

August 12<sup>th</sup> & 13<sup>th</sup>  
2010

Summit Hall

Hotel Raj Park

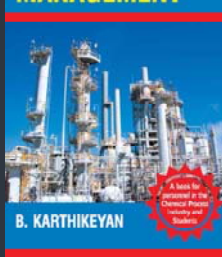
180, T.T.K.Road, Alwarpet,  
Chennai - 600 018.

## COURSE LEADER

### Mr. B Karthikeyan, Process Safety & EHS expert

Mr. Karthikeyan is a Chemical Engineer from Madras University, India and certified in risk analysis and risk management, with 30 years experience in the chemical industry in India and abroad. He has vast experience in operations, technical services, process safety management, environment and OHS management. He is a member of the American Institute of Chemical Engineers. He is the author of the book "Practical Process Safety Management"

### PRACTICAL PROCESS SAFETY MANAGEMENT



# Two Day Training on Process Safety Management

## Objective

This course provides an in-depth understanding of Process Hazards and their management including all 14 elements of US OSHA CFR1910.119 Process Safety Management rule. Approach towards risk based process safety is also discussed. The importance of human factors associated with each element of PSM and its role in developing and maintaining a sound process safety culture is highlighted.

The course is suited for personnel from oil and gas, petroleum refining, petrochemicals, fertilizers, pesticides, paints, pharmaceuticals, organic, inorganic and specialty chemicals and for those who want to learn about PSM.

## Typical Course Candidates

- Officers and Engineers from Safety, Operations, Process and Maintenance departments.
- Plant Operators and Maintenance Technicians.
- PSM Implementation team members – anyone involved with implementation, including operators and maintenance personnel
- PSM compliance auditors

## What You Will Learn:

- Get in depth understanding about process hazards associated with unit operations, maintenance, project and contractor activities.
- Learn methods to control process hazards by using a systematic approach
- Obtain a detailed understanding of the performance-based requirements of the U.S. OSHA PSM CFR 1910.119 rule
- Learn the importance of Human Factors in developing and maintaining process safety culture
- Gain practical process safety knowledge
- Understand the risk based approach towards process safety management

## Course methodology

The course uses powerpoint presentations and incident case studies (including videos) to illustrate the requirements of Process Safety Management. Workshops are included to understand the interpretations of PSM requirements and to demonstrate developing and maintaining an effective PSM program that can be adapted for your facility.

## Take Home:

- Comprehensive course material containing case studies, presentation material and PSM information
- Certificate of Completion

## What it covers:

### Day 1:

### Morning session:

#### Introduction:

- Introduction to process hazards and types of process hazards including hazards of vacuum
- Background of Process Safety Management (PSM) system as per US OSHA CFR 1910.119 PSM rule.
- Introduction to the elements of Process Safety Management
- Human error and Human factors – case study video

#### Process safety information:

- Process safety information including process safety information in Piping & Instrumentation Drawings and Material Safety Data Sheets
- Design basis of safety valves and venting systems and their importance to process safety

#### Process hazard analysis:

- Introduction to Process Hazard analysis (PHA)
- Selection of PHA method
- Overview of Hazard and Operability technique
- Pitfalls to avoid in a PHA



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“The passing of time without a process accident is not necessarily an indication that all is well. Workers and supervisors can increasingly rely on how things were done before, rather than on sound engineering principles”

- Baker Panel report on BP Texas refinery fire

# Two Day Training on Process Safety Management

## Day 1 Afternoon session:

### Operating procedures:

- Requirements of operating procedures from a process safety viewpoint
- Mandatory information in an operating procedure
- Human factors in operating procedures

### Contractor control:

- Process safety hazards associated with contracted work
- Non routine operations and contractor safety

### Training:

- Types of process safety training
- Process safety knowledge and its importance in training

### Hot work (and other work permit systems):

- Discussion of work permit requirements for hot work, confined space, work at heights, radiography and excavation

Video case study and group exercise.

## Day-2

### Morning session

#### Management of change:

- Types of soft and hard changes and their management
- Why managing change is necessary to avoid hazards
- How management of change links with other elements of process safety
- New projects and management of change
- Case study on management of change – Group exercise

#### Process Incident investigation:

- Definition and types of process incidents
- Presentation of a video case study involving human factors: discussion and group exercise on identifying human error / human factors causes of incident
- Pitfalls to avoid in process incident investigation

### Pre start up safety review (PSSR):

- Understanding the requirements of PSSR
- Technical issues in PSSR
- Examples of PSSR's that went wrong

## Day-2

### Afternoon session

#### Mechanical (Asset) Integrity:

- Safety critical equipment and its classification
- Layers of defense
- Inspection, Test and Maintenance plans – requirements
- Pitfalls to avoid in a asset integrity program

