

MT-523	Simulation and Modelling
	<p><u>Introduction to Modelling and Simulation:</u> System Concepts, System modelling, Mathematical Models, Nature and Assumptions, Continuous and Discrete System, Steps in Model Development.</p> <p><u>Generation of Random Variables:</u> Uniform random generators, Testing of uniform random generators, Methods of generating non-uniform variables, Inversion, Rejection, Composition, Special cases.</p> <p><u>Generation of Multivariate:</u> Autoregressive models for stationary processes, Autoregressive models for seasonal data, Autoregressive moving average models.</p> <p><u>Queuing Systems and Markov Chains:</u> Poisson Process, FIFO Systems, Priority Queuing Systems, Applications, Chapman-Kolmogorov Equations, Regular Markov chains, Applications</p> <p><u>Analysis of Simulation Output and Simulation Languages:</u> Estimation methods, Simulation statistics, Replication of runs, Eliminations of initial bias, Basic concepts of simulation languages, Discrete modelling and simulation with GPSS, Continuous simulation languages</p> <p><u>Reference Books:</u></p> <ol style="list-style-type: none"> 1. Misra J. C, <i>Computational Mathematics, Modelling and Algorithm</i>, Narosa , 2003 2. Lawand A. M and Kelton W. David, <i>Simulation Modelling and Analysis</i>, 3rd Edition, McGraw-Hill Companies, 2000