

## **NETSIM**

### **A UGC Recognized Career Oriented Programme**

**NETSIM** is a computer based networking course and it is a skill oriented, value added course designed to make the higher education system more relevant with focus on quality and excellence.

Network programming is a key skill that enhances student's "employability". Apart from simulation, NetSim features a separate "Programming" menu to help students build skills in these basic mechanisms of computer networking. This course allows the students to analyze computer networks with skillful depth, power and flexibility.

**The following programs are offers under this course.**

1. Certificate course
2. Diploma course
3. Advanced diploma course

Currently we are conducting classes and practical for I year PMCs and II year PMCs students by offering certificate and Diploma Course. Each course is of one year duration. After the completion of each course both theory and practical exams will be conducted and certificates will be issued to the students. NETSIM course started in the year 2009 for enrolled students. From 2015 onwards this course is made compulsory for all I and II year PMCs students.



UNIVERSITY GRANTS COMMISSION  
CAREER ORIENTED PROGRAMME  
35-FEROZSHAH ROAD  
NEW DELHI-110 001

F. No. 4- 431/2009(COP)

31 MAR 009  
March, 2009

The *Chief Secretary* (FD-III)  
University Grants Commission  
New Delhi-110002

Sub: - Release of Grants-in-aid to Sri Siddaganga College of Arts, Science and Commerce for Women, B.H. Road, Tumkur-572102, Dist. Tumkur, Karnataka for Career Oriented Programme under plan.

Sir,

With reference to the proposal submitted by Sri Siddaganga College of Arts, Science and Commerce for Women, B.H. Road, Tumkur-572102, Dist. Tumkur, Karnataka under the UGC scheme of Career Oriented Programme, I am directed to convey the approval of the University Grants Commission for starting the following Career Oriented Courses in the above mentioned College from the academic year 2009-10.

| Courses Approved                    | Seed Money<br>(Rs. in lakh) |
|-------------------------------------|-----------------------------|
| <u>Sciences</u>                     |                             |
| 1. Computer Networking and Netsim ✓ | 10.00                       |
| <b>Total</b>                        | <b>10.00</b>                |

*Asm*  
30/5/09

I am also directed to convey the sanction of the University Grants Commission for payment of Rs. 10,00,000/- (Rupees Ten Lakh only) to **Sri Siddaganga College of Arts, Science and Commerce for Women, B.H. Road, Tumkur-572102, Dist. Tumkur, Karnataka** as one time grant (Seed Money) under the scheme of Career Oriented Programme.

The assistance available in the programme is only in the form of a one - time as "**Seed Money**". The amount may be utilized for the purchase of books and journals augmentation of laboratory facilities, equipment and payment of remuneration to the Guest faculty only.

The terms and conditions of the approval and grant released are as per the guidelines of the scheme.

1. The sanctioned amount is debitible to the major Head 5.(i) (Career Oriented to Education). The above sanction is valid for payment during the current financial year 2008-09 ✓
2. The amount of grant shall be drawn by the Joint Director (Drawing and Disbursing Officer), University Grants Commission on the Grants -in -aid bill and shall be disbursed to the credited to the Principal, **Sri Siddaganga College of Arts, Science and Commerce for Women, B.H. Road, Tumkur-572102, Dist. Tumkur, Karnataka** through Demand Draft/Mail Transfer.
3. The grant is subject to the adjustment on the basis of Utilization Certificate in the prescribed proforma submitted by the University/College/Institution.
4. The University/College shall maintain proper accounts only on approved items of expenditure.
5. The Utilization Certificate to the effect that the grant has been utilized for the purpose for which it was sanctioned shall be furnished to the University Grants Commission as early as possible after the close of the current financial year.
6. The assets acquired wholly or substantially out of the University Grants Commission grant shall not be disposed or encumbered or Utilized for the purposes other than those for which the grant was given, without proper sanction of the University Grants Commission and should, at any time the college ceases to function, such assets shall revert to the University Grants Commission.
7. A Register of Assets acquired wholly or substantially out of the grant shall be maintained by the University in the prescribed form.
8. The grantee institution shall ensure the Utilization of grants-in-aid for which it is being sanctioned/paid. In case non-utilization/part utilization, the simple interest @ 10% per annum as amended from time to time on unutilized amount from the date of drawl to the date of refund as per provisions contained in General Financial Rules of Govt. of India will be charged.
9. The University/College shall implement the programme from the academic year 2009-10 positively and UGC to be informed in this regard.



