

6.1 BASICS OF MANAGEMENT

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RATIONALE

The diploma holders are generally expected to take up middle level managerial positions, their exposure to basic management principles is very essential. Topics like Structure of Organization, Leadership, Motivation, Ethics and Values, Customer Relationship Management (CRM), Legal Aspects of Business, Total Quality Management (TQM), Intellectual Property Rights (IPR) etc. have been included in the subject to provide elementary knowledge about these management areas.

DETAILED CONTENTS

1. Principles of Management (06 hrs)
 - 1.1. Introduction, definition and importance of management.
 - 1.2. Functions of Management
Planning, Organizing, Staffing, Coordinating, Directing, Motivating and Controlling.
 - 1.3. Concept and Structure of an Organization
Types of industrial organization
 - a) Line organization
 - b) Functional organization
 - c) Line and Functional organization
 - 1.4. Hierarchical Management Structure
Top, middle and lower level management
 - 1.5. Departmentalization
Introduction and its advantages.
2. Work Culture (06 hrs)
 - 2.1. Introduction and importance of Healthy Work Culture in organization
 - 2.2. Components of Culture
 - 2.3. Importance of attitude, values and behaviour
Behavioural Science – Individual and group behaviour
 - 2.4. Professional ethics – Concept and need of Professional Ethics
3. Leadership and Motivation (06 hrs)
 - 3.1. Leadership
 - a) Definition and Need of Leadership
 - b) Qualities of a good leader
 - c) Manager vs. leader

- 3.2. Motivation
 - a) Definition and characteristics of motivation
 - b) Factors affecting motivation
 - c) Maslow's Need Hierarchy Theory of Motivation
- 3.3. Job Satisfaction
- 4. Legal Aspects of Business: Introduction and Need (06 hrs)
 - 4.1. Labour Welfare Schemes
 - a) Wage payment : Definition and types
 - b) Incentives: Definition, need and types
 - 4.2. Factory Act 1948
 - 4.3. Minimum Wages Act 1948
- 5. Management Scope in different Areas (12 hrs)
 - 5.1. Human Resource Development
 - a) Introduction and objective
 - b) Manpower Planning, recruitment and selection
 - c) Performance appraisal methods
 - 5.2. Material and Store Management
 - a) Introduction, functions and objectives of material management
 - b) Purchasing: definition and procedure
 - c) Just in time (JIT)
 - 5.3. Marketing and Sales
 - a) Introduction, importance and its functions
 - b) Difference between marketing and selling
 - c) Advertisement- print media and electronic media
 - d) Market-Survey and Sales promotion.
 - 5.4. Financial Management – Introduction
 - a) Concept of NPV, IRR, Cost-benefit analysis
 - b) Elementary knowledge of Income Tax, Sale Tax, Excise duty, Custom duty, Provident Fund
 - 5.5. Maintenance Management
 - a) Concept
 - b) Preventive Maintenance
- 6. Miscellaneous Topics (12 hrs)
 - 6.1. Customer Relationship Management (CRM)

- a) Definition and Need
- b) Types of CRM
- c) Customer satisfaction

6.2. Total Quality Management (TQM)

- a) Inspection and Quality Control
- b) Concept of Quality Assurance
- c) TQM

6.3. Intellectual Property Rights (IPR)

- a) Introduction, definition and its importance
- b) Infringements related to patents, copyright, trade mark

INSTRUCTIONAL STRATEGY

It is observed that the diploma holders generally take up middle level managerial positions, therefore, their exposure to basic management principles is very essential. Accordingly students may be given conceptual understanding of different functions related to management. Some of the topics may be taught using question answer, assignment or seminar method. The teacher will discuss success stories and case studies with students, which in turn, will develop appropriate managerial qualities in the students. In addition, expert lectures may also be arranged from within the institutions or from management organizations. Appropriate extracted reading material and handouts may be provided.

