BitCan
Geosciences & Engineering Inc.

Position Description

Job title	**R&D Scientists/Engineers in Geomechanics, Rock Mechanics, Fluid Mechanics in Porous Media, Engineering Mechanics, Computational Mechanics, Engineering Physics, Tectonophysics, …**
Reports to	Technical Operations Manager

Job purpose:

The main function of these positions is to perform various types of geomechanical simulation works or develop computational functions focusing on nonlinear coupled thermo-hydro-mechanical (THM) processes in rock deformation and failure process. These include, but are not limited to, wellbore stability, sand production, geo-containment integrity, hydraulic stimulation, reservoir dilation, compaction/subsidence. Other duties include: preparing report for the simulation project; developing finite element or other computational method codes/softwares; supporting business development by attending client meetings and assisting proposal preparation; managing multiple projects simultaneously and meeting deadlines. The selected candidates will join a dynamic team of talented geologists, engineers, and experimentalists to solve challenging problems in subsurface geological engineering environments, such as oil and gas production, mining, waste reinjection, subsurface storage and others.

Duties and responsibilities:

- Reviewing and integrating geological/geophysical, petrophysical and reservoir engineering data for constructing simulation models.
- Evaluating different data sources for geomechanical properties, in-situ stresses/pore pressure conditions and finalize the geomechanical simulation models.
- Debugging and quality-control/assurance of the above-constructed simulation models.
- Interpreting the simulation results towards the objectives of the simulations, including preparation of reports/presentations.
- Participation and hands-on works in development of new simulation capabilities, including user subroutines to existing commercial softwares or dedicated computer softwares.
- Supporting business development by attending client meetings and assisting proposal preparation.
- Mentoring junior geomechanics specialists

Qualifications, Abilities, and Skills Required:

- PhD/MSc in a directly relevant Engineering or Physical Science discipline. Coursework in the following list: plasticity, continuum mechanics, structural mechanics, finite element method, computational mechanics, engineering mechanics, engineering physics, rock mechanics/ geomechanics, tectonophysics, flow and transport in deformable porous media. A minor, or at least coursework, in applied math or computer science is preferred.
- For the modeler, experience in modeling rock deformation and fracturing, nonlinear behaviour, coupled mechanisms of two or more of the thermo-hydro-mechanical aspects. Working knowledge of ABAQUS or other software packages for flow in porous media, heat transport and geomechanics.
- For the program developer, experience in computational methods (finite element,), scientific computing and code development; numerical programming using Fortran 90 and C++
- Must be able to work both independently and as part of multi-disciplined teams working with an extensive client base.
- Must work reliably and able to trouble-shoot, debug, quality-control and assure.
- Good project management skills
- Experience in both Linux and Windows operating systems and high-performance computing infrastructure, including parallel computing on CPU or GPU hardware.
- Preference will be given to Canadian citizen or permanent residents. But we will support highly-qualified foreign applicants in applying for legal immigration status in Canada.