10. The interest earned by the University/College/Institute on this grants in aid shall be treated as additional grant and may be shown in the U.C./Statement of expenditure to be furnished by grantee institutions.
11. The University/College shall follow strictly all the instructions issued by the Govt. of India from time to time with regard to reservation of posts for scheduled Caste and Scheduled Tribes.
12. The University/College shall fully implement the Official Language Policy of Union Govt. and comply with the Official Language Act, 1963 and Official Language (use for officially purpose of the Union) Rules, 1976 etc.
13. The Sanction issues in exercise of the delegation of powers vide Commission office order No. 25/92 dated May.01, 1992.
14. The funds to the extent are available under the scheme and has been noted in BCR for the year ~~2008-09~~ at S. No. 480 Page No. 72.

Yours faithfully,

(Dr. (Mrs.) H.K. Chauhan)  
Joint Director

Copy forwarded for information and necessary action to:

1. The Principal, Sri Siddaganga College of Arts, Science and Commerce for Women, B.H. Road, Tumkur-572102, Dist. Tumkur, Karnataka to intimate the receipt of the letter as well as the receipt of the sanction grant.
2. The Secretary to the Government of Karnataka, Deptt. of Education, Bangalore
3. The Registrar, Bangalore University.
4. Joint Secretary/Joint Director South Western Regional Office Prasanna Kumar Block, Palace Road, Bangalore-560009 (Karnataka).
5. Office of Director, General, Audit General Revenues, AGCR Bldg., I.P. Estate, New Delhi.
6. Guard File, UGC, New Delhi.

(Dr. (Mrs.) H.K. Chauhan)  
Joint Director



Sree Siddaganga Education Society (R.)

**SREE SIDDAGANGA COLLEGE  
OF ARTS, SCIENCE & COMMERCE FOR WOMEN**

(Affiliated to Tumkur University)

B. H. ROAD, TUMKUR - 572 102.

Website : www.sscwtumkur.org E-mail : sscasc.women@gmail.com



ದೇವದಾಸ್ಯಾ ಶಾಸ್ತ್ರಿ

Off : (0816) 2272312

Res : 2251109

ಶ್ರೀ ಸಿದ್ಧಗಂಗಾ ಕಲಾ, ವಿಜ್ಞಾನ ಮತ್ತು ವಾಣಿಜ್ಯ ಮಹಿಳಾ ಕಾಲೇಜು, ಬಿ.ಹೆಚ್. ರಸ್ತೆ, ತುಮಕೂರು-2.

**NAAC Accredited "A" Grade**

Date: 12.09.2014

Ref. No. SSCW :

**UNIVERSITY GRANT COMMISSION  
UTILISATION CERTIFICATE**

It is certified that Sree Siddaganga College of Arts, Science and Commerce for women Tumkur has received Rs.10,00,000.00 for Career Oriented Programme vide UGC letter nos. F.No.4-431/2009(COP Dtd: 31.03.2009 the total amount received is Rs.10,00,000.00 (Ten lakh only).The amount is utilized towards Computer Networking and Netsim as per details given in annexure is in accordance with the terms and conditions laid down by the UGC. The total amount spent is Rs. 9,98,730.00 (Nine lakh ninety eight thousand seven hundred thirty only), the balance is Rs.1270.00 (One thousand two hundred seventy only)

*malire*  
Principal

Sree Siddaganga College of Arts,  
Science and Commerce for Women  
B. H. Road, TUMKUR.

*G. Rajasekariah*  
Signature of

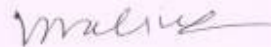
Chartered Accountant  
**G. RAJASEKARIAH & CO.**  
CHARTERED ACCOUNTANTS  
No. 2/3, B.V.K. Iyengar Road,  
Sree Siddaganga Bhavan, 2nd Floor,  
BANGALORE - 560 053.  
MM No. 014414



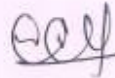
Proceeding of the meeting held on 9<sup>th</sup> July 2015 in Computer Science Department at 11 am.

The following members attended the meeting and scrutinized the syllabus for Career Oriented Programme in Network Simulation Academic version at certificate level and Diploma level is accorded.

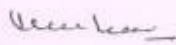
1. Prof Nalinakshi V  
The principal  
Sree Siddaganga College for Women, Tumkur



2. Prof Mahesha S  
HOD, Dept of Computer Science  
SSCASCW, Tumkur



3. Prof Mukundappa B L  
HOD, Dept of Computer Science  
University Science College, Tumkur

  
(B.L. MUKUNDAPPA)

4. Dr. Prakash B R  
Assistant Professor, Dept of MCA  
SSIT, Tumkur



5. Dr. Zabi Ur Rehman  
Assistant Professor, Dept of Computer Science  
HMSIT, Tumkur

 9/7/15

6. Manjunath D  
HOD, Dept of Electronics  
University College of Science  
Tumkur

 9/7/15



**Sree Siddaganga Education Society (R.)**  
**SREE SIDDAGANGA COLLEGE**  
**OF ARTS, SCIENCE & COMMERCE FOR WOMEN**

(Affiliated to Tumkur University)

B. H. ROAD, TUMKUR - 572 102.

Website : [www.sscwtumkur.org](http://www.sscwtumkur.org) E-mail : [sscasc.women@gmail.com](mailto:sscasc.women@gmail.com)



ದಾರ್ಶನಿಕ ವ್ಯಾಸ ದೇವ

Off : (0816) 2272312

Res : 2251109

ಶ್ರೀ ಸಿದ್ಧಗಂಗಾ ಕಲಾ, ವಿಜ್ಞಾನ ಮತ್ತು ವಾಣಿಜ್ಯ ಮಹಿಳಾ ಕಾಲೇಜು, ಬಿ.ಹೆಚ್. ರಸ್ತೆ, ತುಮಕೂರು-2.

