

## 5.1 EMPLOYABILITY SKILLS – I

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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 is to prepare students for employability in job market and survive in cut throat competition among professionals.

### DETAILED CONTENTS

- |    |  |          |
|----|--|----------|
| 1. | Writing skills                                   | (08 hrs) |
|    | i) Official and business correspondence          |          |
|    | ii) Job application - covering letter and resume |          |
|    | iii) Report writing - key features and kinds     |          |
| 2. | Oral Communication Skills                        | (20 hrs) |
|    | i) Giving advice                                 |          |
|    | ii) Making comparisons                           |          |
|    | iii) Agreeing and disagreeing                    |          |
|    | iv) Taking turns in conversation                 |          |
|    | v) Fixing and cancelling appointments            |          |
| 3. | Generic Skills                                   | (04 hrs) |
|    | i) Stress management                             |          |
|    | ii) Time management                              |          |
|    | iii) Negotiations and conflict resolution        |          |
|    | iv) Team work and leadership qualities           |          |

## 5.2 ENVIRONMENTAL EDUCATION

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### RATIONALE

Education about environment protection is a must for all the citizens. In addition, a diploma holder must have knowledge of different types of pollution caused by industries and construction activities so that he may help in balancing the eco system and controlling pollution by adopting pollution control measures. He should also be aware of environmental laws related to the control of pollution.

### DETAILED CONTENTS

1. Definition, Scope and Importance of Environmental Education (02 hrs)
2. Basics of ecology, biodiversity, eco system and sustainable development (03 hrs)
3. Sources of pollution - natural and manmade, causes, effects and control measures of pollution (air, water, noise, soil, radioactive and nuclear) and their units of measurement (12 hrs)
4. Solid waste management – Causes, effects and control measures of urban and industrial waste (06 hrs)
5. Mining and deforestation – Causes, effects and control measures (04 hrs)
6. Environmental Legislation - Water (prevention and control of pollution) Act 1974, Air (Prevention and Control of Pollution) Act 1981 and Environmental Protection Act 1986, Role and Function of State Pollution Control Board, Environmental Impact Assessment (EIA) (10 hrs)
7. Role of Non-conventional Energy Resources (Solar Energy, Wind Energy, Bio Energy, Hydro Energy) (04 hrs)
8. Current Issues in Environmental Pollution – Global Warming, Green House Effect, Depletion of Ozone Layer, Recycling of Material, Environmental Ethics, Rain Water Harvesting, Maintenance of Groundwater, Acid Rain, Carbon Credits. (07 hrs)

### INSTRUCTIONAL STRATEGY

The contents will be covered through lecture cum discussion sessions. In addition, in order to have more appreciation of need for protection of environment, it is suggested that different activities pertaining to Environmental Education like video films, seminars, environmental awareness camps and expert lectures may also be organized.

**RECOMMENDED BOOKS**

1. Environmental Engineering and Management by Suresh K Dhameja; SK Kataria and Sons, New Delhi.
2. Environmental Science by Dr. Suresh K Dhameja; SK Kataria and Sons, New Delhi.
3. Environmental and Pollution Awareness by Sharma BR; Satya Prakashan, New Delhi.
4. Environmental Protection Law and Policy in India by Thakur Kailash; Deep and Deep Publications, New Delhi.
5. Environmental Science by Deswal and Deswal; Dhanpat Rai and Co. (P) Ltd. Delhi.
6. Engineering Chemistry by Jain and Jain; Dhanpat Rai and Co. (P) Ltd. Delhi.
7. Environmental Studies by Erach Bharucha; UGC University Press.

**SUGGESTED DISTRIBUTION OF MARKS**

<b>Topic No.</b>	<b>Time Allotted (Hrs)</b>	<b>Marks Allotted (%)</b>
1	02	04
2	03	06
3	12	24
4	06	12
5	04	10
6	10	20
7	04	10
8	07	14
<b>Total</b>	<b>48</b>	<b>100</b>

### 5.3 FIRE TENDERS AND PUMPS

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#### RATIONALE

This subject deals with various types of fire tenders and pumps used in fire service. These have to be intact and working order at all the times. So it becomes necessary to acquaint the students with such type of equipment, their operation and maintenance. Hence this subject.

