

# DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Ref: NIQ/BCSE/RP02565/03

Due Date: 20<sup>th</sup> Feb 2013

We are interested in procuring **Perpetual Licenses** for the following:

1. **Network Simulator with models given below :** (3 Licenses)

**Models:** 1). Border Gateway Protocol version 4 (BGPv4). 2). Detailed Switch Model. 3). Differentiated Services (DiffServ). 4). Distance Vector Multicast Routing Protocol (DVMRP). 5). Enhanced Interior Gateway Routing Protocol (EIGRP) 6). H323 and H225 Protocols. 7). Hot Standby Router Protocol (HSRP). 8). Interior Gateway Routing Protocol (IGRP). 9). Mobile IPv4. 10). Multicast Extensions to OSPF (MOSPF). 11). Multi-Protocol Label Switching (MPLS). 12). Open Shortest Path First version 2 (OSPFv2) Routing Protocol. 13). Open Shortest Path First version 3 (OSPFv3) Routing Protocol. 14). Policy-based Routing. 15). Protocol Independent Multicast Protocol: Dense Mode (PIM-DM) and Sparse Mode (PIM-SM). 16). Quality of Service Extensions to OSPF (QOSPF). 17). Real-time Transport Protocol (RTP). 18). Route Map. 19). Route Redistribution. 20). Router Access List. 21). Router Model. 22). Session Initiation Protocol (SIP). 23). Switched Ethernet. 24). Virtual LAN (VLAN). 25). Voice over Internet Protocol (VoIP). 26). 802.3 LAN/Ethernet. 27). Abstract Link MAC. 28). Abstract Satellite Model. 29). Abstract Transmission Control Protocol (Abstract TCP). 30). Address Resolution Protocol (ARP). 31). Asynchronous Transfer Mode (ATM). 32). Background Traffic Model. 33). Bellman-Ford Routing Protocol. 34). Class-Based Queuing (CBQ). 35). Constant Bit Rate (CBR) Traffic Generator. 36). Faults. 37). File Transfer Protocol (FTP). 38). File Transfer Protocol/Generic (FTP/Generic). 39). File-based Node Placement Model. 40). First-In First-Out (FIFO) Queue. 41). Fixed Communications Model. 42). Grid Node Placement Model. 43). Hypertext Transfer Protocol (HTTP). 44). Internet Control Message Protocol (ICMP). 45). Internet Control Message Protocol version 6 (ICMPv6). 46). Internet Group Management Protocol (IGMP). 47). Internet Protocol - Dual IP. 48). Internet Protocol version 4 (IPv4). 49). Internet Protocol version 6 (IPv6). 50). Logical Link Control (LLC) Protocol. 51). Lookup Traffic Generator. 52). Multicast Constant Bit Rate (MCBR) Traffic Generator. 53). Multicast Dissemination Protocol (MDP). 54). Neighbour Discovery Protocol. 55). Random Early Detection (RED) Queue. 56). Random Early Detection with In/Out (RIO) Queue. 57). Random Node Placement Model. 58). Round Robin Scheduler. 59). Routing Information Protocol next generation (RIPng). 60). Routing Information Protocol/Routing Information Protocol version 2 (RIP/ RIPv2). 61). Satellite Toolkit (STK). 62). Self-Clocked Fair Queuing (SCFQ) Scheduler. 63). Static and Default Routes. 64). Static Multicast Routes. 65). Strict Priority Scheduler. 66). Super Application Traffic Generator. 67). Telecommunications Network (TELNET). 68). Trace File-based Traffic Generator (Traffic-Trace). 69). Traffic Generator (Traffic-Gen). 70). Transmission Control Protocol (TCP). 71). Uniform Node Placement Model. 72). User Datagram Protocol (UDP). 73). Variable Bit Rate (VBR) Traffic Generator 74). Weighted Fair Queuing (WFQ) Scheduler. 75). Weighted RED (WRED) Queue. 76). Weighted Round Robin (WRR) Scheduler. 77). 802.11 MAC Protocol 78). 802.11a/g PHY Model. 79). 802.11b PHY Model. 80). 802.11e MAC Protocol. 81). 802.11n MAC Protocol. 82). 802.11n PHY Protocol. 83). 802.11s MAC Protocol. 84). Abstract PHY Model. 85). Ad-hoc on-demand Distance Vector (AODV) Routing Protocol. 86). Aloha