RECOMMENDED BOOKS

1. Principles of Management by Philip Kotler TEE Publication
2. Principles and Practice of Management by Shyamal Bannerjee: Oxford and IBM Publishing Co, New Delhi.
3. Financial Management by MY Khan and PK Jain, Tata McGraw Hill Publishing Co., 7, West Patel Nagar , New Delhi.
4. Modern Management Techniques by SL Goel: Deep and Deep Publications Pvt Limited , Rajouri Garden, New Delhi.
5. Management by James AF Stoner, R Edward Freeman and Daniel R Gilbert Jr. : Prentice Hall of India Pvt Ltd, New Delhi.
6. Essentials of Management by H Koontz, C O' Daniel , McGraw Hill Book Company, New Delhi.
7. Marketing Management by Philip Kotler, Prentice Hall of India, New Delhi
8. Total Quality Management by DD Sharma, Sultan Chand and Sons, New Delhi.
9. Intellectual Property Rights and the Law by Dr. GB Reddy

10. Service Quality Standards, Sales & Marketing Department, Maruti Udyog Ltd.
11. Customer Relationship Management: A step-by-step approach, Mohamed & Sagadevan Oscar Publication, Delhi
12. Customer Relation Management, Sugandhi RK, Oscar Publication, Delhi.

SUGGESTED DISTRIBUTION OF MARKS FOR FACILITATING THE PAPER SETTER

Sr No	Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1.	Principles of Management	06	15
2.	Work Culture	06	10
3.	Leadership and Motivation	06	15
4.	Legal Aspects of Business: Introduction and Need	06	10
5.	Management Scope in different Areas	12	25
6.	Miscellaneous Topics	12	25
	Total	48	100

6.2 NETWORK SECURITY

(Common in Computer Engineering and IT)

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RATIONALE

This course has been designed by keeping in view the basic computer users and information system managers. The concepts needed to read through the ripe in the market place and understanding risks and how to deal with them. It is hoped that the student will have a wider perspective on security in general and better understanding of how to reduce and manage the security risks.

DETAILED CONTENTS

1. Introduction (6 hrs)
Need for securing a network; attacks from within and external, introduction to cyber crime, cyber law-Indian Perspective (IT Act 2000), cyber ethics, ethical hacking. What is hacking. attacker, phreaker etc.
2. Securing Data over Internet (6 hrs)
Introduction to basic encryption and decryption, concept of symmetric and asymmetric key cryptography, overview of DES, RSA and PGP. Introduction to Hashing: MD5, SSL, SSH, HTTPS, Digital Signatures.
3. Virus, Worms and Trojans 8 hrs)
Definitions, preventive measures – access control, checksum verification, process neutering, virus scanners, heuristic scanners, application level virus scanners, deploying virus protection.
4. Computer Network Attacks: (6 hrs)
Active Attacks, Passive Attacks, Stealing Passwords, Social Engineering, Bugs and Backdoors, Authentication Failures, Protocol Failures, Information Leakage, Denial-of-Service Attacks, Botnets, Phishing Attacks
5. Firewalls (4hrs)
Definition and types of firewalls, defining access control policies, address translation, firewall logging, firewall deployment
6. Intrusion Detection System (IDS) (3 hrs)
Introduction; IDS limitations – teardrop attacks, counter measures; Host based IDS set up
7. Virtual Private Network (VPN) (6 hrs)
Basics, setting of VPN, VPN diagram, configuration of required objects, exchanging keys, modifying security policy

8. Disaster and Recovery (6 hrs)
Disaster categories; network disasters – cabling, topology, single point of failure, save configuration files; server disasters – UPS, RAID, Clustering, Backups, server recovery
9. OS Vulnerabilities (3 hrs)
Study of Linux and Windows OS Vulnerabilities. Importance of Original Software (Due to patches for Loopholes, Security Vulnerabilities).

