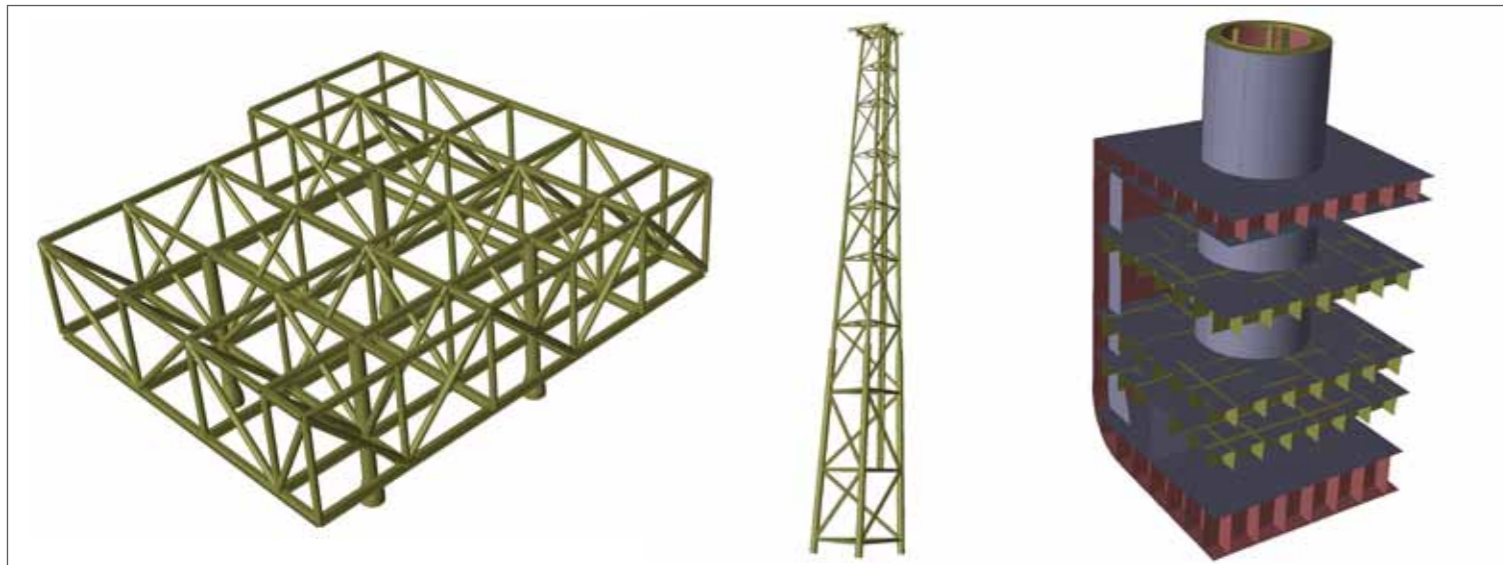


# GeniE.Lite

Integrated modelling, analysis and code checking



## Engineering of small to medium size space frame structures

GeniE.Lite is ideal for engineering of offshore and maritime structural parts that can be described with up to 500 beam concepts or 10.000 finite elements in a structural analysis. The capabilities range from modelling, analysis, results presentation, code checking to design iterations. The structures may be built using beams, stiffeners, plates and shells.

### Applications

GeniE.Lite is primarily intended for engineering of typically flare towers, bridges, modules, small topsides, crane pedestals or other local parts of a global model.

It is also ideal to determine the effect of plates and shells in a space frame model as these are an integral part of the model. Typical examples may be the influence of a plate on a grillage or the effect of brackets in a joint.

GeniE.Lite allows the engineer to perform a linear structural analysis followed by results presentation and beam code check as well as an eigenvalue analysis.

The program comes with a number of practical tutorials; hence it is easy and quick for new users to learn the program. Modelling can be done graphically or by textual input – this suits both the new as well as the skilled user.

GeniE.Lite runs on a standard workstation, desktop or laptop (Windows XP, Vista and Windows 7).