**NAAC Accredited "A" Grade**

Sl. No. SSCW: 2018/15-16

21st July 2015

Dr. Prakash B R  
Assistant Professor  
Dept of MCA  
SSIT, Tumkur

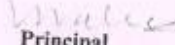
Dear Sir,

On behalf of the college and Computer Science department I would like to thank for your participation in the inauguration of NETSIM course and also for your guest lecture on Network Simulation. We hope you can join us again.

Thank you

  
Head of the Department

Head of the Department of Computer Science  
Sree Siddaganga College for Women  
TUMKUR.

  
Principal

PRINCIPAL Grade-I,  
Sree Siddaganga College of Arts,  
Science and Commerce for Women  
B. H. Road, TUMKUR.

## **NETSIM CERTIFICATE COURSE**

### **Syllabus-Theory**

**2hrs/week**

**Total Hrs: 35**

#### **Unit1: Introduction to Networks**

**4hrs**

Definition ,criteria's, advantages and disadvantages, network elements models, devices , switching and cabling , network components-Hub, switch, bridge, NIC, Modems .

#### **Unit2: Media and Topologies**

**6hrs**

Topology and access methods -bus , star , ring , mesh , their advantages and disadvantages, logical and physical topology

Transmission Types- broadcast and point-point

Communication types- half duplex, full duplex

Network services- Connection oriented and connection less oriented, comparison between them.

Types of network- LAN, WAN, MAN

#### **Unit 3: Cable and media connectors**

**5hrs**

Cable types-CAT3 ,CAT5, crimping , twisted pair (Shielded and un shielded ),co-axial cable media connectors – RJ-11, RJ-45, USB, F-Type.

#### **UNIT4: Protocols and standards**

**8hrs**

Layered architecture, OSI and TCP/IP model, MAC addressing, IP addressing-IP ranges and their subnet masks, functions of protocols, standards.

#### **UNIT5:LAN Protocols**

**10hrs**

Ethernet, token ring, token bus, error and flow control.

#### **Unit6:LAN devices**

**2hrs**

Hub, switch, repeater, bridge, concentrator.



### **Syllabus- practical**

**Duration:02 hrs**

**1 lab/week**

1. Introduction to networking hardware
2. To crimp and test straight cable
3. Demonstration of straight cable
4. To crimp and test cross over cable
5. Demonstration of cross over cable
6. Introduction and protocols to fix a NIC (network interface card)
7. Configuring the IP address
8. Demonstration
9. Set up domain/ work group
10. LAN set up

# **Lab 1**

## **Introduction to networking hardware:**

**Objective:** To identify different components used in networks.

**Procedure:** Different components available in a network are as follows:

1. **NIC (Network Interface Card):** it serves as a interface between computer and the network cable for sending and receiving data.
2. **RJ45 port:** this is a connector on your computer or a networking device that is used to connect the network cable.
3. **RJ11 connector:** it is a standard modular telephone connector and used for connecting four wires.
4. **RJ45 connector:** it is a standard network cable connector and used for connecting eight wires.
5. **Hub:** it is a central connection point for network cables that connect to computers or devices on a network. Here signal is broadcasted across the network, hence working is delayed.
6. **Switch:** a network switch is a small hardware device that joins multiple computers together within one Local Area Network(LAN). When two devices communicate through a switch, it sends signal directly from one port to other port, instead of transmitting to all ports, like on a hub.

## **Different tools:**

1. **Modular crimping tool:** it is used to fix the wires into the RJ45 connector.
2. **Sleeve remover(CAT5 cable):** it is used to remove protective cover or outer layer of a network cable.
3. **RJ45 cable:** these cables are used to connect RJ45 connector.
4. **Network cable tester:** it is used to test the crimped RJ45 cables.

## **Lab 2**

### **Network cable:**

This is used to connect two network device for communication. There are two types of cable crimping. Each cable contain its own color code.

1. Straight cable
2. Cross cable

Straight cable: this cable is used to connect two different devices such as system-hub or system-switch or vice versa.

Cross over cable: this cable is used to connect two similar devices such as system-system or hub-hub or switch-switch.

