

CENTRE FOR NDT- NON DESTRUCTIVE TESTING

ABOUT

A Centre for Non-Destructive Testing (NDT) serves as a pivotal hub in the field of materials and structural analysis, playing a crucial role in various industries such as aerospace, automotive, construction, and manufacturing. Its primary objective is to employ advanced techniques and technologies for evaluating the integrity, quality, and performance of materials and components without causing any damage or disruption. NDT techniques encompass a wide array of methods, including ultrasonic testing, radiography, magnetic particle testing, liquid penetrant inspection, and visual inspection, among others. These methods enable the detection of hidden defects, cracks, corrosion, or structural irregularities, ensuring the safety and reliability of critical components and infrastructure. A Centre for NDT serves as a training and research centre, equipping professionals with the necessary expertise to conduct inspections and interpret results accurately. It also contributes to the development of innovative NDT technologies, advancing the field's capabilities and applications. Centre for Non-Destructive Testing is indispensable for maintaining quality standards, safety, and efficiency across various industries, making it a cornerstone in ensuring the reliability and longevity of critical structures and components.

OBJECTIVE

- To ensure the integrity and safety of materials and structures by employing advanced NDT techniques.
- To provide critical quality control and assurance for various industries, including aerospace, manufacturing, and construction.
- To train and certify professionals in the use of NDT methods, promoting skill development and standardization.
- To conduct research and development to advance NDT technologies, enhancing their accuracy and efficiency.
- To contribute to cost savings and risk reduction by detecting defects and weaknesses in materials and components without causing damage, thereby extending their service life.

COURSE SYLLABUS

INTRODUCTION TO NDT

Visual testing- sophisticated methods- visual test- magnetic particle testing- visual inspection- attention to training–Ultrasonic testing–Techniques used –volumetric inspection- components used –industries used – NDT using Radiography –health and safety implications- alternative methods – volumetric NDT methods –Eddy current testing–shallow swirling electric– surface detection– subsurface discontinuities.

IMPLEMENTATION OF NDT BY LATEST TECHNIQUES

Magnetic particle testing–surface detection- slight sub-surface-discontinuities in magnetic materials– Penetrant testing– locate surface–breaking discontinuities–non–metals detects identification- penetrating liquid–Infrared Thermography– Thermal and infrared testing– temperature variations–infrared portion–electromagnetic spectrum–Other Methods and competencies.

CENTRE HEAD

Mr.J Rajesh M.E-Assistant Professor/Mechanical Engineering

OUTCOME

- Improved safety and reliability of materials and structures through effective defect detection.
- Enhanced product quality and reduced maintenance costs in various industries
- A skilled workforce with NDT expertise, contributing to industry competitiveness.
- Advancements in NDT technologies, expanding their applications and capabilities.
- Greater sustainability and longevity of critical infrastructure and components, benefiting society and the economy.

CERTIFICATION

Centre Name	Academic Year	Semester	Course Name	Certification	No of students	Total No of students
Centre for NDT- Non Destructive Testing	2022-23	Even	Non Destructive Ultrasonic Testing of Materials	MSAJCE	21	101
	2021-22	Even	Non Destructive Ultrasonic Testing of Materials	MSAJCE	22	
	2020-21	Even	Non Destructive Ultrasonic Testing of Materials	MSAJCE	26	
	2019-20	Even	Non Destructive Ultrasonic Testing of Materials	MSAJCE	32	

CENTER FOR NON-DESTRUCTIVE TESTING

NON DESTRUCTIVE TESTING

ULTRASONIC TESTING

LIQUID PENETRATION TESTING

Penetrant Testing Schematic

Principle

MAGNETIC PARTICLE TESTING

EDDY-CURRENT TESTING

RADIOGRAPHIC

www.mohamedsathak.com

Metallurgical Microscope



MOHAMED SATHAK
A.J. COLLEGE OF ENGINEERING
Siruseri IT Park, OMR, Chennai - 603103.





MOHAMED SATHAK
A.J. COLLEGE OF ENGINEERING
Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai

DEPARTMENT OF MECHANICAL ENGINEERING

CENTER FOR NDT

Objective:

- To introduce students to a variety of practical applications associated with ultrasonic testing and the course is especially designed to provide a sound practical skill for Ultrasonic testing.

Outcome:

After successful completion of this course the student will be able to

- Have a basic knowledge of ultrasonic testing which enables them to perform inspection of samples.
- Calibrate the instrument and evaluate the component for imperfections.
- Differentiate various defect types and select the appropriate NDT methods for the specimen.
- Document a written procedure paving the way for further training in specific techniques.

S. No	List of Equipment's	Specification/Range	No of Quantity
1	Ultrasonic Flaw detector	20kHz	1
2	Calibration Block	V1	1
3	Metallurgical Microscope	500x	2
4	Disc polishing Machine	501440 rpm	2
5	Abrasive Belt Polishing Machine	500 rpm	1
6	Computer Node	4GB RAM, 500GB Memory	2

S. No	ODD Semester	EVEN Semester
1		Value Added Course on * Non Destructive Ultrasonic Testing of Materials
2	Project	Project

Magnetic Particle Inspection

MOHAMED SATHAK
A.J. COLLEGE OF ENGINEERING





MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING



CERTIFICATE OF APPRECIATION

This is to certify that

ADIL.M, IV Year –Mechanical Engineering

has successfully completed the Skill Development Course on "**Non Destructive Ultrasonic Testing of Materials**" from 16th March to 5th May 2022 under Centre for Non Destructive Testing, Department of Mechanical Engineering, Mohamed Sathak A J College of Engineering, Chennai.



COURSE COORDINATOR

HOD- MECH

HEAD-TC & IR

PRINCIPAL



NPTEL Online Certification

(Funded by the MoE, Govt. of India)



This certificate is awarded to

THARANIKUMAR L

for successfully completing the course

Advanced Machining Processes

with a consolidated score of **58** %

Online Assignments	25/25	Proctored Exam	32.63/75
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Total number of candidates certified in this course: **937**

Aug-Oct 2022
(8 week course)

Prof. T. V. Bharat
Head, Centre for Educational Technology
NPTEL Coordinator, IIT Guwahati



Indian Institute of Technology Guwahati



Roll No: NPTEL22ME119S34461699

To validate the certificate



No. of credits recommended: 2 or 3



Elite

NPTEL Online Certification

(Funded by the MoE, Govt. of India)



This certificate is awarded to
SHAIK IRFAN K
for successfully completing the course

Advanced Machining Processes

with a consolidated score of **61** %

Online Assignments	19.79/25	Proctored Exam	40.88/75
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Total number of candidates certified in this course: **937**

Aug-Oct 2022
(8 week course)

Prof. T. V. Bharat
Head, Centre for Educational Technology
NPTEL Coordinator, IIT Guwahati



Indian Institute of Technology Guwahati



Roll No: NPTEL22ME119S34463666

To validate the certificate



No. of credits recommended: 2 or 3



NPTEL Online Certification

(Funded by the MoE, Govt. of India)



This certificate is awarded to
MOHAN S R
for successfully completing the course

Advanced Machining Processes

with a consolidated score of **58** %

Online Assignments	25/25	Proctored Exam	33/75
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Total number of candidates certified in this course: **937**

Aug-Oct 2022
(8 week course)

Prof. T. V. Bharat
Head, Centre for Educational Technology
NPTEL Coordinator, IIT Guwahati



Indian Institute of Technology Guwahati



Roll No: NPTEL22ME119S44470550

To validate the certificate



No. of credits recommended: 2 or 3