

B. Voc. in Fire Technology & Industrial Safety Management
Third Semester

Skill Component -I : RESCUE VEHICLES AND EQUIPMENTS				
Component	Unit (Module)	Subunit (Session)	Learning objective	Duration in hour
Theory	Fire-Fighting Tender	Introduction of Subject, Construction and layout details of various types of fire fighting and rescue vehicles, Ambulance.	Familiar with Fire Fighting Equipments and Vehicles	10
Theory	Specification of Tenders	I.S. Specifications for CFT, Emergency tender, Water tender type A,B & X, Foam tender, Multipurpose fire tender, Hose laying lorry, Break down van, Fire boats, Trailer pump, Portable pump, CO ₂ Tender, DCP Tender etc..	Use and Care maintenance of Fire Fighting Tenders Like Water Tender, Foam Tender, Multiple Tender Crash Fire Tenders Etc.	10
Theory	B. A. Set	Types of B.A. sets, Atmospheric and self contained, Theory of respiration, Essential feature of B. A. sets, Sequence of wearing, operational use, functional use, recharging, testing maintenance, advantages and disadvantages of different sets, Working duration and principle of calculating working duration, Donning Process, Pre-Entry Test, Duties of officer in charge and BA set Operatives.	Use and importance of Different types of B.A. Set and its Pre-test Methods before using B.A. Sets.	15

Theory	Small Gears	Introduction to small gears, lighting equipments and other tools used in fire service, its use, care and maintenance, Special gears – Study of hydraulic rescue equipments, cutting gears and other rescue apparatus, Lifting equipments – Mechanical, hydraulic, pneumatic jacks, pulley and blocks, air bags, Electric power tools and oxy-propane cutting set, Study of Indian specification of Fireman axe and fire hook.	Define and Familiarization of Small Gears use in fire fighting and rescue purpose and there various types.	10
Reference Book:	Agni Suraksha: D.R.Verma Industrial Safety Health and Environment Management System: R.K. Jain			

Skill Component -II :- CONSTRUCTION INDUSTRIAL SAFETY				
Component	Unit (Module)	Subunit (Session)	Learning objective	Duration in hour
Theory Demonstration Practical	Safe Work Place & Scaffolding	Safe means of access, Fall Protection, Safety while working on Roofs, PFASS (Personal Fall Arrest Safety System), Parts of Scaffold, Ladder Access, Working on Scaffold, Basic requirements of Scaffolding, Erection of Scaffolding Scaffolding Safety Scaffold Inspection	What is Falling hazards, Safety precautions and equipments using during work at height. Inspection and audit of scaffold.	10
Theory Demonstration Practical	Safe Material Handling Operations	Safe Handling of materials, Major injuries, Lifting appliances, Safe operations of Cranes, Pilings, Rigs, Side Booms, General Safety Requirements for Lifting operations.	Material Handling and use of equipments during Material handling. Use of Various lifting equipments in plant.	15
Theory Demonstration Practical	Major activities of Construction Project	Definitions- Excavation Hazards & precautions, Methods of Excavation, Welding and Cutting Operations, Types of Welding, Hazards and precautions for welding, Confined Space entry precautions, Painting operations - Hazards and precautions, Sand Blasting - Hazards and precautions, Demolition.	Demonstration and Visit on Construction Site. Explanation of Excavation and confined space.	
Theory Demonstration Practical	Personal Protective Equipment (PPE)	Need and importance of PPE, Employer's responsibilities, Employees responsibilities, Types of PPE, Head Protection, Eye and Face Protection, Ear Protection, Hand Protection, Leg Protection, Skin Protection Respiratory protection.	Define Personal Protective equipments and its types. Use and importance of PPEs at work place.	10
Theory Demonstration	Hand Tools and Portable Power	Workshop Safety, Tools, Types of Tools- Hand Tools and Power Tools,	Define workshop and its work activity. Hazards during using tools.	15

