

**Detailed Syllabus**  
**B. Voc Information Technology**

**Semester V**

**B.Voc COURSE SYLLABUS, GENERAL PAPER, SEM-V**

| <b>Paper Code: G -5.1</b> | <b>Paper Name : Fundamentals of Entrepreneurship</b>  |              |
|---------------------------|---|--------------|
| <b>Units</b>              | <b>Syllabus</b>   | <b>Marks</b> |
| 1                         | <b><i>Introduction to Entrepreneurship:</i></b>   | 10           |
|                           | Meaning and concept of entrepreneurship, Nature & characteristics of entrepreneurship, role of entrepreneurship in economic development, theories of entrepreneurship, leadership and risk taking. role of socio-economic environment.                                |              |
| 2                         | <b><i>The Entrepreneur:</i></b>   | 10           |
|                           | Meaning of entrepreneur, the skills required to be an entrepreneur, types of entrepreneurs, the entrepreneurial decision process, and role models, mentors and support system, Functions of Entrepreneurs.  |              |
| 3                         | <b><i>Site selection :</i></b>  | 5            |
|                           | Introduction , Factors of site selection, Sources of Site , Advantage of proper site selection  |              |
| 4                         | <b><i>Small and Medium Enterprises (SMEs) and Policies :</i></b>  | 10           |
|                           | The Micro, Small and Medium Enterprises Development Act 2006, other legal requirement, Raising funds, Documents Required, Industrial Policies of Central and State Governments, Special Policies for North Eastern Region (NER) of India to promote Entrepreneurship. |              |
| 5                         | <b><i>Project Report :</i></b>  | 5            |
|                           | Defining Project, Project Report , Preparation of Project Report – economic viability , technical feasibility.  |              |

## B.Voc COURSE SYLLABUS, GENERAL PAPER, SEM-V

| Paper Code: G -5.2 | Paper Name : SOFT SKILLS AND BUSINESS PRESENTATION   |       |
|--------------------|--|-------|
| Units              | Syllabus   | Marks |
| 1                  | <b><i>Introduction to Soft Skills:</i></b>   | 10    |
|                    | Team building: Nature of team, personal and professional goals of the members of the group, to work effectively in a team through building relation and interpersonal communication.   |       |
|                    | Art of negotiation: Negotiation, ways of negotiating successfully, role of language and non verbal communication in negotiation.   |       |
|                    | Self grooming: Attire selection, considerations for grooming, ways to carry one's self, ways of projecting one's self in the right frame and spirit.   |       |
| 2                  | <b><i>Organizing meetings:</i></b>   | 5     |
|                    | Procedure to call meeting, ways to organize a meeting smoothly, Agenda designing and preparation of minutes of the meeting, etiquettes for public speaking.  |       |
| 3                  | <b><i>Presentation skills:</i></b>   | 10    |
|                    | Skill of presentation, ways of preparing presentation, knowing the audience and their requirements, effective ways of delivering presentation, preparation of multi-media presentation, ways of dealing with questions and interruptions, using prompts, Team presentations and individual presentation. |       |
| 4                  | <b><i>Group discussion and PI:</i></b>   | 10    |
|                    | Nature of discussion, methodology of group discussion, difference between debate and discussion, ways of forming and presenting arguments, ways of defending one's opinions, types of interviews, skills of successfully appearing in an interview.  |       |
| 5                  | <b><i>Project Report :</i></b>   | 5     |
|                    | Do a presentation and Group discussion exercise followed by Personal Interview in front of outsourced persons.   |       |

## Paper S-5.1: Computer Network

Total Credit: 6

Total Marks: 100

(Internal 60 + Sessional 20 + Practical 20)

### UNIT-I

(Marks:10)

**Physical Layer :** Data communications : components – Network criteria – physical structures – network models – categories of networks –interconnection of networks – inter network Protocols and standards : protocols-standards-standards organizations- internet standards Network models: Layered tasks – OSI model – layers in the OSI model – TCP/IP protocolsuite.

### UNIT – II

(Marks:10)

**Digital Transmission:** Digital to digital conversion: Line coding – line coding schemes – block coding - analog to digital conversion – PCM - transmission modes: serial transmission – parallel transmission

**Analog Transmission:** Digital to analog conversion: FSK-ASK-PSK Analog to Analog conversion: Amplitude modulation – Frequency modulation – phase modulation

**Multiplexing:** Frequency division multiplexing – Time division multiplexing –

**Transmission Media** Guided media: Twisted pair cable – coaxial cable – fiber optic cable Unguided media: radio waves - micro waves – infrared.

### UNIT-III

(Marks:10)

**Data Link Layer: Error correction and detection:** Introduction- block coding-linear block codescyclic codes-checksum. **Data link Control:** protocols-simplest protocol- stop and wait protocol- stop and wait automatic repeat request-go back n automatic repeat request-selective repeat-automatic repeat request-piggybacking. **MultipleAccess:** Random access-Aloha-CSMA-CSMA/CD-CSMA/CA Controlled access: reservation, polling, token passing. Channelization: FDMA,TDMA, CDMA.

### UNIT-IV

(Marks:10)

**Wired LANs:** Ethernet: IEEE standards, standard Ethernet- fast Ethernet. **Wireless LANS:** IEEE 802.11-architecture-MAC sublayer addressing mechanism, physical layer-Bluetooth: architecture-Bluetooth layers-radio layer-baseband layer-L2CAP-other upper layers.

**Network Layer:**

**Addressing**IPV4 addresses - IPV6 Addresses

**Internet Protocol:** IPv4 –IPv6 **Address mapping protocols:** ARP – RARP.

### UNIT-V

(Marks:10)

**Routing protocols:** Unicast routing protocols: distance vector routing, Link State routing **Multicast**

**Routing protocols (Any two) Transport Layer:** Process to process delivery – UDP – TCP

**Congestion control and QOS:**Data traffic – congestion – congestion control – quality of service – techniques to improve quality of service.

