# NETWORK SIMULATION

## LABWORK 2
### *Logging, Attributes and tracing*

Consider a C program ../ns-3.32/example/tutorial/first.cc

- A. Logging:
  Enable Logging LEVEL_FUNCTION and list out functions of the class UdpEchoServer and UdpEchoClient that are called during the execution of the script.
- B. Editing attributes:
  1. Edit the code to set up properties of the point-to-point network device and channel:
     - o Data rate = 10Mbps
     - o Propagation delay = 0.01s
  2. Run the updated script and compute the average delay of received packets at the server and client.
  3. Using command line arguments to
     - o Set number of sending packets to 100
     - o Edit point-to-point network device and channel attributes to (5Mbps, 1ms) and (10Mbps,0.01s)
     - o Compare the average delay of received packets at server and client for two above parameter sets
- C. Capture packet traces:
  Traces include information of sent and received packets (time, size, other information).
  1. ASCII tracing: output the trace to text file
  2. PCAP tracing:
     - o Capturing sent and received packets: .pcap file format
     - o Read the output: by tcpdump or wireshark
- D. Report results:
  From the traces of two parameter sets in B, compute:
  1. Average delay of received packets at client and server
  2. Packet delivery ratio