MAC Protocol. **87**). Antenna Models. **88**). Battery Models. **89**). BER-based Reception Model. **90**). Border cast Resolution Protocol (BRP). **91**). Carrier Sense Multiple Access (CSMA) MAC Protocol. **92**). Cartesian Terrain Format. **93**). Constant Shadowing Model. **94**). Digital Elevation Model DEM) Terrain Format. **95**). Digital Terrain Elevation (DTED) Terrain Format. **96**). Dynamic MANET On-demand (DYMO) Routing Protocol. **97**). Dynamic Source Routing (DSR) Protocol. **98**). ESRI Shape file Terrain Format. **99**). Fast Rayleigh Fading Model. **100**). File- based Mobility Model. **101**). Fisheye State Routing Protocol. **102**). Free-space Path loss Model. **103**). Generic MAC Protocol. **104**). Group Node Placement and Mobility Models. **105**). Inter-channel Interference Model. **106**). Interzone Routing Protocol (IERP). **107**). Intrazone Routing Protocol (IARP). **108**). Irregular Terrain Model (ITM). **109**). Landmark Ad Hoc Routing (LANMAR) Protocol. **110**). Location-Aided Routing (LAR) Protocol. **111**). Lognormal Shadowing Model. **112**). Microwave Links. **113**). Multiple Access Collision Avoidance (MACA) MAC Protocol. **114**). Omni directional Antenna Model. **115**). On-Demand Multicast Routing Protocol (ODMRP). **116**). Optimized Link State Routing Protocol - INRIA (OLSR-INRIA). **117**). Optimized Link State Routing Protocol version 2 (OLSRv2). **118**). Packet Error Rate-based (PER) Reception Model. **119**). Path Loss Matrix Model. **120**). Radio Energy Models. **121**). Random Waypoint Mobility Model. **122**). Rayleigh Fading Model. **123**). Ricean Fading Model. **124**). SNR-based Reception Model. **125**). Source Tree Adaptive Routing (STAR) Protocol. **126**). Time Division Multiple Access (TDMA) MAC Protocol. **127**). Two-ray Path loss Model. **128**). Urban Terrain Data Formats. **129**). Weather Pattern Model. **130**). Zone Routing Protocol (ZRP).

2. **Library: WIMAX** (1 License)  
**Models:** 1). 802.16 MAC and 802.16e MAC. 2). 802.16 PHY.

**Specifications for WIMAX Library:**

- MAC Protocols: 802.16d, 802.16e.
- Physical Models : 802.16d, 802.16e (OFDMA).
- Queuing and Scheduling Protocols: UGS, rtPS, nrtPS, BE.

3. **Library: LTE** (1 License)  
**Models:** 1). Long Term Evolution (LTE) Evolved Packet Core (EPC) Model. 2). Long Term Evolution (LTE) Layer 2 Model. 3). Long Term Evolution (LTE) PHY Model

4. **Library: UMTS** (1 License)  
**Models:** 1). Phone Call Traffic Generator. 2). Universal Mobile Telecommunication System (UMTS)

**Specifications for UMTS Library:**

- MAC Protocols: UMTS Layer 2 , RLC ,MAC .
- Physical Models: UMTS PHY (WCDMA) , HSDPA.
- Device Model: UE, Node B, RNC, SGSN, GGSN, HLR.
- Application Protocols: UMTS Voice Calls, All IP Applications
- Queuing and Scheduling: Conversational, Streaming, Interactive, Background.
- Network Protocols: UMTS Layer 3Connection Mgmt, GMM/MM, GTP, NBAP, RANAP, RRC.

5. **Library: Urban Propagation** (1 License)

**Models:** 1). Automatic Model Selection. 2). COST 231-Hata Propagation Model. 3). COST 231-Walfish- Ikegami (COST-WI) Propagation Model. 4). Okumura-Hata Propagation Model. 5). Street Microcell Propagation Model. 6). Street Mobile-to-mobile Propagation Model. 7). Sub-urban Propagation Model

**Terms and Conditions:**

1. Separate Technical and commercial bids are required to be submitted in separate sealed envelopes otherwise the quotation will be rejected.
2. Sealed Quotations must reach the office Dr. Vinay Ribeiro, Deptt. of CSE, IIT Delhi latest by 20<sup>th</sup> Feb, 2013 17:00 PM.
3. Quotations received after due date and time are bound to be rejected.
4. The products will be used for educational purposes and not meant for resale. Any applicable academic institution discounts should be offered and stated.
5. Validity of quotation must be for Minimum 3 months.
6. Taxes, if any, should be clearly indicated.
7. Payment terms should be clearly mentioned.
8. For Foreign Currency Bids, The Bids must be submitted on FOB Basis.
9. If the bidder is an authorized dealer of any manufacturer, the authorized Indian dealership certificate from the principles should be enclosed. Similarly, proprietary certificate for proprietary items should be provided.