### UNIT – VI

(Marks:10)

**Application layer: & Network Security :**

**DNS:** Name space – domain name space – distribution of name space

**Electronic mail Architecture –**

**FILE transfer: FTP WWW and HTTP:** Architecture – web documents – HTTP

**Network Security:** Introduction - definitions – two categories - symmetric key cryptography – traditional ciphers – asymmetric key cryptography

### SUGGESTED READINGS :

1. Behrouz A Forouzan, *Data communication and networking*, McGraw-Hill, 5

## Paper S-5.2: System Administration Using LINUX

Total Credit: 6

Total Marks: 100

(Internal 60 + Sessional 20 + Practical 20)

### Unit I :

(Marks:15)

What is System Administration? Duties of a System Administrator. Basic features of the Linux operating system. Installation requirements, Partitioning the Hard drive in Linux, Installing the Linux system, installing and configuring softwares in linux, Linux kernel program, system Startup and Shutdown. Standard I/O, Standard error, redirection and piping.

### Unit II :

(Marks:15)

Basics of Linux file system: hierarchy and types. absolute and relative path names. Basic commands for files and directories- ls, cp, mv, rm, mkdir, rmdir, more, creating and viewing files, mounting and unmounting file systems and partitions. Structure of /etc/fstab file and its purpose. I-node, directories, hard link, symbolic link. setting user and group ownership of files and access permissions, study of different linux shells (sh, bash, csh, zsh). Environment variable. Bash variables, login vs non-login shells. Shell script basics. Introduction to grep, awk, perl )

### Unit III :

(Marks:10)

Basic commands for starting and stopping processes, basic process attributes and their role in access control. Examining the list of running processes on the system and understand the data presented there. Background process, Sending signals to processes and modifying process priorities. Job control. Crontab file format, Backup and Restore procedure, configuring the print queue, selecting the printer driver, editing the printer configuration, deleting printer setting default printer.

### Unit IV :

(Marks:10)

Managing user accounts: Adding a user, password, Creating Groups, adding and deleting groups, viewing user account information, understanding the "root" account, implementing sudo. What is file ownership and access permission,, System monitoring and logging, Monitoring memory usage, disk space usage and I/O activity. Logging and its necessity, Customizing system Log information.

### Unit V:

(Marks:10)

The rules governing IP address classes and netmasks, Network Address, Netmask and Gateway. configuring Interface with ifconfig, adding routes, ping, netstat, traceroute, telnet, Understanding the significance of the /etc/services file and well known port numbers. Basics of configuring NFS, NIS, DNS, FTP, Squid Proxy, DHCP server, iptables and firewall. Basic Network Security Issues.

### Suggested Readings

1. Red Hat Linux: Proffitt: PHI
2. Introduction to system Administration: IBM series: PHI
3. Essential System Administration: Frisch: O'REILLY

## S 5.3 MATHEMATICS

**Total marks: 100 (Semester end examination - 60, Internal assessment – 20 Practical 20)**

### **Unit1: Sets, Relations and Functions**

**Marks 10 [10**

**Hours]** Sets, relations, properties of binary relations, closures of relation, equivalence relations, equivalence classes and partitions. Partial ordering relations and lattices. Functions, one to one and onto, principles of mathematical induction.

### **Unit2: Graph Theory**

**Marks 10 [10 Hours ]**

Basic Definition of graph. Connectivity of graph, cut points cycles, Hamiltonian graphs, trees, different Characterization of trees, bipartite graph, Algorithms on graph, Breadth first search, Depth first search.

### **Unit3: Combinatorics**

**Marks 10 [Hours 10]**

Basic of counting principles, principle of inclusion exclusion, application of inclusion and exclusion. Pigeonhole principle, generalized Pigeonhole principle and its application, permutations and combinations, permutations with repetitions, combinations with repetitions, permutations of sets with indistinguishable objects.

### **Unit4: Matrices**

**Marks 10 [ 10 Hours]**

Row and column operations, vectors and matrices, partitioning of matrices, representing relations using matrices, Determinant of a square matrix, minor, cofactor, the Cayley-Hamilton theorem, inverse of a matrix, product form of inverse. Rank of a matrix. Solutions of simultaneous linear equations, existence of solutions, solution by Gaussian elimination, Eigen values and Eigen vectors.

### **Unit5: Logic**

**Marks 10 [10 Hours]**

Connectives, truth tables, normal forms CNF, DNF, Converting expressions to CNF and DNF, Theory of inference, Propositional calculus. Boolean Algebra. Predicate calculus (only introduction), predicates and quantifiers.

### **Unit6: Vector Space**

**Marks 10 [10 Hours]**

Definition and examples of vector spaces. Elementary properties of  $\mathbb{R}$  as a vector space. Subspaces of a vector space. Union, intersection and sum of two subspaces. Subspaces generated by a subset of a vector space. Definition, example and properties of linearly independent and dependent set of vectors. Basis and dimension of a vector space. Examples of finite dimensional vector spaces.

### **Suggested Readings :**

1. Discrete Mathematical Structure, Kolman /Rahman Peason Education.
2. Discrete Mathematics and its Applications, K. H. Rosen, Mc-Graw Hill International Ed.
3. Discrete Mathematics structures with applications to Computer Science, J. P. Tremblay and R.Manohar, Mc-Graw Hill.
4. Discrete Mathematics, N. Ch. S.N. Iyengar, K. A. Venkatesh, V. M. Chandrasekaran, P. S. Arunachalam, Vikash Publishing House Pvt. Ltd.