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

A) 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

3- Run the program for the following input : with 20000 customers

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

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

4- Use the attach ached handout to evaluate these measures analytically using queuing formula
5- Tabulate & Plot the results for the measures both analytic and from simulation as a function of

$\rho = \lambda/\mu$

6- Prepare a report with the above and send it to me by email