### **1. To crimp and test straight cable:**

**Objective:** to crimp, test and connect PCs with a straight cable.

**Apparatus:** RJ45 cables(straight cables), crimping tool, network cable tester and sleeve remover.

#### **Procedure:**

- **Cutting:** this process involves great concentration. One should make sure that the sleeve of the network should be peeled off. Care should be taken for not damaging the wires inside. The length of the cable that should be peeled off should match the length of RJ45 jack.
- **Crimping:** using the crimping tool, both ends of the RJ45 cable needs to be crimped. Make sure that the cables are fixed inside the jack perfectly and then crimped. At the time of crimping one should be conscious of IEEE standard color code format.

### **Color code:**

| <b>Left</b>  | <b>Right</b> |
|--------------|--------------|
| Orange white | Orange white |
| Orange       | Orange       |
| Green white  | Green white  |
| Blue         | Blue         |
| Blue white   | Blue white   |
| Green        | Green        |
| Brown white  | Brown white  |
| Brown        | Brown        |

- **Testing:** the crimped RJ45 cables have to be checked using the testing tool. Insert both the ends into the port available in the tester and turn on the power button. To ensure that the straight cable is properly crimped the LEDs on the tester should glow. The pattern in which the LEDs need to glow is, when LED1 of one end of the cable glows, LED1 of the other end should glow at the same time. Similarly LED2, LED3, LED4, LED5, LED6, LED7, LED8 of both the ends should glow simultaneously. This indicates that the cables are perfect for use.
- **Result:** the given straight cables are crimped, tested and connected successfully.



## Lab 3

### To crimp and test cross over cable:

**Objective:** to crimp, test and connect PCs with a cross cable.

**Apparatus:** RJ45 cables(cross cables), crimping tool, network cable tester and sleeve remover.

### **Procedure:**

- **Cutting:** this process involves great concentration. One should make sure that the sleeve of the network should be peeled off. Care should be taken for not damaging the wires inside. The length of the cable that should be peeled off should match the length of RJ45 jack.
- **Crimping:** using the crimping tool, both ends of the RJ45 cable needs to be crimped. Make sure that the cables are fixed inside the jack perfectly and then crimped. At the time of crimping one should be conscious of IEEE standard color code format.

### Color code:

| Color code   |              | LED's |       |
|--------------|--------------|-------|-------|
| Left         | Right        | Left  | Right |
| Orange white | Green white  | 1     | 3     |
| Orange       | Green        | 2     | 6     |
| Green white  | Orange white | 3     | 1     |
| Blue         | Blue         | 4     | 4     |
| Blue white   | Blue white   | 5     | 5     |
| Green        | Orange       | 6     | 2     |
| Brown white  | Brown white  | 7     | 7     |
| Brown        | brown        | 8     | 8     |

- **Testing:** the crimped RJ45 cables have to be checked using the testing tool. Insert both the ends into the port available in the tester and turn on the power button. To ensure that the cross cable is properly crimped the LEDs on the tester should glow. The pattern in which the LEDs need to glow is, LED1 -> LED3, LED2 -> LED6, LED3 -> LED1, LED4 -> LED4, LED5 -> LED5, LED6-> LED2, LED -> LED7, LED8 -> LED8 of left and right respectively.
- **Result:** the given cross cables are crimped, tested and connected successfully.

## **Lab 4**

### **Introduction and procedure to fix a NIC(network Interface Card)**

**Objective:** to understand what is NIC and how to install the hardware on to a system.

**Procedure:** NIC is also called as network card or network adopter. It is a piece of computer hardware designed to allow the computers to communicate over a computer network. It allows the users to connect to each other either through wired or wireless network.

A network card typically has a twisted pair port where a network cable is connected and few LEDs to inform the user of whether the network is active.

### **How to fix a NIC on to a system?**

Before installing the NIC, unplug the system to avoid an electrical shock hazard. A NIC is easy to install. The only consideration for installation are that you have an available slot and that the NIC is designed for the slot type you have. Most systems use a PCI(peripheral Component Interface) slot for a NIC.

1. Power of the system
2. Remove the cover of the cabinet of the CPU
3. Remove the cover plate adjacent to the slot for your NIC to be fixed.
4. Align the NIC over the slot with the jack facing the outside of the system
5. Set the NIC into the slot and press down firmly
6. Secure the NIC mounting bracket to the case with a screw
7. Replace the cover
8. Plug-in the system

This completes the hardware installation.

**Note:** if the NIC device is not detected by your operating system then install the corresponding software otherwise no need of installation.

## **Lab 5**

**Configuring the IP address:** To install and configure the TCP/IP network protocol on windows 2000, windows XP and windows server 2003.

