

Combustion: Fundamental and Applications

Overview

Combustion is still the world's most important and most widely used energy conversion technology. Potential environmental damage and limited resources of fossil fuels require more intensive efforts to better understand the underlying combustion processes. The fundamental knowledge of combustion is expected to improve the design of the industrial combustion systems by enhancing the flame stability, improving the combustion efficiency, and reduction in pollutant formation. The short course is expected to cover fundamental understanding of this multi-scale, multi-physics problem, i.e. combustion and their potential applications and challenges in the development of modern combustor systems for the transportation, power-generation and other industrial applications.

Course Information	Duration: November 16 – November 26, 2016 (11 days) Total Contact Hours: 40 hours in 11 days Number of participants for the course will be limited to fifty. Course participants will learn these topics through lectures and interactive sessions.
Modules	Module 1. Thermochemistry Module 2. Chemical Kinetics and Reaction Mechanisms Module 3. Governing Equations for Chemically Reacting Flows Module 4. Simplified Reacting Systems Module 5. Laminar Premixed Flames Module 6. Laminar Non-Premixed (Diffusion) Flames Module 7. Spray Combustion
You Should Attend If...	<ul style="list-style-type: none">▪ Executives, engineers and researchers from academia, industry and government organizations including R&D laboratories with a background in aerospace, automotive, mechanical, and chemical engineering.▪ Postgraduate students (MSc/MTech/PhD) and faculty from reputed academic institutions. Pre-requisite: Prior knowledge in Fluid Mechanics, Thermodynamics and Heat Transfer is needed. Understanding/knowledge of Combustion is desirable.
Fees	The participation fees for taking the course is as follows: Participants from abroad: US \$500 Govt. Research Organizations: INR 5,000 Private Industry : INR 10,000 Faculty: INR 3000 Students: INR 1000 The above fee includes all instructional materials, computer use for tutorials, 24 hr free internet facility. The participants will be provided with single-bed accommodation on payment basis.

The Faculty



Prof. Suresh Aggarwal is a Professor and Director of Flow and Combustion Simulation Laboratory at University of Illinois, Chicago, USA. His research interests include theory, simulations and experiments on laminar and turbulent combustion, emission, spray combustion and combustion instabilities.



Prof. Abhijit Kushari is a Professor of Aerospace Engineering at Indian Institute of Technology, Kanpur. His research interests are rocket and gas turbine propulsion, instrumentation in combustion and fluid mechanics, liquid atomization and liquid combustion, active flow control, combustion instability, experimental fluid mechanics, high speed flows.



Dr. Ashoke De is an Assistant Professor of Aerospace Engineering at Indian Institute of Technology, Kanpur. His research interests are CFD, turbulent combustion, turbulent flows in gas turbines, hydrogen combustion, stochastic PDF based combustion modelling, high speed aerodynamics, high performance computing.

Course Co-ordinator

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Course website:

<http://home.iitk.ac.in/~ashoke/gian/GIAN1.pdf>

Registration: <http://www.gian.iitk.ac.in/GREGN>