Course Name	DATA MODELING AND SIMULATION	Course Code	COMP 451		
Credit Hours	3	Contact Hours	Lec	Lab	Total
			2	2	4
Offered as	☐ University Requirement ☐ College Requirement ☒ Program Requirement ☒ Core ☐ Elective ☐ ITEC ☒ COMP ☐ CNET				
Level	8	Prerequisite	MATH 262		

Course Description:

This course provides an overview of models and simulations and of modeling and simulation techniques. Techniques include time-driven, event-driven dynamic models/simulations and Monte Carlo Simulation. Classification of models: discrete or continuous, stochastic or deterministic, static or dynamic. The course also provide thorough understanding of random number generation, Queuing models, Simulation of queuing systems, inventory systems input modeling and verification & validation of simulation models.

Upon completion, the student will be able to:

- Discuss the fundamental concepts of modeling and simulation.
- Demonstrate the simulation model language.
- Explain methods to build Simulation models.
- Compare and contrast methods for random number generation.
- Design, code, test, and debug simulation programs.
- Simulate the systems based on the queuing theory

Assessment Methods							
	Exam-1 ☒	10%	Exam-2 ☒	10%	Assignments ☒	10%
	Mini Project ☒	10%	Lab Exam ☒	20%	Final Exam ☒	40%

Text Book:

- Jerry Banks, John S. Carson II, Barry L. Nelson, David M. Nicol, "Discrete-Event System Simulation", 5th Edition, Pearson Education, ISBN-13: 978-0136062127, 2010.

References:

- Chris Chung and Christopher A. Chung, "Simulation modeling Handbook: A practical approach", 2nd Edition, CRC Press, 2003, ISBN-13: 978-0849312410, 2003.