

Examination Feedback for EEE6202 – Energy Storage Management
Spring Semester 2014-15

Feedback for EEE6202 Session: 2014-2015

Feedback: Please write simple statements about how well students addressed the exam paper in general and each individual question in particular including common problems/mistakes and areas of concern in the boxes provided below. Increase row height if necessary.

General Comments:

Generally well addressed by students, however much evidence of learn-by-rote of the mock exam in the questions with similar structure. Students should read the question in detail before attempting – many descriptions of NiCd battery chemistry (in mock exam) when NiMH was asked for in the paper.

Bookwork (Diagrams and chemical equations) were on the whole very good, but graphing skills often poor. Units of answers should be checked for correctness.

Question 1:

Some students provided an alkaline fuel-cell chemical equation instead of acid.

Some students did not halve the gibbs free energy despite recording the equation accurately

Only some appreciation of activation losses etc. requiring consideration of lower terminal voltage for a string of fuel-cells

Question 2:

Only one candidate took this question despite it having a full walkthrough in the lecture notes.

Well approached, with minor calculation errors

Question 3:

Most students addressed the bookwork well, with well-labelled diagrams and accurate system descriptions.

Key mistake in (c)i: Students used nominal voltage not measured pack voltage.

Key mistake in (c)ii: Students used charging current and total resistance for power dissipation, did not apply Kirchoff's law.

Question 4:

Some confusion with NiCd cells from mock exam. Must read the question carefully.

Often quite poorly sketched discharge curves and erroneous operating voltages

For some reason students stated that 0.5C yielded a 2hour discharge then sketched the graph cutting off at 2.1 hours with no explanation of why (lower charge rate yields higher capacity).

Question 5:

Good bookwork on average considering complexity of system.

Often confusion over main safety factor - preventing flywheel damaging environment on failure as opposed to environment affecting flywheel.

Question 6:

Randles' model well described usually.

Most students calculated that 10 pulses removed most of the charge with the last 490s being a stopped pulse but would not state that 11 pulses were initiated

Very poor graphs in evidence, but in hindsight graphing paper could have been supplied, however only a few students included a graphical line of best fit to linearise the model.