



Type of course: Elective

Prerequisite: Basic Knowledge of Material Science and Metallurgy

Rationale: To impart comprehensive knowledge about performing non-destructive tests on structural steel components and welded sections by using Dye Penetration Test, Magnetic Particle Test, and Ultrasonic Test. The individual should display sound technical knowledge and will have to maintain safe and quality working practices

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
0	0	15	15	0	0	100	100	200

Contents:

Sr. No.	Topic	No. of Hours	Weightage %
01	Work according to personal health, safety and environment protocol at construction site: Follow safety norms as defined by organization. Adopt healthy & safe work practices. Implement good housekeeping practices	20	10
02	Perform ultrasonic testing on structural steel components and welded sections: Perform ultrasonic testing on structural steel components and sections to detect deformities present inside the weld, between weld and parent material, rolling defects under the surface of base material	60	30
03	Perform Magnetic Particle test on structural steel welded joints: Perform Magnetic Particle test on structural steel welded joints to detect deformities present on the surface, or originating from the surface	60	30
04	Perform liquid /dye penetration test on structural steel welded joints: Perform liquid /dye penetration test on structural steel components and sections to detect deformities present on the surface, or originating from the surface	60	30

Course Outcome:

Sr.No.	CO statement	Marks % weightage
CO 1	To understand and perform liquid /dye penetration test on structural steel components and welded sections	30
CO 2	To understand and perform ultrasonic testing on structural steel components and welded sections	40
CO 3	To understand and perform Magnetic Particle test on structural steel components and welded sections	30



GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Bachelor of Vocation (B.Voc), 5th Semester

Branch: Production Technology

Subject Name(OJT Elective) : Structural Steel NDT Tester (Level-4)

Subject Code: 21150308

Reference Books:

- 1) Structural Steel NDT Tester, QP Code: CON/Q3503 (NSQF Level-4)
- 2) Practical Non-destructive Testing – Baldev Raj, T. Jayakumar & M. Thavasimuthu, Norosa Publishing House, New Delhi

List of Open Source Software/learning website:

<https://nptel.ac.in>