



## Faculty of Management Sciences

Department of Business Support Studies

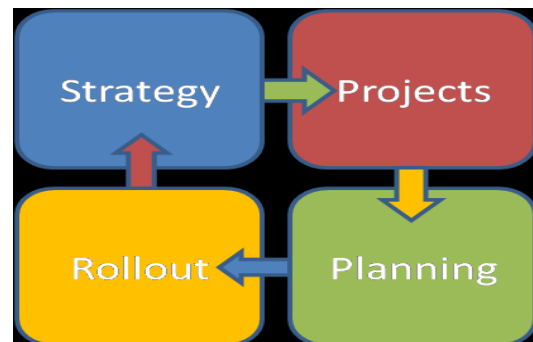
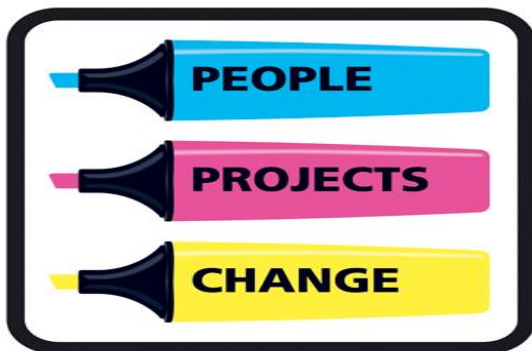
*Project management*

*Business administration*

*Office management & technology*

### Learning Guide for 2016

### Project Quality Management IV: PKG41AB



PROJECT MANAGEMENT PROGRAM

### **BTECH: PROJECT MANAGEMENT**

|                |           |           |
|----------------|-----------|-----------|
| Programme Code | NQF level | Credits   |
| <b>BEBBTPJ</b> | <b>7</b>  | <b>12</b> |

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**Faculty of Management Sciences**

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## WELCOME

The Project Management team warmly welcomes you to the Project Quality course, one of the main components of the BTech. Degree in Project Management at the Central University of Technology, Free State (CUT).

## COURSE DETAIL

|                 |                          |
|-----------------|--------------------------|
| Name of Subject | Project Quality IV       |
| Subject Code    | PKG41AB                  |
| NQF Level       | 7                        |
| Programme       | BTech Project Management |
| Credits         | 13                       |
| Notional Hours  | 130                      |
| Contact Hours   | 2 Hours Per Week         |

## OBJECTIVES OF THE MODULE

The following Objectives of the module are as follows:

- I. To give the project manager the latest tools and techniques necessary to manage quality and risk on the project.
- II. To introduce and reinforce these tools and techniques by means of solid practical examples.
- III. To produce assignments that are relevant and applicable to the industry.
- IV. To use case studies wherever possible and feasible to give the practical aspects of Project management

## VALUE TO THE LEARNER

The whole process of planning and scheduling is to reduce risk.

The issue of quality and quality standards and meeting those standards are one of the most crucial issues facing many public institutions in the achievement of service delivery.

To this end this module is of particular significance to the learner in his/her quest for an applicable qualification that has value in the industry.

## EXIT OUTCOMES

After completing this course learners will be able to:

- ❖ Contribute effectively to the establishment and application of an effective Risk Management plan

- ❖ Be able to set up and develop quality standards for a project
- ❖ Be able to set up norms and quality control measures.
- ❖ **Carry out Project Quality Audits**

## THEMES

The course is made up of two main themes as follows:

### Theme 1: Project Risk Management

The objectives of this theme are as follows:

- ❖ To foster clear understanding and effective application and implementation of Risk Management.
- ❖ To introduce processes for project planning and risk management and relate them to the PMI PMBOK.
- ❖ Identify, analyse, and manage project risks.

### Theme 2: Project Quality Management

The second theme facilitates the understanding of:

- ❖ Quality concepts and ISO 9001:2000 (Updated to 2008)
- ❖ Development of Standards.
- ❖ Be able to establish norms and quality control
- ❖ Demonstrate the ability to carry out project Quality Audits
- ❖ The application of quality management principles to development and design
- ❖ Key elements affecting quality in projects.

## ASSESSMENT GUIDELINES

Assessments may either be based on either **group work** or **individual work**.