Note: A visit to organizations must be organized for the demonstration about network security and exposure to available software

INSTRUCTIONAL STRATEGY

Since the facilities are not available in the polytechnic, students need exposure to various security systems and software available in some organisations, universities and engineering colleges. For this, visits may be organized for students. The teachers should also be exposed in this area. Some practicals can be conducted in the laboratory.

RECOMMENDED BOOKS

1. Cryptography and Network Security by Forouzon, Tata Mc Graw Hill Education Pvt Ltd, New Delhi
2. Cryptography and Network Security by Atul Kahate, Tata Mc Graw Hill Education Pvt Ltd, New Delhi
3. Mastering Network Security by Christ Breton; BPB Publication, New Delhi
2. Web-sites by Chris Breton, BPB Publication, New Delhi
3. Network Firewalls by Kiranjeet Syan; New Rider Publication
4. Internet Security, New Rider Publication
5. Network Security by Sood & Mahajan; Eagle Prakashan Jalandher

SUGGESTED DISTRIBUTION OF MARKS FOR FACILITATING THE PAPER SETTER

Sr No	Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1.	Introduction	6	10
2.	Securing Data over Internet	6	10
3.	Virus, Worms and Trojans	8	15
4.	Computer Network Attacks	6	15
5.	Firewalls	4	10
6.	Intrusion Detection System (IDS)	3	10
7	Virtual Private Network (VPN)	6	10
8	Disaster and Recovery	6	10
9	OS Vulnerabilities	3	10
	Total	48	100

6.3 COMPUTER GRAPHICS (Common in Computer Engineering and Information Technology)

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RATIONALE

This subject will enable the students to have awareness about fundamental graphics which can be generated through computers using programming language C. He will be able to make picture and introduce motion in them using basic transformation.

DETAILED CONTENTS

1. Graphic Systems (06 hrs)
 Display devices, display processors graphics software coordinate representation, graphics functions and standards.
2. Scan conversion and Output Primitives (12 hrs)
 Scan converting the point, Scan converting the straight line - Bresenham's line algorithm, Scan converting a circle - Defining a circle, Bresenham's circle algorithm, Region filling - introduction, flood filling, boundary filling, Side effects of scan conversion.
 Graphic primitives in C, Point plotting, line drawing algorithms – DDA algorithms, Bresenham's line algorithms, circle-generating algorithms
3. Two-Dimensional Transformations (08 hrs)
 Basic transformations-translation, scaling, rotation, matrix representations and homogeneous coordinates, composite transformations – scaling relative to a fixed pivot, rotation about a fixed pivot point, general transformation equations, other transformation – reflection and shearing.
4. Windowing and Clipping Techniques (08 hrs)
 Windowing concepts, clipping algorithms, area clipping, line clipping, polygon clippings, text clipping, blanking, window to-viewpoint transformation, Cohen Sutherland clipping algorithm.
5. Three Dimensional Graphics (08 hrs)
 Three dimensional transformation, wire frame model, hidden line and hidden surface elimination (z-buffer algorithm), curve fitting and tracing
6. Perspective and Transformations (06 hrs)
 Perspective and Parallel transformations, vanishing points, perspective anomalies

LIST OF PRACTICALS

Write programs for following:

1. To draw a line
2. To move a character about a line
3. To move two characters in. opposite direction.
4. To draw a circle
5. To move a character along circumference
6. To move along radius.
7. To use 2-d translation technique,
8. To use 2-d scaling technique
9. To use 2-d rotation technique.
10. To use 2-d reflection technique

INSTRUCTIONAL STRATEGY

As the subject deals with Core Graphics Packages and techniques with vast applications in Medical Science, Animation Software, Image Processing, Compression techniques. Teacher is required to expose basic idea of graphics and implementation of various algorithms in C Programming language. The teacher should make the students to write the algorithm first and then based on those algorithms make them implement.

