Chemical Process Safety and Hazards Management

November 20 - 24, 2017

Overview

Chemical Process Industries are critical infrastructure of any country and should be protected from both intentional and unintentional threats. These plants are prone to accidents that may lead to fatalities, loss of property, environmental damage etc., as these handle hazardous chemicals under extreme operating condition. It is important to teach basics of process safety and hazard management to all stakeholders for making these plants safe. This course will discuss all important aspects of chemical process safety including hazards identification, hazard analysis, consequence analysis and emergency response planning. Case studies on Bhopal Gas tragedy and Flixborough disaster will also be discussed to provide practical aspects of accidents to the participants. This course will also provide the recent advancements in the field of process safety and risk assessment. This course has been especially prepared for academician, professionals from industries, executives of government organization, students to learn the important aspects of process safety. The faculty will demonstrate the practical aspects of handling accidents through case studies.

Objectives

The primary objectives of the course are as follows:

- To teach fundamentals of chemical process safety and hazards management
- To discuss the important component of the Risk Management Plan (RMP) i.e. hazards identification, hazard analysis, consequence analysis and emergency response
- To discuss the advancement in the field of risk assessment (both intentional and unintentional threats)
- To demonstrate practical aspects of accidents through case studies
- Use problem solving sessions with examples to estimate Dow's Fire & Explosion Index
- To provide future perspective of inherently safer processes and designs for making safe chemical plants

Topics to be covered

- Concept of loss prevention, accident and loss statistics, fire triangle
- Inherent Safety: process intensification, substitution, moderation
- Industrial Hygiene: evaluation and control, Hazards of common materials, leaks and spills in Oil and Gas facilities
- Designs to prevent Fire & Explosion (Inerting, static electricity, sprinkler system), case study of an accident caused by faulty design
- Fire modeling (Pool Fire and Fire Ball)
- Hazards identification, Hazards and Operability Studies (HAZOP)
- Quantitative Risk Analysis (QRA), Layer of Protection Analysis (LOPA), Fault Tree Analysis (FTA), Even Tree Analysis (ETA)
- Dow's Fire and Explosion Index (F&EI), with example of a storage vessel in a tank form areas.
- Concepts of Security Vulnerability Assessment (SVA), case study of a refinery and fertilizer plant for SVA
- Safety tools for security risk assessment in Oil and Gas facilities
- Case studies on Bhopal Gas Tragedy and Flixborough Disaster
- Problem discussion with examples

Course duration	**November 20 – 24, 2017 (5 days)**
Who can attend	❖ This program is open to the Faculty and Students (B.Tech/ M.Tech/ Ph.D) from reputed academic and technical Institutes ❖ Professionals working in Industries, consultancy firms and R&D laboratories can also attend the program
Venue	Dr B R Ambedkar National Institute of Technology, Jalandhar, Punjab – 144011
GIAN portal Registration	**Step 1: One time web portal registration** Create login and password at http://www.gian.iitkgp.ac.in/GREGN/index login and complete the Registration Form and pay Rs. 500/- (non-refundable, GIAN Portal Registration Fee) through online payment gateway. After Payment select the course (Chemical Process Safety and Hazards Management) from the listed GIAN courses.

