6.1 EMPLOYABILITY SKILLS – II

L	T	P
-	-	2

RATIONALE

The present day world requires professionals who are not only well qualified and competent but also possess good communication skills. Our diploma students not only need to possess subject related knowledge but also soft skills to get good jobs or to rise steadily at their work place. The objective of this subject to prepare students for employability in job market and survive in cut throat competition among professionals.

DETAILED CONTENTS

1. Oral Practice

i)	Mock interview	(05 hrs)
ii)	Preparing for meeting	(05 hrs)
iii)	Group discussion	(05 hrs)
iv)	Seminar presentation	(05 hrs)
v)	Making a presentation	(12 hrs)

a) Elements of good presentation
b) Structure and tools of presentation
c) Paper reading
d) Power point presentation

6.2 MAINTENANCE OF COMPUTER SYSTEM

L	T	P
4	-	3

RATIONALE

Personal Computers have become a necessity in Industry, offices and becoming popular in homes too. This course gives organization structure and principles of working of various other components like visual display, keyboard drives and printers etc. Diploma holders will find employment in Repair and maintenance field and computer industry.

DETAILED CONTENTS

1. Mother Board (08 hrs)

   Introduction to different type of mother boards, Single Board Based System, Block diagram of motherboard. Installation of Computer System.

2. Buses and Ports (08 hrs)

   Different type of Buses PCI, SCSI and Serial and Parallel ports (COM ports) Ports COM 1, LPTI, USB. RS 232 C, use of computer for instrumentation.

3. Memory (10 hrs)

   Principle and construction of Hard Disk Drive (HDD). Floppy Disk Controller & Hard Disk Controller. Pen Drives, common faults with hard disk drive and floppy disk drive, RAM Module.

4. Keyboard and Mouse (08 hrs)

   Block Diagram of keyboard Controller, keyboard switches, keyboard faults, mouse, common faults with mouse and optical mouse. Introduction to scanner, digitizer.

5. CRT Display Devices (08 hrs)

   Block Diagram, Principle of operation of Computer Monitor, Difference between TV and Computer Monitor. Video display Adaptors (monochrome and Colour), introduction to solid state displays

6. Printers (08 hrs)

   Printing Mechanism, Construction and working principles of Dot Matrix Printer, Inkjet Printer, Laser Printer, Printer Controller, Centronics Interface, Signals from PC to Printer and Printer to PC.

7. Networking Devices (08 hrs)

Introduction to networking devices. Idea about
a) LAN, WAN, Wi-Fi, WLAN
b) ROUTER, SWITCH, HUB

8. Modems: Need and functions of modems (06 hrs)

Laptop: Their need, function and applications.

LIST OF PRACTICALS

Operation, Maintenance, Installation and Testing of the following devices:

1 Monitors (LCD and LED)
2 HDD, Partitioning and Formatting
3 DOT Matrix Printer
4 Laser Printer
5 Mother board based on latest microprocessor and chipset CMOS Set up.
6 DVD-ROM/DVD Writer
7 Connectors and Cables
8 MODEM/ROUTER/SWITCH
9 Installation of any operating system.
10 Establish LAN,WLAN, using Networking Devices
11 Study of LAPTOP, IPAD, Smart Phone

INSTRUCTIONAL STRATEGY

This subject gives complete knowledge regarding the Computer Hardware. Teacher must give hands on practice related to operation, maintenance, installation etc. Teacher should encourage the students to do assembly of PC.

