

About the organizers

Tribology is the interdisciplinary science and technology of interacting surfaces in relative motion involving studies in the area of friction, wear and lubrication. Tribology Society of India (TSI) IndianOil Institute of Petroleum Management (IIPM), Gurgaon and Indian Oil Corporation, R&D Centre, Faridabad have joined hands together to organize the Summer School in Tribology. Over past six years, the Summer Schools have been providing a platform to academicians, practicing engineers and R&D professionals for sharing their knowledge and experiences in this field.

Tribology Society of India (TSI) has its secretariat at IndianOil R&D Centre, Faridabad and is engaged in a variety of initiatives to promote Tribology in India. The Society has Members from Oil & Gas, Power, Steel, Cement, Industrial R&Ds and academia from all over the country.

Indian Oil Corporation Limited (Indian Oil)

Indian Oil Corporation Ltd. is India's largest company by sales with a turnover of Rs. 4, 57,553 crore and profit of Rs7,019 crore for the year 2013-14

IndianOil is the highest ranked Indian company in the latest Fortune 'Global 500' listings, ranked at the 96th position.

Indian Oil's vision is driven by a group of dynamic leaders who have made it a name to reckon with.

Its world-class R&D Centre has won recognition for its pioneering work in lubricant formulations, refinery processes, pipeline transportation and alternative fuels. To seek growth beyond traditional areas of competence, IndianOil's business development efforts are now focused on vertical integration – both upwards into Oil exploration & production and downward into petrochemicals – besides diversification into gas marketing and globalization of downstream operations.

Indian Oil Institute of Petroleum Management (IIPM) is a fully integrated residential campus for education and training, developed by Indian Oil Corporation Limited (IOCL) as a state-of-the-art resource for in-house programs. The academic block is equipped with classrooms and lecture halls, having latest facilities including audio-visual systems as well as a

state of the art Reference Library with more than 15000 Books and Journals. The residential block is furnished with modern amenities and has in-house dining arrangement. The venue also offers recreational facilities for the participants including Swimming Pool [Please carry formal Swimming Costume], Gym and Walking Track etc.

Key Speakers for Technical Sessions

- Mr Q M Amir, IndianOil (R&D), Faridabad
- Prof M S Bobji, Indian Institute of Science, Bangalore
- Dr. Barun Chakrabarti, L&T Hydrocarbon Engg, Mumbai
- Mr S R Durugkar, L&T Hydrocarbon Engg, Mumbai
- Mr. Ajay Kumar Harinarain, IndianOil (R&D), Faridabad
- Prof A P Harsha, Indian Institute of Technology, BHU, Varanasi
- Dr S V Joshi, International Advanced Research Centre for Powder Metallurgy and New Materials(ARCI), Hyderabad
- Prof. Satish V Kailas, Indian Institute of Science, Bangalore
- Dr C Kannan, IndianOil (R&D), Faridabad
- Mr R Mahapatra, IndianOil (R&D), Faridabad
- Mr. Reji Mathai, IndianOil (R&D), Faridabad
- Mr. Kamal Mukherjee, South Eastern Coalfields Ltd, Gevra, Bilaspur
- Mr SPRS Negi, Schaeffler India, Vadodara
- Dr. N K Pokhriyal, IndianOil (R&D), Faridabad
- Dr. SSV Ramakumar, IndianOil (R&D), Faridabad
- Mr. Deepak Sharma, Kittiwake Proactive Tech. P Ltd, New Delhi
- Prof Satish C Sharma, Indian Institute of Technology, Roorkee
- Prof Sujeet K Sinha, Indian Institute of Technology, New Delhi
- Prof Ram Turaga, GITAM University, Visakhapatnam
- Prof N Vedachalam, Vikram Sarabhai Space Centre, ISRO, Thiruvananthapuram

For further Information, please contact

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7th Summer School in Tribology



8-12 June 2015

at Indian Oil Institute of Petroleum Management, Gurgaon

Organizers



Objectives

Importance of Tribology for sustainable reliability cannot be over emphasized. It is reported that loss due to improper understanding and application of Tribology is over 1.5 % of GDP of the developed countries like the USA. We can well imagine the state of affairs in our country where awareness about importance, understanding and application of Tribology is rather low. Tribological failures are responsible for over 40% of breakdowns in industries. Therefore, engineers working in the field need to have a thorough understanding of Tribological practices, so that proactive measures can be implemented in place of traditional corrective and breakdown maintenance practices.

The important subject of Tribology does not get appropriate coverage in the engineering curriculum in our country. Inadequate understanding about the principles and application of Tribology is one of the major reasons of failures in the industry, leading to poor productivity and higher material and energy losses. There is a strong need to promote the awareness of Tribology among our industries and academia. It is with this background that the Tribology Society of India (TSI), the Indian Oil Institute of Petroleum Management, Gurgaon, and IndianOil R&D Centre are jointly organizing the “7th Summer School in Tribology” during **June 8-12, 2015 at IIPM, Gurgaon**, to reinforce the need for continued education in Tribology - an interdisciplinary science and technology of friction, wear and lubrication.

