



ENGINEERING EDUCATION AUSTRALIA

RELEVANT / FLEXIBLE / TRUSTED



EARTH STRUCTURES

Course Duration: One Day

Target audience

For civil and structural engineers, geotechnical engineers, project managers, site inspectors and other various engineers and construction staff.

It is highly recommended that the Earthworks course be taken first, but it is not essential. This can be just prior to Earth Structures but can also have been attended in previous years.

Course overview

This course covers earth structures such as retaining walls, buried pipes and geosynthetics. Soil structure interaction affects these types of constructions with many failures occurring in industry. Case studies will be utilised.

Course benefits

This is more than a knowledge transfer course, as it aims to improve the earthworks thinking process by combining theory and experience. Theory alone is not enough, and experience without theory can be misleading.

The course benefits include: exposure to earthworks theory, meeting earthworks practice, understanding of the basics of earthworks designs and case studies to show how theory is applied in practice.

Course topics

Retaining walls

- Theory; active, at rest and passive earth pressures; triangular and trapezoidal pressure distributions
- Types: rigid vs flexible; typical details; wall selection considerations
- Loads; equipment, strip, line and surcharges
- Drainage; water loads; design considerations
- Applicable Australian Standards
- Case Studies of failures

Buried Pipes

- Rigid and flexible
- Design and construction principles
- Applicable Australian Standards
- Case studies of failures

Geosynthetics

- Types; functions; properties
- Applications; design and construction considerations
- Case Studies

Learning outcomes

- Learn the key principles in the design and construction of these earth structures
- Identify the differences between simplified design models and reality
- Apply relevant Australian Standards on buried pipes and earth retaining structures
- Understand common failure mechanisms by discussion of failures in Case Studies
- Recognise potential applications for retention systems and geosynthetics in civil engineering applications

Learning method

Throughout the course, learners will be challenged through a series of learning activities that apply theory to real work situations. These activities, along with course tools and templates, support the transfer of learning to the workplace. Activities may include but are not limited to work simulations, group projects, problem solving, case studies, peer-to-peer learning and facilitated discussions.

Take home tools

Course Notes.