Marking schedule   **Statistics for Engineering: 4C3/6C3**   **DOE project, 2013**

Student number(s): _____ _____

Section	Maximum grade	Grade
Objective • Objective of the experiment (maximizing? minimizing? sensitivity?) • Response variable(s)?	4	
Parameters* • Response variable(s): how are they measured? • Factors: which factors were identified? • How are the factors measured? Range chosen for the factors? • Are factors controlled, uncontrolled, controllable but not controlled, varied? • At what levels can the X's be set? • Disturbances: which factors are known to affect the response but not being investigated here? How do you control for them? [4] • Expected effect of each X on the response(s)?	5 + 4	
Experimental program* • Was the experiment appropriately designed to account for the above? factors? E.g. was blocking required to account for any disturbances? • Was a full or fractional factorial run, maybe a CCD design? • What, if any, was the confounding pattern? • Were any replicates possible? • Center points? • Were all combinations of all factors possible, or were there any constraints? • How were the experiments randomized?	9	
Analysis of the data* • Were the data analyzed in a way consistent with the chosen design? • Accuracy of the model parameters calculated. • Visualization of the raw data • Any problems with the data collected? Comments on the problems? • Sensitivity analysis via Pareto plot or confidence intervals (using replicates, or dropping out unimportant factors and refitting) • Could the fractional factorial, if applicable, be collapsed into a full factorial? Or are replicates available after dropping out main effects? • Final model derived. Interpretation of it in the context of the experiments.	11 + 3 (for log sheet)	
Conclusions* • How does the model match up with the original objective? • What future experiments, if any, would be required to further investigate the system? • General comments on how this relates to your area (chemical engineering, electrical engineering, etc). • Are the results useful for future use of this system? Reproducibility?	4	
Total	**[40]**	

* Every bullet point need not be answered to obtain full grade. Sometimes the answers appear in different sections of the report - that's OK.