Post-Lab Meeting Scoring Rubrics

Lab scores in this course will be determined using criteria that are clearly stated in the lab handouts. A large portion of each score will depend on the quality of a circuit or test procedure that your group designs or develops and/or responses to presentation prompts given during meetings scheduled after lab sessions. Post-lab meetings are meant to mimic interactions in the engineering profession in which supervisors, clients, or funding agency representatives view an actual or proposed solution to a problem. Presentations are effective only if they offer clear and concise explanations supported by high-quality visual aids.

During your post-lab presentations, I will be looking for:

- Application of sound design principles in a completely or mostly intentional manner with little to no reliance on trial-and-error
- Significant engagement by you and your lab partners in the lab activity
- Full comprehension of the fundamental principles by everyone
- Effective visual aids that add clarity and that are well organized and legible
- A high level of preparation by individual members and by the group as a whole

The rubrics below are keyed to the degree to which your group displays these attributes.

Rubric Philosophy

A rubric is set of evaluation guidelines that focuses on the degree to which specified expectations are met. It differs from other commonly used evaluation methods in that it reports levels of quality rather than simply verifying the presence of required items or assessing the accuracy of information. Those elements are important and must be addressed, but a rubric takes a more holistic view that also considers overall engagement with the material. For the specific purpose of assessing lab activities, the rubrics below consider such factors as accuracy, thoroughness, organization, clarity of presentation of data and results, and clarity of explanations.

It is important for you to understand that the quality of a presentation must exceed a minimum threshold before significant credit can be earned. For example, a verbal circuit description with no accompanying diagram is almost useless since a listener would struggle to visualize the circuit's function. Such a presentation would be assigned a low score. Likewise, lack of preparation by one or more group members is very unprofessional and would also yield a low score. In your career you will interact with individuals who are either heavily invested in the success of your work or who have technical problems that they hope that you can solve. You must be able to develop good solutions, but you must also be able to convince others of the quality of your solutions.

You should view the rubrics below as opportunities to obtain feedback to help you improve your verbal communication and persuasion skills. The practice provided by post-lab meetings should help you become more sensitive to the needs of your listeners and more able to craft good presentations. The skills that you learn can transfer to other aspects of your life and career as well such as interacting with professional colleagues, supervisors, and government and industry authorities, competing for funding, and setting clear expectations for others who work for you.

Interpretation of Rubrics Used in ECEG 350

The numerical columns in the rubrics below correspond to the sets of quantized point values that are assigned to the lab score criteria in the handouts. The multiple columns allow for different possible weights from one lab exercise to the next. If the set of scores applied to a particular criterion does not match one of the columns, then it should nevertheless be obvious how the individual scores match to the ratings. Different scoring systems could be specified in some lab handouts; in those cases, the system outlined in the handout supersedes these rubrics. The rubrics could be revised during the semester.

Rubric for Assessing Circuit Operation or Test Procedure

The following rubric will be followed to score the degree to which design specifications are met and the degree of functionality of an assembled circuit or effectiveness of a test procedure. Although the descriptions below list several potential issues for each score level, the presence of just one issue could lead to that score being assigned to the relevant criterion.

50	40	30	*Professional*: Circuit works perfectly/test procedure is fully effective and accurate and exhibits elements of good design technique. Test equipment is properly connected to the circuit and configured without delay. Software (if used) is expertly utilized to obtain relevant and useful results. Circuit is designed using deterministic, analytical methods and not via trial-and-error.
45	35	23	*Acceptable*: Circuit works fairly well, but there is a minor design flaw or two. (Unnecessary use of trial-and-error would be viewed as a flaw.) Minor issues and/or delays with the use and/or configuration of the test equipment and/or implementing a test procedure and interpreting the measurements is evident. Some misunderstanding of the design goals.
40	30		An intermediate score applicable in the 40 and 50-point systems.
30	20	15	*Needs Improvement*: The design exhibits many minor flaws and/or one major flaw. There is significant difficulty with configuring the test equipment and/or implementing a test procedure and interpreting the measurements. Significant misunderstanding of the design goals.
20	10	8	*Unprepared*: The circuit contains a host of flaws and/or significant outside assistance is necessary to obtain meaningful results. Little original work is evident. There seems to be little to no understanding of the design goals.
0	0	0	No circuit or test procedure is submitted.

Rubric for Assessing Responses to Prompts Listed in Lab Handout

The following rubric will be followed to score the quality of responses to prompts listed in the lab handouts. This is a composite score that incorporates a wide range of attributes that include, but are not limited to, effective verbal explanations, comprehension of concepts, use of supporting visual aids, accuracy and sophistication of results, and overall preparation. Although the descriptions below list several potential issues for each score level, the presence of just one issue could lead to that score being assigned to the relevant criterion. The highest score is difficult to achieve.

50	30	*Professional*: Explanation is skillfully presented and exhibits thorough comprehension of concepts and understanding of circuit operation. Visual aids are skillfully employed to support the explanation.
38	23	*Acceptable*: Response is fairly well executed but is not fully up to professional standards. For example, the explanation might contain a minor misconception or is missing a required element; some lack of comprehension of the design principles is evident; there is some struggle with follow-up questions and/or some prompting is required before an answer can be formulated. A delay in setting up a demonstration and/or some prompting to properly configure equipment could also lead to this score.
25	15	*Needs Improvement*: Explanation falls well short of professional standards. For example, major misconception(s) and/or a significant lack of comprehension is evident; required elements are missing; there is an inability to answer follow-up questions without significant prompting; or there is an excessive delay in setting up a demonstration. This score will also be assigned if it is evident that the response is rehearsed (without full comprehension of the relevant background material) and that follow-up questions mostly cannot be answered. Visual aids are not used effectively.
13	8	*Unprepared*: Clearly not prepared, or the preparation was evidently rushed. For example, little comprehension or understanding of the design principles is evident, and/or the visual aids are irrelevant or missing.
0	0	Meeting not attended or no response given.

Rubric for Assessing Visual Aids

The following rubric will be followed to score the degree to which the visual aids support and clarify the discussion. These scores will usually be applied to the group as a whole if prompts are randomly assigned during the post-lab meeting. **Plagiarism of visual aids is unacceptable.** Any group that copies another group's graphics and/or text will be referred to the University Board of Review. Although the descriptions below list several potential issues for each score level, the presence of just one issue could lead to that score being assigned to the relevant criterion.

10 *Professional*: All visual aids are clear, complete, well organized, professional in style, and add clarity to the discussion. All aids are immediately accessible.

8 *Acceptable*: Visual aids are mostly helpful and accessible, but they are a little unorganized, sloppy, missing some important information, or are not fully up to professional standards.

5 *Needs Improvement*: Visual aids are somewhat helpful but are disorganized, possibly in multiple pieces. Accessing them or the appropriate information within them causes some delays. Cross-outs and irrelevant text/equations might be mixed with the relevant material. Too many graphics are presented (i.e., much more than necessary). A significant amount of information is missing. Required formatting guidelines are largely or significantly ignored. A significant error is present. The aids are not ready for presentation purposes.

2 *Unprepared*: Graphics are grossly insufficient, clearly *ad hoc*, or hastily prepared with little to no prior organization and/or are mostly illegible. Accessing the material causes significant delays, or the material cannot be located when it is needed. Multiple significant errors are present. If a diagram of the circuit (or one or more diagrams if there are multiple circuits) is missing, then this score will be assigned regardless of the quality of the other visual aids since a diagram is essential to understanding a circuit's operation.

0 No visual aids are provided.