**Lab/Test Reports**

Once the company or organization has decided to proceed with the project, the project is sent to a research and development team that will establish hypotheses, design labs and tests for the project and will make reports of their findings. These lab/test reports will be used as the basis for shaping the project, and therefore, they are key reports. Lab/test reports have limited front matter (cover, table of contents, list of illustrations) and back matter is limited to the essentials. The key elements of all lab/test reports are set forth in Table 6.4.

**LAB/TEST REPORT ELEMENTS**

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| --- | --- |
| Front Matter | See Table 6.1 |
| Lab/Test Report | 1. Test Title – brief, concise, descriptive 2. Statement of the Problem 3. Complete sentences explanation of the problem 4. Preliminary observations 5. Background information 6. Question(s) trying to answer 7. Hypothesis/Hypotheses 8. Write the possible outcome for the test (and solution to the problem) 9. Hypotheses are written in complete sentences 10. Use an if/then statement for hypotheses, i.e., “If you sleep 8 hours, then you should be rested.” 11. Materials List – list all materials used in the lab/test 12. Procedure 13. Complete sentences explanation of the lab/test 14. This is a step-by-step guide through the procedure 15. Steps should be clear enough for anyone reading the report to duplicate the test 16. Results/Outcomes 17. Complete sentences explanation of results 18. Results will include: 19. Data tables 20. Observations 21. Lab notes 22. Graphs 23. Charts 24. Other illustrations 25. Conclusions 26. Using complete sentences, report conclusions as follows: 27. Accept or reject hypothesis or hypotheses 28. Explain why a hypothesis is either accepted or rejected using lab data 29. Summarize data, including: averages, highest, lowest. DO NOT REPEAT RESULTS. This is just a summarization. 30. Discuss possible errors in the experiment design and how the experiment design may be improved 31. Apply test data to “real world” applications 32. Notes |
| Back Matter | See Table 6.2 |

*Table 6.4*

By creating a simple table, per Figure 6.1, the lab/test report remains clear, concise and well organized.

|  |  |
| --- | --- |
| Lab/Test Title | Insert name of lab or test here, e.g., Fluids Test 1 |
| Date | Date the lab/test was conducted, e.g., 01/01/2013. [Numbers only are sufficient in lab/test reports]. |
| Prepared for: |  |
| Prepared by: |  |
| Statement of Problem |  |
| Hypothesis/Hypotheses | Hypothesis 1:  Hypothesis 2: |
| Materials List |  |
| Procedure | Make a step-by-step list of instructions for repeating the same experiment. Any variance in how the experiment was done could lead to different results, or if the instructions are unclear, could lead to unnecessary variance in results. |
| Results/Outcomes | List in complete sentences. Use numbered points for each new result. |
| Conclusions | List in complete sentences. Use numbered points for each new conclusion. |
| Notes | List in complete sentences. Use numbered points for each new note.  Notes are notations on changes for each time the experiment is done and for each time elements contained in the experiment are changed and the changes alter the results. |

*Figure 6.1 Lab Report Format*

Assignment: Write a lab report for a current class or for a class you have already taken using the above format in Figure 6.1. Front matter is limited to a cover sheet for this assignment. You may have to insert illustrations, including without limitation: schematics, tables, process diagrams. The back matter requirement would be References cited in IEEE format. You may copy and paste the format into a new Word document.