**M.Tech(IT) : Group B**
**Paper Code : MT31B**
**Paper Title: Simulation and Modeling**

**Syllabus**

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**1: Basic Simulation Modeling**
The concepts of a system, System environment, System modeling, Types of models, Static physical models, Dynamic physical models, Principle used in modeling

**2: Probability concept in Simulation**
Stochastic variables, Probability function, Discrete probability function, Continuous probability function, Computer generation of random number, Rejection method

**3: System Simulation**
Techniques of simulation, Monte carlo method, Comparison of simulation and analytical methods, Types of system simulation, Cobweb models

**4: Continuous System Models**
Continuous system models, Differential Equations, Analog computers, Analog methods, Hybrid computers, Digital –Analog simulators, Hybrid simulation, Real-time simulation

**5: Discrete System Simulation**
Discrete events, Representation of time, Simulation of a telephone System, Simulation programming tasks, Counters and summary statistics, Discrete Simulation, languages

**6: Analysis of Simulation output**
Nature of the problem, Estimation methods, Time series analysis, Spectral analysis

**7: GPSS**
GPSS programs, General description, Action times, Succession of events, Choice of paths, Program control statement

**Reference: Simulation and Modeling; Gordon; PHI**