**What makes GEO5 unique?**

**Combination of Analytical Methods and FEM**
Analytical methods enable effective and rapid structure design and verification, however in some cases additional verification and modeling should be done in FEM. The same program environment and the possibility of transferring data between programs allow the user to take full advantage of the GEO5 suite.

**Comprehensive Outputs**
GEO5 programs generate clear text and graphical outputs that can be easily modified according to the needs of the user.

**Supporting Many Standards**
Geotechnical methods applied in GEO5 software are used all around the world. GEO5 adopts a unique system of implementing standards and partial factors, which are separate from the structure input. GEO5 has a database of standards, however it is possible for the user to create own settings.

GEO5 supports:
- Factor of Safety (ASD)
- Limit States Theory (LSD)
- Eurocodes EN 1997, including National Annexes
- URFD 2003, URFD 2012
- Other geotechnical standards (SNP – Russia, GB – China)
- Standards for reinforced concrete (EN, ACI, SNP, GB, AS...)

**Programs Linked Together**
It is possible to exchange data between programs using the clipboard. Some GEO5 programs can launch other programs and automatically transfer all relevant data.

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**GEO5**

Geotechnical Software for Wide Range of Analysis

- Stability Analysis
- Excavation Design
- Walls and Gabions
- Shallow Foundations
- Deep Foundations
- Settlement Analysis
- Tunnels and Shafts
- Stratigraphy
- Field Tests

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GEO5 Software for Geotechnical Design and Analysis

GEO5 is an intuitive software suite designed to solve a large scale of geotechnical engineering problems in a user-friendly graphical environment. Common basic characteristics are:

- Each program solves one structure type
- Active graphical input, 2D/3D visualization
- Easy exchange of data between programs
- Build-in contextual help providing many tips
- Implemented database of common soils
- Supports large numbers of standards and codes
- Universal TXT, XLSX, DXF imports
- Comprehensive text and graphical outputs

Slope Stability
This program is used to perform a slope stability analysis with the optimization of circular and polygonal slip surfaces. The program considers anchors, geo-reinforcements, presence of water (above or below terrain), surcharge and earthquake effects.

Sheeting Check
This program models the real behavior of sheeting structures during the construction process and determines the internal forces and deformations. The program has a wide catalogue of sheet pile implemented and enables dimensioning of RC and steel cross-sections. It can also check the internal stability of anchors.

Sheeting Design
This program is used for a quick design of non-anchored and a preliminary design of anchored retaining walls.

Rock Stability
This program is used to analyze the stability of rock slopes on the predefined planar or polygonal slip surface. It is also possible to solve an earth (rock) wedge in stereographic projection.

Nailed Slopes
This program checks for slip and overturning of a reinforced block, counts the internal stability of a nailed wall (straight or broken slip surface, bearing capacity of nails) and global stability using the Slope Stability program. A concrete cover can be reinforced by steel mesh.

Spread Footing
This program is used to design spread footings (centric, eccentric, strip footing, circular) subject to general load. It computes the vertical and horizontal bearing capacity, settlement and rotation of the footing, and determines the required longitudinal and shear reinforcement.

Spread Footing - CPT
This program verifies the bearing capacity of spread footing based on CPT or SPT tests. It computes the horizontal bearing capacity and settlement. Longitudinal and shear reinforcement of the footing can also be designed.

Cantilever Wall
Gravity Wall
Abutment
Prefab Wall
Gabion
Masonry Wall

GEO5 contains multiple programs for the analysis of retaining walls and supporting structures. These programs provide verification for overturning, slip and bearing capacity of foundation soil. They enable the user to check the cross-sections strength (plain concrete, RC, masonry) and the stability of wall blocks. The global stability can be checked in the Slope Stability program.

MSE Wall
This program is used to analyze a variety of earth structures reinforced by geo-net (a wide catalogue is implemented). The program checks for slip and overturning of a reinforced block, counts the internal stability of a wall (extendible or inextendible reinforcement) and the global stability using circular slip surface with full optimization.

Pile
This program is used for the analysis of vertical bearing capacity of a single pile loaded in tension or compression, pile settlement as well as horizontal bearing capacity. It allows the user to design various types of cross-sections (RC, steel pipe, timber pile).

Pile CPT
This program verifies the vertical bearing capacity and settlement of a single pile or a group of piles based on the results provided by cone penetration tests (CPT).

Micropiele
This program is used to verify steel tube micropiles. When calculating the bearing capacity of a micropile, the program verifies both the foot and the shaft.

Pile Group
This program is used to analyze a pile group (pile raft foundation with a rigid pile cap) using both the spring method (FEM) and analytical solutions. Both the floating piles and the piles fixed into subsoil can be considered. The program allows the design of various types of cross-sections (RC, steel pipe, timber).

Anti-slide Pile
This program is used for the design of pile walls stabilizing slope movement or increasing the safety factor of the slope.

Shelf
This program is used to analyze spatial earth pressures on a circular shaft and determine the internal forces on the structure.

Beam
This program enables the analysis of foundation beams on elastic subsoil with an automatic generator of load combinations according to EN 1990.

Settlement
This program can determine the vertical settlement and a time-dependent consolidation under surcharge or embankment.

Earth Pressures
This program computes basic earth pressures (active pressure, passive pressure, and pressure at rest) acting upon an arbitrary shaped structure.

Ground Loss
This program is used for the analysis and determination of the shape of the subsidence trough above excavations and evaluation of the damage to buildings situated in the affected area.

Terrain
This program is used to create digital terrain models (DEM, DTM) from the inputted points and holes. It calculates the volume of an excavation and also serves as a task manager for other GEO5 programs.

2D/3D Visualization
Simply switch between 2D and 3D visualization of the structure in selected input modes.