- I. It is compulsory for a learner to belong to a study group to foster team work required of project managers/leaders.
- II. A group must consist of a maximum of **five (5) members**. No deviations will be accepted.
- III. **A learner who fails to participate in group activity scores zero.**
- IV. Individual work should strictly be treated as such. Any evidence of non-compliance will be sanctioned.
- V. There is a clear institutional regulation regarding absence from class, exams, and tests. No deviations from the established regulations will be granted.
- VI. Make sure that the declaration is inserted into the inside cover page of every assignment.

## ASSIGNMENT DECLARATION

### Individual Assignment

I .....*student number*..... declare that the work I am submitting is my own individual work. No other person contributed to it. It has never been submitted for any other purpose. I am aware of the consequences if this declaration is found to be untrue”.

Signature..... Date.....

### Group Assignment

We the undersigned students declare that the work we are submitting is our own work. It has never been submitted for any other purpose. We are aware of the consequences if this declaration is found to be false.

|   | Student Number | Surname | Signature | Date |
|---|----------------|---------|-----------|------|
| 1 |                |         |           |      |
| 2 |                |         |           |      |
| 3 |                |         |           |      |
| 4 |                |         |           |      |
| 5 |                |         |           |      |

**NB: Failure to comply with above would be penalised.**

## IMPORTANT NOTICE

- I. Late assignments will not be marked under any circumstance
- II. Important attention should be paid to the following as they contribute towards your assignment, test and assessment marks:
  - a. Clarity of expressions/language usage
  - b. Logic, academic arguments, insight and technical outlay
  - c. Assignments are expected to be neatly typed. **Hand written assignments will not be acceptable.**
- III. You are expected to acquaint yourself with CUT regulations regarding absence from class, tests and exams. Ignorance of these rules will not be acceptable regarding non-submission or late submission of assignments and failure to write tests or exams.

### Tests

- ❖ Should a learner miss a test it is his/her responsibility to inform the lecturer and bring a valid reason in writing within one week of writing the test
- ❖ The learner should ensure that the lecturer receives the valid reason on time. The facilitator will then advise the learner on what course of action to take.

## Assignments

- ❖ Assignments must be submitted on time, on the due date.
- ❖ Note that late assignments will not be tolerated
- ❖ The lecturer accepts no responsibility for lost assignments.
- ❖ **The learner must always keep a copy of every assignment that is submitted**

## Plagiarism

There is **zero tolerance for plagiarism**. Learners found violating this rule will be seriously sanctioned. The minimum penalty for plagiarising is zero.

## RULES OF CUT

Violation of any of the Central University of Technology, Free State (CUT) rules regarding academic conduct will lead to disciplinary action.

It is therefore imperative that you acquaint yourself with the rules contained in the CUT calendar 2012.

## ASSESSMENT DATES

**Tests and assignment submission dates will be provided by respective lecturers as there are different student groups**

## ASSESSMENT METHODS

1. Course mark counts 40% of final mark

Formal group assignments and/or tests addressing the critical outcome areas identified above.

- Test 1 – multiple choice (individual) = 50% of course mark = 20% of final mark
- Test 2 – multiple choice and/or long questions (individual) = 50% of course mark = 20% of final mark.

### *Note Carefully*

You must obtain a course mark of at least 40% in order to qualify to write the semester assessment

**2. Examination mark (60% of final mark)**

**(a) A formal 3 hour examination that counts 60% of the final mark addressing the critical outcome areas identified above.**

**3. Final mark = course mark (40%) + examination mark (60) = 100%**

**PRESCRIBED READINGS (COMPULSORY)**

|   | <b>Title</b>                                   | <b>Year/Edition</b>              | <b>Author(s)/<br/>Editors</b> | <b>ISBN</b>          | <b>Publisher</b>  |
|---|--|----------------------------------|-------------------------------|----------------------|-------------------|
| 1 | Identifying and Managing Project Risk          | 2009.<br>2 <sup>nd</sup> edition | Tom Kendrick,<br>PMP          | 13:978-0-8144-1340-1 | AMACOM.           |
| 2 | Project Management: The Managerial Process     | 2011<br>5 <sup>th</sup> Edition  | E.W. Larson and<br>C.F.Gray   | 9780071289290        | McGraw-Hill       |
| 3 | Principles of Management for Quality Projects. | 2008.                            | Michael Carruthers.           | 978-1-86152-522-2    | Cengage Learning. |

