

## PARTICIPATION FROM ACADEMIC

## INSTITUTIONS ON SELF SPONSORED

## SEATS

There are 10 self sponsored seats available for participants from Engineering Colleges, which can support them. The course fee is Rs 12,000 (Non-refundable) and the participants will need to bear all the expenses for lodging, boarding etc.

## PARCIPATION FROM INDUSTRY AND

## R & D ORGANISATIONS

Registration fee Rs. 50,000/- payable by a crossed demand draft drawn in favor of "Continuing Education Program, IIT Kanpur" payable at State Bank of India, IIT Kanpur. **Course fee does not include accommodation. There will be separate accommodations and meal charges of approximately Rs 1500 to be paid directly to IITK Visitors Hostel (Guest House) for five/ six days (3<sup>rd</sup>-7<sup>th</sup> August).**

## COURSE COORDINATOR

Prof. Avinash Kumar Agarwal  
Phone (O) 0512 259 7982  
FAX 0512 259 7408  
E-mail: [akag@iitk.ac.in](mailto:akag@iitk.ac.in)  
URL: <http://home.iitk.ac.in/~akag/>  
[www.iitk.ac.in/erl](http://www.iitk.ac.in/erl)



## IMPORTANT DATES

Last date for receiving application	July 20 <sup>th</sup> , 2018
Notification about selection	July 22 <sup>nd</sup> , 2018
Confirmation by the participants	July 25 <sup>th</sup> , 2018

**THE APPLICATIONS NOT ACCOMPANIED BY COURSE FEE WILL NOT BE ENTERTAINED.**

Note: Selected candidates will be informed by fax/ e-mail, if fax number/ e-mail address is provided.

*For any further information, please contact:*

**Sujeet Sharma**

FB-301, Dept. of Mechanical Engineering  
Indian Institute of Technology Kanpur  
Kanpur-208016

Tel: 0512 259 7405

Mob: 08765599882

Email: [sujeet201@rediffmail.com](mailto:sujeet201@rediffmail.com)  
[erl.iitk@gmail.com](mailto:erl.iitk@gmail.com)

**For more detail: -**

**<http://www.iitk.ac.in/new/courses-conferences-workshops>**

## ANNOUNCEMENT

*Short-Term Course  
On*



## **Advanced Course on Engine Combustion, Diagnostics, Emissions Control and Emerging Fuels**

**August 3-7, 2018**

*Sponsored By:*

**AICTE, Government of India**

*Organized By:*

**Dept. of Mechanical Engineering  
Indian Institute of Technology Kanpur**



Indian Institute  
Of Technology  
Kanpur



Ministry Of  
Human Resource  
Development



Engine Research  
Laboratory  
IIT Kanpur

## INTRODUCTION

Current automobile technology has matured significantly over the past few years. Engine technologies have come across a significant change to improve the efficiency and cost. At the same time, world is also confronted with the twin crises of fossil fuel depletion and environmental degradation. Indiscriminate extraction and lavish consumption of fossil fuels have led to reduction in underground-based carbon resources. This has propelled the development of advanced engine technologies, which promise a harmonious correlation with sustainable development, energy conservation, management, efficiency and environmental preservation.

With increasing environmental awareness worldwide, stringent regulations for fuel consumption, and exhaust emissions, including those for PM (Particulate Matter) and NO<sub>x</sub> are evolving. Under these circumstances, diesel engines would continue to be attractive because of their low fuel consumption and high power output however they have to emerge as clean primary power sources.

This course focuses on various advanced engine technologies, diagnostics and modeling tools developed recently in automobile industry. The emphasis is on providing the participant an up-to-date knowledge of the advances in these areas.

## SCOPE OF COURSE

- Gasoline direct injection technology
- Laser diagnostics for fuel sprays and droplet size distribution
- Single Cylinder Optical Research Engine (SCORE) as engine development tool
- Particle imaging velocimetry for engine combustion chamber flow diagnostics
- NO<sub>x</sub> formation mechanisms
- Particulate formation mechanisms
- Engine exhaust particle characterization
- Instruments for particle size measurement
- Ultra fine and nano-particle formation

- Fuel property influence on emissions
- Diesel oxidation catalysts
- Diesel particulate filters, Partial flow filters
- Particulate and NO<sub>x</sub> control using exhaust after-treatment
- 1-D modeling of engines, fuel injection systems, and engine cooling system
- New and Emerging fuels
- Challenges of Emerging fuels such as Methanol
- Emerging gaseous fuels

## COURSE FACULTY

The course will be taught by experts from academia and Industry. Some of the potential faculties are:

- Prof. Avinash Kumar Agarwal, IIT Kanpur
- Prof. Tarun Gupta, IIT Kanpur
- Dr. Anirudh Gautam, RDSO Lucknow
- Dr. Nitin Labhsetwar, NEERI Nagpur
- Experts from Automotive Industry

## COURSE STRUCTURE

There will be three lectures every day of 90 minutes each (five days; 3-7<sup>th</sup> August) and this will be followed by lab experiment demonstration session of two hours each day (three days). There will be a book exhibition related to engine technologies. The last day of the course i.e. 7<sup>th</sup> August (Tuesday) will be for the field visit to Engine Development Directorate, RDSO Lucknow, Ministry of Railways (Not compulsory) to observe large bore engine research facility of Indian Railways.

## COURSE DETAILS

The Continuing Education Cell of Indian Institute of Technology Kanpur conducts courses in Engineering and Science for the benefit of the faculty of engineering colleges in the country under Quality Improvement Program of All India Council of Technical Education (AICTE). Research scientists working in DRDO, CSIR laboratories, automotive industries and other practicing engineers also participate on a payment basis and benefit from this exercise.

*Course duration:* August 3-7, 2018

*Accommodation:* Accommodation for the duration of the course shall be provided in the guest house of IIT Kanpur on twin sharing basis.

## PARTICIPATION FROM ACADEMIC

### INSTITUTIONS

Thirty participants from AICTE Approved engineering academic institutions will be selected to attend the course at IIT Kanpur. Applicants should be engaged in technical teaching. Selected candidates will be paid *AC-3 tier railway fair by the shortest route* and a daily allowance as per QIP norms (for five days). Boarding, lodging, Food expenses and local travel expenses shall be borne by the participants. Application should be made on the registration form attached along with caution deposit of Rs. 1000/- in the form of crossed bank draft in favor of "Continuing Education Program, IIT Kanpur" payable at State Bank of India, IIT Kanpur. This deposit will be refunded to all those candidates, who are either not selected to participate in the course or who finally attend the course. For the participants, who are selected and do not attend the course, caution money will be forfeited.

The registration form, complete in all respects, duly forwarded by the head of the institution, accompanied by demand draft and a covering letter should reach the organizer on or before **July 10<sup>th</sup>, 2018**.

***All successful candidates will be provided the certificates.***

Since there are a large number of applications for limited AICTE sponsored seats, few additional self-sponsored seats will also be available for engineering college teachers. Kindly mention whether you would like to be considered for Self-sponsored category, in case, you do not get a seat in QIP sponsored seat. The fee is Rs 12,000 and you will have to bear all the expenses for lodging, boarding etc.