Class Activities

# Module D: Simulation

**Activity 1: Individual Exercise**

Learning objective: Explain the concept of simulation, its advantages, and the key steps in developing a simulation model

Have students find a problem that can only be solved using simulation. Describe the problem and the rationale that simulation is the only viable solution method. Select several students to present their work to the rest of the class.

**Activity 2:** **Activity for Small Groups**

Learning objective: Describe Monte Carlo simulation, and set up and solve operations problems using Monte Carlo simulation, by hand and using Excel

Provide students with a problem similar to Example D.1. Have students work in pairs to solve the problem. Ask each pair to keep a record of the problem solving process, including actual steps, time taken for each step, and a description of each step. Turn in the process analysis at the end of class. Review the analyses for areas where students spend the most time and/or need clarifications. Report back to the class the findings of the analyses and go over areas that need clarifications in the next meeting.

**Activity 3:** **Individual Exercise**

Learning objective: Describe Monte Carlo simulation, and set up and solve operations problems using Monte Carlo simulation, by hand and using Excel

Provide students with a problem similar to Example D.1. Have students solve the problem individually using Excel. Record the problem solving process either in writing or as a video recording. Turn in the work at the beginning of class. Select several students’ writing or video to present to the whole class.