CENTER FOR NON-DESTRUCTIVE EVALUATION

INDIAN INSTITUTE OF TECHNOLOGY MADRAS

Training on

Digital Radiography - Digital Detector Arrays (DDA) &

Computed Radiography (CR)

Organized by the

National Consortium for Non-Destructive Evaluation

JUNE 1-5, 2026

CNDE - IIT Madras

The Centre for Non-Destructive Evaluation (CNDE) at the Indian Institute of Technology Madras, established in April 2001, is Asia's leading academic center for Non-Destructive Evaluation (NDE) research and technology translation. The CNDE focuses on advanced research in NDE, Structural Health Monitoring (SHM), and harsh environment measurements, with state-of-the-art experimental facilities for X-ray, Phased Array Ultrasonic Testing, Infrared Thermal Imaging, Terahertz Imaging, and advanced Digital Radiography Systems.

Mission

Deep research–based non-destructive technologies for improved performance, enhanced safety, and extended service life for industrial applications and societal well-being.

Vision

To become the world's largest deep-research and technology translation center in the field of NDE.

National Consortium For Non-Destructive Evaluation (NCNDE)

The NCNDE was established in November 2024 under CNDE to promote collaborative research in Nondestructive Imaging & Evaluation, SHM, and online process parameter measurements. The consortium bridges industry and academia to tackle real-world NDE and SHM challenges through innovative research and technology development.

The major benefits of NCNDE for its members are as follows:

- Collaborative research reduces research costs by allowing multiple parties to share their investments.
- Industry-focused research driven by the management board of the consortium.
- Early engagement of industries facilitates testing of technologies in real-world environments.
- Reduction in research cycle time due to inputs at various stages of technology development.
- Access to cross-industry and cross-platform technologies.
- Increased likelihood of successfully transitioning to a commercial product.
- Enhanced understanding of risks and regulatory requirements at an early stage of the project.

