AMIE25 MODELING OF MANUFACTURING SYSTEMS

UNIT-1 SYSTEM
1.1 Ways to analyze the system - Model - types of models - Simulation - Definition - Types of simulation models - steps involved in simulation - Advantages & Disadvantages.
1.2 Parameter estimation-estimator - properties - estimate - point estimate – confidence interval estimates-independent-dependent-hypothesis
1.3 Types of hypothesis- step - types l& 2 errors- Framing - string law of large numbers.

UNIT-2 BUILDING OF SIMULATION MODEL VALIDATION
2.1 Verification- credibility - their timing - principles of valid simulation Modeling- Techniques for verification - statistical procedures for developing credible model.
2.2 Modeling of stochastic input elements - importance- various procedures- theoretical distribution - continuous - discrete their suitability in modeling.

UNIT-3 GENERATION OF RANDOM VARIABLES
3.1 Factors for selection methods- inverse transform- composition convolution - acceptance - rejection- generation of random variables - exponential-uniform-weibull-normal Bernoullie
3.2 Binomial uniform - poisson - Simulation languages - comparison of simulation languages with general purpose languages Simulation languages vs Simulators - software features –
3.3 Statistical capabilities - G P S S - S1MAN- SIMSCRIPT- Simulation of WMJI queue - comparison of simulation languages.

UNIT-4 OUTPUT DATA ANALYSIS
4.1 Types of Simulation w. r. t output data analysis - warm up period-
4.2 Welch algorithm - Approaches for Steady- State Analysis- replication
4.3 Batch means methods- corn pan Sons.

UNIT-5 APPLICATIONS OF SIMULATION
4.4 Flow shop system- job shop system - M/MI1 queues with infinite and finite capacities
4.5 Simple fixed period inventory system - New boy paper problem.

References Books:
1. Simulation Modelling and Analysis / Law, A.M.& Kelton / Mc Graw Hill, Edition/ New York, 1991.
2. Discrete Event System Simulation I Banks J. & Carson J.S., PH I Englewood Cliffs N/ 1984.
3. Simulation of Manufacturing Systems / Carrie A. / Wiley, NY, 1990. 4. A Course in Simulation / Ross, S.M., McMillan, NY, 1990.