QUALITY MANAGEMENT PLAN

**Version 1.0**

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**Revision History**

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Nội dung

[**I.** **Quality Plan** 3](#_Toc23692208)

[**II.** **Quality Assurance** 4](#_Toc23692209)

[**III.** **Quality Control** 5](#_Toc23692210)

[**IV.** **Quality Tools** 6](#_Toc23692211)

**Quality Management Strategy**

The goals for quality management of information technology projects at Virginia Tech are to assure:

Project deliverables meet their stated requirements.

Project management processes are appropriately followed.

Quality management is performed throughout the project lifecycle with special attention to:

**Quality Planning** – primarily during the project planning process.

**Quality Assurance (QA)** – primarily during the project execution process.

**Quality Control (QC)** – primarily during the project monitoring and controlling process.

**~~Independent Verification and Validation (IV&V)~~** ~~– ideally performed in all project processes except initiation. (Note: IV&V is required for very high risk, complex projects.) (Do not use it)~~

1. **Quality Plan**

**Quality is the degree to which the project fulfills requirements**. Quality management planning determines quality policies and procedures relevant to the project for both project deliverables and project processes, defines who is responsible for what, and documents compliance.

The quality management plan identifies these key components:

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| **Objects of quality review** | **Quality Measure** | **Quality Evaluation Methods** |
| Project Deliverables | * Deliverable Quality Standards * Customer Satisfaction | Quality Control Activities |
| Project Processes | * Process Quality Standards * Stakeholder Expectations | Quality Assurance Activities |

The following is a brief explanation of each of the components of the quality management plan.

|  |  |
| --- | --- |
| **Project Deliverables and Project Processes** | The key project deliverables and processes subject to quality review. |
| **Deliverable Quality Standards and Customer Satisfaction** | The quality standards that are the “measures” used to determine a successful outcome for a deliverable. These standards may vary dependent on the type of information technology project.  The customer satisfaction criteria describe when each deliverable is complete and acceptable as defined by the customer. Deliverables are evaluated against these criteria. |
| **Process**  **Quality Standards**  **and**  **Stakeholder Expectations** | The quality standards that are the “measures” used to determine if project work processes are being followed. The “Process Guidelines Checklist” on [www.it.pm.vt.edu](http://www.it.pm.vt.edu) can be used as an aide.  Stakeholder expectations describe when a project process is effective as defined by the project stakeholders. An example is the review and approval of all high impact changes to the project. |
| **Quality Control Activities** | The quality control activities that monitor and verify that the project deliverables meet defined quality standards. |
| **Quality Assurance Activities** | The quality assurance activities that monitor and verify that the processes used to manage and create the deliverables are followed and are effective. |

1. **Quality Assurance**

**The focus of quality assurance is on the processes used in the project**. Quality assurance ensures that project processes are used effectively to produce quality project deliverables. It involves following and meeting standards, continuously improving project work, and correcting project defects.

The following table identifies:

* The project processes subject to quality assurance.
* The quality standards and stakeholder expectations for that process.
* The quality assurance activity – e.g., quality audit or reviews, code review - that will be executed to monitor that project processes are properly followed.
* How often or when the quality assurance activity will be performed.
* The name of the person responsible for carrying out and reporting on the quality assurance activity.

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| Project Process | Process Quality Standards/  Stakeholder Expectations | Quality Assurance Activity | Frequency  /Interval | Who is Responsible |
| Review software development practices of software application “Management BDS”. | Software requirements specification.  Developers have completely and accurately captured application requirements. | Peer review of software requirements specification | At regular intervals during the collection of requirements and a final review at the conclusion of requirements collection. | Lead developer in conjunction with other knowledgeable developers. |
| .. |  |  |  |  |

1. **Quality Control**

**The focus of quality control is on the deliverables of the project**. Quality control monitors project deliverables to verify that the deliverables are of acceptable quality and the customer is satisfied.

The following table identifies:

* The major deliverables of the project that will be tested for acceptable quality level.
* The quality standards and customer satisfaction criteria established for the project deliverable. Included are any organizational standards that need to be followed.
* The quality control activities that will be executed to monitor the quality of the deliverables.
* How often or when the quality control activity will be performed.
* The name of the person responsible for carrying out and reporting on the quality control activity.

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| **Project Deliverable** | **Deliverable Quality Standards/**  **Customer Satisfaction** | **Quality Control Activity** | **Frequency/Interval** | **Who is Responsible** |
| Software application “Management BDS”. that performs some desirable function “A. Internal management of the Company” | “Management BDS”. must be free from defects.  End user does not experience errors or crashes and is happy with “A. Internal management of the Company” | Non-developer (independent) testing of “Management BDS”.. | As released for testing by developer and before “Management BDS”. moves between alpha, beta, and production releases. | Development team |
| Software application “Management BDS”. that performs some desirable function “B. Project managementBDS” | “Management BDS”. must be free from defects.  End user does not experience errors or crashes and is happy with “B. Project managementBDS” | Non-developer (independent) testing of “Management BDS”.. | As released for testing by developer and before “Management BDS”. moves between alpha, beta, and production releases. | Development team |
| .. |  |  |  |  |

1. **Quality Tools**

The following are examples of tools that can be used to support quality management implementation.

Click a tool name for explanations and examples. (Ctrl + click)

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| --- | --- |
| **Tool Name** | **Tool Purpose/Use** |
| [Cost-Benefit Analysis](http://en.wikipedia.org/wiki/Cost-benefit_analysis) | For Quality Control. Compares the cost of the quality process to the expected benefit |
| [Control Charts](http://en.wikipedia.org/wiki/Control_chart) | For Quality Control. Used to determine if a process is stable or predictable, within limits |
| [Benchmarking](http://en.wikipedia.org/wiki/Benchmarking) | For Quality Control. Compares current project processes to comparable projects |
| [Design of Experiments](http://www.tutorialspoint.com/management_concepts/design_of_experiment.htm) | For Quality Control. A statistical method to determine influential factors on a product or process |
| [Statistical Sampling](http://itpmpro.blogspot.com/2008/09/statistical-sampling-methods-for.html) | For Quality Control. Choosing a representative sample from a population of interest for inspection |
| [Cost of Quality](http://en.wikipedia.org/wiki/Quality_costs) | For Quality Control. Costs incurred for quality, includes cost of conformance and cost of non-conformance |
| [Six Sigma](http://en.wikipedia.org/wiki/Six_Sigma) | For Quality Control. Improves the quality of process outputs by identifying and removing causes of errors |
| [Quality Audits](http://www.engineers-international.com/quality-audits.html) | For Quality Assurance. Compliance with policies, standards, and processes |
| [Process Analysis](http://asq.org/learn-about-quality/project-planning-tools/overview/pdca-cycle.html) | For Quality Assurance. Planned continuous improvement of processes |
| [Others…](http://www.brighthub.com/office/project-management/articles/72854.aspx) |  |