amber of Lecture Hours/Week 3 Exam Marks 60 total Number of Lecture Hours 40 Exam Hours 03 CREDITS - 03 Tea troduction: When simulation is the appropriate tool and when it is not propriate, Advantages and disadvantages of Simulation; Areas of application, stems and system environment; Components of a system; Discrete and ntinuous systems, Model of a system; Types of Models, Discrete-Event System mulation Simulation examples: Simulation of queuing systems. General inciples, Simulation Software:Concepts in Discrete-Event Simulation. The rent-Scheduling / Time-Advance Algorithm, Manual simulation Using Event heduling odule - 2 atistical Models in Simulation :Review of terminology and concepts, Useful objects, Empirical distributions. Continuous distributions, Poisson objects, Empirical distributions. ueuing Models:Characteristics of queuing systems, Queuing notation, Long-run reasures of performance of queuing systems, Long-run measures of performance of queuing systems, Long-run measures of performance queuing systems cont, Steady-state behavior of M/G/1 queue, Networks of reado-random numbers, Techniques for generating random numbers, Tests for nodom Numbers, Random-Variate Generation: Inverse transform technique ceptance-Rejection technique. Odule - 3 Indom-Number Data Collection; Identifying the distribution with data, rameter estimation, Goodness of Fit Tests, Fitting a non-stationary Poisson rocess, Selecting input models without data, Multivariate and Time-Series input dels. Itimation of Absolute Performance: Types of simulations with respect to put analysis, Stochastic nature of output data, Measures of performance and irrestimation, Contd Odule - 5 Basures of performance and their estimation, Output analysis for terminating nulations Continued Output analysis for steady-state simulations. Observation of simulation models, Verification of nulation models, Calibration and validation of models, Optimization via	SYSTEM MODELLING AND SIMULATION [As per Choice Based Credit System (CBCS) scheme] (Effective from the academic year 2017 - 2018) SEMESTER – VIII				
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 Explain the system concept and apply functional modeling method to model the 			no della constitution		

activities of a static system

- Describe the behavior of a dynamic system and create an analogous model for a dynamic system;
- Illustrate the operation of a dynamic system and make improvement according to the simulation results.

Question paper pattern:

The question paper will have ten questions.

There will be 2 questions from each module.

Each question will have questions covering all the topics under a module.

The students will have to answer 5 full questions, selecting one full question from each module.

Text Books:

1. Jerry Banks, John S. Carson II, Barry L. Nelson, David M. Nicol: Discrete-Event System Simulation, 5 th Edition, Pearson Education, 2010.

Reference Books:

- 1. Lawrence M. Leemis, Stephen K. Park: Discrete Event Simulation: A First Course, Pearson Education, 2006.
- 2. Averill M. Law: Simulation Modeling and Analysis, 4th Edition, Tata McGraw-Hill, 2007

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