Information Technology Engineering
Dr. Manshaei
Homework 3: ns-2
Deadline: Thursday, Dey 30th 1397, at 23:00

We **only** accept the homework **delivered via LMS**, **before the deadline**.
Any cheating will result in a "fail" in all assignments (not just in this assignment).

In this homework, you are supposed to simulate a wireless network with following features:

1. Deploy 30 nodes in an area of 100m×100m.
2. Make 3 duplex wireless connections between 6 nodes, randomly selected from these 30 nodes.
3. One connection should use TCP and one should use UDP transport protocol.
4. Make 3 different traffic generators (e.g., CBR with some given parameters) and connect them to the defined source nodes.
5. Choose a duration for simulation (maximum 100sec) given that at least all sources work together for 20 sec.
6. Select a given routing protocol from the available routing protocols for mobile ad hoc networks in ns-2, i.e., AODV or DSR.
7. Implement one of the mobility models available in the ns-2, e.g. random walk, and select an average speed for mobile nodes.
8. Generate a trace file and a NAM output files.

You must deliver the following (in only one **zip** file *"your student number".zip):*

1. The **TCL** file. (Please name the file like, *"your student number".tcl*)
2. The **NAM** and **trace** file. (Please name the files as *"your student number".tr* and *"your student number".nam*)
3. Take a **picture** from the NAM, showing the position of nodes in a given time. (Please name the files as *"your student number".jpg*)
4. A **figure showing the throughput** of the simulated network for three connections at the same time. (Please make a pdf file with name *"your student number".pdf*)

Bonus: You get bonus point if you run the simulation for 100 times and make an average over the results. In this case, write **a short report** and explain your approach and results.