RECOMMENDED BOOKS

1. Principles of Interactive Computer Graphics by WM Newman and RF Spraul
2. Theory and problems of Computer Graphics by Roy A Plastock and Gordon Kalley. McGraw Hill Publishers, Schaum's Outline series.
3. Interactive Computer Graphics by Harengton
4. Computer Graphics Programming Approach by Steven Harrington
5. Computer Graphics by Donald Hearn and M Pauline Baker
6. Computer Graphics for Engineers by A Rajaraman, Narosa Publishing House Pvt Ltd Daryaganj, New Delhi 110002
7. Computer Graphics by Gaurav; Eagle Prakashan Jalandher

SUGGESTED DISTRIBUTION OF MARKS FOR FACILITATING THE PAPER SETTER

Sr No	Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1.	Graphic Systems	6	10
2.	Scan conversion and Output	12	25
3.	Two dimensional Transformation	8	20
4.	Windowing and Clipping Techniques	8	20
5.	Three Dimentional Graphics	8	15
6.	Perspective and Transformation	6	10

	Total	48	100
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6.4 INSTALLATION, MAINTENANCE AND TROUBLESHOOTING OF COMPUTER NETWORKS

(Common in Computer Engineering and Information Technology)

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RATIONALE

This subject gives the knowledge and competency to diagnose the faults for trouble shooting for systematic repair and maintenance of computers and computer peripherals.

DETAILED CONTENTS

1. Installation: (04 hrs)

Environmental requirements of computer system and peripherals. Sight preparation and design of computer rooms. Testing specifications and installation of computer systems and peripherals.
2. Repair, Servicing and Maintenance Concepts (10 hrs)

Introduction to servicing and maintenance concepts. Meantime between failure (MTBF) meantime the repair maintenance policy, factors affecting the performance of computer, potential problems preventive maintenance and corrective maintenance. Preventive maintenance schedule. Circuit tracing techniques. Concept of shielding grounding and power supply requirements and considerations of computers and its peripherals.
3. Fundamental Trouble Shooting Procedures (04 hrs)

Fault location, fault finding aids, service Manuals, test and measuring instruments, special tools
4. Networking (06hrs)

LAN failure, cabling connectivity, hub, bridge, switches, managing network services TCP/IP, Address management, DNS, Domain, Work Group
5. Trouble shooting of computers, component and peripherals (10 hrs)

Managing Network Services: TCP/IP, address Management, DNS, DOMAIN, Workgroup (Create workgroup), Network addresses Management of Gateway, Map Network drive, client-server technology, Network Neighborhood. Installation and troubleshooting of Routers, Access Point, LAN Cards Input/output channels, Hub, Switches,
6. Sharing of devices on Networks, Installation and management of network sharing tools i.e squidpox, managing IP addresses, 2-Tier, 3-Tier Network Architecture

(04 hrs)

- 7 Establishment of LAN/WAN: (08 hrs)

Sub-netting of IP address, Access Point Configuration, Router Configuration, Configuration of manageable switch

LIST OF PRACTICALS

1. Installation of modems and startup a new internet connection in a standalone machine.
2. Sharing of Internet by VPN (Virtual Private Network)
3. Study of troubleshooting and maintenance of computer systems
4. Installation and study of ISDN, PSTN lines, V-sat, RF-link
5. Study of BNC, RJ-45 connectors
6. Study of cables and their connecting structure (i.e simple or cross cable (color coding of cables)
7. Study and management of Network resources,
8. Study and Installation of Firewall in your system
9. Sharing of resources on LAN

INSTRUCTIONAL STRATEGY

While taking the theory classes, the teachers should lay emphasis on the practical aspects of trouble shooting and maintenance. As the given subject is based on hardware aspects of computer system, it needs lot of technical skills to study it thoroughly, field visit to maintenance repair and assembly centres will be beneficial to the students.

