

AICTE Sponsored Short Term Course

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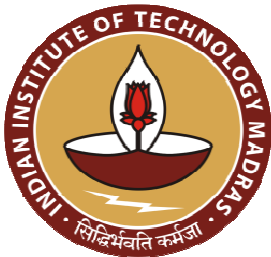
Measurement and Analysis of In-cylinder Processes in Engines

25 - 30 Nov, 2019

Coordinators:

Dr. Mayank Mittal

Prof. A. Ramesh



Organized by

Department of Mechanical Engineering

Indian Institute of Technology Madras

Chennai - 600 036

www.iitm.ac.in

INTRODUCTION

A short-term course on “Measurement and Analysis of In-cylinder Processes in Engines” is planned to be conducted at IIT Madras from November 25th to 30th, 2019, sponsored by All India Council for Technical Education (AICTE).

Although internal combustion (IC) engines are more than a century old invention, research on IC engines is still alive and gaining momentum to meet stringent emission standards, achieve fuel economy benefits, and reduce global warming potential. For a long time, in-cylinder pressure remained the only quantity that could be temporally measured during an engine cycle, and variations of quantities like temperature, heat release were deduced from it. The engine technology in the past 5-10 years, however, has become much more sophisticated due to the advent of modern sensors and adoption of electronic engine management systems. Also, the advent of optical engines, in conjunction with laser-based diagnostic techniques, has enabled the measurement of various in-cylinder processes such as flow, fuel spray, and mixture distribution, and study their influences on the combustion process. In-cylinder measurements also provide data for more accurate multi-dimensional numerical simulations, which are also required for the development of advanced

combustion concepts to achieve near zero emission levels and also reap fuel economy benefits.

For teachers and researchers working in the field of automotive engineering, it becomes important to clearly understand advanced measurement techniques for the development of modern engine concepts and technologies. This course is intended to expose the participants to the state-of-the-art measurement techniques and combustion concepts in engines.

OBJECTIVES:

The important objectives of the present short-term course are: to introduce modern engine combustion concepts, measurement and analysis of in-cylinder processes, electronic engine management systems, and emission control techniques.

COURSE CONTENTS:

- *IC Engine Fundamentals.*
- *Modern Engine Combustion Concepts.*
- *Gasoline Direct Injection (GDI) Engines.*
- *Advanced Measurement Techniques for Flow, Fuel Spray and Combustion Diagnostics in engines.*
- *Signal and Image Processing.*
- *Fuel Effects in Advanced Combustion Strategies.*
- *Electronic Engine Management Systems.*
- *Emission Control Techniques.*
- *Lab visits.*

APPLICATION FORM

Duly filled application forms should be sent to:

*Dr. MAYANK MITTAL and Prof. A RAMESH
200, IC Engines Laboratory
Department of Mechanical Engineering
Indian Institute of Technology Madras
Chennai - 600 036, India.*

Ph: 044-2257 4680 (0)

Email: mmittal@iitm.ac.in

Note: Please make photocopies of the Application form if required.

IMPORTANT DATES

Last date for applications: 30-08-2019

Intimation of selection: 13-09-2019

(by email)

Confirmation of participation

(by applicant): 27-09-2019

REGISTRATION FEE

There is no course fee for the participants from AICTE approved engineering colleges. Only permanent full-time faculty of AICTE recognized engineering colleges are eligible to apply. Seats are limited.

TRAVEL

The train fare (ONLY) two way 3-Tier AC train fare by the shortest route from your institute to Chennai and back) will be provided to the selected participants as per AICTE guidelines.

BOARD AND LODGING

Upon your selection, we will provide moderate boarding and lodging on our sprawling lush green campus. Family accommodation is not available.

About the department

This course is planned to be conducted at the Internal Combustion Engines Laboratory, Department of Mechanical Engineering, IIT Madras. The IC engines laboratory is one of the largest laboratories in India with the state-of-the-art facilities to conduct experimental and numerical studies in the field of IC engines. The Faculty handling the sessions are from the Department of Mechanical Engineering who have expertise in teaching, consultancy and research. Experts from leading automotive industries will also be delivering lectures. Both theory and practical sessions will be covered during the course.

Name:

Designation:

Department:

Organization:

Qualification:

Experience:

Mailing Address:

Phone:

Mobile:

E-mail:
(Required)

Date: **Signature of the Applicant**