RECOMMENDED BOOKS

1. PC Organisation by S. Chowdhury, Dhanpat Rai & Sons, Delhi
2. IBM PC Colons by Govinda Rajalu, Tata McGraw Hill Education Pvt Ltd, New Delhi

3. Text Book by Mark Minasi
4. Computers by P.Norton
5. Troubleshooting and maintenance of Computers by prof. S.P.S. Saini Vayu Education of India, New Delhi

SUGGESTED DISTRIBUTION OF MARKS FOR FACILITATING PAPER SETTER

Sr. No	Topic	Time Allotted (hrs)	Marks Allocation%
1	Mother Board	08	10
2	Buses and Ports	08	15
3	Memory	10	15
4	Keyboard and Mouse	08	15
5	CRT Display Devices	08	12
6	Printers	08	15
7	Networking Device	08	10
8	Modems	06	08
Total		**64**	**100**

6.3 WIRELESS AND MOBILE COMMUNICATION

L	P
4	3

RATIONALE

The wireless/mobile communication technology though complex but is spreading at a very fast rate. People use more of mobile phones in comparison to land line phones. It is expected that with in very short period almost everybody will be using mobile communication. Technology is also changing very fast. Therefore, the students should know the functioning of wireless/mobile system/equipment to keep themselves abreast of this latest application of communication.

DETAILED CONTENTS

1. Wireless Communication (12 hrs)

   1.1 Basics
   1.2 Advantages of wireless communication
   1.3 Electromagnetic waves
   1.4 Frequency Spectrum used
   1.5 Paging system
   1.6 Cordless Telephone System
   1.7 Cellular Telephone System
   1.8 Comparison of above wireless communication systems

2. Cellular telephone system: (04 hrs)

   Introduction to
   2.1 First Generation
   2.2 Second Generation
   2.3 Third Generation
   2.4 Fourth Generation of cellular telephone system

3. Cellular Concept (12 hrs)

   3.1 Cell area
   3.2 Capacity of cell
   3.3 Frequency Response

3.4 Co-channel Interference

3.5 Adjacent channel Interference

3.6 Power Control for reducing Interference

3.7 Improving coverage and capacity in cellular system

a) Cell Splitting

b) Sectoring

c) Repeater for Range Extension

4. Multiple Access Techniques for Wireless Communication (16 hrs)

4.1 Introduction to Multiple Accesses.

4.2 Frequency Division Multiple Access (FDMA)

4.3 Time Division Multiple Access (TDMA)

4.4 Code Division Multiple Access (CDMA)

4.5 Spread Spectrum Multiple Access (SSMA)

4.6 Frequency Hopping spread Spectrum (FHSS)

4.7 Comparison of FDMA/TDMA/CDMA

5. Mobile Communication Systems (16 hrs)

5.1 Introduction of Global Systems for Mobile Communication (GSM) and its architecture, Introduction of CDMA System, comparison of CDMA and GSM Systems

5.2 Introduction of GPRS and GPS System.

5.3 Introduction to Blue tooth, Wi-Fi

6. Digital and Data Communication (04 hrs)

Basic block diagram of digital and data communication system. Their comparison with data analog communication systems

LIST OF PRACTICALS

1. Study the features, specification and working of cellular mobile
2. Signal strength measurement of various points from a transmitting antenna/cordless phone
3. Visit of a Mobile Switching Centre(MSC) in the nearest M.S. facility provider
4. Demonstration of Base Trans Receiver(BTS) with nearby cellular tower

5. Observing call processing of GSM trainer Kit
6. Observing call processing of CDMA trainer Kit
7. Pairing of two devices using Bluetooth
8. Data transfer using WI-FI

INSTRUCTIONAL STRATEGY

Wireless and Mobile Communication is heaving significant impact in Electronics Market. For the proper awareness of this subject it is must to provide the students the detail functioning of wireless/mobile system/equipment. For this visits must be arranged to BTS/MSC (Mobile Switching Centre) providers. The theory classes need to be application based in addition to industrial visits in the BSNL, Vodafone, Airtel, SPICE, TATA indicom etc

RECOMMENDED BOOKS

1. Wireless Communications, Principles and Practice, by Thedore S.Rappaport.
2. Wireless Communications by Singal, Tata McGraw Hill Education Pvt Ltd , New Delhi
3. Wireless Communications by Misra, Tata McGraw Hill Education Pvt Ltd , New Delhi
4. Introduction to Wireless and Mobile Systems, by Dharma Prakash Agarwal, Qing-An zeng.
5. Wireless Communications and Networking, by William Stallings.
6. Mobile and Personal Communication Systems and Services, by Raj Pandya, Prentice Hall of India, New Delhi
7. Mobile Communication by John Schiller, Prentice Hall of India, New Delhi
8. Wireless Communications by Pahalwan, Pearson Publishers
9. Wireless and Mobile Communication VK Sangar, Ishan Publications.