**PRESCRIBED READING (OPTIONAL)**

|   | <b>Title</b>   | <b>Year/Edition</b>              | <b>Author(s)/<br/>Editor(s)</b> | <b>ISBN</b>    | <b>Publisher</b> |
|---|--|----------------------------------|---------------------------------|----------------|------------------|
| 1 | Successful Project Management  | 2015                             | Gido &<br>Clements              | 9781285068374  | Cengage          |
| 1 | Project Management Techniques  | 2010                             | R. Burke                        | 09582733-4-4-0 | Burke Publishing |
| 2 | Managing Projects: A Team-based Approach                                     | 2010<br>International Edition    | B. Karem Brown &<br>N.L. Hyer   | 9780071267519  | McGraw-Hill      |
| 3 | Project Management: A Systems Approach to planning, Scheduling & controlling | 10 <sup>th</sup> Edition<br>2010 | H. Kerzner                      | 9780470278703  | Wiley & Sons     |
| 4 | Project Risk Management  | 2003<br>2 <sup>nd</sup> Edition  | C. Chapman &<br>S Ward          | 0 470-85355-7  | Willey & sons    |



# Syllabus

## Theme 1: Project Risk Management

| UNIT ONE: Project Risk Overview  |   | Credits: 1<br>Notional Hours: 10<br>Week(s): 1  |
|--|---|---|
| Specific Outcomes  | Topics  | Assessment Criteria   |
| After completion of this unit, learners will be able to:<br>Describe what project risk is in broad terms | <ol style="list-style-type: none"> <li>1) Risk</li> <li>2) Macro-Risk Management</li> <li>3) Micro-Risk Management</li> <li>4) The project risk management process</li> <li>5) PMBOK process grouping</li> <li>6) Project Risk Management</li> <li>7) The risk management framework</li> <li>8) Project Risk categories</li> <li>9) The role of project sponsor in risk management</li> <li>10) Risk management Plan</li> <li>11) Panama Canal lessons</li> </ol> | After completion of this unit, learners will be competent to: <ol style="list-style-type: none"> <li>a) Understand that Risk Depends on Probability</li> <li>b) Explain Risk in Projects               <ul style="list-style-type: none"> <li>Macro Risk</li> <li>Micro Risk</li> </ul> </li> <li>c) Know what PMI® and PMBOK® are</li> <li>d) Explain PMBOK® Process Groupings</li> <li>e) Know what Project Risk Management is</li> <li>f) Know the Risk Management Framework</li> <li>g) Know the Categories of Project Risk</li> <li>h) Understand the role of Project Sponsor</li> <li>i) Explain what a Cross-Functional Project is</li> <li>j) Work through a Case Study</li> <li>k) Lessons Learned from the Panama Canal</li> <li>l) Risk Management Planning</li> </ol> |
| Required Reading:  | <ol style="list-style-type: none"> <li>1. Identifying and Managing Project Risk, 2009 2<sup>nd</sup> Edition. Tom Kendrick. Chapter 1 &amp; 2</li> <li>2. Successful Project Management, 2015 6<sup>th</sup> Edition. Chapter 8</li> <li>3. Project Management, the Managerial Process; 5<sup>th</sup> Ed. 2011. Larson &amp; Gray Chapter 7</li> <li>4. Project Risk Management, 2004. Bruce T Barkley. Chapters 1&amp;2 (Other Readings)</li> </ol>             |   |