	Step 2: Institute Registration The registration form for this course can be found along with this brochure. The soft copy of brochure can be downloaded from the institute website www.nitj.ac.in (GIAN portal). Participants are requested to fill the registration form and send it to the course coordinators along with registration fee payment details. Scanned copy of filled up form can also be sent to cpshm2017@gmail.com. The participation fees (excluding lodging and boarding) for taking this course is as follows: Faculty/Scientists/Industry Personnel from abroad — US $500/- Student participants from abroad — US $100/- Persons working in Industry/ Consultancy Firms — Rs. 5,000/- Faculty (Internal & External)/ Scientists from Research Organizations — Rs. 5,000/- Students — Rs. 1,000/- The above fee includes all instructional materials, computer use for tutorials and assignments, and session refreshments. Limited accommodation is available on payment basis at Institute Guest House (first cum first serve).
Mode of payment	**DD** in favour of "**CPSHM2017**" payable at Canara Bank Jalandhar or **Bank online transfer:** Account name and number as follows: Account details: Beneficiary's name: CPSHM2017 Bank: Canara Bank Account Number: 2945101003174 IFSC code: CNRB0002945; MICR Code: 144015011 Please send the copy of RTGS/NEFT transfer to the following email ID cpshm2017@gmail.com. Scanned filled up application form along with the requisite fees details should be send to the above mentioned email ID before 15th November 2017. Selection will be made purely on eligibility and on first come first serve basis. Number of seats: 35.
Local accommodation	Accommodation at the Institute Guest houses will be available on payment basis.
About climate	The city has a humid subtropical climate with cool winters and long, hot summers. Summers last from April to June. The winter season in Jalandhar begins from middle of November and remains till mid-March. The city often experiences very low temperatures. Cold waves blow over Jalandhar during the winter season. The maximum temperature dips down to 19°C while the minimum temperature remains around 6°C for most part of the winter season.

The Faculty

Genserik Reniers, a Master of Science in Chemical Engineering, is Full professor at the Safety and Security science group of the Delft University of Technology, in the Netherlands, where he teaches Risk Analysis and Risk Management. At the University of Antwerp in Belgium, he is a Full professor lecturing amongst others in chemistry, organic chemistry and Technological Risk Management. At the Brussels campus of the KU Leuven, Belgium, he lectures as a Professor, amongst others, in Engineering Risk Management. Furthermore, he is Scientific Director of the Leiden-Delft-Erasmus Centre for Safety and Security in Netherlands. His main research interests concern the collaboration surrounding safety and security topics and socio economic optimization within the chemical industry. Amongst many other academic achievements and output, he has published 120+ scientific papers in high-quality academic journals, and has (co-)authored and (co-)edited some 35 books.

Dr. Shailendra Bajpai, is currently working as Associate Professor in the Department of Chemical Engineering at Dr. B R Ambedkar National Institute of Technology, Jalandhar. He has 19 years of teaching experience involving both graduate and post graduate courses. He has authored five books and more than 50 research publications in International/national journals of repute and conference proceedings. He is Reviewer of many International Journals such as Journal of Loss Prevention in Process Industries (Elsevier), Journal of Hazardous Materials (Elsevier), Journal of Intelligent and Fuzzy Systems, International Chemical Engineering Journal, etc. He is Life Member, Indian Institute of Chemical Engineer, Kolkata and honorary secretary of Doaba Regional Centre, IICHE. His Research interests include Waste water treatment, Safety in chemical plants, Membrane separation process, Risk assessment of intentional threats, etc.

Dr. N. K. Srivastava did his B Tech in Leather Technology from Harcourt Butler Technological Institute Kanpur. He did his M Tech in Chemical Engineering from Indian Institute of Technology Roorkee and Ph D in Chemical Engineering from Dr. B. R. Ambedkar National Institute of Technology Jalandhar. He joined the then Dr. B. R. Ambedkar Region Engineering College Jalandhar as Lecturer in the year 1997. Presently, he is working as Associate Professor in the Department of Chemical Engineering at Dr. B. R. Ambedkar National Institute of Technology Jalandhar. His area of interest is Wastewater Treatment, Air Pollution Control and Biofuels. He has published 01 Book Chapter in "Advances in Nanotechnology". He has published 50 Research Papers in various International and National Peer reviewed Journals and conferences.

Dr. Ajay Bansal is Associate Professor and Head, in the Department of Chemical Engineering at Dr B R Ambedkar NIT Jalandhar. He received his M Tech from IIT Delhi and later Ph D from Panjab University Chandigarh in 2005. He has over 22 years of teaching and research experience. The research areas of Dr Bansal include Environmental Engineering, Multiphase Reactors and Flow, Rheologically Complex Fluids, Advanced Oxidation Processes and Photocataysis.

