Layers of Protection Analysis (LOPA) is a powerful analytical tool to assess the adequacy of Independent Protection Layers (IPL) to protect against a hazardous event. It is to identify the counter-measures available against the potential consequences of a particular risk.

The course will help to understand how significant scenarios are categorised and tolerable frequencies assigned for identified hazardous events. You will also learn to assign risk categories and determine how many Independent Protection Layers (IPLs) should be in place. The course also covers the specification and requirements for a protection layer to be accepted as an IPL. All the essential LOPA steps are practised in this course. The Course materials including reference materials will be given to the participants.

Course outline:

- LOPA Overview
- The Layer of Protection Concept
- Elements of LOPA
- Selecting Scenarios for LOPA
- Hazardous Consequence and Tolerable Risk
- Enabling Conditions & Conditional Modifiers
- Evaluating the LOPA Results
Learning outcome:

By the end of the course you will understand:

- the LOPA methodology and how to apply it
- how to decide if a process needs a Safety Instrumented System (SIS)
- what Safety Integrity level (SIL) is required
- how to define an Independent Protection Layer (IPL)
- how to lead a LOPA study

Who Can attend:

**Academic:**

- Students of Chemical, Petroleum, Mechanical and Production Engineering
- Faculty who teach Industrial Safety courses

**Industry:**

- Process Safety Engineers/Production Engineers
- Process Engineers/Process Control Engineers
- Safety Instrumented Systems Engineers
- Reliability Engineers

Course Fee per person:

- Industry: Rs. 2360
- Faculty: Rs. 885
- Students: Rs. 295 (including 18% GST)

Beneficiary: Director, CEST Anna University

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IFSC Code: SBIN0006463

MICR NO: 600002039

Please visit https://www.annauniv.edu/CEST/ for further details

The trainer **Dr N Balasubramanian** is a Chemical Engineer by profession, having more than 27 years of experience in Process Safety. HAZOP and LOPA facilitator. He is fellow of the **IICHe and IIE**.

Registration

https://docs.google.com/forms/d/e/1FAIpQLSc-Oti0bsIWN7HiBZdiLoJqlHZI_W_fCnXZepTo1mnPaUA7w/viewform

Last date for Registration is 10.08.2024