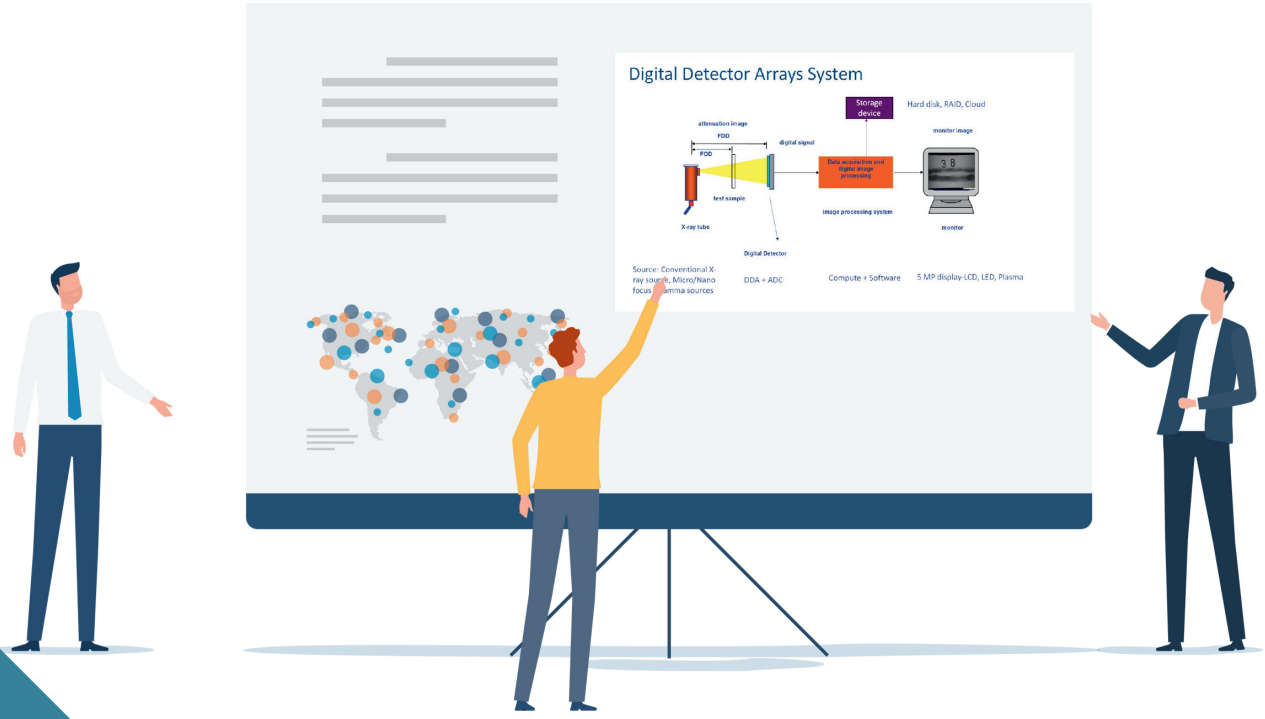
Digital Radiography Training Outline

This training will cover topics as per ISO TR 25107: 2019 Non-Destructive Testing - Guidelines for NDT training syllabuses and ANSI/ASNT CP-105 Topical Outlines of Non-Destructive Testing Personnel. Some of the topics are:

- Digital Detector Arrays (DDA)
- Computed Radiography
- Image Quality Metrics
- ASTM Standards
- ISO standards
- Applications
- Image Processing
- Evaluation

Who can attend:

- NDT experts in Radiography
- NDT Level II and Level III in Radiography
- NDT Tutors who want to extend their expertise in Digital Radiography
- Technicians working in Digital Radiography
- Institutions that plan to establish digital radiography facilities
- Institutions using digital radiography
- Students engaged in research in digital radiography
- AI experts working in digital radiography



Faculties and Trainer

Prof. Krishnan Balasubramanian

Professor In-Charge, GDC;
Professor of Mechanical Engineering,
Head of Centre for Nondestructive Evaluation (CNDE), IIT Madras

Prof. Krishnan Balasubramanian is an internationally recognized leader in advanced ultrasonic NDE, serving as Institute Chair Professor at IIT Madras and Head of CNDE. With 25+ years of pioneering research, his expertise spans PAUT, FMC, TFM, wave propagation, and structural health monitoring for aerospace and heavy engineering. He has authored 500+ publications, leads advanced NDT imaging research, mentors PhD/MS scholars in PAUT/FMC-TFM, and serves on leading NDE journal editorial boards. His translational work drives industry adoption of PAUT standardization and FMC/TFM imaging across aerospace, power, and infrastructure sectors.

Prof. Abhishek Saini

Assistant Professor,
CNDE, IIT Madras

Prof. Abhishek Saini is an Assistant Professor in the Department of Mechanical Engineering at the Indian Institute of Technology Madras and is affiliated with the Center for Non-Destructive Evaluation (CNDE). His research focuses on developing advanced technologies for Non-Destructive Evaluation (NDE) and Structural Health Monitoring (SHM), integrating phased array, ultrasonic imaging, sensing, intelligent imaging systems, and data-driven approaches. His work aims to enable high-resolution defect detection, material characterization, and predictive maintenance in complex engineering structures, bridging fundamental physics with deployable industrial inspection solutions.

CHITTATHUR SRINIVASAN

Advisor,
CNDE, IIT Madras.

Mr. Chittathur Srinivasan has over 35 years of experience in inspection and quality assurance across manufacturing, pressure vessels, heavy equipment, and the hydrocarbon industry. He has held senior overseas roles as Inspection Head and Senior API Inspector, leading NDT, heat treatment, and shutdown inspection services across major petrochemical and refinery complexes in the Gulf region. He has handled more than 75 plant shutdowns, with expertise in repair and replacement recommendations, remaining life assessment (RLA), and comprehensive inspection reporting for management decision-making.

B. Venkatraman

Advisor,
CNDE, IIT Madras.

B. Venkatraman is a distinguished nuclear scientist and former Director of Indira Gandhi Centre for Atomic Research, with over 39 years of experience in India's Department of Atomic Energy. He specializes in NDE, radiation safety, and quality assurance, and has pioneered advanced imaging techniques such as neutron radiography and infrared thermography. He has led major national programs in nuclear technology and established key NDE facilities, contributing significantly to India's scientific and engineering advancements.