|  |  |  |
|--|--|--|
| UNIT TWO: Project Scope Risk   |  | Credits: 2<br>Notional Hours: 20<br>Weeks: 2   |
| <b>Specific Outcomes</b>   | <b>Topics</b>  | <b>Assessment Criteria</b>   |
| <p>After completion of this unit, learners will be able to:</p> <p>Understand the concept risk as pertaining to the scope of a project</p> | <p><b>Sources of Scope Risk</b></p> <ol style="list-style-type: none"> <li>1) Change Risks</li> <li>2) Defect Risks</li> <li>3) Black Swans</li> <li>4) Definition of Deliverables</li> <li>5) Scope Documentation</li> </ol> <p><b>High Level Risk Assessment Tools</b></p> <ol style="list-style-type: none"> <li>1) Risk Framework</li> <li>2) Risk Complexity Index</li> <li>3) Risk Assessment Grid</li> </ol> <p><b>Setting Limits</b></p> <p><b>Work Breakdown Structure (WBS)</b></p> <ol style="list-style-type: none"> <li>1) Work packages</li> <li>2) Aggregation</li> <li>3) Ownership</li> <li>4) WBS size</li> </ol> <p><b>Other Scope Related Risks</b></p> <ol style="list-style-type: none"> <li>1) Market Risk</li> <li>2) Confidentiality</li> </ol> <p><b>Documenting the risks</b></p> | <p>After completion of this unit, learners will be competent to:</p> <ol style="list-style-type: none"> <li>a) explain and apply the following concepts: <ul style="list-style-type: none"> <li>❖ Black Swans</li> <li>❖ Scope Gap</li> <li>❖ Scope Creep</li> <li>❖ Scope Defect</li> <li>❖ Deliverable</li> <li>❖ Deliverable Process</li> <li>❖ Scope Document</li> </ul> </li> <li>b) Apply some High-level Risk Assessment Tools</li> <li>c) Apply the Risk Framework</li> <li>d) Set-up a Risk Complexity Index</li> <li>e) Set up a Risk Assessment Grid</li> <li>f) Be able to Set Limits and Thresholds</li> <li>g) Apply Work Breakdown Structure and relate to risk</li> <li>h) Be able Capture Specific Scope Risks</li> </ol> |
| Required Reading:  | <ol style="list-style-type: none"> <li>1. Identifying and Managing Project Risk, 2009 2nd Edition. Tom Kendrick. Chapter 3</li> <li>2. Successful Project Management, 2015. 6<sup>th</sup> Edition. Chapter 4</li> <li>3. Project Management, the Managerial Process; 5th Ed. 2011. Larson &amp; Gray Chapter 4</li> <li>4. Project Risk Management, 2004. Bruce T Barkley. Chapter 3 (Other Readings)</li> </ol>  |  |

| UNIT THREE: Project Schedule Risk   |   | Credits: 1<br>Notional Hours: 10<br>Weeks: 1   |
|---|---|--|
| Specific Outcomes   | Topics  | Assessment Criteria  |
| After completion of this unit, learners will be able to:<br>Apply tools strategically in the application of risk scheduling | <p><b>Sources of Schedule Risk</b></p> <ol style="list-style-type: none"> <li>1) Delay Risks</li> <li>2) Estimating Risks</li> <li>3) Dependency Risks</li> </ol> <p><b>Activity Definition</b></p> <p><b>Estimating Activity Duration</b></p> <ol style="list-style-type: none"> <li>1) Estimation Pitfalls</li> <li>2) Estimating Techniques</li> <li>3) The overall estimating process</li> <li>4) Applying estimating techniques</li> </ol> | <p>After completion of this unit, learners will be competent to:</p> <ol style="list-style-type: none"> <li>a) Apply the following examples: <ul style="list-style-type: none"> <li>❖ Schedule Estimating examples</li> <li>❖ Schedule Delay examples</li> <li>❖ Schedule Dependency examples</li> </ul> </li> <li>b) Define an activity</li> <li>c) Apply and understand the following: <ul style="list-style-type: none"> <li>❖ Estimation</li> <li>❖ Estimating Pitfalls</li> <li>❖ Prerequisites for Good Estimates</li> <li>❖ Project Estimates</li> <li>❖ Estimating Process</li> <li>❖ Estimating Techniques</li> </ul> </li> <li>d) Apply Delphi for Estimation</li> <li>e) Manage Opportunities Using “Best Case” and “Worst-Case” estimates being aware of their pitfalls</li> </ol> |
| Required Reading:   | <ol style="list-style-type: none"> <li>1. Identifying and Managing Project Risk, 2009 2nd Edition. Tom Kendrick. Chapter 4</li> <li>2. Successful Project Management, 2015. 6<sup>th</sup> Edition. Chapter 5</li> <li>3. Managing Projects: A team-based approach 2010. Karen et al. Chapter 7</li> </ol>  |  |

