

CONTENTS OF TOPICS ON STRUCTURAL TESTING (MAE 1033)
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TOPIC	CONTENT
1	<p>Introduction to In-Situ Testing of Structures</p> <ul style="list-style-type: none"> - Basis for Structural Inspection, Testing & Investigation - Category and Types of Testing Methods - Planning for In-Situ Structural Investigation - Selection of Diagnostic Inspection & Test Methods - Structural Investigation Report
2	<p>Integrity Assessment Techniques</p> <ul style="list-style-type: none"> - Surface Hardness Test (Rebound Hammer) - Ultrasonic Pulse Velocity Measurement - Recording and Interpretation of Results <p>Non-Destructive Testing for Integrity Assessment</p> <ul style="list-style-type: none"> - Dynamic Response (Pulse Echo & Impact Echo Test) - Radiography, Radiometry, Thermography & Radar Methods
3	<p>Strength Assessment Techniques</p> <ul style="list-style-type: none"> - Core Drilling and Testing for Strength - Core Testing Procedures, Recording and Interpretation of Results <p>Partially-Destructive Testing for Strength Estimation</p> <ul style="list-style-type: none"> - Penetration Resistance Test (Windsor Probe) - Pull-Out and Pull-Off Tests - Break-Off and Internal Fracture Tests
4	<p>Durability Assessment Techniques</p> <ul style="list-style-type: none"> - Moisture Measurements - In-Situ Permeability Tests (ISAT Method, Figg's Method) <p>Testing for Reinforcement Corrosion</p> <ul style="list-style-type: none"> - Carbonation and Chloride Attack - Half-Cell Potential and Resistivity Measurements - Covermeter measurement - Recording & Interpretation of Results
5	<p>Hands-on Practical Session on the Use of Common NDT Equipment</p> <ul style="list-style-type: none"> - Rebound Hammer, UPV Measuring Device (PUNDIT), Covermeter, Crack Meter, - Demonstration on use of Core Drilling and Core Testing
6	<p>Introduction to Forensic Engineering</p> <ul style="list-style-type: none"> - Principles and definition of forensic engineering - Forensic engineering investigative process (defining objectives and developing investigation methodology) - Developing Failure Hypothesis and Reporting <p>Case Studies in Forensic Engineering</p> <ul style="list-style-type: none"> - Documented case studies on structural failure investigation (building & cooling tower case studies) - Forensic Engineering Investigation on Flyover Bridge Supports - Understanding methodology and hypothesis development