewal, Khanna publishers; 40th Edition.2007</p> <p>2 Engineering Mathematics by N. P. Bali and Manish Goyal. Laxmi publications, latest edition</p> <p>Reference books:</p> <p>1.Advanced Engineering Mathematics by E. Kreyszig, John Willey & sons 8th Edn.</p> <p>2.A short course in differential equations – Rainville E.D.9th Edition.</p> <p>3.Advanced Engineering Mathematics by R.K.Jain & S.R.K Iyengar; Narosa publishing House.</p> <p>4.Introductory methods of numerical analysis by S.S.Sastry</p> <p>4. Statistical Methods Authored By Gupta S.P. Publisher: Sultan Chand & Sons. Publishing Year: 2021</p> <p>5. Fundamentals of Mathematical Statistics Authored By Gupta S.C.& Kapoor V.K. Publisher:Sultan Chand & Sons.Publishing Year: 2020</p>		

<p>Course Outcomes: On completion of this course, students are able to:</p> <p>CO1: Understanding the characteristics and properties of the Z-transform</p> <p>CO2: Construction of Fourier series for periodic signals and Fourier series to analyze circuits.</p> <p>CO3: Determine Fourier transformation for continuous time signals and systems</p> <p>CO4: : Solve problems using theoretical probability distributions</p> <p>CO5: Apply the concepts of joint probability, to find covariance, correlation, independent variables</p>
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