RECOMMENDED BOOKS

1. PC Upgrading , Maintenance and Troubleshooting Guide by SK Chauhan, SK Kataria and Sons, New Delhi
2. Troubleshooting and Maintenance of electronic Equipment by K. Sudeep Singh: SK Kataria and Sons, New Delhi
3. Troubleshooting Computer System by Robert C Benner
4. IBM PC and Clones Govinda Rajalu
5. Computer Maintenance and Repair – Scholi Muller
6. Upgrading your PC by Mark Minersi
7. Installation & Maintenance of Computer Networks by Sood & Mahajan; Eagle Prakashan Jalandher

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1-3	18	40
4-6	20	45
7	10	15
Total	48	100

Elective-II
6.5(a) MULTIMEDIA SYSTEM DESIGN
(Common in Computer Engineering and Information Technology)

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RATIONALE

This subject aims to develop a clear understanding of What is multimedia?, and how it can be used for enhancing teaching instruction methodologies, business and personal communications. It will help the students in understanding technical aspects of multimedia content creation, the processes and tools used for designing multimedia systems. This will make the students proficient in designing and developing an multimedia application.

DETAILED CONTENTS

1. Introduction to Multimedia Systems (06 hrs)
 What is Multimedia?, History of Multimedia, Quality criteria and specifications of different capturing devices, Communication devices, Storage devices, Display devices, Elements of Multimedia and different multimedia file formats, Applications of multimedia – benefits and problems.
2. Multimedia Hardware and Software Essentials (10 hrs)
 Classes of Multimedia Systems, Components of a Multimedia System: Quality Criteria and specifications of different Capturing Devices, Communication Devices, Storage Devices, Display Devices.
3. Multimedia Project Planning and Design (04 hrs)
 Planning Steps and Process, Concept development, Goals Definition, Target Audience, Storyboard Creation, Navigation and user interface designing. Example case study.
4. Content Designing and development (10 hrs)
 Concept of data compression, Text encoding, Audio encoding techniques, Types of images, Capturing images using camera/scanner, coding techniques for Moving Images, Editing , Editing of images audio, text, video and graphics.
5. Multimedia Authoring Tools (04 hrs)
 Types of Authoring Programs - Icon-based, Time-based, Storyboarding / Scripting and object oriented. Example case study.

6. Multimedia Application Development Using Director (14 hrs)

Interface and Working Environment : Using cast window, Score window, Stage, Cast window, Creating Cast members, Using text window, Paint window, Vector Shape window, Using the tool palette. Setting movie properties, Control Panel, Property inspector, Behaviour inspector, Library Palette, Sprite properties, Frame properties and transitions. Animation techniques : Animation using key-frame and tweening, Cast to time, Space to time. Importing media elements : Adding sound, video and transitions to movie, Inserting markers and adding behaviour.

LIST OF PRACTICALS

1. Students are required to use various features of Director through small applications.
2. Design and develop multimedia presentation of your institute.
3. Design and develop multimedia lessons useful for teaching various topics in any of the subjects they have already studies.
4. Design some interactive multimedia application.

INSTRUCTIONAL STRATEGY

The aim of this subject is to develop a clear understanding about Multimedia and its types. Students should be able to know how to capture the data from various media devices how to display it, use it in presentations and store it in presentations and store it in different formats. This will make the students proficient in designing and developing an multimedia applications.

RECOMMENDED BOOKS:

1. Multimedia making it Work, Tay Vaghan, Tata McGraw Hill Publishing Co, New Delhi
2. Multimedia Technologies by Ashok Banerji and Ananda Mohan Ghosh, Tata McGraw Hill Education Pvt Ltd , New Delhi
3. T. Hofstetter, Multimedia Literacy, McGraw-Hill, Third Edition. 2001.
4. David Hillman, Multimedia Technology and Applications, Delmar Publishers, 1998, ISBN 082738498X.
5. James E. Shuman, Multimedia in Action, Wordsworth - ITP, 1998, ISBN 0534513700.
6. Special Edition using Macromedia Director 8.5 – By Gary Rosenzweig
7. Director-8 Demystified, Phil Gross, Jason Roberts, Pearson Education Asia.
8. Multimedia System Design by G.P. Singh; Eagle Prakashan Jalandher

