

6.1 EMPLOYABILITY SKILLS – II

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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 FIRE SERVICE ADMINISTRATION

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5 - 3

RATIONALE

The fire service in the country is considered as the fourth line of defence the other being three wings of the defence forces and police. The importance of the service has not only been established during the time of war but also in normal peace-time. It grows in proportion to the increase of the area of habitation, development of industries and the increase of population. The function of fire service are in general, fire protection, prevention, extinction and rescue. For the effective implementation of these jobs, it is, therefore, imperative to have a stable, strong and ideal organization at all levels which demands an efficient administration to run the organization.

DETAILED CONTENTS

1. Principle of Discipline (6 hrs)
Introduction, importance of discipline, general rules and principle of discipline in the fire service, management and enforcement. Role of fire authority.
2. Fire Service Administration (12 hrs)
Structure of fire service organisation. Duties of different level of commands, chain of command, ranks and rank marking, operational jurisdiction, introduction of fire station management, routines work at station level. Administrative duties of officer-in-charge of a station (a) Report (b) Occurrence Book (c) Hose Card (d) Fire Reports (e) Workshop Orders (f) Stock Register (g) Log Book (h) Station discipline etc. to subordinate ranks for supervision and man management procedures, liaison with in other departments and public at large.
3. Practical Fireman Ship (20 hrs)
Principles to be followed at fire ground, methods of entry, methods of search and rescue. Working in smoke and darkness, use of breathing apparatus, emergency light and system, hot atmosphere, Central at a Fire, ventilation, procedure after fire incident, fire fighting strategy and tactics, duties on return to fire station. Entry of search and rescue in building collapse.
4. Fire Explosive (14 hrs)
Introduction, Hazardous materials type of chemical explosion, classification of explosives, principle of storage and transport, fire fighting classifications and fire fighting techniques, portable firefighting equipments guidance about hazardous material and awareness to plant work force.
5. First Aid and Ambulance (12 hrs)
Importance of First Aid in fire services, structure and functioning of body, signs symptoms and management, care of burns, shock- causes, signs and management respiratory distress, blood circulating-emergency system, wound accompanied by severe haemorrhage. Direct pressure points.

6. Resuscitation (8 hrs)

Different types of manual resuscitation, their advantages and disadvantages classification of resuscitation set, their construction and description, signs and symptoms of asphyxiated persons in some special case and cases where artificial respiration is not recommended.

7. Staff Training and Welfare (8 hrs)

Assessing needs of training, training and retraining of fire staff. Preparing training schedules. Maintaining research, fire staff legislation, fire insurance.

LIST OF PRACTICALS

1. Fire-grounds discipline
2. Visit to fire service organization
3. Demonstration regarding explosive fire
4. Practical method of entry, escape, rescue, ventilation, room searching in darkness and smoke filled rooms.
5. First Aid demonstration and practice of emergency methods of rescue, Emergency case at place of accident, Method of Transportation of casualties and case during transportation priority classification system in mass casualty case. Ambulance drill.
6. Different types of manual resuscitation, their advantages and disadvantages, classification of resuscitation.

INSTRUCTIONAL STRATEGY

This subject of Fire Service Administration is the real backbone of the Fire Department and discipline is most important in the fire service students must study deeply the Administration of Fire Service discipline to become a perfect Fire Officer. The other topics viz. explosives, practical fireman ship and first aid, staff training can be explained well by video programmes, charts and CD to explain the importance of discipline, For Fire service organisation and its administration, a senior person from fire, organisation may be instead for talk.

RECOMMENDED BOOKS

1. Fire Protection Handbook, 20th Edition; NFPA, USA
2. Indian Standards on Detectors, Selection, Installation, Testing and Maintenance
3. Manual of Firemanship; HMSO
4. National Fire Codes-72; NFPA, USA
5. Relevant Indian Standards and Code of Practices published by Bureau of Indian Standards

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	06	10
2	12	15
3	20	25
4	14	15
5	12	15
6	08	10
7	08	10
Total	80	100

6.3 INVESTIGATION AND INSPECTION OF FIRE

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4 - 2

RATIONALE

A Fire Officer's responsibility does not end with the extinguishing of fire only. A very important thing to be performed after the extinction of fire is to submit a report about the Fire, giving all particulars and also provable cause of the Fire. Fire Officer must know about the PT Prade and Fire Drills for perfection and ensure that there are happening.