SUGGESTED DISTRIBUTION OF MARKS FOR FACILITATING PAPER SETTER

Sr No	Topic	Time Allotted (Hrs)	Marks Allotted (%)
1	Wireless Communication	12	20
2	Cellular Telephone System	04	05
3	Cellular Concept	12	20
4	Multiple Access Techniques for Wireless Communication	16	25
5	Mobile Communication Systems	16	25
6	Digital and Data Communication	04	05
Total		**64**	**100**

ELECTIVE
6.4 (a) MEDICAL ELECTRONICS

L	T	P
4	-	3

RATIONALE

A large number of electronic equipment s are being used in hospitals for patient care and diagnosis or carry out advanced surgeries. This subject will enable the students to learn the basic principles of different instruments used in medical science.

DETAILED CONTENTS

1. Anatomy and physiology (08 hrs)

   - Elementary ideas of cell structure
   - Heart and circulatory system.
   - Central nervous system
   - Muscle action
   - Respiratory system
   - Body temperature and reproduction system

2. Overview of Medical Electronics Equipments (06 hrs)

   classification, application and specifications of diagnostic, therapeutic and clinical laboratory equipment, method of operation of these instruments

3. Electrodes (08 hrs)

   Bioelectric signals, Bio electrodes, Electrode, Electrode tissue interface, contact impedance, Types of Electrodes, Electrodes used for ECG , EEG

4. Transducers (08 hrs)

   Typical signals from physiological parameters, pressure transducer, flow transducer, temperature transducer, pulse sensor, respiration sensor

5. Bio Medical Recorders (12 hrs)

   Block diagram description and application of following instruments

   - ECG Machine

- EEG Machine
- EMG Machine

6. Patient Monitoring Systems (14 hrs)

- Heart rate measurement
- Pulse rate measurement
- Respiration rate measurement
- Blood pressure measurement
- Principle of defibrillator and pace mark
- Use of Microprocessor in patent monitoring
- Blood Sugar Measurement

7. Safety Aspects of Medical Instruments (08 hrs)

- Gross current shock
- Micro current shock
- Special design from safety consideration
- Safety standards.

LIST OF PRACTICALS

1. To operate and feminization with:

   a) B.P. Apparatus
   b) ECG Machine

2. To measure the concentration of blood sugar with Glucometer (fasting, P.P., Random)

3. To measure the

   a) Respiration rate
   b) Pulse rate

4. Installation of small medical equipment in laboratories of Hospital precautions to be taken.

5. Study of large medical equipment in Hospital / Nursing home.

6. Operation and use of Electro-physiotherapy

7. Maintenance schedule for different equipment and their records in a hospital

RECOMMENDED BOOKS

1. Handbook of biomedical Instrumentation by RS Khandpur
2. Biomedical Instrumentation by Cromwell,
3. Modern Electronics Equipment by RS Khndpur, TMH, New Delhi
4. Medical Electronics by Vikas & Yogesh, Ishan publication
5. Introduction to BioMedical Electronics by Edward J. Perkstein; Howard Bj, USA

SUGGESTED DISTRIBUTION OF MARKS FOR FACILITATING PAPER SETTER

Sr. No	Topic	Time Allotted (Hrs)	Marks Allotted (%)
1	Anatomy and physiology	08	13
2	Overview of Medical Electronics Equipments	06	10
3	Electrodes	08	10
4	Transducers	08	10
5	Bio Medical Recorders	12	20
6	Patient Monitoring Systems	14	25
7	Safety Aspects of Medical Instruments	08	12
Total		**64**	**100**

6.4 (b) VLSI SYSTEM DESIGN

L	T	P
4	-	3

RATIONALE

Now-a-days thousands of Digital ICs are embedded on one Single chip with the help of VLSI technology with the help of this technology the Power Consumption of ICs can be reduced (as some devices even works on IV).The size of the overall circuit reduced due to embedding of thousand of Digital IC on one VLSI chip. The VLSI chips are 100 times faster than microprocessors. And so every Industry is using this technology so every student should have some knowledge about this technology.

