

Design of Fire & Life Safety System for buildings

Program Description

Course Name	Design of Fire & Life Safety System for buildings
Course Name as on Certificate	Certification in Design of Fire & Life Safety System for buildings
Certificate Type	Certificate of Completion by IITM Pravartak and L&T EduTech
Certificate Issued by	IIT MADRAS and L&T EduTech
Course Description	<p>The course will present concepts and practical aspects of design, installation and maintenance of active and passive fire protection systems. This course provides key design techniques and practical application aspects related to fire and life safety engineering. It takes the learner through the design, installation and maintenance of active and passive fire protection systems which are typically installed in infrastructures. This advanced course provides the learner the experience of designing fire protection systems in line with design standards and statutory requirements. It is developed in a manner to provide information via real time case studies and design examples which will support the learner's understanding about the design of active fire protection systems. The course also includes description about the various passive fire protection systems that can be implemented into fire safety design to ensure a fire safe infrastructure or premise.</p> <p>Enables learner to:</p> <ul style="list-style-type: none"> • An overall understanding of the concepts behind Industrial IoT and how to apply those concepts in real world applications • Associate the Basics of Fire, Active and Passive Fire protection Systems • Classify the Need, Role and Aspect of Compartmentation in a Building • Compare the Fire Alarm Integration with Building Systems • List the Codes and Standards related to Aspiration Detection System • Illustrate the Design of Water Spray systems
Educational Qualification	<ul style="list-style-type: none"> • Students pursuing Diploma / UG / PG Programs in Mechanical and other allied domains • Faculties in the field of Mechanical and other allied domains • Working professionals in the above domains
Pre Requisites	Fluid Mechanics, Basics of Electrical Engineering
Course Content	See Enclosed Programme details – as Annexure 1
Pedagogy	Online Self paced E-Learning Content
Assessment	One Final Assessment
Programme Faculty	<p>Mr. Padmanathan S, L&T Construction</p> <p>Mr. Padmanathan S, with Bachelors in Mechanical engineering and Masters in Business Administration heads the Design Department of Fire Engineering & Mechanical Systems in Buildings & Factories IC at L&T Construction. Having more than 34 years of experience in designing fire protection, fire detection and alarm systems in buildings. His expertise includes, commercial buildings, airports, metros, stadia, high rise buildings etc.,</p>

Duration	Weeks: 14 ; Hours : 28		
Class Schedule	Self Paced		
Programme Highlights/USPs	Fire Protection System Design of Fire water sump Fire rating requirement Fire Hydrant system Design of Compartmentation Design of sprinkler system Fire Alarm System		
Total Fees		Total Fees (Rs.)	
	Total Programme Fee	Rs. 5,100/- inclusive of Tax	

ANNEXURE 1

Proposed Course outline / programme / plan - Unit wise syllabus details.

Unit-1**Basics of Fire Protection System and Life Safety System**

Basics of Life Safety Systems, Fire Codes and Standards, Building Characteristics and Components, Case Study on Life Safety Evacuation for an IT Park, Means of Egress and Fire Rating Requirements of Buildings, Fire Resistance and Fire Resistance Rating, Stages in Fire Safety and Fire Resistance Rating Standards, Construction Details for Fire Resistant walls/structure, Egress Components and their Sizing Fire Protection in Buildings, Resistance Rating, and Restrictions

Unit -2**Design of Compartmentation in a Building**

Needs, Roles, and Aspects of Compartmentation in a Building, Designing of Compartmentation, Smoke Control and Management in Fire Zoning, Case Study on Compartmentation, Smoke Extraction in a Fire Compartment, Fire Zoning, Interfacing with Other Services

Unit -3**Fire Fighting Pump & Sump Capacity and Pipes & Fittings**

Fire Pump Room, Pump Capacity Calculation, Listings and Approvals of Fire Pumps, Fire Water Sump Calculation, Classification of Tanks, Piping and Instrumentation Diagram, Piping and Instrumentation Diagram and Pump General Arrangement, Basis of Design of Water Distribution and Types of Pipes used for Firefighting, Types of Pipe Protection, Codes and Standards, Introduction to Pipe Fittings, types, codes & standards

Unit -4**Fire Protection, Detection & Alarm Systems, and its Accessories**

Introduction to Fire Hydrants - Introduction to Sprinkler System, Sprinkler Location, Design Calculation of Sprinkler System, Introduction to Foam Suppression Systems, Working Principle of Foam Suppression Systems, Types of Foam Suppression Systems, Classification and Types of Extinguishers, Location and Coverage of Fire Extinguishers, Introduction to Fire Safety Signages, Location and Size of Fire Safety Signages, Luminescent Photo Safety signages

Fire Detection Systems - Purpose of Fire detection and Alarm System, Types of Fire Detection Systems, Selection of Detectors Based on the Hazard, Applications of Heat, Smoke, and Aspirating Detectors, Introduction and Terminologies of Fire Alarm Notification Devices, Location of Notification Devices

Unit -5**Special type of fire protection and fire alarm system:**

Introduction of Local and Total Flooding Fire trace system – Working Principle, Advantages, Types and Applications of Fire Trace System, Kitchen Hood Fire Suppression System, Application, Description and Operation, Fire Brigade Apparatus, Aspiration Smoke Detection System, Working principle of Aspiration smoke detection, Introduction Gas Suppression System, Regulatory Codes and Types, Clean Agent Fire Suppression System Design with various Cleaning Agents, Detection, Actuation, Alarm and Control systems, Introduction to Water Spray systems, Types and advantages of Water Spray systems, Design of Water Spray systems, Case Study Design of Water Spray systems for Transformers, Introduction, Requirement and Types of Water Mist Systems, Benefits and Limitations of Water Mist Systems