

Subject Name	L	T	P	Credit
Network Essentials	3	1	-	4

## Unit-I

**Introduction:** Data Communication, Component and Basic Concepts Characteristics – Delivery, Accuracy, Timeliness and Jitter Components – Message, Sender, Receiver, Transmission medium and protocol, Transmission modes – Simplex, Half Duplex, Full Duplex, Transmission Fundamentals- Communication Media-Conductive Metal (Wired Cable), Optical Fiber links, Wireless Communication-Radio links, Setellite Links, Communication Services & Devices, Telephone System, Integrated Service Digital Network (ISDN), Cellular Phone.

## Unit-II

**Transmission Media:** Guided and unguided media, Attenuation, distortion, noise, throughput, propagation speed and time, wavelength, Shannon capacity, comparison of media.

**The OSI Model** – Functions of all the Seven Layers, Networking Devices – Functions and Applications of Hub, Switches, Bridges, Repeaters, Internetworking Devices – Functions and Applications of Routers and Gateways, TCP/IP Model, IP Addressing – Dynamic IP Addressing, Static IP Addressing, Types of IP Addresses, Protocols – TCP vs UDP, IPV4 vs IPV6.

## Unit-III

**Data Security and Integrity:** Data Link Issues – Single bit error and Burst Error, Concepts of redundancy, Checksum, Single Bit Error, correction and Hamming Code correction method. Detection methods - Parity Checking Code, CRC, VRC, LRC, Checksum.

**Protocol Concepts** – Basic flow control, Sliding window protocol, Go-Back-N protocol and selective repeat protocol, Contention Protocol, Stop-Go-Access Protocol.

## Unit-IV

**Network Protocols:** Internet Protocols, Overview of TCP/IP, Transport protocols, Elements of Transport Protocol, Transmission control protocol (TCP), User data-gram protocol (UDP), FTP, SMTP, TELNET Protocols, IP Addressing Class A, B & C, Domain Name Addressing, URL, E-mail address, SMTP, POP3, SNMP, HTTP, FTP, DNS, ICMP.

## Unit-V

**Network Security:** Network Security Issues, Security Barriers Needs Firewalls and Features of Firewalls, Types of Firewall Technology, Network Level and Application Level, IP Packets Filter Screening Routers, Limitations of Firewalls.

## Reference Books:

1. Networking Essentials : Study guide mcse ames chews Charles Perkins, matthew strebe bpb publications.
2. Local area Networks's k.basandra & s. jaiswal, galgotia publications.
3. "Computer Networks" Andrew & Tanenbaum,
4. Data and Computer communication william sterling
5. Data Communication by prakash c gupta

Subject Name	L	T	P	Credit
Linux	3	1	-	4

### Unit-I

Linux Basics: Introduction to Linux, File System of the Linux, General usage of Linux kernel & basic commands, Linux users and group, Permissions for file, directory and users, Searching a file & directory, zipping and unzipping concepts.

### Unit-II

Linux Networking: Introduction to Networking in Linux, Network basics & tools, File transfer protocol in Linux, Network file system, Domain Naming Services, Dynamic hosting configuration Protocol & Network information Services.

### Unit-III

Command line operations: Introduction to the Command Line and its operations ,Using a Text Terminal on the Graphical Desktop, Launching Terminal Windows, The X Window System, Virtual Terminals, The Command Line, Turning off the Graphical Desktop,sudo,Steps for Setting up and Running sudo.

### Unit-IV

Basic Operations: Logging In and Out, Rebooting and Shutting Down, Locating-applications, Accessing Directories using command prompt, Absolute and Relative Paths, Exploring the Filesystem, Hard and Soft (Symbolic) Links, Symbolic Links, Navigating the Directory History.

### Unit-V

Bash Shell Scripting: Various types of shell, shell programming in bash, conditional and looping statements, case statements, parameter passing and arguments, Shell variables, shell keywords, Creating Shell programs for automate system tasks and report printing, use of grep in shell, awk programming. Manipulate strings to perform actions such as comparison and sorting, Boolean expressions when working with multiple data types including strings or numbers as well as files, Create temporary files and directories, Create and use random numbers.

### Reference Books:

1. Linux Administration :A Beginner's Guide by Steve Shah,Wale Soyinka, ISBN 0072262591(0-07-226259-1), McGraw-Hill Education
2. Unix and Linux System Administration Handbook, by Evi Nemeth,Garth Snyder, Trent R. Hein,Ben Whaley.
3. Red Hat Enterprise Linux 4: System Administration Guide Copyright 2005 Red Hat, Inc

Subject Name	L	T	P	Credit
Computer Graphics	3	1	4	6

### Unit-I

Computer Graphics : definition, classification & Applications, Display devices, refreshing, flickering, interlacing, resolution, Hard copy devices. Interactive Input devices, display processor,

### Unit-II

Introduction to multimedia, multimedia components, multimedia hardware, SCSI, IDE, MCI, Multimedia data and file formats, RTF, TIFF, MIDI, JPEG, DIB, MPEG, Multimedia tools, presentations tools, Authoring tools, presentations.

