



# SIMULATION OF BUSINESS SYSTEMS: AN APPLIED APPROACH

## **PROF. DEEPU PHILIP**

Department of Industrial & Management Engineering  
IIT Kanpur

**PRE-REQUISITES :** The student should have completed six semesters of UG Engineering or Science program.

**INTENDED AUDIENCE :** Students of all Engineering and Science disciplines.

**INDUSTRIES APPLICABLE TO :** Manufacturing companies: HAL, NAL, SAIL, ISRO, BHEL, L&T, BEL, BDL, TATA, DRDO, Automotive manufacturers, DELL, HP, Pharmaceuticals, Johnson & Johnson, Abbott, UPL, etc. Service Industries: Banks (SBI, UBI, HDFC, ICICI, Canara Bank, PNB, etc.), Hotels (Taj, Oberoi, Accor group (IBIS, NOVOTEL, PULLMAN), Holiday Inn, Leela Kempinski, etc., Shopping Malls, Airports (GMR, GVR, etc.), and so on.

### **COURSE OUTLINE :**

The application of computer simulation to industrial settings is taught. The course will introduce the basic concepts of computation through modeling and simulation that are increasingly being used by architects, planners, and engineers to shorten design cycles, innovate new products, conduct process improvements, optimize system performance, and so on. Areas covered include system structure, system analysis, model construction, data collection, and computer simulation languages. The students will gain skills on scientific study of open ended business problems by designing a representative model, implementing the model, completing a verification and validation process of the model, conducting experiments with the model for establishing performance measures, reporting on the model in written form, and changing the model to reflect corrections and modifications to do alternative analysis.

### **ABOUT INSTRUCTOR :**

Prof. Deepu Philip is a faculty of Industrial & Management Engg. Department and Design Programme of IIT Kanpur. He works in the area of Production and Operations, Systems Simulation, Product Life Cycle Management, Unmanned Aerial Systems, and Systems Engineering. He holds bachelor degree in Industrial Engineering with his doctorate in Industrial & Management Engineering from MSU Bozeman. He has both academic and industrial experience with leading organizations of the world. He has experience in designing and implementing complex system of systems in different fields including defense, aviation, fertilizer, strategic chemical plants, transportation, banking, automation, health care, energy, and communication.

### **COURSE PLAN :**

**Week 1:** Introduction to Simulation

**Week 2:** Complex systems

**Week 3:** Single server simulations

**Week 4:** Validation and verification of simulation models

**Week 5:** Simulation of production shop systems

**Week 6:** Alternative analysis

**Week 7:** Call center simulation

**Week 8:** Optimization of system using simulation