CH211	TRANSFORMS, PROBABILITY AND STATISTICS	L	T	P	C	Int	Ext
		2	1	-	3.0	30	70

Semester III [Second Year]

COURSE OBJECTIVES:

1. To enlighten the learners in the concept of transforms and Probability & Statistics
2. To equip the learners with standard concepts and tools at an intermediate to advanced level that will serve they well towards tackling various problems in the discipline

COURSE OUTCOMES:

After successful completion of the course, the students are able to

1. Evaluate Laplace and inverse transform of functions
2. Find half range sine, cosine, Fourier and inverse transform of given functions
3. Determine probability of discrete distributions and best fit of given data
4. Interpret data using correlation, regression and testing of hypothesis

UNIT I [CO:1] **(12)**

Laplace Transforms

Definition, Properties of Laplace transforms (without proofs), transforms of derivatives, transforms of integrals, multiplication by division by t, evaluation of integrals.

Inverse Laplace transforms-method of partial fractions, other method of finding inverse transforms: Convolution theorem.

UNIT II [CO:2] **(12)**

Fourier series and Transforms:

Fourier series: Half range cosine and sine series.

Definition, Fourier transform, Fourier sine and cosine transforms. Inverse Fourier transform, Inverse Fourier sine and cosine transforms.

UNIT III [CO:3] **(12)**

Probability Distributions and Statistics:

Binomial distribution, Poisson distribution, Normal distribution.

Curve fitting by method of least squares-fitting of a straight line, second degree parabolas and more general curves.

UNIT IV [CO:4] **(12)**

Correlation, Rank correlation and Regression.

Testing of Hypothesis: Small sample test: single and two means (t-test), large sample test: Single mean, difference of means.

LEARNING RESOURCES:

TEXT BOOK:

B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers

REFERENCE BOOK(s):

1. Miller & FreundÃ¢â‚¬â„¢s, Probability and Statistics for Engineers- Richard A. Johnson
2. Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons, 10th Edition, 2018.

WEB RESOURCES:

http://nptel.iitm.ac.in/courses/