

<b>Name of Faculty</b>	:	Faculty of Science
<b>Name of Program</b>	:	Master of Science
<b>Course Code</b>	:	1MSF01
<b>Course Title</b>	:	Fundamentals of Fire Science
<b>Type of Course</b>	:	Professional Core
<b>Year of Introduction</b>	:	2023-24

<b>Prerequisite</b>	:	To Prevent and Protect Against the Destruction Caused by Fire
<b>Course Objective</b>	:	To Prevent and Suppress Unwanted Fires by Rendering Prompt And efficient Services So as to keep the Loss of Life and Property to the Minimum.
<b>Course Outcomes</b>	:	At the end of this course, students will be able to:
	CO1	Analysis of different type of combustible or flammable matter.
	CO2	Understand reaction of combustion of solid, liquid and gas.
	CO3	Application of various type of chemicals use in the fire extinguisher
	CO4	Remember the classification of fire.

### Teaching and Examination Scheme

Teaching Scheme (Contact Hours)			Credits	Examination Marks				
L	T	P		Theory Marks		Practical Marks		Total Marks
			C	SEE	CIA	SEE	CIA	
5	0	0	5	70	30	-	-	100

Legends: L-Lecture; T-Tutorial/Teacher Guided Theory Practice; P – Practical, C – Credit, SEE – Semester End Examination, CIA - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.)

### Course Content

Unit No.	Topics	Teaching Hours	Weightage	Mapping With COs
1	Combustible Matter, Flammable/Combustible Liquids, Classification Of Petrochemicals Liquids As Per NFPA, Combustible Gases.	15	25%	CO1
2	Combustion and It's Types ,Oxygen Content in Air by Weight And Volume, Combustion of Solid ,Liquid and Gases Exothermic and Endothermic Reactions, Jet and Flash, Flames and its types, Premixed ,Diffusion, Turbulent Stationary and	15	25%	CO2

	Propagating Flames Burning Velocity ,Flash Point, Fire Point, Transmission of Heat by Conduction Convection and Radiation.			
3	FIRE: Definition of Fire, Fire Triangle, Tetrahedron of Fire, Classification of fires, Types of Extinguishing Media of Agent, Principles of Fire Extinguishing Methods Cooling, Starvation, Smothering (Blanketing), Retarding Chain Reaction. FIRE EXTINGUISHING MEDIA OR AGENTS: Extinguishing Property of Water, Characteristics of Ideal Liquid Extinguishing Agent, Various Forms of Water Like Solid Stream, Fog, Spray.	15	25%	CO3
4	A) Types of Foam Concentrate, Protein, AFFF, Fluoro Protein, Alcohol Types, Low, Medium and High Expansion Foam, Physical and Chemical Properties of Foam. 2. DRY CHEMICAL POWDER: Various Types of Dry Chemical Powders and Their Uses, Carbon Dioxide, Halons, FM200 and Similar Extinguishing, Agents. B) Sprinklers Automatic Alarms Water Tenders, Fire Extinguishers, Fire Prevention And Inspection Procedures, Fire Protection Law as/Bye Laws.	15	25%	CO4

Suggested Distribution of Theory Marks Using Bloom's Taxonomy						
Level	Remembrance	Understanding	Application	Analyse	Evaluate	Create
Weightage	25	25	25	25	-	-

*NOTE: This specification table shall be treated as a general guideline for the students and the teachers. The actual distribution of marks in the question paper may vary slightly from above table.*

#### Suggested Learning Websites

Sr. No.	Name of Website
1	<a href="https://archive.nptel.ac.in/courses/105/102/105102176/">https://archive.nptel.ac.in/courses/105/102/105102176/</a>

#### Reference Books

Sr. No.	Name of Reference Books
1	Carl Goodson, "Essentials of fire fighting" Fire protection publications; 5th edition
2	Pann Well, "Fire engineering's skill drills for Fire Fighter", Pann Well; 1st & 2nd edition.