1. Click **start -> settings -> control panel**
2. In control panel double click network connections.
3. Double click Local Area Connection(LAN) icon and click properties.
4. Select internet protocol (TCP/IP) and click properties.
5. Select using the following IP address. Check with your network administrator to determine the correct setting for this tab. If your PC does not automatically obtain IP and DNS address, do the following,
  - Enter IP address of your PC(ex: 192.168.1.3)
  - The subnet mask is automatically taken(ex: 255.255.255.0)
  - Enter the correct “default gateway/preferred DNS server/ alternate DNS server(i.e, these are dependent on the type of internet connection)”.
6. Click OK on all LAN properties window.

**Setup domain or work group:**

**Objective:** to add system on to a domain/ work group

**Procedure:**

1. **Domain:** This is a specific name given to a LAN that includes one or more domain controllers.
  - The advantage is that you have a dedicated server to log or track all users and shares the required file or folders.
  - The disadvantage is that cost and maintenance required to keep this configuration or settings.
  - All the systems in a domain can be forced to follow a set of rules.
2. **Work group:** this has no dedicated server to track users, its all done through each client machine on the LAN. Work group includes shared objects and user logons.

**Steps:**

- Go the **start -> right click on mycomputer and select properties.**
  - Select the tab computer name in the system property window.
    - ➔ Click on change button.
3. Under the member of click on either domain or work group and then click on OK button.
  4. A welcome window appears which specifies the work group name. click on OK button.
  5. Restart the system.

### **View work groups:**

- Ping each system from both the work groups.
- Also access files and folders from system of the same work group.
- Network places : this is where we can find all the systems which are sharing files or folders across the network.
- Go to start -> Mynetwork places to view all the systems in the network.
- Click on “**view work group computers**” to view all the systems in work group same as yours.



## **NETSIM DIPLOMA COURSE THEORY SYLLABUS**

**Time: 02 hours/week**

### **Chapter 1: Wireless Communication**

**06hr**

Characteristics, Wireless Communication, History, Wireless Lan, WLAN Architecture, CSMA/CD, Wireless Networking Security, WI-FI, Wireless Standard IEEE 802.11, How it works, Wireless Networking Standards, Comparison of Wireless Lan 802.11 Standards.

### **Chapter 2: Fast Ethernet, Gigabit Ethernet and VLAN**

**06hr**

Fast Ethernet, What is Fast Ethernet, Overview , Advantages, Technical overview, Migration, Gigabit Ethernet, GMII(Gigabit Medium Independent Interface), Physical Media Types, 1000 Base, VLAN, VLAN's Frame Processing, Types of VLAN, VLAN Connections and Limitations.

### **Chapter 3: Internet Access technologies**

**06hr**

Internet, reasons, why people use the internet, Internet Access, Introduction, Common Internet Access, Cable Modem, XDSL,ADSL, installation, Satellite Internet Access, Plain Old Telephone Service, Public switched telephone network, Wireless Internet Access.

### **Chapter 4: Wide Area Network (WAN) Protocol**

**06hr**

WAN, Introduction to WAN, WAN technologies and OSI Reference Models, Comparison of ISDN, Leased lines and Frame Relay, Introduction to the network Layer and Routing Protocols, Routing, Transport Layer, Functions of TCP/IP and UDP ports.

### **Chapter 5: Wide Area Network (WAN) Devices**

**06hr**

Routers, Working of the Router, Functionally of Router, Routing Table, Types of Router, Packet Delivery, Routing Methods, Dynamic Routing, Static Routing, Router Architecture, Router Ports, Switching, Queing, difference between Router, Switch and Hub, Gateways, ISDN, default Gateways.

### **Chapter 6: Network Performance**

**05hr**

Introduction, Network performance Measurement, Performance Measurement Terms, Queing Models, Components of queing System, Notation for queues, Simulation, Simulation Models, Steps in simulation, Discrete Event Simulation, Netsim, QOS.

**Reference Books:**

1. Carrer Oriented program on Computer Networks using NetSim – Study Material Volume – I. Tetcos.
2. Carrer Oriented program on Computer Networks using NetSim – Study Material Volume – II. Tetcos.
3. Netsim Network Simulator for the Ultracomputer. By Marc Snir.
4. Tetcos Network Simulator.

## NETSIM DPLOMA COURSE PRACTICALS

Duration: 02 hrs

1 experiment/week

### Experiment 1:

#### Networking Commands:

1. **Ipconfig:** It is a Console Command which can be issued to the command line interpreter to display the network settings currently assigned to any or all network adapters in the machine.

##### **Syntax:**

ipconfig [/allcompartments] [/? | /all | /renew [adapter] | /release [adapter] | /renew6 [adapter] | /release6 [adapter] | /flushdns | /displaydns | /registerdns | /showclassid adapter | /setclassid adapter [classid] | /showclassid6 adapter | /setclassid6 adapter [classid] ]

where adapter Connection name (wildcard characters \* and ? allowed, see examples)

|           |   |
|-----------|---|
| /all      | Display full configuration information.             |
| /release  | Release the IPv4 address for the specified adapter. |
| /release6 | Release the IPv6 address for the specified adapter. |

2. **Netstat:** The netstat command is used to display the [TCP/IP](#) network protocol statistics and information.

