**BTEC Assignment Brief**

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| **Qualification** | Pearson BTEC Level 3 National Diploma in Aeronautical Engineering Pearson BTEC Level 3 National Extended Diploma in Engineering  |
| **Unit number and title** | **Unit 4: Applied Commercial and Quality Principles in Engineering** |
| **Learning aim(s)** (For NQF only) | **C:** Explore how engineering organisations use quality systems and value management to create value |
| **Assignment title** | Quality Systems and Value Management |
| **Assessor** | J. Kupper |
| **Issue date** |  |
| **Hand in deadline**  |  |
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| **Vocational Scenario or Context** | You are working as a final year apprentice in a small engineering company. Your supervisor is pleased with the work that you have done so far to investigate the ways in which your company could gain a competitive advantage over other organisations, and your application of activity based costing. Your supervisor has now asked you to investigate quality management systems and how these can be used to give your engineering organisation a competitive advantage over your rivals. Once you have done this, your supervisor would like you to carry out a value analysis exercise for a product or service so that you can identify areas where the value of the outputs could be increased. |
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| **Task 1** | You are going to investigate how an engineering organisation can use quality management systems and value management processes to improve the value of the products or services that they manufacture or provide. You will also investigate international quality standards and the various quality systems that are used by engineering organisations to improve the quality of their outputs. **To do this:** Your tutor will provide you with a case study with background information for an engineering organisation that either produces a product or provides an engineering service. You should use this as a starting point from which to carry out your own research.**You should then investigate and report on:**• the quality standards that engineering organisations use to demonstrate that they have quality management systems in place. You should include information about both the ISO9000 and ISO14000 families of standards in your report.• how an engineering organisation can apply quality assurance systems. To do this, you should investigate the implications of implementing Total Quality Management, including the PDCA cycle, for an engineering organisation.• the reasons why an engineering organisation would want to apply a quality system; this should include reference to the fundamental purposes of implementing a quality system. • how engineering organisations make use of quality control systems, and the activities employed to check the quality of a product or service; you should include information about inspection, sampling, testing, condition monitoring, planned maintenance and some of the other tools employed within a quality system, as well as the benefits of employing a 'right first time' philosophy.• the principles and purpose of value management and its tools, including the impact of efficiencies on engineering activities.• how quality management systems and value management can be used to give an engineering organisation a competitive advantage.Having completed your research you are now going to carry out a value analysis exercise for an engineering activity. You will use your results from this activity to identify which aspects of the activity can be improved to increase the profitability and efficiency of the process being investigated. You should also suggest methods to improve the activity, identifying those aspects that will offer the greatest benefit to the organisation. **To do this:** Your tutor has already provided you with a case study with information for an engineering activity, such as the manufacturing of a product or the carrying out of a service. You should use this as the basis from which you carry out your value analysis exercise.**You should then:*** Investigate and record the reasons for poor value for your given product or service; this could include aspects such as a lack of innovation within the organisation or factors such as poor communication.
* Use your investigation as a starting point to complete and record a value analysis exercise for your given engineering product or service. Your value analysis should be divided into five distinct sections: information phase; analysis phase; creative phase; evaluation phase; and development and reporting phase.
* Include information about the key issues relating to the engineering activity, including costings for the processes that make up the activity. You should determine which processes add value, and which are non-value added processes.
* Evaluate the outcomes of your value analysis exercise to suggest and prioritise possible improvements for your given engineering activity and its processes.
* Evaluate your findings from the quality management/standards report and the value analysis exercise to identify which areas can increase the profitability and efficiency of the process being investigated. In doing this, you should suggest methods to improve the activity, and identify those aspects that will offer the greatest benefit to the organisation, using evidence to back up your suggestions.
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| **Checklist of evidence required**  | A report that includes: a) research exploring the quality management systems and value management processes used by engineering organisations; and b) an applied value analysis exercise to determine if further value can be created from a given engineering product or service, and an evaluation of findings based around the principles of value management and quality systems.  |
| **Criteria covered by this task:** |
| Unit/Criteria reference | To achieve the criteria you must show that you are able to: |
| 4/C.D3 | Evaluate the outcome of a value management exercise for a given engineering activity and make recommendations which include the use of quality systems to implement efficiencies to the engineering activity  |
| 4/C.M3 | Analyse the purpose of different quality management systems and value management used by engineering organisations |
| 4/C.M4 | Complete accurately a value analysis exercise on a given engineering process |
| 4/C.P5 | Explain the purpose of different quality management systems and value management used by engineering organisations |
| 4/C.P6 | Complete a value analysis exercise on a given engineering process |
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| **Sources of information to support you with this Assignment** | BooksHoyle, D.; ISO 9000 Quality System Handbook; Routledge, 2009; ISBN 9781856176842;Miles, L.; Techniques of Value Analysis and Engineering, Miles Value Foundation, 2015, ISBN 9780070419261 Websites[www.iso.org](http://www.iso.org) <https://www.mindtools.com/pages/article/newPPM_89.htm> **Above are some examples of websites. Further useful resources may be found at** <http://qualifications.pearson.com/en/support/published-resources.html#step1> |
| **Other assessment materials attached to this Assignment Brief** | Case study |