Introduction to Nondestructive Testing of Materials in Civil Engineering

1. Nondestructive Testing (NDT) is a primary concern for civil and structural engineers, as it is essential to ensure the safety and integrity of structures such as buildings, bridges, and tunnels.

2. NDT techniques are designed to detect and evaluate the condition of materials, structures, and components without causing any damage.

3. The field of NDT is evolving rapidly, with new technologies and methods being developed to address the needs of civil engineers.

4. In this chapter, we will introduce the basic concepts of NDT, its importance in civil engineering, and the various types of NDT techniques used in this field.

5. NDT methods can be broadly classified into four categories: destruction, detection, evaluation, and control, each with its own set of advantages and disadvantages.

6. The choice of NDT method depends on the specific requirements of the project and the materials being tested.

7. In the following sections, we will discuss the fundamentals of each NDT method and provide examples of how they are used in civil engineering practice.

8. By the end of this chapter, readers will have a basic understanding of the role of NDT in civil engineering and be able to apply this knowledge to real-world problems.

9. In conclusion, NDT is a critical tool for ensuring the safety and reliability of civil engineering structures, and civil engineers must be well-versed in its applications.

10. As technology continues to advance, we can expect to see even more innovative NDT methods emerge in the future, further enhancing the field of civil engineering.
Building Materials in Civil Engineering
- Haimei Zhang 2011-05-09

The construction of buildings and structures relies on having a thorough understanding of building materials. Without this knowledge it would not be possible to build safe, efficient and long-lasting buildings, structures and dwellings. Building materials in civil engineering provides an overview of the comprehensive range of building materials available to civil engineers and all those involved in the building and construction industries. The book begins with an introductory chapter describing the basic properties of building materials. Further chapters cover the basic properties of building materials, air hardening cement materials, concrete, building mortar, wall and roof materials, construction steel, wood, waterproof materials, building plastics, heat-insulating materials and sound-absorbing materials. Each chapter includes a series of questions, allowing readers to test the knowledge they have gained.

Civil Engineering Technologist Body of Knowledge
- American Society of Civil Engineers. Civil Engineering Technologist Body of Knowledge Task Committee 2019

This report provides a consensus on areas in which a civil engineering technologist might work, as well as the overall approach of combined foundational and specialty outcomes to provide a workable body of knowledge.