##### **Syntax:**

NETSTAT [-a] [-b] [-e] [-f] [-n] [-o] [-p proto] [-r] [-s] [-x] [-t] [interval]

|    |   |
|----|---|
| -a | Displays all connections and listening ports.                                 |
| -e | Displays Ethernet statistics. This option may be combined with the -s option. |
| -f | Displays Fully Qualified Domain Names ( <b>FQDN</b> ) for foreign addresses.  |

3. **Tracert and traceroute:** The **tracert** command in MS-DOS and Windows (known as **traceroute** in Unix-like operating systems) is a useful tool for diagnosing network issues. It allows you to view a listing of how a network packet travels through the network and where it may fail or slow down. Using this information you can determine the computer, or network device causing your connectivity issue.

##### **Syntax:**

tracert [-d] [-h maximum\_hops] [-j host-list] [-w timeout] [-R] [-S srcaddr] [-4] [-6] target\_name

|                    |   |
|--------------------|---|
| -d                 | Do not resolve addresses to hostnames.          |
| -h<br>maximum_hops | Maximum number of hops to search for target.    |
| -j host-list       | Loose source route along host-list (IPv4-only). |

## **Experiment 2:**

### **Networking Commands:**

4. **Ping:** Ping is one of the most commonly used network commands that allows you to ping a network IP address. Pinging an IP address helps determine if the network card can communicate in the local network or outside network.

**Syntax:**

ping [-t] [-a] [-n count] [-l size] [-f] [-i TTL] [-v TOS] [-r count] [-s count] [[-j host-list] | [-k host-list]] [-w timeout] [-R] [-S srcaddr] [-4] [-6 target\_name]

|         |  |
|---------|--|
| -t      | Pings the specified host until stopped.<br>To see statistics and continue - Type <b>Control-Break</b> ;<br>To stop - press Ctrl+C. |
| -a      | Resolve addresses to hostnames.  |
| -n      | Count number of echo requests to send.   |
| -l size | Send buffer size.  |

5. **Pathping:** Pathping is an MS-DOS utility available for Microsoft Windows 2000 and Windows XP users. This utility enables a user to find network latency and network loss.

**Syntax:**

pathping [-g host-list] [-h maximum\_hops] [-i address] [-n] [-p period] [-q num\_queries] [-w timeout] [-P] [-R] [-T] [-4] [-6] target\_name.

|                 |  |
|-----------------|--|
| -g host-list    | Loose source route along host-list.          |
| -h maximum_hops | Maximum number of hops to search for target. |
| -i address      | Use the specified source address.            |

6. **Telnet:** There are also numerous third-party telnet and SSH programs available for connecting to remote computers. Users who use telnet often or want or need additional features should consider a third-party telnet program.

**Syntax:**

```
telnet hostname
```

7. **FTP:** To connect to another computer using FTP at the MS-DOS prompt, command line, or Linux shell type **FTP** and press Enter. Once in FTP, use the **open** command to connect to the FTP server, as shown in the following example.

**Syntax:**

```
open ftp.example.com  
get myfile.htm
```



### **Experiment 3:**

#### **Networking Commands:**

8. **Route:** This Command to manually configure the routes in the routing table.

**Syntax:**

ROUTE [-f] [-p] [-4|-6] command [destination] [MASK netmask] [gateway] [METRIC metric] [IF interface]

|    |  |
|----|--|
| -f | Clears the routing tables of all gateway entries. If this is used in conjunction with one of the commands, the tables are cleared before running the command.  |
| -p | When used with the ADD command, makes a route persistent across boots of the system. By default, routes are not preserved when the system is restarted. When used with the PRINT command, displays the list of registered persistent routes. Ignored for all other commands, which always affect the appropriate persistent routes. This option is not supported Windows'95. command |

9. **ARP:** Display or manipulate the ARP information on a network device or computer.

**Syntax:**

ARP -s inet\_addr eth\_addr [if\_addr]

ARP -d inet\_addr [if\_addr]

ARP -a [inet\_addr] [-N if\_addr]

|               |  |
|---------------|--|
| -g            | Same as -a   |
| inet_addr     | Specifies an Internet address.   |
| -N if<br>addr | Displays the ARP entries for the network interface specified by if_addr. |
| -d            | Deletes the host specified by inet_addr.                                 |

10. **NSlookup:** The nslookup MS-DOS utility that enables a user to do a [reverse lookup](#) on an IP address of a domain or host on a network.