The program is intended to provide a National Platform for interaction between renowned Tribologists of the country and the Participants, comprising senior teaching professionals and practicing engineers from Indian industry.

The program will include a one-day visit to IOCL R&D Centre, Faridabad.

There will be an Objective Type (multiple choice questions) Test on the last day based on the topics covered during the program. Details will be provided during the program.

Who should attend?

Faculty in Mechanical Engineering teaching tribology or machine design and research scholars pursuing PhD in Tribology (limited to maximum 10 research scholars)
Practicing Engineers/Managers from Industry working in Plant Maintenance, Technical Services, Marketers of Lubricants/additives and Industrial R&D from sectors like Automotive, Railroad, Oil, Steel, Power, Cement, Engineering and Heavy Machinery etc.

Topics to be covered

Basics of Tribology: Basics of Friction, Wear and Lubrication; Wear of Materials and Wear Modeling; Surface Characterization in Tribology; Surface Modification for Improved Tribological Characteristics.

Lubrication: Basics of Fluid Film Lubrication & Hydrodynamic Bearings; Lubricants—Chemistry of Base Oils, Additives and Formulated Lubricants; Tribology and Rheology of Lubricating Greases.

Tribology of Machine Components: Rolling Element Bearings; Gear Engineering and Lubrication Tribology of Machine Elements.

Applied Tribology: Tribo-testing and Performance Evaluation of Lubricants and Materials; Automotive Tribology; Tribology of Hydraulic Pumps and Compressors; Tribology in Manufacturing Operations; Non Destructive Testing in Tribology; Condition Monitoring and Diagnostics of Tribo Components; Condition Monitoring through Oil Analysis; Role of Corrosion in Tribology.

Special Topics in Tribology: Nano –Tribology; Bio Tribology; Space Tribology / Tribology of Extreme Environments.

There will be a visit to Tribology-related laboratories at IndianOil R&D Centre, Faridabad.

Important information

Venue: Indian Oil Institute of Petroleum Management (IIPM), 83, Institutional Area, Sector-18, Gurgaon
8th – 12th June 2015

For participants from Academia:

- No delegate fee for the program will be charged from the Academia Participants. Lodging and boarding will be provided free of cost. Selected participants will also be reimbursed to and fro travel cost, limited to II AC fare.
- Faculty in Mechanical Engineering teaching tribology or machine design and Research Scholars pursuing PhD in Tribology may **apply on line through the link given or by sending a soft copy of the Regn form by 30th April 2015.**

The selected /short listed candidates will be informed by **mid-April .2015**. All academia participants will be required to take TSI Membership.

- However, the selected participants from academia should submit a cheque (payable at par) of Rs. 5000/- as refundable deposit amount along with the application form, which will be returned to them when they report for the program. In case of non participation in the program without giving a notice of 15 days prior to the start of the program, this amount of Rs. 5000/- will be encashed by TSI to cover the administrative expenses.

- Academia candidates who have attended earlier SSTs need not apply**

For participants from Industry:

- Non Residential category: Course Fee for participants from Industry without accommodation*** : A course fee of Rs26400/- plus service tax @14% (**Rs 30,096**). The course fee will cover the TSI course fee, course material plus food and beverages for five days at IIPM, Gurgaon.
- Residential Category: Course Fee for participants from Industry with accommodation** (A limited twin sharing hostel accommodation at IIPM Gurgaon, will be available for Rs3,000/- per night (Rs 15,000/- for 5 days, as per IIPM rates) . will be free to stay at places of their choice in Gurgaon City)

A course fee of Rs 41400 /- plus service tax @14% (**Rs 47,196/-**) .The course fee will cover TSI course fee, course material plus food and beverages for five days at IIPM, Gurgaon and stay at IIPM , Gurgaon for five days on twin sharing basis.

For Industry delegates, please make cheque / DD favoring 'Tribology Society of India' payable at Faridabad for the fee payment.

Registration form *

Name of Participant.....
Date of Birth.....Organization.....
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Designation.....
Contact Address.....
Email ID.....
Mobile No.
Please attach your Bio Data and few lines on "why do you want to attend 7th SST event". (Please attach soft file):
Signature of Sponsoring Authority / HOD **
.....
Name.....
Designation.....

*For on line application use the following link:

<http://www.tribologyindia.org/online-application-form.htm>

** Not mandatory for application.

Please do not send any payment along with application. Payment for Registration fee is to be made only after selection. Post this form along with the payment at the address given below.

Dr. Pankaj Bhatnagar

CRM (MC & IP) & Treasurer - TSI

C/o Indian Oil Corporation Limited

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