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Course Title:	Magnetic flux Leakage (MFL) Level II
Category:	Non-Destructive Testing (NDT)
Course Code:	KIT-108
Duration:	3 to 4 days
Certificate:	Accredited certificate (ASNT) Level II for 5 years
Exams:	General Exam: 40 Q Specific Exam: 20 Q

Introduction to Magnetic Flux Leakage (MFL) Inspection:

- ✓ Overview of MFL as a non-destructive testing (NDT) method.
Principles of magnetic flux leakage and its application in detecting surface and subsurface defects in ferromagnetic materials.
Comparison of MFL with other NDT methods.
Basic Magnetism and Electromagnetism:
- ✓ Fundamental principles of magnetism and electromagnetism.
Understanding magnetic fields, magnetic flux, and magnetic domains.
Principles of electromagnetic induction.
MFL Equipment and Instrumentation:
- ✓ Introduction to MFL inspection tools and equipment.
Overview of various MFL sensor designs (e.g., yokes, transverse, circumferential).
Understanding signal acquisition systems and data interpretation software.
MFL Inspection Techniques:
- ✓ Setup and calibration procedures for MFL equipment.
Inspection procedure development and optimization.
Factors affecting MFL inspection sensitivity and accuracy.
Data Acquisition and Analysis:
- ✓ Techniques for acquiring MFL data during inspections.
Data processing and analysis methods.
Interpretation of MFL signals to identify and characterize defects.
Defect Detection and Classification:
- ✓ Identification of different types of defects detectable by MFL (e.g., corrosion, cracks, laminations).
Classification of defects based on size, shape, and severity.
Case studies and examples of real-world defect detection using MFL.
Advanced Topics in MFL:
- ✓ Advanced signal processing techniques for enhancing defect detection.
Quantitative analysis methods for assessing defect size and depth.
Integration of MFL with other inspection methods for comprehensive asset evaluation.
Quality Assurance and Documentation:
- ✓ Procedures for quality assurance and control in MFL inspections.
Documentation requirements and reporting standards.
Compliance with industry codes, standards, and regulations (e.g., API 570, ASME Section VIII).
Safety Considerations:

✓ Safety protocols and best practices for MFL inspections.
Hazards associated with magnetic fields and electrical equipment.
Personal protective equipment (PPE) requirements.
Practical Exercises and Hands-on Training:

✓ Hands-on training sessions using MFE-MFL equipment on mock-up specimens or actual components.
Simulated inspection scenarios to practice defect detection and data analysis skills.
Troubleshooting common issues encountered during MFL inspections.
Case Studies and Real-world Applications:

✓ Review of case studies illustrating successful MFL inspections in various industries (e.g., oil and gas, aerospace, manufacturing).
Discussion of challenges and lessons learned from practical MFL applications.
Certification and Examination