

CIVIL ENGINEERING AND ITS BRANCHES



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

Výuka jazyků
prostřednictvím ICT

CZ.1.07/1.1.10/03.0026

Civil Engineering

- Professional engineering discipline
- Dealing with the design, construction, and maintenance of the physical and naturally built environment
- The oldest discipline after military engineering

Civil Engineering Branches

- Environmental Engineering
- Geotechnical Engineering
- Structural Engineering
- Transportation Engineering
- Municipal Engineering
- Water Resource Engineering
- Material Engineering
- Coastal Engineering
- Construction Engineering and Surveying



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Environmental Engineering

- Treatment of chemical, biological and thermal waste

Focus on:

- Water purification
- Waste water treatment
- Air pollution
- Solid waste treatment
- Hazardous waste management
- Information on the environmental consequences



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Geotechnical Engineering

- Concerning the rock and soil
- Using the knowledge from geology, material science, mechanics and hydraulics
- Focus on economical foundations, retaining walls and similar structure designs



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Structural Engineering

- Dealing with structural design and structural analysis of buildings (bridges, towers, tunnels)
- Identification of loads acting on structures
- Design considerations include strength, stiffness and stability of the structures

Transportation Engineering

- Concentrating on moving people and goods efficiently
- Designing, constructing and maintaining of transportation infrastructure (streets, highways, rail systems, airports, ports and mass transit)



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Municipal Engineering

- Focusing on municipal infrastructure
- Designing, constructing and maintaining of pavements, water supply networks, sewers, street lighting, municipal solid waste management, public parks, bicycle paths



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Water Resource Engineering

- Concerning collection and management of water
- Connected with hydrology, environmental science, meteorology, geology, resource management
- Related to the design of pipelines, water supply network, drainage facilities and canals

Material Engineering

- Dealing with ceramics, such as concrete, mix asphalt concrete, metals
- Focus on increasing strength of aluminium, steel, polymers and carbon fibres

Coastal Engineering

- Managing coastal areas
- Defence against flooding and erosion



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Construction Engineering

- Concerning planning and execution of the designs from transportation, site development, hydraulic, environmental, structural and geotechnical engineers
- Business like role: drafting and reviewing contacts, evaluating logistical operations and prices monitoring



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Surveying

- A process when a surveyor measures certain dimensions occurring on the Earth surface
- Land surveying used for a boundary establishing and subdivision plans
- Construction surveying includes existing condition survey, verifying the structure location during construction and survey at the end

Sources

http://en.wikipedia.org/wiki/Civil_engineering,
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