**Syntax:**

nslookup [-opt ...] # interactive mode using default server

nslookup [-opt ...] - server # interactive mode using 'server'

nslookup [-opt ...] host # just look up 'host' using default server

nslookup [-opt ...] host server # just look up 'host' using 'server'

## Experiment 4:

### Networking Commands:

**11. NBSTAT:** The nbtstat MS-DOS utility that displays protocol statistics and current TCP/IP connections using NBT.

#### Syntax:

```
nbtstat [ [-a RemoteName] [-A IpAddress] [-c] [-n] [-r] [-R] [-RR] [-s] [-S] [interval] ]
```

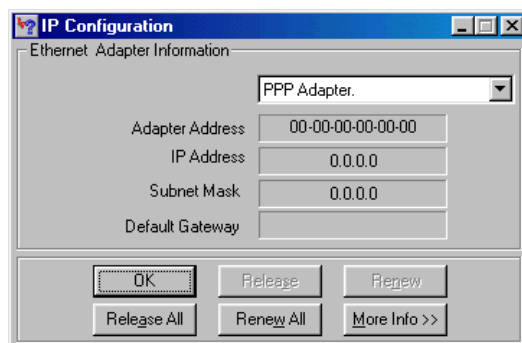
|                     |   |
|---------------------|---|
| <b>-aRemoteName</b> | Adapter status by name. Lists the name table of the remote machine identified by machine name <i>RemoteName</i> . |
| <b>-A IpAddress</b> | Adapter status by address. Lists the name table of the remote machine identified by IP address <i>IpAddress</i> . |
| <b>-c</b>           | Show cached name table. Lists NBT's cache of remote machine names and their IP addresses.                         |

**12. Whois:** The whois command available in Unix and Linux variants helps allow a user to identify a domain name. This command provides information about a domain name much like the WHOIS on network solutions. In some cases, the domain information will be provided from Network Solutions.

#### Syntax:

```
whois [ -h HOST ] [ -p PORT ] [ -aCFHILMmrRSVx ] [ -g SOURCE:FIRST-LAST ] [ -i ATTR ] [ -S SOURCE ] [ -T TYPE ] object
```

**13. Winipcfg:** The winipcfg command available in Windows allows a user to display network and network adapter information. Here, a user can find such information as an IP address, Subnet Mask, Gateway, etc.



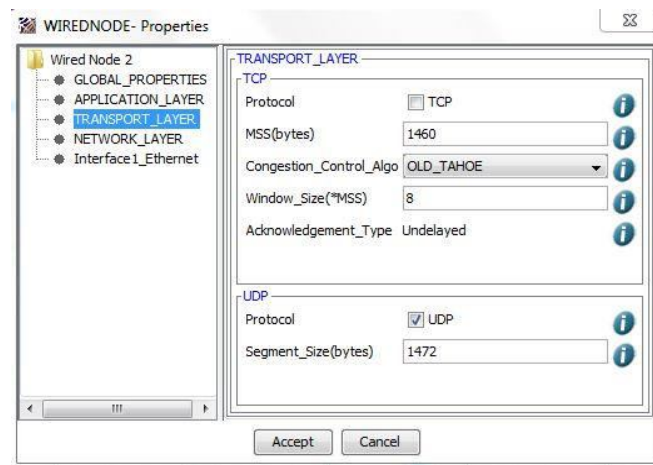
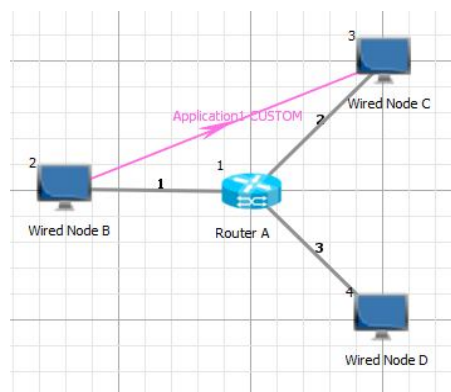
## Experiment 5:

### Networking Commands:

14. **Simulate a three nodes point – to – point network** with duplex links between them. Set the queue size and vary the bandwidth and find the number of packets dropped.

**Soln:** Router forwards packets from one network to another network. When arrival rate of packets is greater than the service (departure) rate, packets get buffered (queued). Once the buffer (queue) is completely filled, all arriving packets will be dropped.

In NetSim, Select “Simulation ----->New -----> Internetworks”.



