

## Objective:

Rubbers are complex materials; in general they exhibit unique combination of physical properties whilst at the same time a virtually infinite number of vulcanized rubber compound is possible, yielding a very wide range of properties. These factors provide a reason why the physical properties of rubber are of specially great interest to designers, processors and users. In rubber industry today the testing of rubber and rubber products occupies very important place in modern factory set up. The selection of right type of material is impossible unless the work is planned on scientific basis based on appropriate test. Understanding of these tests, their relevance to product specification and fine tuning of product properties play a vital part in phases of rubber science and technology. The majority of tests are the measure of quality and uniformity of the raw materials and or products.

The tests can be classified into mainly three broad categories such as quality control test, specification test, research and development test. Most prevalent physical and chemical tests will provide meaningful data, but its interpretation will depend on how much we know about our materials, our test methods, our test apparatus and the factors which influence the result.

Quality is key to competitive advantage in today's business environment. TQM is an integrated approach which pulls together all best quality practices. So quality control is a must for any industry to meet the stringent standard. Also, survival of the competitive pressure of 21st century with increasing product sophistication needs increased attention to reliability engineering.

Keeping these in mind, this course is aimed at dealing with various testing methods, equipments and technologies used in rubber industry with emphasis on their evaluation, quality and reliability.

Topics likely to be covered in the course are:

Essence of laboratory testing  
Testing methods : Destructive and non destructive testing of rubber and rubber products.  
Raw materials testing  
Theory involving various testing such as Differential Scanning Calorimetry, Thermo gravimetric Analysis, Dynamic mechanical analysis, Scanning Electron microscopy Atomic force microscopy, FTIR, X- Ray, etc.  
Evaluation of test results through statistical analysis, Testing, Standards.  
Quality and Reliability, Quality Control in Rubber Testing, Control Charts, Total quality management  
Quality standards and certification, ISO 9000/ BIS14000.

Lectures:

Lectures will be delivered by the faculty members of IIT Kharagpur and experts from R&D organizations and industries from India and abroad.

Special lectures by : Dr. Rudiger Engehausen, Director TRP-APD Quality Management, LANXESS, Germany.

Duration of the Course:

Duration of the course will be from August 7-11, 2006, which will cover both theory as well as practical sessions.

Registration:

Registration fee of the course for each participant is Rs. 7000/-. This fee includes boarding and lodging expenses as per the CEP norms. The registration form duly filled in and signed by the sponsoring authority should reach the Coordinator by July 15, 2006. Candidates will be selected on "First come, First served basis".

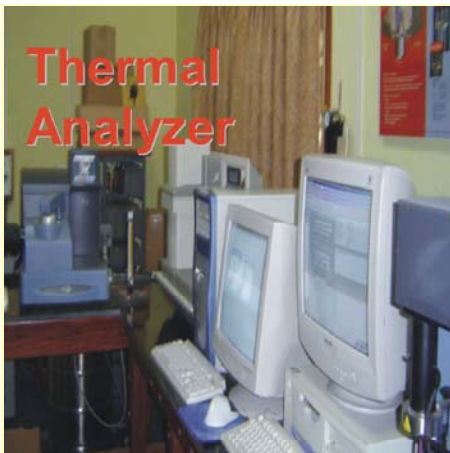
## REGISTRATION FORM

### SHORT TERM COURSE ON TESTING, EVALUATION & QUALITY IN RUBBER TECHNOLOGY

Please complete and return to the address overleaf as soon as possible, but not later than July 15, 2006.

1. Name:
2. Academic Qualification:
3. Designation:
4. Mailing Address:
5. Name and Address of Sponsoring organization:
6. Details of Registration Fee: Draft/Cheque No. :
7. Signature & Date:
8. Topics in which, the participant / industry will be interested:

Signature of Sponsoring  
Authority



Please send your entries to :

Prof. Deba K. Tripathy  
Rubber Technology Centre  
Indian Institute of Technology  
Kharagpur 721302  
Dist : Midnapore (West)  
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**Zwick Tensile Testing Machine**

#### Travel Expenses:

All travel expenses will have to be borne by the participants.

#### Boarding and Lodging:

Boarding and lodging will be arranged in the CEP guest house located in the campus.

#### Eligibility:

Candidates must be graduates in Science/Engineering/Technology with working experience in rubber and allied industries. Working experience in R&D Laboratories, shop floor, Marketing, Sales and Test Houses will be preferred.

#### About Kharagpur:

Kharagpur is about 116 kms. away from Calcutta in the south west direction and is well connected by train services from all parts of the country. The weather during August is pleasant.

#### Draft/Cheque :

Draft or Cheque should be drawn in favour of "CEP-STC, IIT Kharagpur, a/c" payable at Syndicate Bank and be sent by registered post to :

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Indian Institute of Technology  
Kharagpur 721302  
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West Bengal, INDIA

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## SHORT TERM COURSE ON

## TESTING, EVALUATION & QUALITY IN RUBBER TECHNOLOGY



AUGUST 7-11, 2006

Coordinator  
Prof. Deba K. Tripathy



Rubber Technology Centre  
Indian Institute of Technology  
Kharagpur 721302  
West Bengal, India