

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

Course Title	ULTRASONIC TESTING		
Course Code	PH603	No. of Credits	3
Department	Physics	Faculty	Dr. M. Ashok
Pre-requisites Course Code	-NIL-		
Course Coordinator(s) (if, applicable)	Dr. M. Ashok		
Course Teacher(s)/Tutor(s) E-mail	ashokm@nitt.edu	Telephone No.	04312503610
Course Type	<input checked="" type="checkbox"/> Core course <input type="checkbox"/> lective course		
COURSE OVERVIEW			
Fundamental of ultrasonic waves and its usage in the NDT. Methods of calibration of instrument and evaluation of signals			
COURSE OBJECTIVES			
To introduce students to a variety of practical applications associated with ultrasonic testing and the course is especially designed to provide a sound theoretical knowledge and practical skill for Ultrasonic testing. Wide range of case studies would be covered.			
COURSE OUTCOMES (CO)			
Course Outcomes		Aligned Programme Outcomes(PO)	
<ol style="list-style-type: none"> 1. To have a basic knowledge of ultrasonic testing which enables them to perform inspection of samples. 2. calibrate the instrument and evaluate the component for imperfections. 3. Differentiate various defect types and select the appropriate NDT methods for the specimen. 4. To document a written procedure paving the way for further training in specific techniques 5. 		Knowledge on conventional NDT methods used in industries, Hands on experience with conventional and advanced NDT equipment's Training on detection and analysis of the defects.	
COURSE TEACHING AND LEARNING ACTIVITIES			
S.No.	Week	Topic	Mode of Delivery
1	1-4	Fundamentals of Ultrasonic Waves	Conventional
2	5-8	Generation of ultrasonic waves	Conventional, PPT
3	9-12	Ultrasonic Inspection Methods and Equipment	Conventional, PPT, Demo
4	13-16	Calibration of Testing Equipment	Conventional, PPT, Demo
5	17-20	Testing/Evaluation/interpretation	Conventional, PPT

COURSE ASSESSMENT METHODS				
S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Assessment -1	6th week	1 hour	20%
2	Assessment -2	10th week	1 hour	20%
3	Assessment -3	15th week	1 hour	20%
4	Assessment -4 (Final)	End of Semester	3 Hours	40%
ESSENTIAL READINGS : Textbooks, reference books Website addresses, journals, etc				
<u>Text Books & Reference Books::</u>				
<ol style="list-style-type: none"> 1. J. Krautkramer and H. Krautkramer, Ultrasonic Testing of Materials, Springer, 4 th edition (1990). 2. L. Schmerr and J. Song, Fundamentals of Ultrasonic Nondestructive Evaluation, Springer, 1998. 3. P. J. Shull, Nondestructive Evaluation: Theory, Techniques, and Applications, CRC Press, 1st edition (2002). 4. A.S. Birks and R.E. Green, Ultrasonic Testing, Nondestructive Handbook, Vol. 7, American Society for Nondestructive Testing, 2nd edition (1991). 				
<u>Website addresses</u> : ndt.net				
<u>Journal</u>: Journal of Non- Destructive Testing & evaluation.				
COURSE EXIT SURVEY				
Feedback from the student after 18 th week :on knowledge gained, subjects relevant to the course, methodology adopted, aspect of improvement. Whether the topics fulfill the course outcome and program outcome.				
COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)				
Absenteeism in Assessment : Extra chances will be given to the students (on medical or official purpose) not appeared in any assessments 1 - 4 with full syllabus.				
ADDITIONAL COURSE INFORMATION				
The Course Coordinator is available for consultation at times that are displayed on the coordinator's office notice board. Queries may also be emailed to the Course Coordinator directly at ashokm@nitt.edu				
FOR SENATE'S CONSIDERATION				
<p>-sd -</p> <p><u>Dr. M. Ashok</u> Course Faculty</p> <p>-sd -</p> <p><u>Dr. N. Gopalakrishnan</u> CC-Chairperson</p> <p>-sd -</p> <p><u>Dr. N. Gopalakrishnan</u> HOD</p>				