|   |   |  |
|---|---|--|
|   |   |  |
| UNIT FOUR: Project Resource Risks   |   | Credits: 1<br>Notional Hours: 10<br>Weeks: 1   |
| <b>Specific Outcomes</b>  | <b>Topics</b>   | <b>Assessment Criteria</b>   |
| After completion of this unit, learners will be able to:<br>Apply risk management to resource gathering process | <b>Sources of Resource Risk</b><br>1) People Risks<br>2) Outsourcing Risks<br>3) Money Risks<br><br><b>Resource planning</b><br>1) Resource requirement<br><br><b>Staff Acquisition</b><br>1) Skill Requirement<br>2) Revisiting estimates<br><br><b>Outsourcing</b><br>1) Outsourcing Risks<br><br><b>Cost estimating and cost budgeting</b><br><br><b>Documenting Resource Risk</b> | After completion of this unit, learners will be competent to:<br>a) Apply:<br>i) PERIL Resource Risk Impact on projects<br>ii) examples of<br>❖ Resource Money<br>❖ Resource People<br>❖ Resource Outsourcing<br><br>b) Do Resource Planning<br>i) Apply staff ability and availability to a project<br>ii) Understand the need for Environment and Efficiency<br>iii) Know what the impact of Outsourcing is<br>iv) Know the Risks of Outsourcing<br>v) Do Cost Estimating<br>vi) Do Cost Budgeting<br>vii) Capture Specific Resource Risks |
| Required Reading:   | 1. Identifying and Managing Project Risk, 2009 2nd Edition. Tom Kendrick Successful Project Management, 2015. 6 <sup>th</sup> Edition. Chapter. Chapter 5<br>2. Successful Project Management, 2015. 6 <sup>th</sup> Edition. Chapter 6<br>3. Project Management, the Managerial Process; 5th Ed. 2011. Larson & Gray Chapter 8   |  |

|   |  |   |
|---|--|---|
| UNIT FIVE: Managing Project Risk  |  | Credits: 1<br>Notional Hours: 10<br>Weeks: 1  |
| <b>Specific Outcomes</b>  | <b>Topics</b>  | <b>Assessment Criteria</b>  |
| After completion of this unit, learners will be able to:<br><br>Understand ways of managing project risks | <ul style="list-style-type: none"> <li>2) Project Start up</li> <li>3) Selecting and implementing project Metrics</li> <li>4) Selecting metrics</li> <li>5) Implementing metrics and collecting Data</li> <li>6) Fact-Based negotiation</li> <li>7) Project plan validation</li> <li>8) Setting limits on project scope</li> </ul>   | After completion of this unit, learners will be competent to: <ul style="list-style-type: none"> <li>a) Understand Project Start-up risks</li> <li>b) Implement various Metrics</li> <li>c) Appraise the Project Plan</li> <li>d) Validate the Plan</li> <li>e) Negotiate based on fact</li> <li>f) Avoid the “Impossible Project”</li> </ul> |
| Required Reading:   | <ul style="list-style-type: none"> <li>1. Identifying and Managing Project Risk, 2009 2nd Edition. Tom Kendrick. Successful Project Management, 2015. 6<sup>th</sup> Edition. Chapter Chapter 10</li> <li>2. Successful Project Management, 2015. 6<sup>th</sup> Edition. Chapter 8</li> <li>3. Project Management, the Managerial Process; 5th Ed. 2011. Larson &amp; Gray Chapter 7</li> <li>4. Project Risk Management, 2004. Bruce T Barkley. Chapter 4</li> </ul> |   |

|  |  |   |
|--|--|---|
| UNIT SIX: Monitoring and Controlling Risk  |  | Credits: 1<br>Notional Hours: 10<br>Weeks: 1  |
| <b>Specific Outcomes</b>   | <b>Topics</b>  | <b>Assessment Criteria</b>  |
| After completion of this unit, learners will be able to:<br><br>Monitor and control risk | <ol style="list-style-type: none"> <li>1) Applying the plan</li> <li>2) Project monitoring</li> <li>3) Collecting project status</li> <li>4) Metric and trend analysis</li> <li>5) Responding to issues</li> <li>6) Communication</li> <li>7) Project Archive</li> </ol>   | <p>After completion of this unit, learners will be competent to</p> <ol style="list-style-type: none"> <li>a) Apply the Plan</li> <li>b) Do Status Collection</li> <li>c) Carry out a Trend analysis</li> <li>d) Carry out an issue Resolution</li> <li>e) Monitor Project Communications</li> <li>f) Communicate Challenges</li> <li>g) Archive Project Information</li> </ol> |
| Required Reading:  | <ol style="list-style-type: none"> <li>1. Identifying and Managing Project Risk, 2009 2nd Edition. Tom Kendrick. Successful Project Management, 2015. 6<sup>th</sup> Edition. Chapter 11</li> <li>2. Successful Project Management, 2015. 6<sup>th</sup> Edition. Chapter 8</li> <li>3. Project Management, the Managerial Process; 5th Ed. 2011. Larson &amp; Gray Chapter 7</li> <li>4. Project Risk Management, 2004. Bruce T Barkley. Chapter 4</li> <li>5. Managing Projects: A team-based approach 2010. Karen et al. Chapter 7</li> </ol> |   |