DETAILED CONTENTS

1. Investigation of fire (8 hrs)
Introduction, procedure of detection to the causes of fire point ignition, time of ignition, cause of ignition, circumstances leading to suspicion and motives leading to arson, fire fighting techniques in case of arson and guarding of evidence.
2. Fire safety Act/Rules (12 hrs)
Introduction of building by laws, National Building Code part –IV-2005, Fire Prevention Act, Explosive Act/Rules, Petroleum Act/Rules, Cinatograph Act, Calcium Carbide rules, Gas Rules.
3. Salvage (10 hrs)
Introduction- Importance of salvage, various factors of damage and their remedy pre-planning and procedure for salvage work before, during and after fire.
4. Special Services (12 hrs)
Rescue by ordinary means, rescue by fire service appliances/equipments, rescue from lift, Rescue from sewers, wells, ponds and rivers, rescue during earthquake, Rescue from nuclear radiation incident. Rescue procedure in the presence of poisonous gases. Rescue problems/rescue procedure of High-way accident.
5. Squad Drill and Physical Training (16 hrs)
Physical Training as per standard Table, Demonstration and Practice of all movements of Squad Drill, Word of Command and instructional practice of all movements including Ceremonial Prade Practice, All Drills, i.e. Pump Drill, Hydrants Drill, Extention Ladder Drill. Rescue Drill.
6. Fire Service Communication (6 hrs)
Importance and function of watch room, control room and its requirements. Importance of communication in fire service, line and radio communication, receipt of fire calls. Procedure of handling of fire calls and special service calls identification of communication requirement of Fire service with details. Fire station alerting and dispatching of fire fighting resosurces. Wave propagation, its modes and application. Modulation and its types. Amplifiers. (i) Line Communication (ii) Radio Communication

LIST OF PRACTICALS

1. Squad Drill and Physical Training (Details given in Topic 5)
2. Fire Service Communication
3. Visits of sites of accident

INSTRUCTIONAL STRATEGY

This subject of investigation, inspection, salvage, special services and drills carry its own importance in the fire service. Investigation of fires after extinguishing plays a better role in the fire service to know the causes, to improve the fire safety measures in the buildings. In a fire incident salvage is equally important. Fire officials had to pay full attention on salvage. Teacher/Instructor must explain with the help of teaching aids, charts and CD the importance of investigation after the fire has occurred inspection from fire safety point of view and importance of salvage.

RECOMMENDED BOOKS

1. Relevant Indian Standards on the each equipment
2. Fire Protection Handbook, 20th Edition; NFPA, USA
3. Manual of Firemanship; HMSO, UK
4. National Building Code of India, Part-4, Fire and Life Safety, 2005, BIS

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	08	10
2	12	20
3	10	15
4	12	20
5	16	25
6	06	10
Total	64	100

6.4 ENTREPRENEURSHIP DEVELOPMENT AND MANAGEMENT

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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. Handbook of Small Scale Industry by PM Bhandari
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

6.5 PHYSICAL TRAINING AND DRILL - IV

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Physical fitness is an essential part of “Fire Technology and Safety” curriculum. We may have all facilities, gadgets, equipment but without active involvement of humans, all these things are of no use. Emphasis has been laid on physical training and drill which will be essential for every student of diploma in Fire Technology and Safety. There will be one hour drill daily in the morning that too in the field and in proper dress for developing physical strength, confidence, stamina, and courage to face the challenges of fire hazards. In addition, fire fighting and field training will be given which includes:

- Combined squad drill and conduct of squad drill
- Foam drill, ladder drill, leg lock
- Holding of charged nozzle
- Combined pump and foam drill with hydrants
- Complete squad drill, command and control by students
- Breathing apparatus drill: pre-entry test, cylinder charging, entrapped procedure, search and rescue drills

Note: Each student shall be evaluated for pre-planning, organizing and mobilizing the fire fighting resources for at least five scenario including collapsed structure, road accident, high-rise fire and rescue hospital fire.

A special instructor will be engaged by the polytechnic who will impart the required drill and physical training.

6.6 MAJOR PROJECT WORK

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Project work aims at developing skills in the students whereby they apply in totality the knowledge and skills gained through the course in the solution of a practical problem undertaken as a project work. The 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 departments may have a brainstorming session to identify suitable project assignments. 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 be given project assignment at least two to three months in advance. The project work identified in collaboration with industry/field organization should be preferred.

Each teacher is expected to guide the project work of 5-6 students at a time. The project assignments may consist of:

- a) Survey type projects related to fire safety
- b) The students may opt for study of one non-industrial occupancy building having height more than 15 m and prepare a comprehensive report concerning fire prevention and protection requirement as per the statute applicable in the area vis-à-vis provided in the building
- c) The student may opt for study of one industrial occupancy building having area more than 500 square meters and prepare a comprehensive report concerning fire prevention and protection requirement as per the statute applicable in the area vis-à-vis provided in the building
- d) Case study type projects related to fire
- e) Any other project related to fire

The students shall prepare and submit a report for the major project work and will present the same in a seminar for external assessment.

Note:

It is proposed that the institute may organize an annual exhibition of the project items prepared 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.