

Project Test Plan

The process of verification and validation is ongoing throughout the systems engineering process. There are many ways to verify: test that the system is being built correctly, and to validate: test that the right system is being built. The particular method depends on the complexity, risk, and cost involved. Any one of these factors can indicate the need to increase rigor in system testing.

For the course project you will develop a test plan. You must define how you will perform verification and validation and what specific operational tests you will conduct.

The project requirements specification defines the critical functional and nonfunctional issues and the design details how the system will meet these requirements. In verification and validation you will determine whether the design and the implemented system meet these requirements.

For operational testing identifying testing objectives, perhaps in terms of measures of performance, safety, and so on. Identify the salient attributes of the system; you will need to determine specific features to test. Define procedures and measurements at the system, subsystem and component level. Determine exactly what you plan to measure, how you will measure it, and what the result will mean.

Some tests to consider:

Validation and Verification

- Does the system meet the requirements and how is this decided?
Verify the requirements traceability matrix.
- Does it function properly? Is it good enough for the current level of development?
Analysis of strengths and weaknesses would be helpful.

Failure Modes Analysis

- What can go wrong? Effects and criticality?
Identify safety hazards and verify method of mitigation.
Include a fault table and/or tree with explanation

Developmental Testing and Performance Analysis

- Do components and subsystems work as expected?
Devise performance metrics, determine acceptance criteria, and then test
- What system performance is needed? How is it measured?
Measure performance against requirements.
Compare to similar systems or established performance standards.

Operational Testing (including Ethnography and Observational Studies)

- Does the system succeed?
Examine the system requirements and formulate quantitative metrics
Determine a method for measurement and describe the procedure in detail.

Describe the tests, measurements and analysis to be performed. Be operational: what is the test procedure, what will be measured, what will the results show.

The test plan should be not more than 10 pages not including figures. The document must be submitted online as a PDF file. The file must be named in the following pattern: <teamname/acronym>_test_v<#>.pdf

