

Knowledge Organiser



Learners explore how processes are undertaken by teams to create engineered products or to deliver engineering services safely

Learning Aim A

learners will provide a balanced and thorough evaluation of how key business activities and trading considerations combine to influence an organisation. The evaluation will explore for example, the joint decision of finance, purchasing and operations functions within the organisation to outsource an activity or service, the consideration of whether the organisation has the resources to undertake the activity in-house, and, if suitable suppliers are available, whether they would be able to meet the expectations of the organisation, and agree suitable trading terms. Learners will evaluate whether the use of outsourcing would give the organisation a competitive advantage, for example by lowering costs.

Learning Aim C

learners will use evidence to evaluate the outcomes of a value analysis exercise and consider the results alongside the use of quality management systems. They will identify and explain, using evidence, how efficiencies can be made for a given engineering product or service. Learners will evaluate how quality management tools, such as the ISO 9000 and ISO 14000 groups of international standards can improve a given engineering activity. For example, learners may include how the problem will be defined and the data collected during the planning stage, a solution will be developed during the implementation stage, comparisons to the original process will be considered during the checking stage, and recommendations should be made in the acting stage. Learners will use the findings of this activity, in conjunction with the outcomes of a value analysis activity, to evaluate methods of implementing efficiencies for an engineering activity. They will identify where there is scope to improve quality or where meeting aspects of the ISO 9000/14000 standards will bring an improvement to the product or service

Unit Overview

Engineering organisations use a wide range of systems and methods to ensure that they are competitive. For example, organisations can develop a competitive advantage by increasing the quality of their products, innovating with new product designs or reducing the cost of their operations. Well-known brands that have successfully produced a competitive advantage in this way include Dyson, Rolls-Royce and Škoda.

In this unit, you will explore how key business activities and trade considerations influence engineering organisations and are used to create a competitive advantage. You will understand why organisations need to control costs and how they make decisions, applying an activity-based costing methodology. You will also understand what is meant by quality and why it means different things to different people; you will investigate quality systems, including quality assurance and control. Finally, you will explore value management as a process to create value in an organisation. The quality systems and value management principles and processes provide a foundation for business process improvement techniques, such as Lean and Six Sigma, which many engineering organisations follow to ensure continuous improvement. It has not been possible to include these methodologies as part of this unit; however, should you encounter them in the workplace then this unit provides a basis for understanding and applying them.

As an engineer, it is important that you understand some of the commercial and competitive considerations which ensure that engineering organisations thrive. You will need to apply these principles to technical engineering projects to ensure that they add value to the organisation and are profitable. This unit will help to prepare you for an engineering apprenticeship, higher education and technician-level engineering roles.

Learning Aims:

- A** Examine business functions and trade considerations that help engineering organisations thrive
- B** Explore activity-based costing as a method to control costs and to determine if an engineering product or service is profitable
- C** Explore how engineering organisations use quality systems and value management to create value.

Learning Aim B

learners will provide an accurate activity-based cost model for a given engineering product or service that is refined during the process, to include all of the activities required to produce the final output. Learners will record all costs, assigning them to the correct cost type, and use the model to identify any hidden costs, for example maintenance of equipment or staff training. Learners' evidence will explain why costs are controlled and will evaluate how the cost model can be used to improve the profitability of an engineering product or service. The evidence will explain how costs are categorised, and give specific examples from an engineering activity for each cost category. For example, raw materials can be apportioned directly to an engineering activity; however, these costs are also variable since they are dependent on the amount of product being manufactured. The cost model will be used to identify cost areas that have the greatest impact on the profitability of the product or service.

Key Vocabulary

Lead times, profitability, Quality Assurance

Numeracy links:

Working with timings and costs to understand business practice

Work Related Learning:

Directly learning how an engineering company functions gives students a head start on life in industry.

SMSC and British Values

Understanding the importance that good business practice can have to solve critical issues in the world.