

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE OUTLINE			
Course Title	RADIOGRAPHIC TESTING AND RADIATION SAFETY		
Course Code	PH605	No. of Credits	3
Department	Physics	Faculty	Dr.B. Karthikeyan
Pre-requisites Course Code	Nil		
Course Coordinator(s) (if, applicable)	Dr. N. V. Gopalakrishnan		
Other Course Teacher(s)/Tutor(s) E-mail	-	Telephone No.	0431250-3612
Course Type	<input type="checkbox"/> Core course <input checked="" type="checkbox"/> X Core course <input type="checkbox"/> Elective course		
COURSE OVERVIEW			
RADIOGRAPHIC TESTING AND RADIATION SAFETY is offered in the fourth semester to M.Tech NDT students, 1 st semester students. The subject has 3 credit weightage.			
COURSE OBJECTIVES			
<ul style="list-style-type: none"> ➤ The course is intended to provide through grounding in the principle of Radiographic Testing ➤ (RT) and fundamentals of material and process such that the student would be able to identify suitability of RT for the material inspection. To get familiarized with codes, standards and specifications for RT with respect to safety norms.			
COURSE OUTCOMES (CO)			
Course Outcomes	Aligned Programme Outcomes (PO)		
By successful completion of this course, the student will 1. Have a complete theoretical and practical understanding of the radiographic testing, interpretation and evaluation. 2. Select the appropriate technique and exposure time for a better imaging. 3. Differentiate various defect types and characterize them. 4. Follow proper safety precautions to avoid radiation hazards	<ul style="list-style-type: none"> ➤ Obtain in-depth knowledge on Radiographic Testing ➤ Carry out independent Radiographic testing through subject knowledge ➤ Interact with professionals in related areas 		

COURSE TEACHING AND LEARNING ACTIVITIES			
S.No.	Week	Topics	Mode of Delivery
1.	First weeks	2-3 Unit-I : Basic Principles of Radiography	Lectures and power point presentation.
2.	Next weeks	2-3 Unit II: Film Radiography	Lectures, power point presentation and class room discussions.
3.		Unit-III: Radiographic Image Quality and Radiographic Techniques	Lectures and power point presentation.
4.	2-3 weeks	Unit-IV: Radiation Detectors and Safety	Lectures, power point presentation and discussions
5.	2-3 weeks	Unit-V: Special Radiographic Techniques and Interpretation of radiographs	Lectures, power point presentation and discussion

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1.	Cycle Test I	On completion of Unit-I and II /as per NITT schedule	60 min	20 %
2.	Cycle Test II	Upto Units-III and IV/as per NITT schedule	60 min	20 %
3.	Assignment	Before completion of Unit – V	10 Days	10 %
4.	Semester exam	As per NITT regular timetable	180 min	50 %
			Total (theory)	100 %

ESSENTIAL READINGS :

1. L. E. Bryant and P. McIntire, Non-Destructive Testing Hand Book: Radiography and Radiation Testing, Vol.3, American Society for Non-Destructive Testing, 2nd edition (1985).
2. R. Halmshaw, Industrial Radiography: Theory and Practice, Springer, 2nd edition (1995).
3. Non-Destructive Examination and Quality Control, ASM International, Vol.17, 9 th edition (1989)

Reference Books

1. R. H. Bossi, F. A. Iddings and G.C. Wheeler, Radiographic Testing, American Society for Nondestructive Testing, 3rd edition (2002).
2. B. Raj, T. Jayakumar and M. Thavasimuthu, Practical Non Destructive Testing, Alpha Science International Limited, 3rd edition (2002).
3. Eastmn Kodak, Radiography in modern industry, Eastman Kodak Co, 3rd edition, (1969)

COURSE EXIT SURVEY (mention the ways in which the feedback about the course is assessed and indicate the attainment also)

- Performance in the assessment methods
- Questionnaire about the effectiveness of the delivery method, topics and the knowledge gained

COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)

1. 75 % attendance is mandatory.
2. For the students whose attendance percentage falls between 65-74% has to appear for the extra classes at the end of the semester i.e before End semester exam.
3. Those who indulge in malpractice such as copying, plagiarism shall have to redo the course.
4. Those who are absent for any of the assessment tests on genuine grounds shall be given an opportunity only once for the retest with the prior permission of the concerned faculty member and Head of Physics Department. The retest shall be conducted before the end semester exam and the portions will be upto Unit IV.
5. A student has to score a minimum of 40% marks to get a pass.
6. Those who absent in the End semester examination on genuine grounds can appear for reassessment examination.
7. Those who fail in the course has to appear for the reassessment exam.
8. Any misbehavior, indiscipline in the classroom/laboratory/exam hall will be dealt with seriously. In the worst case, the departmental disciplinary committee is empowered to debar the student from the course.

ADDITIONAL COURSE INFORMATION

The lecture materials such as power point presentation/notes, problems and video lectures shall be displayed by the faculty member. Students can be contacted through phone or in person for further discussions and clarifications on a mutually convenient time.

FOR SENATE'S CONSIDERATION

Course Faculty Dr. B. Karthikeyan

CC-Chairperson

HOD