### Capabilities

#### Modelling

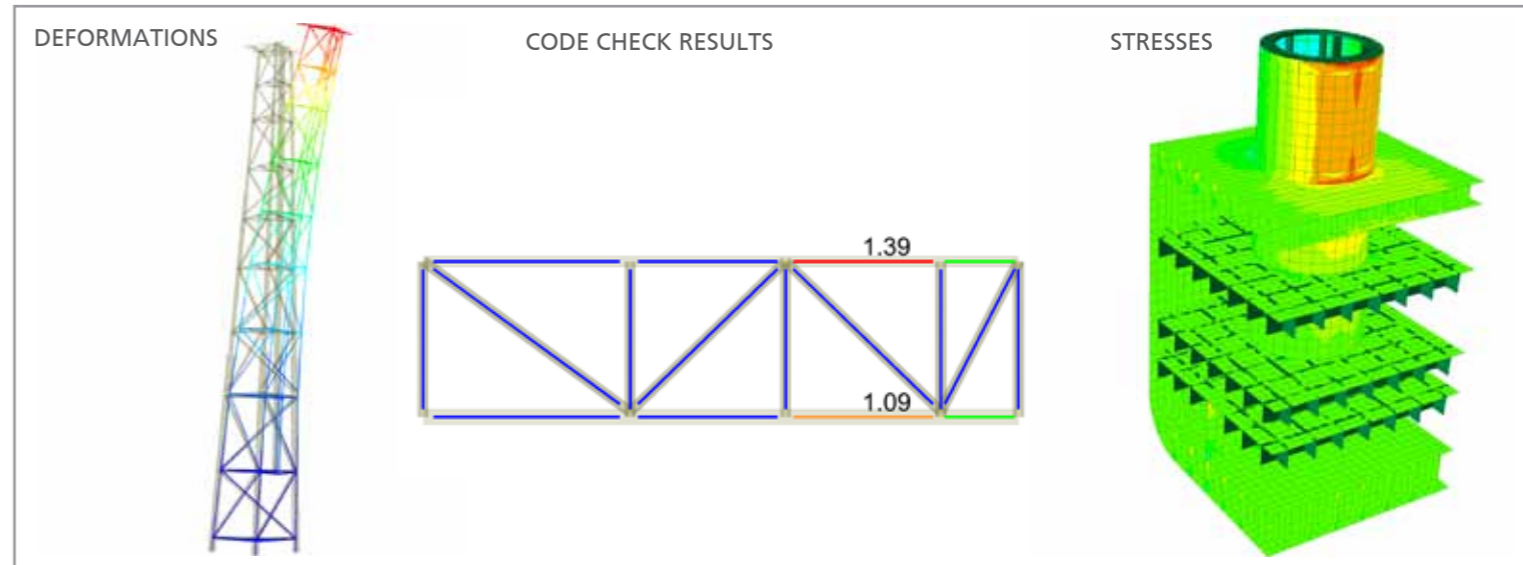
The structure may be built from beams, stiffeners, plates or shells and it may be flat, single-curved or double-curved. The most common section profile types are supported including the in-built AISC, NSF-EN, BS4 and selected ship profile libraries.

It is easy to create segmented or overlapping beams. Tubular joints including cans, stubs, cones and gaps can be automatically generated according to rules.

All normal boundary conditions, springs included, may be utilised to best represent the physical connection of the structure to its surroundings.

There are many modelling approaches that leads to the same end-result. All modelling is logged and saved – this can be used to easily recreate a project or to make derivatives of it, like for example parametric models.

## GeniE.Lite



### Loads

The loads may be generated from applied masses (material density, point masses or from equipments) or from explicit point loads, line loads, pressure loads (on shells and plates), temperature loads (on beams) and from prescribed displacements.

The applied masses may be subjected to a constant acceleration (like gravity) or a centripetal acceleration (typically a varying acceleration around a rotation centre).

### Structural analysis

GeniE.Lite comes with analysis activities for linear static analysis or eigenvalue analysis. The analyses are carried out on a finite element model created by GeniE based on the structural model (or parts of it) and load cases or load combinations to be part of the analysis. There are multiple ways of controlling the mesh quality (1st and 2nd order elements are included) to ensure high quality of the result

### Results processing and design iterations

The program will present beam results (tabular and graphically) for displacements, deflections, stresses and forces – this includes envelopes (or scanning for max/min values). For plates and shells it is possible graphically present displacements and general stresses.

Code checking and reporting of beams can be done according to the most recent versions of API/WSD, API/LRFD, NORSOK N-004, ISO 19902, DS 412/419, AISC and EUROCODE 3.

It is also possible to do member redesign on selected members before a full design iteration is performed.

### Reporting

Reports may be made for viewing using a simple text editor, web technology, MS Excel or MS Word. In addition to pre-defined report templates – these can be saved and re-used in different projects. Pictures supporting the most common standards may also easily be created.

### Packaging and upgrading

GeniE.Lite produces the same input files (js or xml) as for the full version of GeniE. This means that a model created by GeniE.lite can easily be imported into GeniE in case more detailed analyses are required.

GeniE.Lite is a version of GeniE with functionality as described herein. It comes with a bundled version of Sesra. There is a check on model size when creating the finite element model.