Registration form

Name: _____

Designation: _____

Organization: _____

Address for correspondence: _____

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E-mail: _____

Phone: _____

Particulars of Registration Fee:

Online transaction ID: _____
Date: _____

Amount: _____

Accommodation Required: Yes/No

Date: **Signature:**

Place:

Places of tourist attraction at Rourkela

Course venue

Established in 1963, the Department of Metallurgical and Materials Engineering has been emerged as powerhouse for academics, scientific research and cutting edge technologies. With time, the department grew noticeably and established new areas of research and teaching in materials engineering, while retaining its strength in traditional areas in Metallurgy. The well-developed infrastructure and diversified expertise of the faculties have provided the department a global acceptance. The department is actively involved in research activities in the front line areas of metallurgical and materials engineering in collaboration with reputed R&D organizations and industries throughout the country.

Course deliverables

The five days workshop will be divided approximately equally between classroom lectures and hands-on training. Demonstrations in the fields of non-destructive evaluations of engineering materials using the techniques of ultrasonic testing (UT), dye penetrant testing (DPT), magnetic particle testing (MPT) and eddy current testing (ECT) will be discussed in detail. The practical aspects of these tests will be illustrated through hands-on training. Lecturers will be drawn from the faculty members of NIT Rourkela, private and government R&D laboratories. A set of course notes will be provided to participants.

Organizing committee

Coordinator-I
Dr. Kumud Kant Mehta, Asst. Professor Gr I,
Dept. of Metallurgical and Materials Engineering, NIT Rourkela
E-mail: mehtakk@nitrkl.ac.in

Coordinator-II
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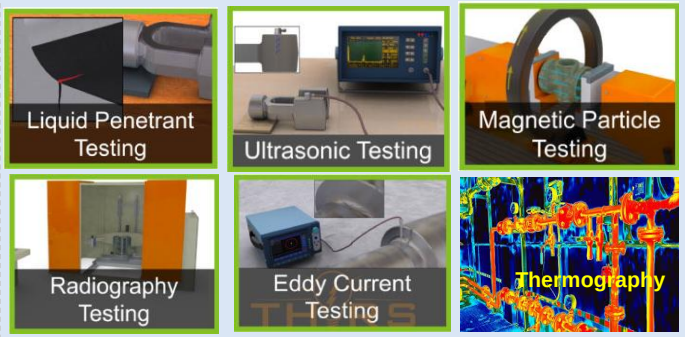
Chairman
Dr. A. Basu
Professor and Head
Dept. of Metallurgical and Materials Engineering, NIT Rourkela
E-mail: hod-mm@nitrkl.ac.in

Co-Patron
Prof. Santanu Paria
Dean (SRICCE)

Patron
Prof. K Umamaheshwar Rao
Director (NIT Rourkela)

Five Days Workshop on Non-destructive Evaluation of Engineering Materials: Theory and Practice

June 19 – June 23, 2023



Organized by
Department of Metallurgical and Materials Engineering

National Institute of Technology Rourkela
Rourkela-769008, Odisha, India

Introduction to the course

Every engineering material or component must be assumed to be "guilty" until proven "innocent". Proving "innocent" without destroying the material or component is of huge demand. Non-destructive evaluation (NDE) permits testing of engineering materials without impairing its future usefulness. These NDE methods make it possible to gain knowledge about the quality of materials intended for service. With the advancement of technology, a series of new materials with complex shapes, envisioned for variety of applications, are being developed. In addition, the conventional materials are also finding lots of new applications. These all involves time, material and money and hence any failure are non-tolerable. The application of non-destructive testing qualitatively and quantitatively detects the defects and reduces the probability of failure of a material or component.

Important NDE techniques to be discussed:

NDE techniques use electromagnetic radiation, sound, and other signal conversions to inspect a wide range of objects (metallic and non-metallic, food products, artefacts and antiquities, infrastructure) for integrity, condition or composition without causing any changes to the object being examined. Eddy-current, magnetic-particle, liquid penetrant, radiography, ultrasonic, residual stress analysis and thermography are the seven most widely used NDE techniques which will be discussed in this workshop. This workshop is multidisciplinary as NDT is frequently employed in metallurgical, forensic, mechanical, petroleum, electrical, civil and aeronautical engineering. Workshop will be comprising of 21 hours of theory class, 12 hours of practical and 4 hours of assignment/evaluation.

Course outline

Module I	**Introduction to NDE and defects in materials** Advantages and Application of the course, Internal Discontinuities in Metallic Materials, Surface Defects in Engineering Structures, Discontinuities in Composites and Other Engineering Materials, Defects in Welded Structures
Module II	**Principle of Non-destructive testing and residual stress measurement** The principle behind the various non-destructive evaluations processes. Residual stress analysis using XRD technique: Theory and Practice..
Module III	**Analysis of surface and subsurface defects** Dye Penetrant Testing (DPT)/ Magnetic Particle Testing (MPT)/Eddy Current Testing (ECT): Theory and Practice..
Module IV	**Analysis of internal defects** Ultrasonic Testing (UT) procedure, Ultrasonic Flaw Detectors, Probes and Calibration of Test Systems: Theory and Practice.
Module V	**Advancement in NDE** Advancement in UT, Thermography and other methods: case studies

List of expert speakers (External):

Dr. Arpita Ghosh
Principal Scientist, NML Jamshedpur

Mr. Suresh Kumar Senapati,
Sr. Manager (Quality control), HAL (Sukhoi), Koraput

Mr. Abinash Kumar Behera,
Head, Abinash Engineering Services (NDT)

Who should attend?

- Young faculties, senior research scholars
- Quality control personnel, Inspection and maintenance engineers, Technical managers, Design engineers.
- Engineers/technocrats involved in non-destructive evaluations, ISNT/ASNT level 1 qualified personnel.

The successful participants who will attend the whole course will be given participation certificate.

Important Dates

Last date for the receipt of application is 08th of June 2023 and the notification of acceptance will be by 12th of June 2023.

Registration Fees

Student participants	: INR 1000 + 18% GST
Faculties from institutes	: INR 1500 + 18% GST
Industry/R&D participants	: INR 2000 + 18% GST

The course fee includes entry to all theoretical and practical sessions, course materials, and participation certificate (on successful completion). Participants from NIT Rourkela are exempted from paying registration fees.

Accommodation

Accommodation will be provided in institute guest house/hostels on prior request as per availability.

South block guest house	: INR 1400 per day
North block guest house	: INR 900 per day
Hostel (for students)	: INR 300 per day

Contact Persons

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