DETAILED CONTENTS

1. Overview of VLSI (12 hrs)

   Introduction to Computer-aided design tools for digital systems. Hardware-description languages, Introduction to VHDL, Data objects, Classes and data types, Operators, Overloading, Logical operators. Types of delays, Entity and Architecture declaration. Introduction to behavioural, dataflow and structural models

2. VHDL Statements (12 hrs)

   Assignment statements, sequential Statements and process, Conditional statements, Case statements, concept and use of Concurrent statements.

3. Combinational Circuit Design (14 hrs)

   VHDL models and simulation of combinational circuits such as Multiplexers, Encoders, Decoders, Code converters, Comparators, Implementation of Boolean functions etc.

4. Sequential Circuit Design (14 hrs)

   VHDL Models and simulation of sequential circuits, Shift registers, Counters etc.

5. Introduction to CPLDs and FPGAs (12 hrs)

   Programmable logic devices: ROM, PLAs, GAL, PEEL, CPLDs and FPGA. FPAA (Field Programmes Analog Array)

LIST OF PRACTIALS

Combinational Design Exercises

1. Design of Gates
   a. Design of AND gate
   b. Design of OR gate
   c. Design of XOR gate

2. Design of XOR gate using other basic gates
3. Design of 2:1 Mux using other basic gates
4. Design of 2 to 4 Decoder
5. Design of Half Adder, Full Adder, Half Substractor, Full Substractor
6. Design of 3:8 Decoder
7. Design of 8:3 Priority Encoder
8. Design of 4 Bit Binary to Grey code Converter
9 Familiarization of VLSI and Tools with software line Ex-VLSI

Sequential Design Exercises Using VHDL

1. Design of Synchronous 8-bit Johnson Counter
2. Design of ALU (Additional, subtraction, Multiplication, Division)

INSTRUCTIONAL STRATEGY

This subject is very important for designing Digital Systems. For this, the students need to have strong base understanding of fundamental concepts of digital electronics. The teacher is required to lay more emphasis on programming practice in VHDL.

RECOMMENDED BOOKS

1. VLSI Design by Geiger, Tata McGraw Hill Education Pvt Ltd, New Delhi
2. EEE Standard VHDL Language reference Manual(1993)
3. "Digital System Design using VHDL": Charles. H. Roth; PWS(1998)
4. VHDL-IV Edition: Perry; TMH(2002)
5. VLSI system design- by Komal Gupta Ishan Publication
6. Xilinx Synthesis Software (web pack) freely available on internet. On Xilinx.com
7. VLSI System Design is wind software for designing (System Designing)

SUGGESTED DISTRIBUTION OF MARKS FOR FACILITATING PAPER SETTER

Sr. No	Topic	Time Allotted (hrs)	Marks Allocation%
1	Overview of VLSI	12	20
2	VHDL Statements	12	15
3	Combinational Circuit Design	14	25
4	Sequential Circuit Design	14	25
5	Introduction to CPCLDs and FPGAS	12	15
Total		**64**	**100**

6.5 ENTREPRENEURSHIP DEVELOPMENT AND MANAGEMENT

L T P
3 - -

RATIONALE

In the present day scenario, it has become imperative to impart entrepreneurship and management concepts to students so that a significant percentage of them can be directed towards setting up and managing their own small enterprises. This subject focuses on imparting the necessary competencies and skills of enterprise set up and its management.

