

Subject: Mathematics – III

Semester-III /IV

Web-links from NPTEL (As per the prescribed syllabus by the University)

Section I:		
Fourier Series		
S. No	Topics	NPTEL links
1	Euler's Formulae and Conditions for a Fourier expansion , Change of Interval	http://nptel.ac.in/courses/122107037/24
2	Fourier expansion of odd and even functions, Half range sine, cosine series, Square Wave form and Triangular Waveform etc.	http://nptel.ac.in/courses/122107037/25
Fourier Transform		
3	Fourier integral , Fourier transform, Fourier Transforms of derivatives, Convolution Theorem	http://nptel.ac.in/courses/122107037/28#tab2
SECTION –II:		
Functions of Complex Variable		
1	Definition, Exponential function, Trigonometric and Hyperbolic Functions	http://nptel.ac.in/courses/122107036/1
2	Limit of a Function	http://nptel.ac.in/courses/122101003/4
3	Continuity of A Function, Continuity in a Region	http://nptel.ac.in/courses/122104017/5 http://nptel.ac.in/courses/122101003/6
4	Differentiability	http://nptel.ac.in/courses/122104017/8
5	Analytic Function:- Necessary and Sufficient Conditions For $f(z)$ to be Analytic	
6	Cauchy-Riemann Equations in polar Coordinates, Harmonic Functions, Orthogonal System	
7	Complex Integration	http://nptel.ac.in/courses/122107036/1
8	Contour Integration	http://nptel.ac.in/courses/122107036/2
9	Cauchy's Integral theorem	http://nptel.ac.in/courses/122107036/3
10	Cauchy's Integral Formula	http://nptel.ac.in/courses/122107036/4
11	Application of Cauchy's Integral Formula	http://nptel.ac.in/courses/122107036/5

12	Integration of complex function	http://nptel.ac.in/courses/122107036/2	
13	Cauchy-Integral theorem and formula	http://nptel.ac.in/courses/122107036/3 http://nptel.ac.in/courses/122107036/4	
Section –III :			
Power Series and Contour Integration			
1	Power series, radius and circle of convergence of power series	http://nptel.ac.in/courses/122104017/16	
2	Taylor's and Maclaurin's series	http://nptel.ac.in/courses/122107036/35	
3	Laurent's series of complex functions	http://nptel.ac.in/courses/122107036/36	
4	Zeros and singularities of complex functions	http://nptel.ac.in/courses/122107036/6	
5	Residues, Residues theorem	http://nptel.ac.in/courses/122107036/8	
Probability Theory			
6	Basic Concepts of Probability	http://nptel.ac.in/courses/111105041/3	
7	Probability Distributions, Conditional probability	http://nptel.ac.in/courses/111105041/4	
8	Baye' s theorem and its applications	http://nptel.ac.in/courses/111105041/5	
9	Random Variables:- Discrete and Continuous Probability Distribution	http://nptel.ac.in/courses/111105041/7	
10	Theoretical Distribution:-Binomial Distribution and its properties	http://nptel.ac.in/courses/111105041/8	
11	Poisson Distribution and its properties	http://nptel.ac.in/courses/111105041/9	
12	Normal Distribution	http://nptel.ac.in/courses/111105041/10	
Section IV			
Testing of Hypothesis			
1	Introduction to the Testing of a and Basic Concepts	http://nptel.ac.in/courses/111105041/33	
2	Testing of Significance for Large Samples	http://nptel.ac.in/courses/111105041/34	
3	Testing of Significance of Small Samples- t-Test Distribution	http://nptel.ac.in/courses/111105041/36	
4	Chi- Square Test, Degree of Freedom	http://nptel.ac.in/courses/111105041/37	
5	Chi-Square Test as a Test of Goodness of Fit	http://nptel.ac.in/courses/111105041/39	
6	Chi- Square Test as a Test of Independence	http://nptel.ac.in/courses/111105041/40	

Linear Programming

7	Introduction to Linear Programming problems and formulation	http://nptel.ac.in/courses/111104027/1	
8	Solving linear programming problems using Simplex method and Tie for the Incoming Problems	http://nptel.ac.in/courses/111104027/9	
9	Big-M Method, Graphical Solutions	http://nptel.ac.in/courses/111104027/10	
10	Solving linear programming problems using Dual simplex method	http://nptel.ac.in/courses/111104027/12	