Mr. Venugopal Manoharan is the CEO of CNDE, IIT Madras, with 35+ years of experience in Radiographic Testing (RT) and advanced X-ray based NDE systems. He has led the development and industrial deployment of digital radiography, X-ray CT, and automated RT inspection solutions across aerospace, nuclear, and manufacturing sectors. An ASNT Level III certified professional, he brings deep expertise in RT image quality, interpretation, radiological safety, and inspection reliability. Actively involved in RT and PAUT training, certification, and competency development, he has shaped national-level NDT education and standards. A National NDT Award recipient and ISNT Fellow, he currently serves as Chief Controller of Examinations at ISNT, mentoring the next generation of NDT professionals.

Venugopal Manoharan

CEO,
CNDE, IIT Madras.

AGENDA

DIGITAL RADIOGRAPHY (DDA& CR)- TRAINING @ CNDE-IITM, MDS					
Time	**Jun 1, 2026**	**Jun 2, 2026**	**Jun 3, 2026**	**Jun 4, 2026**	**Jun 5, 2026**
09:00 am - 10:00 am	Basic Radiography - Refresher	Computed Radiography- Image Quality Metrics & optimization, Artifacts and reduction methods	Selection of systems: ASTM E 2597 Standard Practice for Manufacturing Characterizatio n of Digital Detector Arrays	Digital Image Processing Tools & Applications-I	Practical DDA: ASTM E2737
10:00 am- 11:00 am	Digital Detector Arrays -Physics, Devices, Systems, and Image Acquisition	ASTM E2698-- Standard Practice for Radiographic Examination Using Digital Detector Arrays	DDA- Performance Evaluation: ASTM E2737 Standard Practice for Digital Detector Array Performance Evaluation and Long-Term Stability	Digital Image Processing Tools & Applications-II	Practical CR: ASTM E2445
11:00 am- 11:15 am	Tea Break				
11:15 am- 13:15 pm	DDA-Image Quality-Metrics & optimization, Artifacts and reduction methods	ASME Section-V, Article 2 – Mandatory Appendix 9- Radiography using digital detector systems	Computed Radiography Standards ASME Section-V - Article -2 Mandatory Appendix VIII - CR	Application: Corrosion Inspection & Standards	Artificial Intelligence and Assisted Inspection
13:15 pm- 14:15 pm	Lunch break				

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Time	**Jun 1, 2026**	**Jun 2, 2026**	**Jun 3, 2026**	**Jun 4, 2026**	**Jun 5, 2026**
14:15 pm-15:15 pm	Computed Radiography - Physics, Devices, Systems, and Image Acquisition	Application: Welding Inspection ISO 17636-2:2022- Non-destructive testing of welds — Radiographic testing — Part 2: X- and gamma-ray techniques with digital detectors An overview of acceptance standards for welds (ISO)	ASTM E2445- Standard Practice for Performance Evaluation and Long-Term Stability of Computed Radiography Systems	Application: Casting Inspection & Standards, Reference Radiographs	Digital Radiography Procedure Writing - Examples
15.15 pm-15.30 pm	Tea Break				
15:30 pm-17:30 pm	DDA/CR Data acquisition - Practical Training-I	DDA/CR Data acquisition - Practical Training-II	DDA/CR Data acquisition - Practical Training-III	Training (Practical) – viewing of digital radiographs using Window Level adjustment & filters, Effect and selection of filters on image quality, measurements and annotations	Training (practical) – Image Processing: Profile function, IQIs, basic spatial resolution, and normalized SNR)

Registration Process:

Number of Participants allowed: 30
Registration fee: Rs 30,000 + GST (18%)

Contact for Registration:

Dhanalakshmi. R
Executive Secretary,
Centre for Non-Destructive Evaluation (CNDE),
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Phone: 044 2257 5688 / 9940908831

If you are interested, register here:

Accommodation

Accommodation can be arranged at the IIT Madras Guest House upon request. Guests are requested to make direct payment to the Guest House at the time of stay.

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