DETAILED CONTENTS

SECTION – A ENTREPRENEURSHIP

1. Introduction (14 hrs)

- Concept /Meaning and its need
- Qualities and functions of entrepreneur and barriers in entrepreneurship
- Sole proprietorship and partnership forms of business organisations
- Schemes of assistance by entrepreneurial support agencies at National, State, District level: NSIC, NRDC, DC:MSME, SIDBI, NABARD, Commercial Banks, SFC's TCO, KVIB, DIC, Technology Business Incubator (TBI) and Science and Technology Entrepreneur Parks (STEP)

2. Market Survey and Opportunity Identification (10 hrs)

- Scanning of business environment
- Salient features of National and State industrial policies and resultant business opportunities
- Types and conduct of market survey
- Assessment of demand and supply in potential areas of growth
- Identifying business opportunity
- Considerations in product selection

3. Project report Preparation (08 hrs)

- Preliminary project report
- Detailed project report including technical, economic and market feasibility
- Common errors in project report preparations
- Exercises on preparation of project report

SECTION –B MANAGEMENT

4. Introduction to Management (04 hrs)

- Definitions and importance of management
- Functions of management: Importance and Process of planning, organising, staffing, directing and controlling
- Principles of management (Henri Fayol, F.W. Taylor)
- Concept and structure of an organisation
- Types of industrial organisations

  a) Line organisation
  b) Line and staff organisation
  c) Functional Organisation

5. Leadership and Motivation (03 hrs)

a) Leadership

- Definition and Need
- Qualities and functions of a leader
- Manager Vs leader
- Types of leadership

b) Motivation

- Definitions and characteristics
- Factors affecting motivation
- Theories of motivation (Maslow, Herzberg, McGregor)

6. Management Scope in Different Areas (06 hrs)

a) Human Resource Management

- Introduction and objective
- Introduction to Man power planning, recruitment and selection
- Introduction to performance appraisal methods

b) Material and Store Management

- Introduction functions, and objectives
- ABC Analysis and EOQ

c) Marketing and sales

- Introduction, importance, and its functions
- Physical distribution
- Introduction to promotion mix
- Sales promotion

d) Financial Management

- Introductions, importance and its functions
- Elementary knowledge of income tax, sales tax, excise duty, custom duty and VAT

7. Miscellaneous Topics (03 hrs)

a) Customer Relation Management (CRM)

- Definition and need
- Types of CRM

b) Total Quality Management (TQM)

- Statistical process control
- Total employees Involvement
- Just in time (JIT)

c) Intellectual Property Right (IPR)

- Introductions, definition and its importance
- Infringement related to patents, copy right, trade mark

Note: In addition, different activities like conduct of entrepreneurship awareness camp extension lecturers by outside experts, interactions sessions with entrepreneurs and industrial visits may also be organised.

INSTRUCTIONAL STRATEGY

Some of the topics may be taught using question/answer, assignment or seminar method. The teacher will discuss stories and case studies with students, which in turn will develop appropriate managerial and entrepreneurial qualities in the students. In addition, expert lecturers may also be arranged from outside experts and students may be taken to nearby industrial organisations on visit. Approach extracted reading and handouts may be provided.

RECOMMENDED BOOKS

1. A Handbook of Entrepreneurship, Edited by BS Rathore and Dr JS Saini; Aapga Publications, Panchkula (Haryana)
2. Entrepreneurship Development published by Tata McGraw Hill Publishing Company Ltd., New Delhi
3. Entrepreneurship Development in India by CB Gupta and P Srinivasan; Sultan Chand and Sons, New Delhi
4. Entrepreneurship Development - Small Business Enterprises by Poornima M Charantimath; Pearson Education, New Delhi
5. Entrepreneurship : New Venture Creation by David H Holt; Prentice Hall of India Pvt. Ltd., New Delhi
6. EDM by Bajaj and Chawla, Ishan publication
7. Principles and Practice of Management by L M Prasad; Sultan Chand & Sons, New Delhi.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	14	28
2	10	20
3	08	16
4	04	10
5	03	06
6	06	14
7	03	06
Total	**48**	**100**

