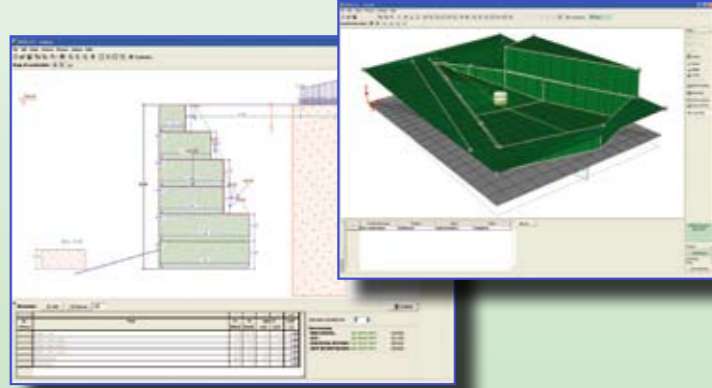


Common features of GEO5 suite

Integrated programs

The GEO5 suite of programs is designed to solve various geotechnical problems. GEO5 applications are integrated, allowing the analysis results from one program to be used in another. This expands the range of problems which can be analyzed, improves accuracy and saves time.



Analytical and Finite Element solutions

Increase design safety by using two independent solutions - Analytical and Finite Element. The analytical method of computation (e.g. slope stability, sheeting design programs) allows users to design and verify structures quickly and efficiently. The designed structure may be transferred into the FEM program where the general analysis of the structure is performed using the Finite Element Method. This not only saves your time but also compares two independent solutions, thereby increasing design safety.

Simple and controlled data input

In most applications you can design and check a structure within an hour without any special training. When you return to work with a GEO5 program after a break, you instinctively know how to input data and use the program. Any change of input data is immediately displayed on screen, giving you absolute control of the process.

Customized Graphical Report

The programs allow you to easily generate clear graphical and text output. The structural analysis report is generated according to a tree menu, which allows the insertion of graphical output (figures). In both input and analysis mode, you can add one or more figures into a list of pictures. Any picture can be edited, enlarged or coloured. Figures are automatically inserted into the structural analysis report and are updated if any change of input data occurs. Always up-to-date output documents can be printed and exported to RTF or PDF formats.

Low-cost modular system

The complete GEO5 package is available at a specially discounted price. Alternatively, individual programs may be purchased as required for specific projects. Many users begin with a single program that is needed at the time and progressively purchase more modules according to their budget. You may also take advantage of quantity discounts in our eshop.

Educational Version

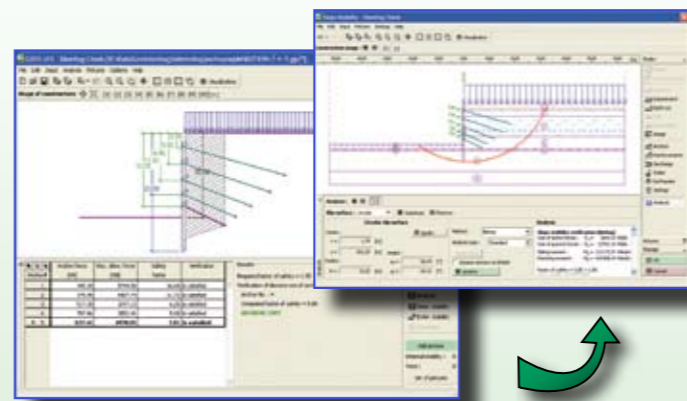
Fine provides the EDU version of GEO5 software for educational purposes to schools, universities and other academic institutions at very favourable prices. Get the full version of all GEO5 programs, accessible by your students, with an unlimited number of licences (seats) in a network, latest upgrades and free technical support.

About Fine

GEO5 is the result of over 20 years development. By acquiring GEO5 you are joining a growing group (2000+) of users in 80 countries worldwide including practicing engineers, university professors, researchers and students.

GEO5 Demo version

Visit <http://www.finesoftware.eu/download/demo/> to obtain your copy of the latest version of GEO5.



Compatibility with standards

GEO5 programs conform to standards and practices in many countries. They are based on general and well known theories; only the form of the final check depends on the individual standard and country. All applications allow you to check structures according to the theory of limit states or safety factors. Any reduction factors, analysis coefficients etc. may be set manually by the user. GEO5 is Eurocode 7 (EN 1997-1) and LRFD (AASHTO standard) compliant. Programs allow the use of all design approaches, standard or user's partial factors, all design situations etc. The implementation of National Annexes depends on the state of normalization in individual countries and is regularly updated.