SUGGESTED DISTRIBUTION OF MARKS FOR FACILITATING THE PAPER SETTER

Sr No	Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1.	Introduction to Multimedia Systems	06	15
2.	Multimedia Hardware and Software Essentials	10	20
3.	Multimedia Project Planning and Design	04	10
4.	Multimedia Authoring Tools	10	20
5.	Multimedia Authoring Tools	04	10
6.	Multimedia Application Development Using Director	14	25

	Total	48	100
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Elective-II
6.5 (b) .NET TECHNOLOGIES (Using ASP.NET)

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RATIONALE

This is an upcoming technology. It is based on object oriented approach and is user friendly. It supports various languages viz C++,C# and Visual Basic. So the teacher should take extra effort in making the students conversant with this. The demonstration should be given using .NET software for describing the various features of .NET technology

DETAILED CONTENTS

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|----|---|----------|
| 1. | .NET in Context | (04 hrs) |
| | Vision and Goal of .Net, Building Blocks of .Net, Overview of .Net applications, Microsoft SQL Srver and .Net, Interoperability between .Net and COM+ | |
| 2. | Overview of the .Net Framework | (04 hrs) |
| | .Net Evolution, .Net Framework Architecture, Common Type System, Meta Data, Common Language Runtime, .Net Class Framework, Garbage Collection | |
| 3. | Execution under .Net | (02 hrs) |
| | MSIL, Intermediate Language (IL), JIT Compilation | |
| 4. | Engineering Applications (using language C#) | (14 hrs) |
| | Window forms and the .Net framework and Controls, Web forms, ASP .Net | |
| 5. | Working with Data in .Net (with Microsoft SQL Server) | (14 hrs) |
| | System Data, System .Xml using ADO.Net | |
| 6. | Engineering Web Services | (10 hrs) |
| | Web Services, building blocks of web services, creating web services, consuming web services | |

LIST OF PRACTICALS

1. Installation of .net
2. Exploring the various features of .net
3. Ability to work and start various tasks and features of .net framework

4. Able to work and develop program in ASP. net
5. To explore in detail

INSTRUCTIONAL STRATEGY

.NET being a new technology subject, the teacher should lay considerable emphasis on giving various examples while imparting instructions to the students. Practice exercises will reinforce understanding of various features of this language and will develop requisite abilities to develop programs.

RECOMMENDED BOOKS

1. Introducing .NET by James Conard, Patrick Rengler, Birn Eranics, Jay Elynn Wron Publications
2. Microsoft Visual C# .Net Step- by-Step, by sharp and Jagger, PHI
3. Introducing Microsoft .Net, 3rd Edition by Platt, PHI
4. Visual Basic .Net by Tony gaddis, Scott Jones Publishers
5. ODP with Microsoft Visual Basic .Net and Microsoft Visual C# .Net Step- by- Step, by Reynolds- Haertle, PHI
6. Professional .Net framework by Kevin Hoffman, Jeff Gabrial, SHROFF Publishers and Distributors Pvt. Ltd.
7. . Net Technologies by G.P. Singh; Eagle Prakashan Jalandher

SUGGESTED DISTRIBUTION OF MARKS FOR FACILITATING THE PAPER SETTER

Sr No	Topic	Time Allotted (Hrs)	Marks Allotted (%)
1.	.NET in Context	4	10
2.	Overview of the .Net Framework	4	10
3.	Execution under .Net	2	05
4.	Engineering Applications (using language C#)	14	30
5.	Working with Data in .Net (with Microsoft SQL Server)	14	30
6.	Engineering Web Services	10	15
Total		48	100

