

# POLLUTION PREVENTION IN PROCESS INDUSTRIES

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## Overview

For the process industries, it is necessary to manufacture their products while maintaining a clean environment. A key component of this is the need to utilize any wastes produced, rather than dumping them and risking pollution. For example, cement plants produce cement kiln dust, which is a very fine powder. It is highly alkaline and has a large surface area, which makes it very reactive. Cement plants also produce large quantities of carbon dioxide. It is possible to react the mild acid produced by dissolving carbon dioxide in water, with the alkaline cement kiln dust to produce stable, approximately pH neutral construction material. Another example is sulfide mineral smelters and coal-fired power plants, which produce sulfur emissions. These plants can either be forced to shut down because they cannot meet sulfur emissions regulations, or they can capture the sulfur and use it to produce products such as sulfuric acid and gypsum that they can sell at a profit. There are many other examples of how wastes and pollutants can be captured, processed and sold to the benefit of the plant, rather than being dumped or emitted to harm the environment. The primary objectives of the course seeks to engage participants in critical thinking and understanding regarding the field of process industries, and applying processing principles to the capture and utilization of pollutants for the concept of zero discharge. Course participants will be able to take the tools that they have learned and apply them to their prospective processes. The course is designed with the following topics in mind:

1. Familiarization with Environmental Regulations.
2. Dust and Gaseous Pollution Control
3. Collection and Utilization of Fly ash and Scrubber sludge.
4. Carbon Dioxide Sequestration.

On successful completion of this module, the participants will have demonstrated their ability

- To apply fundamental engineering and science knowledge together with process design skills in case studies for air pollution control.
- To be able to identify source of emissions and control pollutions to prevent environmental degradation.

<b>Modules</b>	<b>A: Pollution Prevention in Process Industries</b>  <b>Dates :May 05-12, 2018</b> <b>Number of participants for the course will be limited to fifty</b>
<b>You Should Attend If...</b>	<ul style="list-style-type: none"> <li>• Executives, engineers involved in chemical/mining/environment engineering from academia and manufacturing, service and government organizations including R&amp;D laboratories.</li> <li>• Students at all levels (BTech/MSc/MTech/PhD) or Faculty Members/Scientists from reputed academic institutions and technical institutions.</li> </ul>
<b>Fees</b>	<p>The participation fees for taking the course is as follows:</p> <p><b>Participants from abroad : US \$500</b>  <b>Industry/ Research Organizations: Rs. 25000</b>  <b>Academic Institutions: Rs. 10000</b></p> <p>The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.</p>

## The Faculty



Prof. S. Komar Kawatra is a Professor and the Chair of the Chemical Engineering at Michigan Technological University, USA. He is also the Director of the Advanced Sustainable Iron and Steel Center established by the National Science Foundation. He has received numerous National Awards such as Gaudin Award, Taggart Award, Aplan Award and the Richards Award. He is the author/Editor of 7 books. He has extensively conducted research in operating plants in the United States. He is the Editor-in-Chief of the Minerals, Metallurgical, Processing Journal and the Mineral Processing and Extractive Metallurgy Journal. His research in this field has included the following: processing and utilization of the sludges from wet flue-gas scrubbers.; development of fly-ash-based particulate binders; physical removal of toxins from contaminated sediments ;capture and concentration of carbon dioxide using low-cost absorbents.



**Prof. B. C. Meikap** is a Professor of Chemical Engineering, Indian Institute of Technology, Kharagpur. He has 25 years teaching and research experience in the area of industrial pollution control, fluidization, hazardous waste treatment. He is Member of many professional societies like AIChE , IChemE, RSC, IChE, SAChE & IE(I). He has handled many industrial projects and published over 100 journal papers in international journals.

## Course Co-ordinator

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**Course Registration:**  
[www.gjan.iitkgp.ac.in/GREGN/index](http://www.gjan.iitkgp.ac.in/GREGN/index)

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