#### Emergency planning & response:

- Requirements of emergency planning
- Emergency response
- Table top drills

#### Compliance audit:

- Steps in carrying out a PSM audit

#### Employee participation and trade secrets:

- Developing an effective employee participation program
- Applicability of Trade secrets element

#### Concluding session:

- Group exercise – case studies and identifying the PSM elements(s) that failed to prevent them.
- Written Test
- Session Closing and feedback

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## About the Course Leader:

Mr Karthikeyan is a Chemical Engineer from Madras University, with over 30 years experience in the Chemical Industry in Operations, Technical Services, Process Safety, OHS and Environment Management. He has worked in India and abroad. He founded Prism Consultants in 2001, a pioneering consultancy for Process Safety Management in India. Website [www.prismcon.net](http://www.prismcon.net)

His extensive practical experience includes the implementation and auditing of Process Safety Management System as per OSHA CFR 1910.119, EPA's 40 CFR 68 Risk Management Program, Environmental Management System as per ISO 14001, and Occupational Health and Safety Management system as per OHSAS 18001. He has provided consultancy and training services for many organizations India and in South Africa, Middle East and Germany.

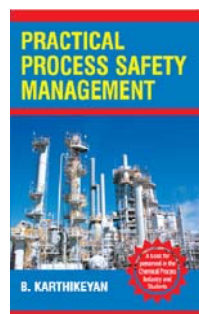
He is a lead auditor for ISO 14001 and OHSAS 18001 systems. He is also an emergency responder for chemical plants and has undergone extensive emergency response and rescue training abroad. He has investigated numerous chemical plant incidents and is an expert on human factors and abnormal situation management.

He has worked at senior management level with leading organisations like Madras Fertilisers Limited, Murugappa Group, (as Dy. General Manager for Process Safety Management at E.I.D Parry (India) Ltd, now Coromandel International Ltd) and internationally with National Methanol Co., Saudi Arabia (a SABIC company).

He has carried out over 300 audits of Process Safety, OHS and Environmental Management Systems in both continuous and batch processes, conducted many HAZOP studies and conducted over 250 training sessions on management systems for Process Safety and EHS.

He has published many papers in leading magazines on Process Safety and EHS management and presented many papers on Process Safety Management in national and international seminars.

He is the author of the book "Practical Process Safety Management".



“It should not be necessary for each generation to rediscover principles of Process Safety which the generation before discovered”

– Jesse C. Ducommun

# PROCESS SAFETY MANAGEMENT TRAINING COURSE BOOKING FORM

To:

Prism Consultants

1A, No.1, Third Main Road, Kasturba Nagar,

Adyar, Chennai-600020

Phone: 24414040, Cell: 9840111248

e-mail: [bkprism@gmail.com](mailto:bkprism@gmail.com)

**We are pleased to nominate the following personnel for the training course mentioned below:**

**NAME OF COURSE:** Process Safety Management

**DATES OF COURSE:** 12.8.10 and 13.8.10. Course timings: 9AM to 5 PM

**VENUE:** Summit Hall, Hotel Raj Park, 180, T.T.K.Road, Alwarpet, Chennai - 600 018  
Ph: 2498 7777

**COURSE FEE:** Per delegate Rs. 8,800/= (including service tax @10.3%) (Rs Eight thousand eight hundred only). For Company sponsoring 5 or more candidates there shall be 5% discount.

S.No	Name of Delegate	Designation
1		
2		
3		
4		
5		

Cheque no. \_\_\_\_\_ dated \_\_\_\_\_ drawn on \_\_\_\_\_ Bank for  
Rs \_\_\_\_\_ payable to "Prism Consultants", payable at Chennai is attached.

**Date:**

**Name of authorized person:**

**Designation:**

**Company Name and Address:**

**Contact number:**

**Signature:**.....

## Notes:

1. Payment in full must accompany this booking form.
2. **If you want to transfer the fees electronically, please request the details of account number from us.**
3. Full payment is to be made in advance for reserving the seats since there are limited numbers of seats.
4. Programme materials, buffet lunch, morning and evening tea with snacks are included in course fee.
5. The course is non residential.
6. Courses may be cancelled without charge providing written notice of the cancellation is received at least 2 weeks before the scheduled start of the course. In the event of a cancellation at less than 1 week prior to the scheduled start of the course, or on failure of a delegate to attend, Prism Consultants reserve the right to charge the whole course fee.
7. Substitute delegates are allowed up to the start day of the course.
8. In the event of a cancellation of the course by Prism Consultants, liability will be limited to provision of a refund of any course fees paid.
9. The course shall be delivered in English.