

Engineering 101
Freshman Engineering Design
Project No. 1

You will work on this project in groups of three. Each group will turn in one report for this project.

Here is what you need to do:

1. Download the spreadsheet from the class web site directly or through your MIX account.
2. Identify the number of wells that are present in the data set.
3. Write a program in EXCEL to allow you to separate the dataset into separate wells.
4. Use advanced EXCEL functions such as Pivot Tables to calculate production indicators for all wells from the dataset such as cumulative production.
5. Using techniques such as bubble maps to identify wells that are comparable to one another, choose **THREE** wells to work with.
6. Plot both oil and gas data from each well.
7. Forecast the oil and gas production for the next five years, using the Decline Curve Analysis technique covered in class.
8. Perform economic analysis on your forecast based on information covered in class.
9. Recommend one of the wells for purchase based on your analysis.

You may use the following information on an “as needed” basis.

- Direct operating cost for one MCF of gas is \$0.65 and for one barrel of oil is \$4.35.
- You will be taxed by the federal and state government at a combined total rate of %48.
- The price of Oil and Gas is expected to remain the same in the next three years.
- The tax rate is expected to remain the same in the next five years.

DELIVERABLES

The deliverables for this project are:

- A group presentation that will explain what you have done and convince the audience of its merit.
- A technical engineering report that includes:
 - Executive Summary
 - Introduction
 - Methodology
 - Results & Discussions
 - Conclusions

ABOUT YOUR REPORT

Your final report for this project will include the following:

- **Executive Summary**
 - In a nutshell what is this report all about?
- **Introduction**
 - All I need to know in advance in order for this report to make sense to me.
- **Methodology**
 - The equations and the techniques used to solve the problem.
- **Results and Discussion**
 - The “meat”. Actual numbers, graphs and tables that show me in detail what you have done and how you have done it.
 - Discuss the numbers and results that you present. Explain them. They are NOT as obvious as you think they are.
- **Conclusions**
 - “SO WHAT?” You have done all this and now you need to tell me what your final conclusion of the entire project is. What were you trying to do? Did you accomplish it?
 - On which well do I invest my hard earned money?

Finally, do not forget that you are doing this as an ENGINEER. Therefore, be clean, be organized, and be professional.

GOOD LUCK TO YOU ALL