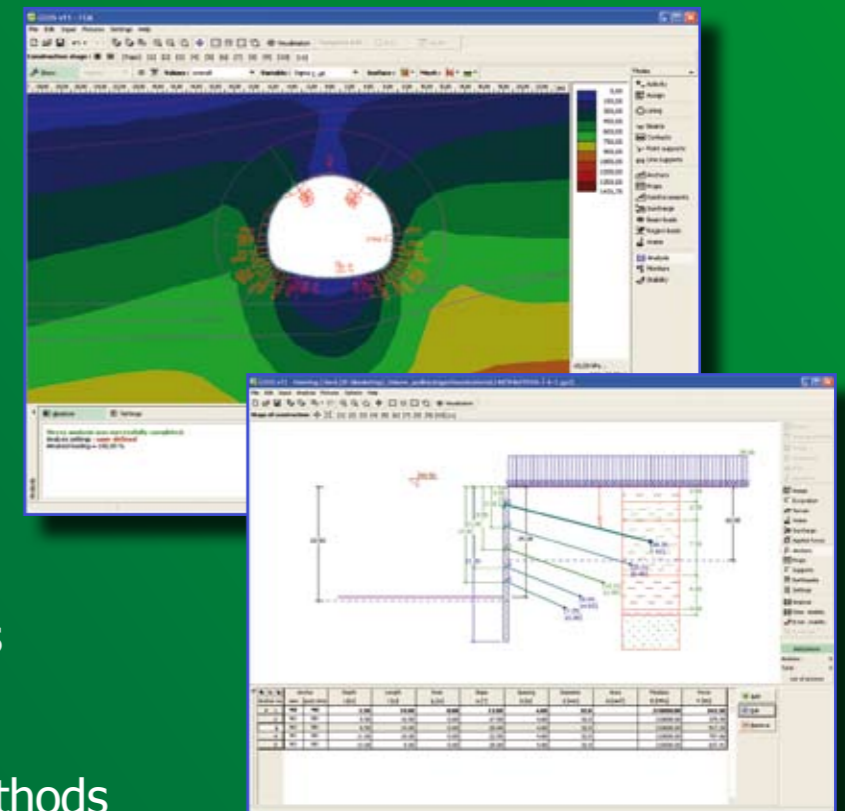


geotechnical software suite GEO5



Geotechnical software for wide range of analyses

- Slope stability
- Retaining walls
- Settlement
- Foundations
- Pile Sheeting
- Underground structures



using FEM and Analytical methods



GTL GEOTECH SERVICES, Green Garden Blok I-9
No. 28A, Jalan Raya Daan Mogot, Km.-3, Jakarta, Indonesia, 11520
Tel.: +62 21 5835 5049, Fax.: +62 21 5835 5049
Mail: gouw2007@gmail.com

GEO5 programs for geotechnical design and analysis

Geotechnical software package GEO5 is a simple and powerful tool for the solution of geotechnical problems. The programs are based on traditional analytical methods and the Finite Element Method (FEM).

Analytical programs

GEO5 analytical programs allow you to design and verify most common geotechnical structures quickly and efficiently. The programs are based on well-known and widely accepted theories enhanced in some cases by finite element techniques. For clarity, and ease-of-use, each program solves one defined task.



Terrain

- Generation of digital terrain model from input points, edges and boreholes
- Universal import of data (txt, dxf) and geodetic measurements
- Calculation of excavation and embankment volumes
- Simple definition of structures and earth grading
- Modelling of geotechnical layers using boreholes
- Modelling of ground water table
- User friendly graphical 3D interface, drawing of contour lines
- Export of data into other GEO5 programs
- Task manager for GEO5 programs



Slope Stability

- Verification analysis can be performed employing EN 1997-1, LRFD or classical approach (limit states, factor of safety)
- Simple input of terrain and layer geometry
- Built-in database of soils and rocks
- Fast and reliable optimization of circular and polygonal slip surfaces
- Any number of surcharges (strip, trapezoidal, concentrated loading)
- Any number of anchors, geo-reinforcements
- Presence of water modelled through ground water table or using pore pressure isolines
- Rapid draw down analysis
- Earthquake effects
- Analysis in effective and total parameters of soils
- Restrictions on the slip surface optimization may be defined
- DXF import and export



Rock Stability

- Slip along straight or polygonal slip surface
- Slip of space earth wedge
- Material models include Mohr-Coulomb, Hoek-Brown and Barton-Bandis
- Smooth, rough and stepped plane slip surface
- Simple input of block geometry
- Any number of anchors and surcharges (strip, trapezoidal, linear)
- Modelling of water in joints and tension cracks
- Modelling of earthquake effects



