

Facilitators: Digvijaysinh Barad, Aaron Batzer
Location: Brownsville Room
Software: Gemini: <https://gemini.google.com/>



AI-Driven Data Analytics: This session will guide participants as they utilize AI tools to analyze common industrial energy data sets, including equipment sensor data, plant utility data. Sample data sets will be provided to participants.

INTRODUCTION TO AI APP CREATION - BASIC INFORMATION AND INSTRUCTIONS

NECESSARY DATA



<https://u.tamu.edu/V4QOVqZG>

Get access to data, copy-pasteable prompts, example chats and reference results here.

AI IS A TOOL NOT A REPLACEMENT

When using these tools, always use your engineering judgement



THE RICECO PROMPTING FRAMEWORK

Use this structure to
build effective prompts

Note: You don't need to use every letter every time, but the more specific you are, the more useful the response



TIP: For multi-prompt projects use RICECO for the first prompt, the model will retain necessary context, so you only need to repeat it to make changes.

R	ROLE Tell the AI who it should act as.
I	INSTRUCTION Include the specific task or command
C	CONTEXT Provide essential background or references.
E	EXAMPLES Provide examples to show, not just tell what you want
C	CONSTRAINT Set clear limits and rules (tone, length, etc.).
O	OUTPUT Choose the specific format (list, essay, code).

BEST PRACTICES

Conserve Tokens

- Be aware of "token" limitations
- Tip:** If you run out of tokens, switch to a second google account to continue.

Validate Findings

- Always verify AI generated finding through other sources. AI can hallucinate, producing inaccurate or fabricated data, and cannot be held accountable for errors.

RICECO PROMPTING START

AC Current Measurement Data

R

ROLE: You are an energy engineer and data analyst specializing in industrial compressed air systems and energy efficiency auditing.

C

CONTEXT: The dataset contains time-stamped current consumption readings from an industrial air compressor. This analysis will be used to identify inefficiencies and support an energy audit recommendation report.

C

CONSTRAINTS: All plots must include clearly labeled axes, units, and titles. Flag anomalies or data quality issues encountered during analysis. Efficiency recommendations must be grounded in the data, not generic best practices alone.

O

OUTPUT: Present the results as a structured analytical report with clearly labeled sections. Include plots in line with supporting commentary, summary statistics in tabular form where applicable, and a concise executive summary at the end highlighting the key findings. If no clear instructions are added just return "ready for instructions" nothing else.

15-Minute Demand Data

ROLE: You are an expert energy analyst and data scientist specializing in electrical demand profiling, industrial energy systems, and utility data interpretation.

CONTEXT: The dataset consists of 15-minute interval electrical consumption from a facility located in Texas. The analysis is intended to characterize demand patterns, identify anomalies, and demand management strategies.

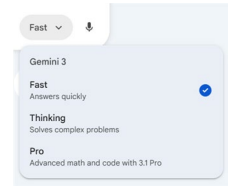
HANDS ON DATA ANALYSIS INSTRUCTIONS

The following instructions were created specifically for the IETC 2026 Hands-On AI Workshop, where Google Gemini was used, but they can be adapted for any AI Tool.

1

Account Creation

- ☐ Create a free account with Google Gemini (gemini.google.com/app)
- ☐ It can also be accessed with your Gmail account(s)
- ☐ Select “Fast” model



AC Current Measurement Data

15-Minute Demand Data

2

First Prompt - RICECO Framework (don't attach any dataset yet)

“Add RICECO starting prompt”

“Add RICECO starting prompt”

3

Know Your Data (attach only data file here)

“Analyze the attached file and give a quick overview of the data. Also, provide a snapshot of the header row with five data rows from top and end.”

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4

Visualize and Get Raw Insights

“Generate a time series plot of the AC current consumption. Provide insightful data visuals to better interpret the data.”

“Generate a time series plot of electrical demand (kW) while highlighting the minimum and maximum demand for each month.”

5

Generate Any Data Specific Characteristics

“Analyze and estimate load/unload/idle time. Also provide a day wise distribution for it.”

“Show the total number of load/unload cycles per hour using histogram plot. Flag any period where the cycles exceed 20 per hour”

“Generate a 24-hour day-type analysis for Monday through Sunday. Also include the curve for overall average 24-hour electrical demand.”

6

Provide Extra Information (attach any additional file if available)

“Using the attached CAGI performance data, provide the power consumption plot and statistics for this compressor.”

“Estimate flow rate and provide a time series plot. Also compute operational specific efficiency of this compressor.”

“Check for any correlation of electrical demand with temperature or weather data of Texas for the monitored period.”

7

Explore Further...

Disclaimer

The Gulf Coast Center of Excellence and Department of Energy do not endorse or advocate the use of any one AI tool over another or take responsibility for their misuse

Resource

For workshop materials, energy saving tips, and more, visit our website at <https://gccoe.org>