6.6 MAJOR PROJECT WORK

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RATIONALE

Major Project Work aims at developing innovative skills in the students whereby they apply in totality the knowledge and skills gained through the course work in the solution of particular problem or by undertaking a project. The individual students have different aptitudes and strengths. Project work, therefore, should match the strengths of students. For this purpose, students should be asked to identify the type of project work, they would like to execute. It is also essential that the faculty of the respective department may have a brainstorming to identify suitable project assignments for their students. The project assignment can be individual assignment or a group assignment. There should not be more than 3 students if the project work is given to a group. The students should identify themselves or accept the given project assignment at least two to three months in advance. The project work identified in collaboration with industry should be preferred. Each teacher is expected to guide the project work of 5–6 students.

The project assignments may consist of:

- Installation of computer systems, peripherals and software
- Programming customer based applications
- Web page designing including database connectivity
- Database applications
- Networking (Cabling, Hubs, Switch etc)
- Software Development
- Fabrication of components/equipment (computer related components)
- Fault-diagnosis and rectification of computer systems and peripherals
- Bringing improvements in the existing systems/equipment
- Projects related to Multimedia
- Projects related to Computer Graphics
- Web Hosting
- Configuration of Network Operating System(Windows, Linux)
- Configuration of servers (Proxy, DNS etc)

A suggestive criterion for assessing student performance by the external (personnel from industry) and internal (teacher) examiner is given in table below:

Sr. No.	Performance criteria	Max.** marks	Rating Scale				
			Excellent	Very Good	Good	Fair	Poor
1.	Selection of project assignment	10	10	8	6	4	2
2.	Planning and execution of considerations	10	10	8	6	4	2
3.	Quality of performance	20	20	16	12	8	4
4.	Providing solution of the problems or production of final product	20	20	16	12	8	4
5.	Sense of responsibility	10	10	8	6	4	2
6.	Self expression/ communication skills	5	5	4	3	2	1
7.	Interpersonal skills/human relations	5	5	4	3	2	1
8.	Report writing skills	10	10	8	6	4	2
9.	Viva voce	10	10	8	6	4	2
Total marks		100	100	80	60	40	20

The overall grading of the practical training shall be made as per following table

	Range of maximum marks	Overall grade
i)	More than 80	Excellent
ii)	79 <> 65	Very good
iii)	64 <> 50	Good
iv)	49 <> 40	Fair
v)	Less than 40	Poor

In order to qualify for the diploma, students must get "Overall Good grade" failing which the students may be given one more chance of undergoing 8 -10 weeks of project oriented professional training in the same industry and re-evaluated before being disqualified and declared "not eligible to receive diploma ". It is also important to note that the students must get more than six "goods" or above "good" grade in different performance criteria items in order to get "Overall Good" grade.

Important Notes

- 1. This criteria must be followed by the internal and external examiner and they should see the daily, weekly and monthly reports while awarding marks as per the above criteria.**
- 2. The criteria for evaluation of the students have been worked out for 100 maximum marks. The internal and external examiners will evaluate students separately and give marks as per the study and evaluation scheme of examination.**
- 3. The external examiner, preferably, a person from industry/organization, who has been associated with the project-oriented professional training of the students, should evaluate the students performance as per the above criteria.**
4. It is also proposed that two students or two projects which are rated best be given merit certificate at the time of annual day of the institute. It would be better if specific nearby industries are approached for instituting such awards.

The teachers are free to evolve another criteria of assessment, depending upon the type of project work.

The students must submit a project report of not less than 50 pages (excluding coding). The report must follow the steps of Software Engineering Concepts

It is proposed that the institute may organize an annual exhibition of the project work done by the students and invite leading Industrial organizations in such an exhibition. It is also proposed that two students or two projects which are rated best be given merit certificate at the time of annual day of the institute. It would be better if specific industries are approached for instituting such awards.