## Theme 2: Project Quality Management

|  |   |  |
|--|---|--|
| UNIT ONE: Introduction to Project Quality  |   | Credits: 1<br>Notional Hours: 10<br>Weeks: 1   |
| <b>Specific Outcomes</b>   | <b>Topics</b>   | <b>Assessment Criteria</b>   |
| After completion of this unit, learners will be able to:<br><br>Comprehend the holistic view of quality management | 1) A Holistic Approach to Managing for quality projects<br><br>2) Scope           | After completion of this unit, learners will be competent to:<br>a) Understand the holistic approach to project management<br>b) Know the scope for the course |
| Required Reading:  | Principles of Management of Quality Projects. Michael Carruthers. 2008. Chapter 1 |  |

|  |   |  |
|--|---|--|
| UNIT TWO: Quality Principles   |   | Credits: 1<br>Notional Hours: 10<br>Weeks: 1   |
| <b>Specific Outcomes</b>   | <b>Topics</b>   | <b>Assessment Criteria</b>   |
| After completion of this unit, learners will be able to:<br>Understand the basic principles of project quality | <p><b>Philosophy of Quality</b></p> <ol style="list-style-type: none"> <li>1) Quality as people’s business</li> <li>2) Paradigm shift for management</li> <li>3) The true entrepreneur</li> <li>4) The real process of management – satisfying reasonable needs</li> <li>5) Continuous improvement – a key element for achieving quality</li> <li>6) Quality as a life-long feature</li> </ol> <p><b>Principles of Quality</b></p> <ol style="list-style-type: none"> <li>1) Quality is reflected in the exterior finish</li> <li>2) Quality as meeting specifications</li> <li>3) Fitness of purpose</li> <li>4) Compliance with requirement</li> <li>5) Giving users what they want</li> <li>6) Giving users what they need</li> <li>7) Quality as value for money</li> </ol> | <p>After completion of this unit, learners will be competent to:</p> <p>Understand the difference between principle and philosophy.</p> <p>a) Philosophical aspects</p> <ul style="list-style-type: none"> <li>❖ Know why quality is a “people’s business”</li> <li>❖ Know who a “true entrepreneur” is in the quality sense</li> <li>❖ Understand the real process of management.</li> <li>❖ Apply the concept of continuous improvement.</li> <li>❖ Understand that quality is a life-long feature</li> </ul> <p>b) The Principle aspects</p> <ul style="list-style-type: none"> <li>❖ Understand how quality is reflected in the exterior finish</li> <li>❖ Understand quality as meeting specifications.</li> <li>❖ Understand quality as fitness for purpose</li> <li>❖ Understand quality as compliance with requirements</li> <li>❖ Understand quality as giving the users to what they want</li> <li>❖ Understand quality as giving the users what they need.</li> <li>❖ Understand quality as value for management</li> </ul> |
| Required Reading:  | Principles of Management of Quality Projects. Michael Carruthers. 2008. Chapter 2   |  |



|  |  |   |
|--|--|---|
| UNIT THREE: Application of quality management principles to project planning   |  | Credits: 1<br>Notional Hours: 10<br>Weeks: 1  |
| <b>Specific Outcomes</b>   | <b>Topics</b>  | <b>Assessment Criteria</b>  |
| After completion of this unit, learners will be able to:<br>Know how to apply quality management principles to project planning. | <p><b>Early activities that affect the quality of planning</b></p> <ol style="list-style-type: none"> <li>1) Quality and scope definition</li> <li>2) Quality and project objectives</li> <li>3) The influence of project philosophy on quality</li> <li>4) Quality and project specific problems</li> <li>5) Quality as an integral part of project strategy</li> </ol> <p><b>Quality and project planning</b></p> <ol style="list-style-type: none"> <li>1) Quality and the planning process</li> <li>2) Work planning and authorization</li> <li>3) Quality and project planning inputs and products</li> </ol> | After completion of this unit, learners will be competent to:<br>a) Define the activities that affect quality of planning, namely: <ul style="list-style-type: none"> <li>❖ Quality and scope</li> <li>❖ Quality and project objectives</li> <li>❖ The influence of project philosophy on quality</li> <li>❖ Quality and project specific problems</li> <li>❖ Quality as an integral part of project strategy</li> </ul> b) Understand quality and project planning namely: <ul style="list-style-type: none"> <li>❖ Quality and the planning process</li> <li>❖ Work planning and authorisation</li> <li>❖ Quality and project planning inputs and outputs.</li> </ul> |
| Required Reading:  | Principles of Management of Quality Projects. Michael Carruthers. 2008. Chapter 3  |   |