1. Water Tender, Foam Crash Tender (10 hrs)  
Study of various Indian standard specifications of conventional, water tender, foam crash tender and rescue tender and other appliances as per Indian standard (ISI)
2. Pump and Pump Operation (10 hrs)  
Introduction, Classification of common pumps, centrifugal pumps and its characteristics, method of priming, different types of primers. Design parameters of pumping appliances and their characteristics, care and maintenance
3. Special Appliances (12 hrs)  
Emergency Tender, TTL – hydraulic platform, hose laying lorry, DEP tender, canteen van, breakdown van, control unit van

#### LIST OF PRACTICALS/DRILLS

1. Water tender drill, care, maintenance, road test stability test. Pump test priming test and acceptance test. High elevation drill. Use of dereaching etc.
2. Standard Drills, operation of pumps of various makes with different priming systems, testing, fault finding care maintenance and standard test.
3. Special Appliances

#### INSTRUCTIONAL STRATEGY

This subject of water tender and other fire tenders is very important because the efficiency of fire service depends on quality/updation fire tenders and other equipments. Pumps are the main source of developing required pressure to water for fire extinguishing. Teacher must take the help of the charts and cut section of the pump, priming system and explain in details the functioning of each and every part to the students.

**RECOMMENDED BOOKS**

1. Pump Design, Testing and Operation: HMSO
2. Hydraulic Machines by Dr. J Lal
3. Pumps and Blowers by Church and Lal
4. Fire Protection Handbook, 20<sup>th</sup> Edition, NFPA, USA
5. Pump Handbook by Krassik; MGH

**SUGGESTED DISTRIBUTION OF MARKS**

<b>Topic No.</b>	<b>Time Allotted (Hrs)</b>	<b>Marks Allotted (%)</b>
1	10	30
2	10	30
3	12	40
<b>Total</b>	<b>32</b>	<b>100</b>

## 5.4 PHYSICAL TRAINING AND DRILL - III

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Physical fitness is an essential part of “Fire Technology and Safety” curriculum. 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. This will develop physical strength, confidence, stamina, and courage to face the challenges of fire hazards. This training will also include:

- Combined squad drill
- Pump drill, combined hose, hydrant and pump drills
- Study of heat and smoke detectors, optical smoke detectors, flame detector and alarming circuits
- Study of sounders and measurement of sound level
- Study of heavy fire vehicles and equipment fixed on these

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

## 5.5 SUPERVISED INDUSTRIAL/PRACTICAL TRAINING (12 Weeks)

The workshop group and experts in the field of fire service have emphasized the need of industrial training for diploma students of fire technology. Accordingly, the student of V semester are to be sent for industrial training/practical attachment to acquire knowledge of fire fighting and experience of fire grounds and difficulties encountered by the fire department during dousing the flames and rescuing people trapped in the building on fire.

These trainees are sent to important Metro City/big Industrial city fire services in the country having number of fire calls daily both normal and serious fire calls. The Director General, Technical Education, Haryana is supposed to contact the concerned head of the fire service to seek permission for getting training for diploma students. The following can be contracted for arranging industrial training:

1. Director General Delhi Fire Service, Canaught Circus, New Delhi
2. Director General, West Bengal Fire Service, Kokata
3. Director State Fire Service, Chennai
4. Director General, Karnatka Fire Service, Banglore
5. Director General, Urban Local Bodies, Haryana (Gurgaon Fire Service)

Almost, all the fire service provide accommodation at the fire service head quarter for the trainees, so as to enable the trainees to see actual working of fire department to attend fire/rescue calls with the regular fire service to gain practical experience. Fire fighting and difficulties encountered during fire fighting operators.

The trainees must be sent to one of the Principal Fire Institutes to have good exposure of the fire services. In addition they must be taken to different type of industries viz visit Airport, Shopping Malls, Multi-storey Buildings, Oil Terminals, LPG Bottling plant daily in the morning to acquaint them the type of fire fighting arrangements installed in such fire prone industry and buildings and how them arrangements are maintained by these establishments. Trainees are required to submit their observation about the fire safety arrangements to suggest improvement.

The training pattern along with marks distribution is given in the following table:

Sr. No.	Particulars	Duration (Weeks)	Marks Allocation
1.	Training in one of the Principal Fire Institutes at Delhi or Nagpur	04	100
2.	Training in Fire Station in metropolitan/big/industrial city	03	100
3.	Training in Fire Station in metropolitan/big/industrial city	03	100
4.	Report Writing and Presentation of the Work	02	200
	<b>Total</b>	<b>12</b>	<b>500</b>

## PERSONALITY DEVELOPMENT CAMP

This is to be organized at a stretch for two to three days during fifth or sixth semester. Extension Lectures by experts or teachers from the polytechnic will be delivered on the following broad topics. There will be no examination for this subject.

1. Communication Skills
2. Correspondence and job finding/applying/thanks and follow-up
3. Resume Writing
4. Interview Techniques: In-Person interviews; telephonic interviews, panel interviews; group interviews and video conferencing etc.
5. Presentation Techniques
6. Group Discussions Techniques
7. Aspects of Personality Development
8. Motivation
9. Leadership
10. Stress Management
11. Time Management
12. Interpersonal Relationship
13. Health and Hygiene