***Project 2: Adiabatic Temperature Rise of Fresh Concrete***

Concrete is a composite construction material composed primarily of aggregate, cement and water. There are many formulations that have varied properties. When fresh concrete are mixed. The water reacts with the cement which bonds the other components together, eventually creating a robust stone-like material. At the same time, the hydration process generate heat.

Dr. Cooper hired you as a research assistant to built of Matlab program to calculate the adiabatic temperature rise of the entire concrete hydration process, based on the given experimental data. Experimental data file is attached on ecampus which includes the time history of semi-adiabatic temperature, heat and heat flux. Semi-adiabatic temperature is the record of the actual temperature of the concrete sample. Heat flux is a measure of the heat loss over time. The integration of the heat flux from the beginning to the current instance of time is the total amount of heat loss to that particular time.

**Additional Information:**

The specific heat of concrete specimen is 0.8KJ/(kg\*K).

The total weight of the concrete sample is 6 kg.

**Deliverables:**

A final report of about the program designing procedures.

1. Problem statement and objectives. (1 page)
2. Detailed discussion about program designing procedures. Be sure to include the following plots. (3 pages)

a. Measured temperature vs. time

b. Heat flux vs. time

c. Adiabatic temperature vs. time

d. Adiabatic temperature rise vs. time

1. Conclusion and future plans. (1 Page)
2. Appendix

a. Coding

b. Any other information you may want to present.

Note: Use Font 12 and Times New Roman with 1 inch margin.