### **Activities / Programs**

- NETSIM inaugural function on 22<sup>nd</sup> July 2015 for I year and II year PMCs students. This program is inaugurated by **Dr. Prakash B R**, a chief guest and also addresses the students by giving seminar on topic of “Importance of Networking and Simulation. Principal Prof Nalinakshi V delivered the Presidential speech. IQAC coordinator Dr. Ananda Kumari addresses the students regarding the benefit of the course.
- A guest lecture on “**Networking Concept**” by **Dr. B R Prakash** , Assistant Professor, Dept of MCA, SAHE on 10<sup>th</sup> January 2018 at 12 pm
- NETSIM certificate distribution ceremony II and III year PMCs students and inaugural function for fresher's in seminar hall on 28<sup>th</sup> September 2018. The program is inaugurated by **Prof Y M Reddy**, Retd Principal, SSIT Tumkur, Chief guest Prof **Banuprakash C**, Dept of MCA SIT Tumkur and guest **Prof Husna Sulthana**, GFGC Tumkur

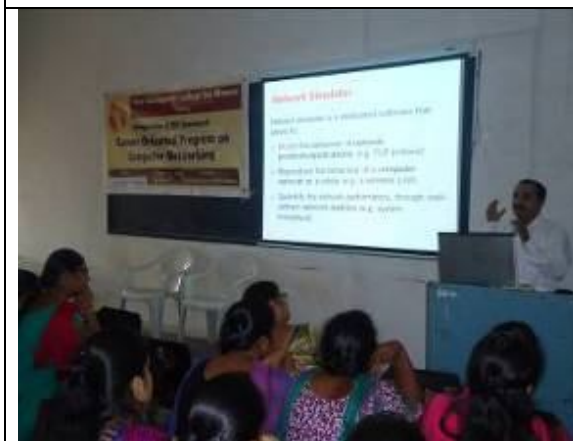
### Student Strength

| Academic Year  | Class& Combination | Course Name        | Student Strength | Total      |
|----------------|--------------------|--------------------|------------------|------------|
| <b>2015-16</b> | IPMCs              | <b>certificate</b> | <b>33</b>        | <b>89</b>  |
|                | II PMCs            |                    | <b>46</b>        |            |
|                | II PME             |                    | <b>10</b>        |            |
| <b>2016-17</b> | I PMCs             | <b>Certificate</b> | <b>46</b>        | <b>73</b>  |
|                | II PMCs            | <b>Diploma</b>     | <b>27</b>        |            |
| <b>2017-18</b> | I PMCs             | <b>Certificate</b> | <b>59</b>        | <b>102</b> |
|                | II PMCs            | <b>Diploma</b>     | <b>43</b>        |            |
| <b>2018-19</b> | I PMCs             | <b>Certificate</b> | <b>60</b>        | <b>116</b> |
|                | II PMCs            | <b>Diploma</b>     | <b>56</b>        |            |

### NETSIM COURSE- PRACTICAL DETAILS

| Academic Year  | Course Name        |         | Practical Batches | Number of Students |
|----------------|--------------------|---------|-------------------|--------------------|
| <b>2015-16</b> | <b>Certificate</b> | II PMCs | B1                | 19                 |
|                |                    |         | B2                | 19                 |
|                |                    |         | B3                | 20                 |
|                |                    | I PMCs  | B1                | 16                 |
|                |                    |         | B2                | 17                 |
| <b>2016-17</b> | <b>Certificate</b> | I PMCs  | B1                | 23                 |
|                |                    |         | B2                | 23                 |
|                | <b>Diploma</b>     | II PMCs | B1                | 15                 |
|                |                    |         | B2                | 12                 |
| <b>2017-18</b> | <b>Certificate</b> | I PMCS  | B1                | 20                 |
|                |                    |         | B2                | 19                 |
|                |                    |         | B3                | 20                 |
|                | <b>Diploma</b>     | II PMCs | B1                | 21                 |
|                |                    |         | B2                | 22                 |
| <b>2018-19</b> | <b>Certificate</b> | I PMCs  | B1                | 20                 |
|                |                    |         | B2                | 21                 |
|                |                    |         | B2                | 19                 |
|                | <b>Diploma</b>     | II PMCs | B1                | 20                 |
|                |                    |         | B2                | 20                 |
|                |                    |         | B3                | 16                 |

## PHOTO GALARY









# NETSIM COURSE



Sree Siddaganga Education Society (Regd.)

## **Sree Siddaganga College of Arts, Science and Commerce for Women, Tumakuru**

Re-Accredited by NAAC with 'A' Grade

Gandhinagar, B.H. Road, TUMKUR-572102



### **Certificate**

This is to certify that .....

has successfully completed the UGC sponsored Career Oriented Program  
"Computer Networking using NETSIM" organized by Department of Computer  
Science, Sree Siddaganga College of Arts, Science and Commerce for Women,  
Tumkur in fulfillment of Certificate / Diploma / Advanced Diploma course  
conducted during the year .....

Coordinator

Principal





**Students who completed a UGC sponsored diploma programme pose for a group photograph after completion of the course at Sree Siddaganga College of Arts, Science and Commerce for Women. The college principal Dr D N Yogishwarappa, Dr Y M Reddy, Prof Bhanuprakash, government degree college's Prof Husma Sultan, Prof Mahesh, Prof Padmavathi and Prof Y Nayana. DH PHOTO**