

## Modeling and Simulation Homework 1

1. The goal of this homework is to familiarize you with the OMNET++ simulation environment and with the compilation procedure for an OMNET example program.
  - (a) Download and install the OMNET++ program as instructed in the course. Please install the program in C:\OMNeT++ (Do not install it in Program Files as errors can occur – see common problems link on the OMNET ++ website).
  - (b) In the directory C:\OMNeT++\samples you will find a series of example programs. We will focus on the tictoc example in the tictoc directory. Copy the following files from this directory: omnetpp.ini, tictoc1.ned and tcx1.cpp, in a newly created directory my\_tictoc.
  - (c) The .ned file represents the network description: open the tictoc1.ned file with a text editor. Towards the end of the file you are going to see the statement **delay 100ms**; please change that to **delay 500ms**. Now open the tcx1.cpp file and modify the function handleMessage as follows (add a line of code):

```
void Txc1::handleMessage(cMessage *msg)
{
// The handleMessage() method is called whenever a message arrives
// at the module. Here, we just send it to the other module,through //
gate `out'. Because both `tic' and `toc' does the same, the message
// will bounce between the two.
    ev << "Another new message"; ← added statement
    send(msg, "out");
}
```

Close both files. And compile as instructed in class:

- 1) open a cmd window
- 2) cd C:\OMNET++\samples\my\_tictoc ← go to your current directory
- 3) Run the sequence:  
opp\_nmake -f  
nmake -f Makefile.vc depend  
nmake -f Makefile.vc

The last program will generate the executable program that you can execute by typing my\_tictoc.

### Important observations:

- \* Note that the name of the executable program is the same as your directory name.
- \* Also note that if you change the files again and you need to re-compile, you need to first clean all the created objects: nmake -f Makefile.vc clean.

Alternatively, manually delete everything but the three initial files from your directory and start again the compilation process.

**\* DO NOT attempt to compile using the Microsoft Visual C++ or .NET environment! Use the compilation command sequence in the cmd line.**

(d) When you execute the program a window will open and you will be asked to select a network (tictoc1). Select OK. In the main window, push the run button and after a couple of events (event messages appear in the main window) press the STOP button. Print the listing with the first 10-20 messages you got from executing the program (screen shot of the window that displays the messages). **This is what you need to turn in as homework.**