| UNIT Four: Quality management principles for development design  |   | Credits: 1<br>Notional Hours: 10<br>Weeks: 1  |
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| Specific Outcomes  | Topics  | Assessment Criteria   |
| After completion of this unit, learners will be able to:<br>Understand the place of quality in the pre-project phase | <p><b>a) Quality in the development of products and systems in a pre-project phase</b></p> <ol style="list-style-type: none"> <li>1) Reliability</li> <li>2) Maintainability</li> <li>3) Safety</li> <li>4) Manufacturability/Constructability</li> </ol> <p><b>b) Quality management and control during construction</b></p> <p><b>c) The use of Taguchi methods</b></p> <p><b>d) Quality and the design process</b></p> <ol style="list-style-type: none"> <li>1) The design concept and quality</li> <li>2) Influence of design constraints on quality</li> <li>3) The design brief and quality</li> <li>4) Resources</li> </ol> <p><b>e) Design review and audit - a vital quality tool</b></p> | <p>After completion of this unit, learners will be competent to:</p> <ol style="list-style-type: none"> <li>a) understand the concepts of: <ul style="list-style-type: none"> <li>❖ reliability</li> <li>❖ maintainability</li> <li>❖ safety</li> <li>❖ manufacturability/c onstructability</li> </ul> </li> <li>b) Apply quality management and control during construction</li> <li>c) Know how to use the Taguchi methods.</li> <li>d) Explain quality and the design process namely: <ol style="list-style-type: none"> <li>I. The design concept and quality.</li> <li>II. The influence of design constraints on quality</li> <li>III. The design brief and quality</li> <li>IV. Design and resources</li> </ol> </li> <li>e) Explain why the design review and audit is a vital quality tool.</li> </ol> |
| Required Reading:  | Principles of Management of Quality Projects. Michael Carruthers. 2008. Chapter 4   |   |

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| UNIT Five: Human factors affecting quality in projects  |  | Credits: 1<br>Notional Hours: 10<br>Weeks: 1  |
| <b>Specific Outcomes</b>  | <b>Topics</b>  | <b>Assessment Criteria</b>  |
| After completion of this unit, learners will be able to:<br>Human factors affecting quality in projects | <ol style="list-style-type: none"> <li>1) The quality <b>mind-set</b> in projects</li> <li>2) Negotiate and agree on quality from the very start</li> <li>3) Projects offer limited opportunities for gradual improvement</li> <li>4) Training on projects</li> <li>5) Maintaining quality during the last phases of a project</li> <li>6) The influence of performance bonuses on quality.</li> </ol> | <p>After completion of this unit, learners will be competent to:</p> <ol style="list-style-type: none"> <li>a. Understand the quality 'mind-set' in projects</li> <li>b. Negotiate and agree on quality from the very start</li> <li>c. Know why projects offer limited opportunities for gradual improvement</li> <li>d. Give training on projects</li> <li>e. Maintain quality during the last phases of a project</li> <li>f. know the influence of performance bonuses on quality.</li> </ol> |
| Required Reading:   | Principles of Management of Quality Projects. Michael Carruthers. 2008. Chapter 5  |   |

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|---|---|---|
| UNIT Six: Application of quality management principles to cost engineering  |   | Credits: 1<br>Notional Hours: 10<br>Weeks: 1  |
| <b>Specific Outcomes</b>  | <b>Topics</b>   | <b>Assessment Criteria</b>  |
| After completion of this unit, learners will be able to:<br>Apply quality management principles to cost engineering | <ol style="list-style-type: none"> <li>1) The generic application of quality management to cost engineering</li> <li>2) The ability to positively influence the course of cost on a project</li> <li>3) The influence of project budgeting on quality.</li> </ol> | After completion of this unit, learners will be competent to: <ol style="list-style-type: none"> <li>a) Quantify the use of quality management principles in cost engineering</li> <li>b) Positively influence the course of costs on a project</li> <li>c) Understand the influence of project budgeting on quality</li> </ol> |
| Required Reading:   | Principles of Management of Quality Projects. Michael Carruthers. 2008. Chapter 6   |   |