**Innova Engineering** is a complete well engineering software solution combining the power of multiple packages into one application. Incorporating Hydraulics, Torque and Drag, BHA Analysis, Survey Q.C. & Correction (SAG/Short Collar/ Multi-Station Analysis) & BHA Magnetic Interference Calculator, Innova Engineering provides a comprehensive engineering package to plan and drill your well successfully.

**Innova Engineering** was developed by engineers for engineers to provide the premier engineering software package for the oil and gas industry. With exceptional functionality and an intuitive yet powerful interface, Innova Engineering delivers an innovative and cost-effective solution for Operators and Service Providers alike.

**Features**
- Torque & Drag
- Hydraulics (and hole cleaning)
- Survey Correction
- BHA Analysis
- BHA Magnetic Spacing Calculator
- Casing Centralizer Placement
- Casing Design
- Cementing
- Jar Placement
Main Features

- Simple to use interface, in a standalone package
- Extremely fast calculations; results for complex BHAs at multiple flow rates / friction factors are calculated in seconds
- Copy and paste data from Excel, Notepad or any other file type directly into Innova Engineering
- Easy to interpret graphical and numeric outputs available for all calculation modules
- Create professional, user customized reports in both PDF and Excel formats for all outputs
- Detailed Summary Reports for each module

Complete support for complex 3D directional Wells

- Fully customizable charts complete with screen reader to allow quick interpretation of generated data
- Overlay data collected from the wellsite against the modelled outputs for quick and easy comparisons as well as casing / liner runs

Import / Export BHA assemblies

- Editable Fluids Library & Components Catalogue
Torque and Drag Module

- Latest soft string model with stiffness correction factor
- Model Viscous Drag, Buckling Friction & Contact Surface Correction
- Conservative (Unloading) & Standard (Loading) Buckling Models
- Elemental (snapshot) view available for all calculations

- Calculate sinusoidal and helical buckling limits
- Full support for casing, liner & drilling assemblies
- Full support for complex 3D directional wells
- Friction factor sensitivity analysis for unlimited number of friction factors, or single calculations
- Models casing flotation / drill string fill
- Model Effects of bow spring centralizers on torque & drag
- Apparent WOB & Overpull calculations

- Friction reduction devices can be modelled into calculations
- Calculates expected pipe stretch and torque induced pipe twist
- Calculate T&D for tripping, on bottom and reaming

- Calculate side forces & casing wear
- Calculate drill string fatigue
- Real time data can be modelled & displayed alongside the calculated data

- Actual and apparent WOB and overpull calculations. Visualize how much overpull / WOB is experienced at the bit for a given value seen at surface
Hydraulics Module

- Calculates standpipe pressures, cuttings loaded and clean hole ECDs, surge and swab as well as a complete set of hole cleaning outputs

- Support for multiple hydraulic models: Bingham Plastic, Power Law, Herschel Bulkley, Robertson Stiff

- Options for single calculation or sensitivity analysis for unlimited number of flowrates and tripping speeds simultaneously

- Full support for riser-less / dual gradient drilling

- Split flow modelling for complex BHAs with multiple hole openers / under reamers / circulating subs

- Incorporate data gathered at the well site into the hydraulics model and overlay the real-world data and the theoretical hydraulics model

- Enter multiple pore pressures & fracture gradients and plot against modelled data

- Surge and swab calculations can be calculated for any reference e.g. bit, casing shoe, bottom hole, or any other user defined depth

- Model the effect of stabilizers and casing centralizers

- Quick bit hydraulics calculator, determine bit pressure losses and impact force without having to setup a complete project
Survey Correction Module

- Correct raw MWD surveys for Z axis magnetic interference with latest short collar correction algorithm
- Multi Station Analysis (MSA) quantifies magnetometer scale and bias errors resulting in more accurate survey data

- Well path magnetic interference analysis; calculate the expected error in azimuth for a given amount of non-mag spacing. Fully supports intermediate steel above and below the MWD sensor or both.
- Full support for minimum curvature, radius of curvature, tangential and balanced tangential survey calculation methods
- Supports survey interpolation for both MD and TVD. Results can be exported to text or Excel
- QC raw MWD surveys for G total, B total and magnetic dip with user definable limits

SAG Correction & BHA Analysis

- Survey SAG correction algorithm, to correct survey inclinations for BHA deflections
- Rotary BHA modelling to aid in build / walk rate predictions
- Predicted build / walk Rate for Sliding based on motor bend, hole size and Bit Formation Index
- Vibration analysis calculates Critical RPM
Casing Standoff & Centralizer Spacing

- Model rigid and bow spring centralizers
- Automatically optimize centralizer placement based on a desired standoff value
- Calculate deflection at centralisers and mid joint.
- Ability to model bow spring running and restoring forces
- Model the additional side force created by the compression of bow spring centralizers
- One click standoff summary report, including tabulated results accompanied by standoff, side forces and hookload charts.

Jar Placement

- Calculates neutral point road map which shows WOB to avoid at every depth along the well path
- Calculates pump open force
- Model the impact / impulse of all types of jars, accelerators & intensifiers
- Optimize the hammer length / jar type to maximize impulse / impact
- Calculates weight above and below jar when vertical in air and mud
- Calculates weight above and below jar at bottom hole location in air and mud