**COLLEGE OF COMPUTER & INFORMATION SCIENCES**

**COMPUTER ENGINEERING DEPARTMENT**

**3rd Semester 1443-1444H.**

# **Assignment # 1**

# **CEN 591 : Seminar in Computer Engineering Dr. Sami S. Al-Wakeel**

1. Herewith is your first task assignment for this week. The objective of this assignment is to familiarize you with simulation tools and concepts , and build your skill for writing your own simulation program assignment :

The assignment is due in one week .

Do the following in order :

1. Read The book chapter I of the book (Simulation modeling and analysis/ by Averill M. Law, W.)
2. Go to author site to down load the simulation program of the M/M/1 queue

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Mean interarrival time ( minutes) | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| Mean service time minutes | 0.300 | 0.400 | 0.500 | 0.600 | 0.700 |

1. Run the program for the following input : with 20000 customers

Then Evaluate the results for the following performance measures :

* mean time an item spends in system
* mean number of items waiting to be served
* mean waiting time (including items that have to wait and items with waiting time = 0)
* Average delay in queue
* Average number in queue

1. Use the attach ached handout to evaluate these measures analytically using queuing formula
2. Tabulate & Plot the results for the measures both analytic and from simulation as a function of 
3. Prepare a report with the above and send it to me by email