# PET6J014  TELE COMMUNICATION SYSTEM MODELING AND SIMULATION

## MODULE-I

**Simulation methodology-** Introduction, Aspects of methodology, Performance Estimation, Sampling frequency, Low pass equivalent models for band pass signals, multicarrier signals, Non-linear and time varying systems, Post processing, Basic Graphical techniques and estimations

## MODULE-II

**Simulation of random variables random process-** Generation of random numbers and sequence, Gaussian and uniform random numbers Correlated random sequences, Testing of random numbers generators, Stationary and uncorrelated noise, Goodness of fit test.

## MODULE-III

**Modelling of communication systems-** Radio frequency and optical sources, Analog and Digital signals, Communication channel and models, Free space channels, Multipath channel and discrete channel noise and interference.

## MODULE-IV

Quality of estimator, Estimation of SNR, Probability density function and bit error rate, Monte Carlo method, Importance sampling method, Extreme value theory.

## ADDITIONAL MODULE (TERMINAL EXAMINATION-INTERNAL)

Simulation and modeling methodology- Simulation environment, Modelling considerations, Performance evaluation techniques, error source simulation, Validation

## TEXT BOOKS

1. Simulation of communication Systems: Modeling, Methodology and Techniques, MC. Jeruchim, P.Balaban and Sam K Shanmugam, , Plenum Press, New York, 2001.

## REFERENCE BOOKS

1. Simulation Modeling and Analysis, Averill.M.Law and W. David Kelton, McGraw Hill Inc., 2000.
2. System Simulation, Geoffrey Gorden, 2nd Edition, Prentice Hall of India, 1992.
3. Performance Analysis of Digital Communication Systems,W.Turin, Computer Science Press, New York, 1990.
4. Discrete Event System Simulation, Jerry banks and John S.Carson, Prentice Hall of India, 1984
5. Principles of Communication Systems Simulation, William H. Tranter, K. Sam shanmugam, Theodore S. Rappaport, K. KurtL. Kosbar, Pearson Education (Singapore) Pvt Ltd, 2004. .