



WORK OFFER

Ref. No. NG-2020-CU-PE12

Employer Information

Employer: COVENANT UNIVERSITY
 PETROLEUM ENGINEERING
 KM 10 Idiroko Road, Canaan Land
 Ota, Ogun State
 Nigeria

Website: <http://pet.covenantuniversity.edu.ng>

Location of placement: OTA, OGUN STATE
Nearest airport:
Working hours per week: 40.0
Working hours per day: 8.0

Number of employees: 2000+

Business or products: Education, Research and Enterprise

Student Required

General Discipline: 14-ENGINEERING
Field of Study: 14.2501-Petroleum Engineering.

Completed years of study: 3
Student status requirements: Not required
Language required: English Good

Required Knowledge and Experiences:

Other requirements:
 Student should be a major in Reservoir Engineering.

Work Offered

Integrated Response Surface Design and Decision Support Approach to Optimal Well Sidetrack Under Uncertainty for Reservoir Management

Research Objective:

The research seeks to establish the optimal time to conduct a sidetrack by considering technical and geological uncertainties based on decision analysis scenarios of likely occurrences of a proposed well sidetrack/completion operation.

- properly estimate future cumulative production in time by the proxy-model approach
- adopt and come-up with a novel approach to resolve high non-linearity of cumulative oil production performance
- set-up and solve objective and multi-objective function based on expected-monetary-value, and
- objectively compute probability of success of likely outcomes of the decision tree and set-up decision tree for stacked reservoirs scenario beyond two (2) reservoirs or/and multiple pay zones in a reservoir.

Area of Research:

Decision/Risk Analysis, Reservoir Engineering, Drilling Engineering

Interns Contribution

- Development of analytical expressions, optimization study, MS Excel Macros script writing (or Python / MATLAB), design of experiment, and risk analysis.
- Reservoir simulation of oil-well sidetrack configurations in a commercial numerical simulation software.
- Production forecast with decline curve analysis and material balance to build-up a mathematical expression (semi-analytical expression).

Research 2

Title of Research

Predictive Modelling of the Impact of Nanoparticles on Drilling Mud Performance under High Pressure and High Temperature Conditions

Research Objective

The aim of this research is to model the impact of nanoparticles on the performance of water based mud under varying pressure and temperature. The specific objectives to be achieved by this study include:

- Experimental evaluation of the effect of nanoparticles on the properties of the prepared drilling mud under varying pressure and temperature
- Development of a multivariate model for the rheology which takes into account the effect of temperature, quantity, size and type of nanoparticles
- Development of a multivariate model for the fluid loss which takes into account the effect of temperature, quantity, size and type of nanoparticles

Research Area

Drilling Fluid Technology, Drilling Engineering

Interns Contribution

- Design of an experimental approach to study the impact of nanoparticles on drilling mud properties taking into account varying temperature and pressure.
- Development of temperature dependent rheological and fluid models using basic foundational approach.
- Validate the predictions of the models using experimentally derived rheological and fluid loss data.

Number of weeks offered: 08 - 16

Within the months: 01-MAR-2020 - 31-JUL-2020

Or within: 01-SEP-2020 - 31-DEC-2020

Company closed within: -

Working environment: Research and development

Gross pay: 40000 NGN / Month

Deduction to be expected: 0%

Payment method / time of first payment: Cash / Monthly

Latest possible start date:

Accommodation

Canteen at work: Yes

Expected type of accommodation: Student dormitory

Estimated cost of lodging: 0 NGN / Month