Sheeting Design

- Accurate modelling of the structure's behavior during construction using the method of dependent pressures
- Simple input of geometry (pile walls, braced sheeting, sheet pile, etc.)
- Generally layered soil environment
- Analysis of sheeting structures (anchored, strutted and non-anchored)
- Any number of surcharges (strip, trapezoidal, concentrated load)
- Modelling of water in front of and behind structures
- Verification of internal stability of anchors
- Entirely general shape of terrain behind the structure
- Earthquake effects (Mononobe-Okabe, Arrango)
- Envelope of internal forces for individual construction stages
- Verification of external stability of a wall using the Slope Stability program



Sheeting Check

- Accurate modelling of the structure's behavior during construction using the method of dependent pressures
- Simple input of geometry (pile walls, braced sheeting, sheet pile, etc.)
- Generally layered soil environment
- Analysis of sheeting structures (anchored, strutted and non-anchored)
- Any number of surcharges (strip, trapezoidal, concentrated load)
- Modelling of water in front of and behind structures
- Verification of internal stability of anchors
- Entirely general shape of terrain behind the structure
- Earthquake effects (Mononobe-Okabe, Arrango)
- Envelope of internal forces for individual construction stages
- Verification of external stability of a wall using the Slope Stability program



Piles

- Vertical bearing capacity analysis (Tomlinson, NAVFAC DM 7.2, Method of effective stresses)
- Settlement analysis, load-settlement curve (Poulos, Masopust)
- Computation of load-settlement curve by the spring method (FEM)
- Verification analysis can be performed employing EN 1997-1 or classical approach (limit states, factor of safety)
- Takes account of pile and installation technology
- Various shapes of pile cross-section (rectangle, I - cross-section, cross)
- Possibility of changing circular pile diameter with depth
- Modulus of subsoil reaction around the pile determined according to Vesic, Matlock and Rees, CSN or set manually
- Negative skin friction
- Design of reinforced concrete cross-sections (EN 1992, BS, IS, AS, ACI)



Pile CPT

- Analysis of the bearing of piles using the following standards and methods: (EN 1997-2, NEN 6743, LCPC (Bustamante), Schmertmann)
- Circular or rectangular pile cross-section (with the option of base enlargement)
- Takes account of pile and installation technology
- Loading due to normal force and surcharge
- General layered subsoil
- Import CPT tests in TXT format, gINT format or NEN standard
- Verification based on the theory of limit states or factor of safety
- Calculation of the limit load curve and pile settlement for a given loading
- Accounts for negative skin friction



Cantilever Wall



Gravity Wall



Abutment



Prefab Wall



Gabion



Masonry Wall

- Verification analysis can be performed employing EN 1997-1, LRFD or classical approach (limit states, factor of safety)
- Analysis of internal stability (overturning, translation, bearing capacity)
- Design of reinforced concrete (EN 1992, CSN, BS, PN, IS, AS, ACI)
- Generally layered soil environment, built-in database of soil parameters
- Any number of surcharges (strip, trapezoidal, concentrated load)
- Any number of inserted forces (anchors, safety fences, etc.)
- Modelling of water present in front and behind structures, artesian water
- General shape of terrain behind the structure
- Various types of pressures in front of the structure (at rest, passive...)
- Earthquake effects (Mononobe-Okabe, Arrango)
- Verification of external stability of a wall using program Slope Stability
- Analysis of bearing capacity of foundation soil in program Spread Footing



Nailed Slopes

- Verification analysis can be performed employing EN 1997-1, LRFD or classical approach (limit states, factor of safety)
- Any number of surcharges applied to structures (strip, trapezoidal, concentrated load)
- Internal stability analysis (overturning, translation, load-bearing capacity of foundation soil)
- General shape of terrain behind the structure
- Earthquake effects (Mononobe-Okabe, Arrango)
- Stability along straight or polygonal slip surface
- Verification of external stability of a wall using program Slope Stability



Spread Footing

- Vertical and horizontal bearing capacity (EN 1997-1, IS, Brinch-Hansen...)
- Various theories of settlement analysis
- Verification analysis can be performed employing EN 1997-1, LRFD or classical approach (limit states, factor of safety)
- Design of reinforced concrete (EN 1992, CSN, BS, PN, IS, AS, ACI)
- Shapes of foundation - centric, eccentric, strip footing, circular, stepped centric, stepped eccentric, stepped circular
- Automatic design of foundation
- Generally layered soil environment
- Built-in database of soil parameters
- Modelling of sand-gravel cushion
- Analysis of foundations on drained, undrained or rock subsoil



