1. **Care must be taken at all times while handling all equipment – without exception, they are expensive and delicate!**

2. The third set of experiments for undergraduate students will involve a combination of the first two experiments
   
   i. Use the power supply to drive the electrolyzer – use different power supply currents to generate different amounts of reactant gases
   
   ii. In each case, note the voltage and current numbers for the fuel cell and the electrolyzer
   
   iii. Plot the polarization (current - voltage) curve for both components – discuss the polarization curve features – in what way are they different?
   
   iv. Determine the current efficiency of the fuel cell
   
   v. Is it feasible to have the reversible electrolyzer / fuel cell system as a future energy prospect if we feed in power from the grid to electrolyze water? Discuss based on energetic principles. When will such a scheme be feasible?

3. The experiment stations will be set up at the Connecticut Global Fuel Cell Center (Room 102) (room no. and in the E-II building (Room 218)

4. The manner in which the characteristics are obtained is left to the individual groups – they may choose to follow instructions implicitly, or to use the external potentiostat(s) provided for experiments – use of which has been demonstrated.

5. Additional information about safety (pages 4-5), technical specifications of the components(page 6),component maintenance ( page 7) and assembly instructions (pages 8-9) can be obtained from the manual– the safety precautions must be strictly enforced.

6. The data must be collected in a proper manner, as specified in the instructions (and as instructed when the potentiostat demonstrations were conducted)– note that while each individual experiment will not be graded. However there will be a grade assigned to a comprehensive final report covering all experiments performed during the course of this class (due at the end of the semester).