

The DBS Handbook of Civil Engineering

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PARDEEP KUMAR
AMRIT KUMAR ROY

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Civil engineering is the practice of designing and developing infrastructure objects, on a large scale, developing nationwide transport systems or water supply networks, or on a more minor scale, developing roads and buildings, for example.

A civil engineer is responsible for all aspects of building structures – comprising the planning, design, budgeting, construction management, surveying, and analysis – and civil engineers should expect to use all these skills regardless of their specialisation. Civil engineering is a rapidly advancing industry, constantly adapting to contemporary developments and concerns, such as pollution, water shortages, and sustainable energies.

The DBS Handbook of Civil Engineering covers all aspects of civil engineering and its role in society. It covers a range of various civil engineering disciplines such as general engineering, structural engineering, geotechnical engineering, transportation engineering, environmental engineering, planning engineering, hydraulic engineering, construction engineering, materials science, surveying, and urban engineering.

This handbook integrates all of the diverse approaches that have gone into the making of the modern field of civil engineering. This work is intended for all those interested in this field. It will be of immense value to students of all kinds, especially students of civil engineering



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Civil engineering is a professional engineering discipline that deals with the design, construction, and maintenance of the physical and naturally occurring environment, including works like roads, bridges, canals, dams, airports, sewage systems, pipelines and railways. Civil engineering is usually broken into a number of sub-disciplines. It is the second oldest engineering discipline after military engineering, and it is defined as the application of non-military engineering from military engineering. Civil engineering was placed in the public sector from municipal through to national governments, and in the private sector from individual businessmen and small firms to multinationals and corporations.

Civil engineering is the application of physical and scientific principles to the design, construction, and maintenance of the built environment, and its history is intricately linked to the development of physics and mathematics throughout history. Civil engineering is a wide-ranging profession, including several sub-disciplines, its history is linked to knowledge of structures, materials, geology, geography, geology, soils, hydrology, environmental engineering, and other fields.

The history of civil engineering and structural history covers most architectural design and construction, but carried out by artisans, such as masons and carpenters, rather than the role of master builder. Knowledge was retained in guilds and apprenticeships, and advanced by trial-and-error. Structures were replaced by advances. Structures, roads and railways were built, and expanded were repetitive, and increases in scale were incremental. The earliest examples of a scientific approach to physical engineering is the application of the scientific method to civil engineering in the work of

Engineering has been an aspect of life since the beginnings of human existence. Civil Engineering is one of the broadest and oldest of the engineering disciplines, extending across many technical specialties. Civil Engineers plan, design, and supervise the construction of facilities essential to modern life like space satellites and launching facilities, offshore structures, bridges, buildings, tunnels, highways, transit systems, dams, airports, harbours, water supply system, and wastewater treatment plants.

The earliest practice of civil engineering may have commenced between 4000 and 2000 BC in ancient Egypt, the Indus Valley Civilization, and Mesopotamia (ancient Iraq) when humans started to abandon a nomadic existence, creating a need for the construction of shelter. The construction of pyramids in Egypt (circa 2700–2500 BC) were some of the first instances of large structure constructions.

A civil engineer is responsible for planning and designing a project, constructing the project to the required scale, and maintenance of the project. A civil engineer requires not only a high standard of engineering knowledge but also supervisory and administrative skills.



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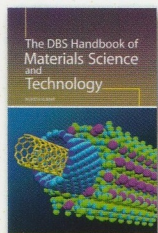
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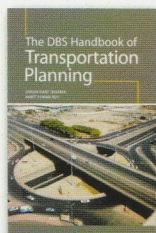
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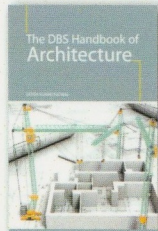
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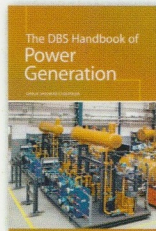
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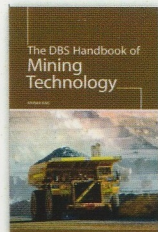
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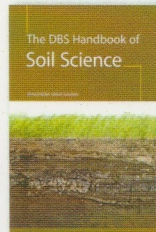
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