Settlement

- Theories of settlement analysis (Jambu, Buismann, Soft soil, using the index and coefficient of compression, secondary settlement according to Ladde)
- Reduction of influence zone based on the theory of structural strength, by percentage of geostatic stress or by incompressible subsoil
- Settlement analysis exploiting the Oedometer modulus specified in terms of the oedometric loading curve
- Any number of surcharges (strip, trapezoidal, concentrated load)
- Automatic analysis of settlement and stresses at all important points



Ground Loss

- Subsidence trough analysis using the Volume Loss Method or classical theories (Peck, Limanov, Fazekas)
- Shape of subsidence trough estimated using Gauss or Aversin approximation
- Can model sequential excavation and multiple tunnel tubes
- Subsidence trough analysis at ground surface or at a given depth
- Consideration of layered geological profile when using traditional methods
- Assessment of building damage
- Determination of tensile strains, gradients and local strains



Beam

- Winkler - Pasternak subsoil (parameters of subsoil C1, C2)
- Computation of C1, C2 constants from the deformation characteristics of layered soils
- Load types include force, moment, strip and trapezoidal loads
- Any number of load cases and combinations
- Automatic generation of combinations according to EN 1990

FEM

Programs for the analysis of geotechnical problems by the finite element method (FEM) allow you to closely model the behavior of real soils and structures. They also address problems which cannot be solved by standard analytical methods.



FEM

The program can model a wide range of geotechnical problems including terrain settlement, sheet piling/diaphragm walls, underpinning of structures, slope stability, beams on foundation, excavation, etc.

- Material models (linear elastic model, modified linear elastic model, Mohr-Coulomb model, Drucker-Prager model, Cam Clay model)
- Built-in geometrical model correction, automatic mesh generator
- Automatic generation of boundary conditions
- Beams and contact elements
- Anchors, geotextiles, geogrids
- Surcharge (strip, trapezoidal, line loading)
- Water model using ground water table or pore pressure isolines
- Stability analysis based on c,fi reduction theory



Plate

The program performs the analysis of foundation and roof plates of any shape.

- Automatic mesh generator with mesh refinement around points or lines
- Modelling of subsoil or piled foundation under the plate
- Simple introduction of beams using cross-section parameters
- Force and deformation loads
- Any number of load cases
- Automatic generator of combinations (EN 1990)
- Determination of required bending and shear reinforcement
- Data import-export in DXF format



Tunnel *

- Two options for modelling lining with beam elements
- Topology correction and mesh generation are fully automatic
- Any number of construction stages
- Use of a relaxation factor to model the 3D behavior of the body during excavation (sequential tunnelling)
- Graphical representation of the distribution of internal forces on active parts of the lining

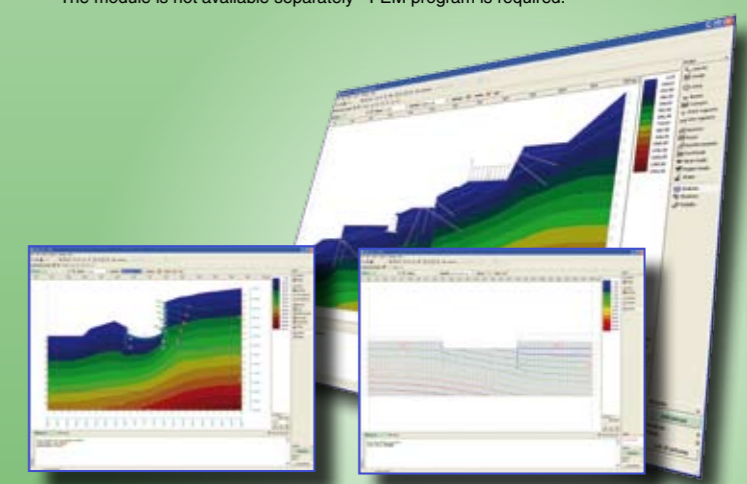


Water Flow *

The module performs steady state analysis of water flowing in a mass body.

- Possibility to represent partially permeable interfaces (contacts) and beams
- Clear representation of pore pressure distribution, flow velocities and ground water table
- Log-linear and Van Genuchten model
- Line hydraulic boundary conditions
- Point hydraulic boundary conditions

* The module is not available separately - FEM program is required.



20+ programs