

MS Technical Report Outline

This is a suggested outline for a technical report. Actual contents are to be determined between the student and the advisor. Final document can be formatted into the ANSI Standard Technical Report format.

1. Literature Review: To show that the student understands the overall field, the major results and where they are trying to fit in
 - a. Specific topic area summary
 - i. Major results for specific topic area in time order
 - ii. Identify major problem areas for topic area
 - iii. Summarize major research techniques used
2. Problem Definition: To show that the student has framed a problem that can be solved in a reasonable time period
 - a. Identify problem to be solved
 - i. Relate to the overall topic idea
 - ii. Provide as much detail as can be done at this stage to specify the problem
 - iii. Why is the problem an important one to be solved and what might be the potential impact of the solution
 - b. Explain how you have validated problem approach and methodology (optional)
 - i. What previous theoretical work have you duplicated via simulations or analysis, etc.
 - ii. What previous investigations have you duplicated via analysis, simulations, etc.
 - c. Hypothesis Statement
 - i. Outline the problem to be investigated
 - ii. Provide one or more testable hypotheses that will be investigated by the work
 - d. Proposed solution methodology
 - i. Justify techniques to be used and why they are appropriate to the problem
 - ii. If possible, explain why alternate techniques might not be able to provide a solution or are inadequate
3. Actual Investigation
 - a. Experiments
 - i. Explain experiment design methodology (how the measurements will be made and how the measurements that are made will be used to test the experimental hypothesis)
 - ii. What statistical measures will be applied to the data to produce confidence

- iii. intervals and related statistical measures
 - iii. Equipment needs (computer time, equipment, sensors, etc.)
 - b. Experiment results
 - i. Perform the actual work product to test the hypothesis (simulations, models, confidence levels, etc. as appropriate)
- 4. Analysis of Results: To give confidence that the results of the research will be valid and useful to the community
 - a. Hypothesis Testing
 - i. What are the limits of validity on the results
 - ii. What are possible sources of error in the results
 - iii. Show how the stated hypothesis of the thesis is confirmed or rejected by the results
 - b. Outline how work will extend the field of knowledge and build upon existing results
- 5. Reference List
 - a. Typically 10 to 25 references (as needed)