

Chemical Engineering 4903 Formal Report Grading Rubric

Team Members _____

Project _____

PRELIMINARY ORAL EXAM

Did the team come prepared to the exam, that is, familiar with safety considerations, the equipment SOP, and the relevant theory for the project? Did the team come prepared with a well-thought-out experimental plan to meet the project objectives? Did all team members participate in the oral exam? _____/5

LABORATORY PERFORMANCE (Graded by Bob Cox)

Did all team members follow all safety regulations listed in the Lab handbook? Wear safety glasses at all times in the lab? Did the team properly label waste containers and containers used for temporary storage of chemicals with contents, concentration, and owner information? Did the team members bring food in the lab? Did the team properly shut down all equipment and return all chemicals, tools, and supplies by 5 pm? _____/10

LAB BOOK

Did the team keep record in a lab book in a manner acceptable in industry? Were the pages numbered, signed, and dated? By use of the team's notes, could they or a colleague repeat their work years from now? _____/2

FORMAL REPORT

Section 0 SUMMARY

Does the executive summary concisely state all of the objectives of the project? Does the executive summary concisely summarize the conclusions of the project with respect to each objective? Does the summary mention important unexpected discoveries that were not part of the original objectives? _____/5

Section I INTRODUCTION

Does this section begin by discussing why the general area of the project (e.g. distillation, process control, etc.) is important to the chemical engineering industry, and include literature citations that discuss the importance in more detail? _____/2

Does this section clearly state all the objectives of the project, with enough technical background so that a nonexpert reader will be able to understand the engineering problems that the project addresses? _____/3

Section II THEORY

Was a draft of the theory section handed in 11 days prior to the report's due date? Did it contain the correct equations with appropriate writing style? _____/5

Does this section demonstrate that the report author has reviewed the literature (with citations) to find all the theoretical approaches that might possibly be used to help meet the project objectives? _____/3

Does this section contain all of the equations used in the calculations of the data points appearing in the figures and tables, with appropriate citations to the literature sources from which the equations were taken? For each equation, are all the theoretical assumptions stated, and are all symbols defined in the text (as well as in the Nomenclature appendix)? _____/9

Section III APPARATUS AND PROCEDURE

Is the description of the experimental procedure detailed enough so that a chemical engineering student five years from now studying at another university could repeat the experiments in the same way? _____/13

Is enough information given about each piece of equipment used (i.e. thermocouples, pH meters, etc.) so that the student working five years from now could purchase the same equipment? (excluding unit ops equipment). _____/2

Does this section explain why a particular experimental approach was chosen, rather than other obvious possible experimental approaches? _____/5

Section IV RESULTS AND DISCUSSION OF RESULTS

Does every figure and data table included in this section have a point to make that is discussed in the text? Does the report author make descriptive statements of fact about each figure and table as well as speculations on the reasons for the data trends? Are the descriptive statements clearly distinguishable from the speculations? Are the data compared to model predictions and previous measurements of the same quantities reported in the literature? _____/13

Does the report author make clear which equations in the THEORY section were used to calculate all quantities appearing in the figures and data tables? _____/3

Section V CONCLUSIONS AND RECOMMENDATIONS

For every project objective given in the INTRODUCTION, does the report either give a conclusion that is clearly supported by the data, or explain why no conclusion could be obtained? If there were any

important unexpected discoveries not related to the original project objectives, are these also described in this section? _____/5

Appendix B SAMPLE CALCULATIONS

Is enough information given in this appendix so that a chemical engineering student five years from now at another university could check the calculations used to obtain one data point in each figure and data table with a calculator? (Note- such a student will not have access to your EXCEL programs) _____/3

Appendix E UNCERTAINTY ANALYSIS

Does this section identify all independently measured experimental quantities (e.g. temperature, pressure, etc.) and assign an uncertainty based on the measuring equipment to each independent quantity? For all calculated quantities, has propagation of error analysis been performed so that the measured quantity that is the principal source of uncertainty can be identified? _____/3

OVERALL REPORT PROFESSIONAL APPEARANCE

Does the report have the correct format, all five appendices, correct spelling and grammar, proper format of tables, figures, equations, references, etc. ? _____/9

BONUSES (0 – 10 points)

Excellence in _____/10

PENALTIES

Late _____

FINAL REPORT SCORE (0 – 100 points)

_____/100