

## CIVIL ENGINEER

Plans, designs, organises and oversees the construction and operation of dams, bridges, pipelines, gas and water supply schemes, sewerage systems, airports and other civil engineering projects.

### Tasks Include:

- determining construction methods, materials and quality standards, and drafting and interpreting specifications, drawings, plans, construction methods and procedures
- organising and directing site labour and the delivery of construction materials, plant and equipment, and establishing detailed programs for the coordination of site activities
- obtaining soil and rock samples at different depths across sites and testing samples to determine strength, compressibility and other factors that affect the behaviour of soil and rock when a structure is imposed and determining the safe loading for the soil
- studying architectural and engineering drawings and specifications to estimate total costs, and preparing detailed cost plans and estimates as tools to assist in budgetary control
- monitoring changes to designs, assessing effects on cost, and measuring, valuing and negotiating variations to designs
- analysing structural systems for both static and dynamic loads
- designing structures to ensure they do not collapse, bend, twist or vibrate in undesirable ways
- assessing present and future travel flow patterns taking into account population increase and needs change
- designing the physical aspects of transportation systems such as highways, railroads, urban transit, air transportation, logistical supply systems and their terminals