

## MHRD Scheme on Global Initiative on Academic Network (GIAN)

### One Week Course on

# Slag Design in Metallurgical Processes (155037B03)

**August 22-28, 2016**

### Overview

Iron and steelmaking sectors are growing rapidly internationally. A deep understanding of the slag/metal/gas thermodynamic equilibria, and phenomena involved is very essential for process control in the steelmaking. So knowledge of the thermodynamic, thermophysical and properties of slag is of fundamental importance for the process control.

The course is expected to provide a state-of-the art knowledge on metallurgical slags with special reference to iron and steelmaking. The course contents will be relevant to process metallurgists, researchers in the fields of ceramics and glass and researchers in the environmental area. The course will contribute to the existing knowledge for the academic faculty at NITs, from universities and industries and R & D organization.

### Course Objectives

The participants are exposed to the chemistry of slags and how to design the slags to have the maximum process efficiency. The following are the course outcomes

- i) Participants able to improve their understanding about high temperature processing.
- ii) Participants able to find usefulness of Thermodynamics and Kinetic knowledge in liquid metal processing.
- iii) Participants able to design slag composition to enhance cleanliness of steel

### Modules

- Each chapter will cover fundamentals, experimental methods and commercial software available
1. The importance of slags in metallurgical industries
  2. The structure of slags and compositions of slags in various metallurgical processes.
  3. Thermodynamic properties of slags
  4. Experimental methods to determine thermophysical properties of slags that includes densities, viscosities, surface and interfacial tensions and thermal diffusivities
  5. Kinetic and mass transfer aspects of slag/metal and slag/gas reactions
  6. Slag designs in metallurgical plants
  7. Environmental aspects of handling slags.

### Targeted Participants

Executives, engineers and researchers from manufacturing, service and government organizations including R&D laboratories  
Students at all levels (B.Tech./M.Sc./M.Tech./Ph.D.) or Faculty from reputed academic institutions and technical institutions

### Fees

**Participants from abroad:** USD 250  
**Participants from Academic & R and D institution:** Rs.5,000/-  
**Participants from industry** Rs.10,000/-  
**PhD Scholars/PG Students** Rs 3000/-  
 The above fee includes all instructional materials , breakfast and working lunch.

# About Speaker

## PROFESSOR SESHADRI SEETHARAMAN

Professor Emeritus, Royal Institute of Technology, Stockholm, Sweden is one of the highly awarded faculties in the metallurgy field. His major research interests are thermodynamics, physical properties, kinetics and process phenomena in high temperature systems. He has published more than 320 publications in peer-reviewed journals, 130 conference presentations and 10 patents. He is editor for the books, "Fundamentals of Metallurgy" and "Treatise on Process Metallurgy". He received the President's award for teaching merits in 1994.

He was nominated as the best teacher in Materials Science eight times and was chosen as the best teacher of the Royal Inst. of Technol. In 2004. He has awarded the Brimacomb prize for the year 2010 Hon. Doctor at Aalto University, Finland in 2011 and Hon. Professor at the Ukrainian Metallurgical Academy, 2011. Prof. Seetharaman is an Hon. Member of the Iron and Steel Institute of Japan, 2011, He has been honored as the Distinguished Alumni of the Indian Institute of Science, Bangalore, India in the year 2013.

### Additional invited talk by

#### Professor N Viswanathan,

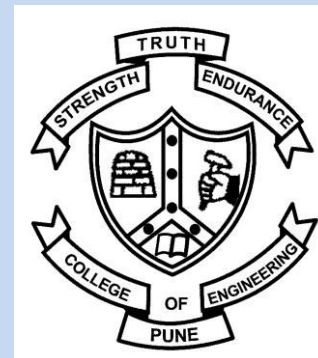
Dept. of Metallurgical and Materials Science, IIT Bombay

#### Professor Somnath Basu

Dept. of Metallurgical and Materials Science, IIT Bombay

## Organized by

Department of Metallurgy and  
Materials Science  
College of Engineering Pune  
Shivajinagar, Pune-05



## Course Coordinator

Dr. N. B. Dhokey

Professor & HOD

Metallurgy and Materials Science

College of Engineering Pune

Email: [hod.meta@coep.ac.in](mailto:hod.meta@coep.ac.in),

Phone No: (0) 020 25507261,

(M) 09422057442

[www.coep.org.in](http://www.coep.org.in)

**Last date for receiving**

**registration form : 20/7/2016**

## How to Apply

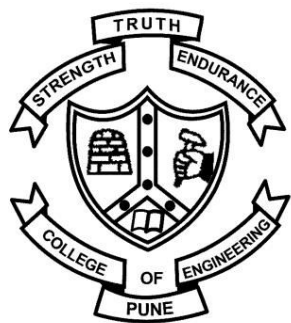
Course participants need to follow these three steps:

**Registration at GIAN Portal** ([www.gian.iitkgp.ac.in](http://www.gian.iitkgp.ac.in)), which says, "Registration to the portal is [a] one time affair and will be valid for lifetime of GIAN. Once registered in the portal, an applicant will be able to apply for any number of GIAN courses as and when necessary. One time Non-refundable fee of Rs. 500/- is to be charged for this service."

**Registration for the course** by sending an e-mail to [hod.meta@coep.ac.in](mailto:hod.meta@coep.ac.in) with the following details

Full name , Status (UG/PG Student, or Designation at your organization) , Institution, Department and full postal address

**Payment of the Course Fee** by cheque (drawn in favour of "The Director, College Of Engineering Pune") on or before **20 July 2016**.



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## Registration Form

Participant Name	
GIAN Course Code	155037B03
GIAN Registration Number*	
Date of Birth:(DD/MM/YYYY)	
Gender	
Institute/Organization/industry	
Current Designation/Status	
Qualification	
Email id	
Contact Mobile Number	
Correspondence Address	
DD Particulars (DD should be drawn in the favour of "Director, College of Engineering Pune payable at Pune)	Bank: DD No.: Amount: Date:
Whether accommodation required? Yes/No	

\* Forms will not be accepted without GIAN Registration number. GIAN registration number will be generated after **registration at GIAN Portal** ([www.gian.iitkgp.ac.in](http://www.gian.iitkgp.ac.in))

\*\* All Fields are mandatory

\*\*\* **Last date for receiving registration form : 20/7/2016**

[Send the scan copy of registration form by email to [hod.meta@coep.ac.in](mailto:hod.meta@coep.ac.in) After approval email, send the hard copy of registration form with Demand draft to following correspondence address.

Signature of Candidate

### Correspondence Address

Dr. N. B. Dhokey

Professor & HOD

Metallurgy and Materials Science

College of Engineering Pune

Email: [hod.meta@coep.ac.in](mailto:hod.meta@coep.ac.in),

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