Practical	Tools	Commandments for personnel using hand tools, Portable Electric Power Tools, Pneumatic Tools, Lone Working	Introduce to safety precaution at use of tools.	
Theory Demonstration Practical	Vehicles, Equipment and Machinery	Workplace Transport, Hazards, Pedestrian routes, Vehicular routes, Reversing operations (Safety guidelines), Instructions for drivers, Hand held Power circular Saws, Chain Saws, Abrasive Wheels	Introduce to various types of Vehicle use in plant for working activity. Safety guidelines for driver and operator.	10
Reference Book:	Industrial Safety Management: N.K. Tarafdar Industrial Safety Health and Environment Management System: R.K. Jain Industrial Safety : K.U. Ministry			

Skill Component -III : SAFETY RESPONSIBILITY				
Component	Unit (Module)	Subunit (Session)	Learning objective	Duration in hour
Theory Demonstration Practical	Safety Philosophy	Introduction, Objectives, Basic Safety Programming, Safety Department	Introduction of safety philosophy and safety programming of safety department in the plant.	05
Theory Demonstration Practical	Safety Responsibility	Management Responsibility for Safety, Safeguarding Public, General Safety Rules, Responsibilities of Government, Responsibilities of Social Organizations, Responsibilities of Public Authorities.	About Responsibility of Various departments works for safety field.	05
Theory Demonstration Practical	Legislation of Safety	Safety Activities of ILO, Maintenance and Safety, Factories Act – 1948, Inspection and certifying.	Terms and conditions of Safety as view of activities, maintenance, employees health and safety.	10
Theory Demonstration Practical	Safety Council	Introduction of National Safety Council, Formation, Role and Responsibility.	Introduction about Safety Council.	10
Theory Demonstration Practical	Safety Management policy	Safety Policy of Management in Industry, Employees Responsibility towards Safety, Joint Responsibility for Safety.	Safety Management Policy and responsibility of Employees for Safe working Condition.	10
References:	Industrial Safety Management: N.K. Tarafdar Industrial Safety Health and Environment Management System: R.K. Jain Industrial Safety : K.U. Mistry			

Skill Component -IV :- CHEMICAL AND ENVIRONMENTAL HAZARDS AND CONTROLLING POLLUTION				
Component	Unit (Module)	Subunit (Session)	Learning objective	Duration in hour
Theory Demonstration Practical	Environmental Hazards	Introduction to Environmental Hazards, Terms and Definitions, Pollution, Environment Pollutant, Energy, Man and Environment, Law of Conservation of Energy, Thermodynamics.	Familiarization to Environment. What is environment pollution and its causes.	10
Theory Demonstration Practical	Environmental policy & laws	Environmental policy definition, Environmental policy issues & planning, Water & Air acts and rules, Environmental Protection act –1986, Important Definition-Environmental Pollution, Hazardous Substance, Occupier, General power of Central government, Prevention Control abatement of Environmental pollutant in excess of standard, Miscellaneous Provisions of act, Coastal zone development	Introduction about environmental policy and its issues. Learn about rules and regulation related to environmental protection.	15
Theory Demonstration Practical	Chemical Hazards Exposures	Multiple effects of Chemicals, Industrial Toxicology, Toxic Chemicals and its harmful effects on Humans, Harmful effects of Chemicals, Safety Analysis, Control Measures, Management of Workplace Exposure, Plant Operations, Dust Explosions.	Visit chemical plant. Learn about hazards and safety procedures use in chemical plant.	10
Theory Demonstration Practical	Environmental Regulation	Approaches to environmental Regulation, Concept of Industrial Ecology, Environmental Management System, Compliance to Legislations, Environmental Standards, ISO 14000, and International Environmental guiding Principles.	Introduce to Environmental and industrial concept like ecology system etc. and ISO 1400 and its guideline.	10
Theory Demonstration Practical	Environment Management	Environment Management, Integrated approach in managing Safety & Environment, Development process towards sustainability, Management and waste disposal system, Hazardous Waste Management.	Familiarization to environmental Management and Relation between environment and Safety.	15
Reference Book:	Industrial Safety Health and Environment Management System: R.K. Jain Industrial Safety : K.U. Ministry			