



Course Title: Basics of Modeling and Simulation

Course Code: CSIT205

Course Credit: 2

Course Level: UG

L	T	P/ S	SW/F W	TOTAL CREDIT UNITS
2	-	-	-	2

Course Objectives:

This course gives the introduction and concepts of the system simulation. The objectives of this course can be illustrated as:

- It gives a comprehensive and state of art treatment of all the important aspect of simulation study.
- It gives ideas of various modeling Techniques, model verification and validation, input modeling. simulation software.

Pre-requisites:

Programming in C Language

Course Contents/Syllabus:

	Weightage (%)
<p>Module I :Definition of System, types of system</p> <p>Continuous and discrete, modeling process and definition of a model, computer workloads and preparation of its models, verification and validation modeling procedures, comparing model data with real system data, differential and partial differential equation models, combining discrete event and continuous models.</p>	30%
<p>Module II: Simulation process</p> <p>Use of simulation, discrete and continuous simulation procedures, and simulation of time sharing computer system. Virtual Machine Environment.</p>	25%

Module III : Simulation Languages	30%
A brief introduction to important discrete and continuous simulation languages, one language may be studied in detail depending on the availability.	
Module IV :Queuing Theory	15%
Concepts of queuing Theory. Simulation of Single server queue, Simulation of Multiple server queue	

Pedagogy for Course Delivery:

The subject will be taught on the basis of class room teaching in the form of Lectures, Questions answers and discussing the case studies covering different modules of the course.

Student Learning Outcomes:

The student will be able:

- To describe various modeling techniques definitions, procedure, verification and validations.
- To demonstrate conceptual model of any real time system.
- To apply knowledge of simulation process would make the learner comprehend with the technology.
- To assess and evaluate the language used in system simulation

Assessment/ Examination Scheme:

Theory L/T (%)	Lab/Practical/Studio (%)	Total(%)
100	-	100

Theory Assessment (L&T):

Continuous Assessment/Internal Assessment					End Term Examination
Components (Drop down)	Mid Term/Class Test	Assignment	Presentation/Viva	Attendance	
Weightage (%)	10%	5%	10%	5%	70

Text & References:

Text

- Gordon G., “System Simulation”, PHI, 2nd Edition 1977.

References:

- Banks J., Carson S., “Nelson B.L. Discrete-Event System Simulation”, Prentice Hall of India, 4th Edition 2005.
- Deo N., “System Simulation with Digital Computers.”, Prentice Hall of India, 2nd Edition 2004.
- Law A.M., Kelton W.D., “Simulation Modeling and Analysis”. , McGraw Hill, N.Y., 3rd Edition 2011.

Web References:

- www.averill-law.com/simulation-news/books/
- <http://pdf6082.qujibooks.com/system-simulation-pdf-2485957.pdf>

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