6.6 MAJOR PROJECT WORK

L	T	P
-	-	9

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. In addition, the project work is intended to place students for project oriented practical training in actual work situation for the stipulated period with a view to:

i) Develop understanding regarding the size and scale of operations and nature of field-work in which students are going to play their role after completing the courses of study.
ii) Develop understanding of subject based knowledge given in the classroom in the context of its application at work places.
iii) Develop first hand experience and confidence amongst the students to enable them to use and apply polytechnic/institute based knowledge and skills to solve practical problems related to the world of work.
Iv) Develop abilities like interpersonal skills, communication skills, positive attitudes and values etc.

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. The activity of problem identification should begin well in advance (say at the end of second year). Students should be allotted a problem of interest to him/her as a major project work. It is also essential that the faculty of the respective department may have a brainstorming session 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 project work identified in collaboration with industry should be preferred.

This practical training cum project work **should not be considered** as merely conventional industrial training in which students are sent at work places with either minimal or no supervision. This experience is required to be planned in advance and supervised on regular basis by the polytechnic faculty. For the fulfillment of above objectives, polytechnics may establish close linkage with 8-10 relevant organization for providing such an experience to students. It is necessary that each organization is visited well in advance and activities to be performed by students are well defined. The chosen activities should be such that it matches with the curricular interest to students and of professional value to industrial/ field organizations. Each teacher is expected to supervise and guide 5-6 students.

Some of the project activities are given below:

- Projects related to designing small electronic equipment / instruments
- Projects related to increasing productivity in electronic manufacturing areas
- Projects related to quality assurance
- Projects connected with repair and maintenance of plant and equipment

- Projects related to design of PCBs
- Projects related to suggesting substitutes of electronics components being used

- Projects related to design of small oscillators and amplifier circuits
- Projects related to design, fabrication, testing and application of simple digital circuits and components
- Projects related to microprocessor based circuits/ instruments

Some of the projects based on above areas are listed below for the benefit of students:

1. Microprocessor based rolling display/bell and calendar
2. Microprocessor based stepper motor control
3. Speed control of DC Machines by Microprocessors
4. Temperature monitoring using microprocessor based systems
5. Microprocessor based liquid level indicator and control/solar tracking system
6. Fabrication and assembling of digital clock
7. Design and fabrication of timing circuits using 555 and counters
8. Design and fabrication of amplifiers and oscillators circuits
9. Fabrication of demonstration type Radio receiver
10. Fabrication of PCB circuits using ORCAD/ Fagu Software
11. Fabrication of ON line/OFF line UPS of different ratings and inverters
12. Design, fabrication and testing of different types of experimental boards as per the curriculum of Electronics and Communication Engineering
13. Repair of X-Ray Machines, ECG, EEG, EMG, Calorimeter and Centrifuge etc
14. Repair and fault location of telephone exchanges and intercom system
15. Repair of oscilloscope, function generator, Power supply
16. Design and developing web sites of organizations
17. Installation of computer network (LANS)
18. Microprocessor based solar tracking system
19. Car or home security system
20 Bank token display
21. Printer sharing unit
22. Caller Identification unit for phone

23. LCR-Q meter and frequency meter
24. µP-Based A/D converter
25. µP-Based D/A converter
26. Simulation of halfwave and full wave rectifiers using ORCAD
27. Simulation of following circuits

    Integrator, differenciator, adder, substractor, V-I converter comparator etc. using OP-AMPs
28. Simulation of class A, Class B, Class AB and Class C amplifiers
29. Simulation of different wave forms like sine, square, triangular waves etc.

NOTE: The list is only the guideline for selecting a project, however a student is at liberty to select any other related project of his choice independently under guidance of his teacher

A suggestive criteria for assessing student performance by the external (person 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.

In order to qualify for the diploma, students must get "Overall Good grade" failing which the students may be given one more chance to improve 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.

	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

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.

It is proposed that the institute may organize an annual exhibition of the project work done by the students and invite leading Industrial organisations 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.