

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**Diploma In Fire Technology**  
Semester: II

**Subject Name: Fire Fighting Equipments**

Sr. No.	Course Content
1.	<p><b>1.1 Portable chemical fire extinguishers</b></p> <ul style="list-style-type: none"> <li>1.1.1 Classification of fire</li> <li>1.1.2 Types of extinguishers</li> <li>1.1.3 merits &amp; demerits</li> <li>1.1.4 care taking &amp; maintenance</li> </ul> <p><b>1.2 Rope Lines &amp; knots</b></p> <ul style="list-style-type: none"> <li>1.3.1 Types of foam</li> <li>1.3.2 materials</li> <li>1.3.3 properties of foams</li> <li>1.3.4 storage foam compound</li> <li>1.3.5 techniques of filling foam</li> <li>1.3.6 instruments for filling foam</li> </ul> <p><b>1.3 Foam &amp; Foam Making Equipments</b></p> <ul style="list-style-type: none"> <li>1.3.1 Types of foam</li> <li>1.3.2 materials</li> <li>1.3.3 properties of foams</li> <li>1.3.4 storage foam compound</li> <li>1.3.5 techniques of filling foam</li> <li>1.3.6 instruments for filling foam</li> </ul> <p><b>1.4 Hose</b></p> <ul style="list-style-type: none"> <li>1.4.1 Types of hose</li> <li>1.4.2 materials of hose</li> <li>1.4.3 characteristics of hose</li> <li>1.4.4 care &amp; maintenance</li> <li>1.4.5 delivery hose</li> <li>1.4.6 Suction hose &amp; working</li> <li>1.4.7 hose fitting</li> <li>1.4.8 types of cuppeling</li> <li>1.4.9 male &amp; female cuppeling</li> <li>1.4.10 nozzels</li> <li>1.4.11 monitors</li> <li>1.4.12 adopter</li> </ul>
2.	<p><b>2.1 Small gears</b></p> <ul style="list-style-type: none"> <li>2.1.1 Breaking tools</li> <li>2.1.2 cutting tools</li> <li>2.1.3 rescue tools</li> <li>2.1.4 lighting gears</li> <li>2.1.5 transport gear</li> <li>2.1.6 turning over</li> </ul>

	<ul style="list-style-type: none"> <li>2.1.7 misc.gears</li> <li>2.1.8 uses of all kinds of gears</li> <li>2.1.9 asbestose goods</li> <li>2.1.10 the goods of first aids</li> <li>2.1.11 the goods of first aids</li> <li>2.1.12 search light</li> <li>2.1.13 Strachers etc.</li> </ul> <p><b>2.2 Hydrant &amp; Hydrants Fittings</b></p> <ul style="list-style-type: none"> <li>2.2.1 Ground hydrant &amp; its uses</li> <li>2.2.2 maintanance &amp; fittings</li> </ul> <p><b>2.3 Main Water Supply</b></p> <ul style="list-style-type: none"> <li>2.3.1 water main service</li> <li>2.3.2 mains service reservoirs</li> <li>2.3.3 booster pump</li> </ul> <p><b>2.4 Water Carrying</b></p> <ul style="list-style-type: none"> <li>2.4.1 water relaying</li> <li>2.4.2 open circuit</li> <li>2.4.3 close circuit</li> <li>2.4.4 friction laws</li> </ul>
<p><b>3.</b></p>	<p><b>3.1 Artificial Respiration</b></p> <ul style="list-style-type: none"> <li>3.1.1 Principals of human respiration</li> <li>3.1.2 Precaution</li> <li>3.1.3 before artificial respiration</li> <li>3.1.4 selection of artificial respiration</li> <li>3.1.5 Silverster method</li> <li>3.1.6 Holger Nielson method</li> <li>3.1.7 Sheffer's Prone Pressure method</li> <li>3.1.8 machine for artificial respiration</li> <li>3.1.9 use of stratcher</li> </ul> <p><b>3.2 Hydraulics</b></p> <ul style="list-style-type: none"> <li>3.2.1 Chemical structure of water &amp; its characteristics</li> <li>3.2.2 air pressure</li> <li>3.2.3 hight &amp; pressure &amp; their calculations</li> <li>3.2.4 area of squares</li> <li>3.2.5 parallelogram</li> <li>3.2.6 triangle</li> <li>3.2.7 circles &amp; their calculations</li> <li>3.2.8 volume &amp; their calculations</li> <li>3.2.9 calculation about the capacity of hose &amp; pipelines</li> <li>3.2.10 velocity</li> <li>3.2.11 velocity of water-their calculations nozzle discharge &amp; its calculations</li> <li>3.2.12 water hammer</li> <li>3.2.13 calculation of friction laws</li> <li>3.2.14 jets &amp; its calculation</li> <li>3.2.15 pump performance</li> <li>3.2.16 power</li> </ul> <p><b>3.3 Symbols of Hydraulics &amp; its Equation for Calculations</b></p>

