Project Verification and Validation 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 begin built. The particular method depends on the complexity, risk, and cost involved. Any one of these factors can indicate the need to increased rigor in system testing.

For the course project you will develop and use a plan. You must define how you will perform verification and validation and what specific functional and performance 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 performance testing identifying testing objectives, 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:

Requirements Validation

- Does the system meet the requirements and how is this decided?

  Examine the system requirements and formulate metrics
  Determine a method for measurement and describe the procedure in detail.
  Verify the requirements traceability matrix.

Functional Verification

- Do components and integrated subsystems work as expected?

  Determine acceptance testing

- Does it function properly?

  Analysis of strengths and weaknesses would be helpful.

Performance Validation

- Do components and subsystems work as expected?

  Devise performance metrics, determine an 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.

Failure Modes

- What can go wrong? Effects and criticality?

  Identify safety hazards and verify method of mitigation.
  Include a fault table and/or tree with explanation
  Describe tests needed to ensure that failures are detected and controlled

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