SOFTWARE MANAGEMENT PROGRAM

Software Testing Checklist

The following checklist is intended to provide system owners, project managers, configuration managers, and other information system development and maintenance professionals with guidance in identifying and planning testing activities. The checklist reflects recognized testing activities to be performed throughout the information system (IS) life cycle.

Testing is generally characterized as validation that requirements have been met and that the deliverables are at an acceptable level in accordance with existing standards during the initiation, development, and operation phases of the IS life cycle.

The objectives of testing are summarized as:

•   Provide confidence that a product performs as expected without undesirable side effects.

Note: There is a separate checklist for acceptance that includes acceptance testing.

Software Testing Checklist	SEM Reference	Comments
☐ The test activities planned are documented.	Chapter 4.0 Develop Project Test Plan	
☐ System and acceptance testing of the software are planned and performed to demonstrate that the software satisfies its requirements.	Chapter 4.0 Develop Project Test Plan	
☐ The testing necessary to validate that the project requirements have been met has been established.	Chapter 4.0 Develop Project Test Plan	
☐ Obtain and review existing test material.	Chapter 4.0 Develop Project Test Plan	
☐ The testing is adequate to verify the functionality of the software product.	Chapter 4.0 Develop Project Test Plan	
☐ Resources, project team responsibilities, and management activities needed to plan, develop, and implement the testing activities that will occur throughout the lifecycle have been identified.	Chapter 4.0 Develop Project Test Plan	
☐ The occurrence and timing of the test phases in the lifecycle and the entrance and exit criteria for each test phase have been identified.	Chapter 4.0 Develop Project Test Plan	
☐ The test products at each test phase have been specified.	Chapter 4.0 Develop Project Test Plan	
☐ Mapping has occurred to identify which requirements are verified in what test phase.	Chapter 4.0 Develop Project Test Plan	
☐ The criteria for evaluating the test results of each test phase have been established.	Chapter 4.0 Develop Project Test Plan	
☐ The test environment (hardware, software, test tools, and data) needed to conduct the tests has been determined.	Chapter 4.0 Develop Project Test Plan	

Software Testing Checklist	SEM Reference	Comments
☐ A schedule for executing the test activities has been established.	Chapter 4.0 Develop Project Test Plan	
☐ The test methodologies include the types of tests required, test documents, test methods, and test data collection.	Chapter 4.0 Develop Project Test Plan	
☐ The Test Plan has been reviewed with the system owner prior to conducting any tests.	Chapter 4.0 Develop Project Test Plan	
☐ Unit and integration tests with appropriate data have been developed to exercise and validate all specified application requirements, functions, and objectives.	Chapter 4.0 Identify Test Methodologies	
☐ Each type of test uses controlled computer generated or live data as specified.	Chapter 4.0 Identify Test Methodologies	
☐ Discrepancies are identified, added to the problem report, and problems resolved.	Chapter 4.0 Identify Test Methodologies	
☐ Retesting is required to verify that the problem solution eliminates the problem and does not introduce new errors.	Chapter 4.0 Identify Test Methodologies	
☐ For each type of test conducted, the test results are compared with the expected results.	Chapter 4.0 Identify Test Methodologies	
☐ The final test results are accompanied by a completed test results/error log form.	Chapter 4.0 Identify Test Methodologies	
☐ The integration tests have been defined at each element level, stating objectives, what is to be tested, and verified.	Chapter 6.0 Develop Integration Test Plan	
☐ All aspects of the formal interfaces that must undergo formal integration testing have been defined.	Chapter 6.0 Develop Integration Test Plan	
☐ The test tools and software that must be developed to adequately test the required functionality have been planned.	Chapter 6.0 Develop Integration Test Plan	

Software Testing Checklist	SEM Reference	Comments
☐ A definition of, and the objectives for, each test case have been provided.	Chapter 6.0 Develop System Test Plan	
☐ Detailed test scripts have been prepared for each test case.	Chapter 6.0 Develop System Test Plan	
☐ The test scenario(s) including the step-by-step procedure, the number of processing cycles to be tested or simulated, and the method and responsibility for feeding test data to the system have been defined.	Chapter 6.0 Develop System Test Plan	
☐ A test report, which documents test results and lists any discrepancies, has been written at the completion of each level of integration testing and placed in the project file.	Chapter 8.0 Conduct Integration Testing	
☐ A final test report was generated at the completion of integration testing and placed in the project file.	Chapter 8.0 Conduct Integration Testing	
☐ All system test materials have been placed in the project file.	Chapter 8.0 Conduct System Testing	
☐ A test report was generated at the completion of system testing and placed in the project file.	Chapter 8.0 Conduct System Testing	
☐ A Stage Exit has been conducted for the integration and testing stage.	Chapter 8.0 Conduct Software Integration and Testing Stage Exit	

REFERENCES

The following resources can be referenced for additional information on software testing practices and procedures. Note: This checklist is in compliance with Software Engineering Institute guidance and most standards.

Software Engineering Methodology

Software Engineering Institute's Software Capability Maturity Model (SEI CMM)
Software Product Engineering is a Key Process Area in Level 3 of the Model.

Institute of Electrical and Electronic Engineers (IEEE)
The IEEE Standard for Developing Software Life Cycle Processes

National Institute of Standards and Technology (NIST)

Organization for Standardization (ISO)
ISO 9001.