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| **Course – 51 Title: Simulation and Modeling** |  |
| **Course No.: CIT 323 Credit : 3 Contact Hours: 3** | **Total Marks: 100** |

**11.1 Rationale:**

To contribute in ICT based innovative model, one needs to create random number, justify randomness and correlations in system and apply probability distribution in the system.

**11.2 Objectives:**

* To understand and apply simulations in different system.
* To create random number and evaluate the randomness in the system.
* To understand different modeling method with its applications.

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| **11.3**  **Learning Outcomes** | **11.4**  **Course Content** | **11.5**  **Teaching Strategy/ Learning Experience** | **11.6 Assessment Strategy** |
| * Describe system * Explain simulation of different system | Ways to study a system, Simulation of continuous system, Discrete Event Simulation, Simulation of a queuing system | Lecture | Short answers |
| * Create random number * Justify randomness | Random number generator, statistical analysis of results, validation and verification techniques. | Lecture and Exercise | Exercise |
| * Apply probability distributions in system | Distribution Functions: Probability functions, measure of probability functions. | Lecture | Short answers |
| * Justify computer simulation | Introduction to the simulation packages, verification of simulation computer program. | Lecture and Exercise | Exercise |
| * Describe different modeling method | Modeling Methods: Introduction to modeling, additive and subtractive modeling; Different methods for Curves and Surfaces modeling | Lecture | Short answers |
| * Explain solid modeling | Solid modeling: Representing Solid, Polyhedral modeling with Euler’s Formula, Non-polyhedral modeling | Lecture | Short answers |