One week

GIAN course on

Chemical Process Safety and Hazards Management

November 20 –24, 2017

Course Coordinators

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About the host Institute	Dr B R Ambedkar National Institute of Technology was established in the year 1987 as Regional Engineering College and was given the status of National Institute of Technology (Deemed University) by the Government of India on October 17, 2002 under the aegis of Ministry of Human Resource Development, New Delhi. Now the Ministry of Human Resource Development, Government of India has declared the Institute as "Institute of National Importance" under the act of Parliament-2007. As one of the National Institutes of Technology (NIT), the Institute has the responsibility of providing high quality education in Engineering, Technology and Sciences to produce competent technical and scientific manpower for the country. The Institute offers BTech, MTech, MSc, MBA and PhD programmes in the several disciplines of Engineering, Technology and Sciences.
About the Department	The Department of Chemical Engineering, NIT Jalandhar is one of the sixteen Departments of the Institute. The coherent, cohesive and homely environment of the Department is attributed to the students, faculty and staff with tremendous potential and opportunities to grow academically, emotionally and spiritually. The Department started functioning in 1990 for teaching undergraduate B.Tech programme and subsequently M.Tech and PhD Programs were initiated. Department is striving to emerge as a premier Centre of Chemical Engineering teaching and research of the country. The Department has also been selected as 'DST-FIST' sponsored Department.
How to reach Jalandhar	Jalandhar can be conveniently reached by air, rail as well as road services. The city has a well-developed infrastructure, which keeps it connected to cities both within and outside the country. Local transport can be availed from Jalandhar bus depot to reach any part of the city. It takes nearly 7 hours to travel distance of around 372 km between Delhi and Jalandhar via NH 1. There is a wide network of bus services available in the city, connecting it to the other key cities in Himachal, Haryana, U.P, Jammu & Kashmir and Rajasthan. The railway terminus at Jalandhar falls on the Delhi-Amritsar Railway Line. Jalandhar City Railway Station on Amritsar-Delhi railway line is an important rail junction of Punjab. This route is mostly traversed by the passenger and express trains that connect the city to the important cities like Jammu, Kolkata, Nagpur, Mumbai, Puri and Delhi. Some of the important trains running through Jalandhar are Amritsar-New Delhi Shatabdi Express, Amritsar Howrah Mail, Amritsar-New Delhi Express, Amritsar-Bilaspur Chhatisgarh Express, Pathankot Tatanagar Express, JammuTawi-Pune Jhelum Express, Akal Takht Express, and so on. Jalandhar does not have an airport of its own. The closest international airport to is Rajasansi Airport of Amritsar, which is at a distance of 90 km. Amritsar, Chandigarh and Ludhiana have domestic airports, at a distance of 134 km and 59 km respectively.
Places to visit	Punjab, the land of five rivers. Punjab is the land of food, colour, and happiness. Being one of the most significant places in India historically, this state is filled with wonderful architecture and places of worship. Harmandir Sahib or the Golden Temple, Amritsar; The holiest Sikh Gurudwara in Punjab, there's nothing about this place that won't calm your senses, and put you at peace. Wagah Border ceremony; Every evening, hundreds of people flock to the Wagah border, the international border that separates India and Pakistan, to witness the majestic changing of guards accompanied by the hoisting and retreat of the respective national flags. The border security forces of both nations undergo the elaborate process jointly through an interesting ceremony.

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(November 20 – 24, 2017)

Under

Global Initiative of Academic Networks (GIAN)

Ministry of Human Resource Development

Government of India

REGISTRATION FORM*

Name: …….....

Category: (Academic/Student/Industry/R&D)

Designation: ……

Institution: ……

Town/City: ……

Country: ……

Email ID: ……

Mobile No: ……

Registration fee: ……

Payment details (If paid online): …….....

Details of Demand Draft (Payment by DD in favour of "CPSHM2017" payable at Canara bank Jalandhar)

DD No.: ……. **Bank Name:** …….. **Date:** …… **Amount Rs:** …….

Accommodation required: (Yes/No)

Date:……. **Signature of Participant**

(Signature of sponsoring authority, if any)

*Scanned copy of this form can be send via email to cpshm2017@gmail.com or the hard copy of registration form can be posted on the below mentioned address on or before 15th November 2017 along with payment details.
Address: *Dr. S. Bajpai, Associate Professor, Department of Chemical Engineering, NIT Jalandhar, Punjab – 144011.*