<p><b>4.</b></p>	<p><b>4.1 Pump &amp; Pump Operation</b></p> <ul style="list-style-type: none"> <li>4.1.1 Different kinds of pump &amp; their uses</li> <li>4.1.2 parts of pump</li> <li>4.1.3 colling systems &amp; their works &amp; their marits &amp; demerits</li> <li>4.1.4 fitting of pump- fix pump &amp; tender pump</li> <li>4.1.5 practical pump operation</li> <li>4.1.6 priming</li> <li>4.1.7 heaters</li> </ul>
<p><b>5.</b></p>	<p><b>5.1 Special Appliances &amp; Tenders</b></p> <ul style="list-style-type: none"> <li>5.1.1 Hose laying lorries</li> <li>5.1.2 Mobile dam lorries</li> <li>5.1.3 foam fresh tender</li> <li>5.1.4 mobile control van</li> <li>5.1.5 wireless van</li> <li>5.1.6 water carrier van</li> </ul> <p><b>5.2 Ladders</b></p> <ul style="list-style-type: none"> <li>5.2.1 Simple ladder</li> <li>5.2.2 extension ladder &amp; use</li> <li>5.2.3 characteristics</li> <li>5.2.4 maintanance of ladders</li> <li>5.2.5 uses of ladders</li> <li>5.2.6 escape ladder</li> </ul> <p><b>5.3 Turn Table Ladders (T.T.L)</b></p> <ul style="list-style-type: none"> <li>5.3.1 Terminology</li> <li>5.3.2 operations of T.T.L.</li> <li>5.3.3 automatic safty devices</li> <li>5.3.4 operation &amp; performance</li> <li>5.3.5 caiman hydraulic platform</li> <li>5.3.6 its terminology</li> <li>5.3.7 working with hydraulic platform</li> </ul>

**REFERENCES BOOKS:**

1. D.R.Varma, Agni Suraksha
2. K.K Bisnoi, Fire Science Equipment and Management, Part 1/2
3. Post H.S.C. Diploma inFire Service Engineering, NIFDEM-Nagpur
4. Station Officer and Instructor Course – Home Department of India, National Fire Service College, Nagpur (Government of India)
5. B.S.C. Fire, Gujarat University, Ahmedabad
6. Safe handling of Hazardous Materials – A.K. Rohatagi -Mumbai
7. Fire Chief's Hand Book - James F. Casey, Newyork
8. Fire Service Drill Book - by Home Office- Fire Dept. London

## **Fundamental of Fire & Fire Fighting Equipments (Practical)**

<b>Sr. No.</b>	<b>Course Content (Practical)</b>
1	Assemble & disassemble of dry chemical powder type fire extinguishers
2	Maintenance & drill of dry chemical powder type fire extinguishers
3	Assemble & disassemble of co2 type fire extinguishers
4	Maintenance & drill of co2 type fire extinguishers
5	Assemble & disassemble of water type extinguisher
6	Maintenance & drill of water type extinguisher
7	Assemble & disassemble of foam type fire extinguisher
8	Maintenance & drill of foam type fire extinguisher
9	Drill of various type of delivery hose, suction hose & related fittings.
10	Drill of an open circuit type breathing apparatus.
11	Drill of different types of ladder.
12	Study & drill of various small gear used in fire fighting & rescue operation.
13	Study of various type of foam and foam making equipments.
14	Drill of various type of foam making equipments.
15	Study and drill of different types of valves use in standpipe system.

### **REFERENCES BOOKS:**

1. D.R.Varma, Agni Suraksha
2. K.K Bisnoi, Fire Science Equipment and Management, Part 1/2