### Unit-III

Scan Conversion Techniques, Line drawing; various algorithms and their comparison, circle generation- Bresenham's, mid point circle drawing algorithm. Polygon Area filling algorithms, Scan line algorithm, boundary fill flood fill algorithm.

### Unit-IV

2D & 3D Co-ordinate system, Translation, Rotation, Scaling, Reflection, shearing, Inverse transformation, Composite transformation, world coordinate system, screen coordinate system; parallel and perspective projection, Representation of 3D object on 2D screen.

### Unit-V

line clipping algorithm; Cohen Sutherland, polygon clipping; Sutherland hodgman algorithm, Introduction to Hidden Surface elimination, Basic illumination model, diffuse reflection, specular reflection, phong shading, Gourand shading ray tracing, color models like RGB, YIQ, CMY, HSV etc.

### Reference Books:

1. Donald Hearn & M. Pauline Baker : Computer Graphics, Second Edition Prentice Hall India.
2. Prabhat k Andleigh, Kiran Thakral "Multimedia System Design", PH.!
3. Rogers D.F. – Procedural Elements for Computer Graphics McGraw Hill

### List of Experiments

1. Study about computer graphics library and draw a hut by using it.
2. Write a program to implement DDA line generation algorithm.
3. Write a program to implement Bresenham's line generation algorithm.
4. Write a program to implement midpoint circle generation algorithm.
5. Write a program to implement Bresenham's circle generation algorithm.
6. Write a program to implement Boundary fill algorithm.
7. Write a program to implement Flood fill algorithm
8. Write a program for translation of a triangle using 2d transformation.
9. Write a program for rotating a triangle using 2d transformation.
10. Write a program for Scaling of a triangle using 2d transformation.
11. Write a program for reflection of triangle using 2d transformation.
12. Write a program to Implement Composite 2d Transformations



13. Write a program for rotating a triangle using 3d transformation.
14. Write a program for Scaling of a triangle using 3d transformation.
15. Write a program for reflection of triangle using 3d transformation.
16. Write a program for animation (moving object).
17. Write a program for parallel projection.
18. Write a program for perspective projection.
19. Study about ray tracing.

Subject Name	L	T	P	Credit
Introduction to Python	3	1	4	6

## **UNIT-I**

Introduction, Origin, Comparison, Comments, Operators, Variables and Assignment, Numbers, Strings, Lists and Tuples, Dictionaries, if Statement, while Loop, for Loop and the range(),String and regular expressions. Module: Importing Module, Math Module, The sys Module, Random Module, and Package.

## **UNIT-II**

Functions: Defining a function, calling a function, Types of functions, Function Arguments, Anonymous functions, Built-in functions, Lists and Tuple: Introduction to List and Tuple, Accessing List and Tuple, Operations, working with List and Tuple, Function and Methods. Dictionaries: Working with dictionaries, properties and functions.

## **UNIT-III**

Object oriented programming and classes in Python - creating classes, instance objects, accessing members, Data hiding (the double underscore prefix), Built-in class attributes, Garbage collection: the constructor, Overloading methods and operators, Inheritance- implementing a subclass, overriding methods, Exceptions: try Statement, Exception Propagation, Except Clause, Try, Finally Clause, User Defined Exception, The raise statement.

## **UNIT-IV**

Creating files, Operations on files (open, close, read, write), File object attributes, file positions, Listing Files in a Directory, Testing File Types, Removing Files and Directories, Copying and Renaming Files, Splitting Path names, Creating and Moving to Directories, Traversing Directory Trees, Illustrative programs: word count, copy file.

## **UNIT-V**

Tkinter module, widgets and basics, Component, layout options, Button, Label, Entry, Listbox, Radio button, Check button, Scrollbar, Container Widgets: Frame, Event handling, Keyboard events, Mouse events etc. Introduction to MySQL, PYMYSQL Connections, using connect, cursor, execute & close functions, reading single & multiple results of query execution, executing different types of statements, understanding exceptions in database connectivity.

## **Reference Books:**

1. Python Essential by David M. Beazly.
2. Python Pocket by Mark Lutz.
3. Barry, Paul, Head First Python, 2nd Edition.
4. Python: The Complete Reference.