

Pearson Higher Nationals in Engineering

PEARSON-SET ASSIGNMENT

UNIT: 4 Managing a Professional Engineering Project Theme
Release 2017

For use with the following qualifications:

Pearson BTEC Level 4 Higher National Certificate and Level 5 Higher National Diploma in Engineering

Pearson BTEC Level 4 Higher National Certificate and Level 5 Higher National Diploma in
Aeronautical Engineering

Pearson BTEC Level 4 Higher National Certificate and Level 5 Higher National Diploma in Nuclear
Engineering

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Issue 1



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1.1 Introduction to theme

The Pearson-set theme for use with Unit 4: Managing a Professional Engineering Project is

The Professional Engineer's Role in Life Cycle Assessment (LCA)

Throughout this century, an enormous number of products have been invented, manufactured and produced to help us survive and enhance our well-being. However, the convenience provided by these products has undoubtedly had a detrimental effect on the environment in terms of air, water and land pollution, loss of resources, exploitation of the land and huge increases in energy consumption in the manufacture, use and disposal of these products.

Concern about the environmental impacts of products and materials which we use has led to considerable publicity and pressure from Government, consumers and suppliers with regards the importance of performing a product life cycle assessment (LCA), and reducing any related environmental impact.

This unit will enable students to examine the multi-faceted elements of LCA from the standpoint of a prospective Professional Engineer. Furthermore, students will be able to analyse engineering functions and their impact on the environment, whilst combining the principles of sustainable design with the responsibilities placed upon Professional Engineers.

1.2 Choosing a project type

You will need to devise a project brief for the student to follow in completion of the assignment for this unit. The project should be built around the theme described above.

The type of project chosen for the selected topic should allow for the depth and breadth of study suitable for a level 4 qualification.

Guidance for tutors is available in the Pearson-set Sample Assessment Material (SAM) for Unit 4: Managing a Professional Engineering Project. This provides a range of project types and examples that could be utilised for a project. The project types provided are not exhaustive nor mandatory and we do encourage tutors to be innovative with their ideas.

Please note that if reasonable adjustments are necessary to meet a specific individual student need you are able to adjust internal assessments to take this into account.

1.3 Project Evidence / Outcomes

In assessing the project, the assessor should be able to see how project objectives have been met, how students have explored the research material relevant to the project objective, how students have developed and formulated their outcomes and answers to the central questions posed by the objectives and what they have learned in carrying out their project. An important part of the conclusion must be an awareness of the significance of results. Well edited, focused writing and presentation, where the key decisions, developments, lines of argument and salient research are explained succinctly, is preferable to unstructured writing and presentation where little attempt to select or edit material has been made.

It is important to recognise that there are many different presentation formats and it is important that students think carefully about the suitability of any presentations for their target audience. Their presentations should be appropriate to the audience, both in terms of the nature and level of material they use and also in terms of length. Students should be guided to produce presentations that give a succinct account of the main arguments or developments from their project. The question and answer session should address issues raised by the presentation, but also give students an opportunity to review their work.

Students are to submit a completed report as evidence for the unit. Centres are advised that, in addition to their project findings, students should also submit a Project Management Plan, a completed Logbook and Performance Review as evidence. **The project management plan** is designed to define how the project is to be planned, executed and monitored. The project management plan should give details of the actions required for the integration and co-ordination of various planning activities to carry out the project. **The project logbook** is designed to provide evidence of the project development process and ongoing reflection. It should provide evidence that the student has thought about the direction of their project and in particular, what problems they encountered and steps taken to address them. **The performance review** will provide evidence of reflection and evaluation of the project management process and individual performance.

1.4 Employer engagement

It is advisable that centres look at the Pearson-set Assignment as an appropriate unit to embed employer engagement, although this is not a mandatory requirement. Developing and establishing links with employers enhances the teaching and learning experience and improves students' employability. Real-life projects provide students with the opportunity to develop and acquire appropriate skills, knowledge and expertise required by employers.

1.5 Sharing of good practice

The Pearson-set Assignment unit will usually be a sampled unit by the centre appointed External Examiner (EE) as part of the annual Pearson EE centre visit. The focus will be on standardisation of student assessed work and sharing of good practice. The EE will review and identify exemplars in all aspects of good practice. Good practice will focus on current themes that align to QAA Higher Education Reviews:

- Innovation
- Digital literacy
- Student employability and entrepreneurial skills
- Employer engagement
- Quality of assessment feedback.

1.6 Resources and useful links

Suggested resources and links that centres may find useful are shown below. Centres should choose those resources that are relevant for localised use and complement those with additional resources to support independent research in the chosen topic and project type.

Type of Resource	Resource Titles	Links
Useful resources for underlying principles of LCA, examples of published reports on engineering activities		
Textbook	Lock, D — <i>The Essentials of Project Management</i> (Gower Publishing,) ISBN: 9781472442536	
Textbook	Smith, N J — <i>Engineering Project Management 3rd Edition</i> (Wiley-Blackwell) ISBN: 9781405168021	

Type of Resource	Resource Titles	Links
Webpage	What is Life Cycle assessment?	www.unep.org
PDF linked document	Network for Business Innovation And Sustainability	www.nbis.org
Online Guide	Conducting a Life Cycle Assessment	www.nbis.org
Useful links for case studies of LCA activities		
Webpage Published Report	Diesel LCA Packaging LCA Current Transformers LCA	www.dantes.info

The Sample Assessment Material (SAM) for Unit 4: Managing a Professional Engineering Project should be read in conjunction with this theme release. It provides advice and guidance for both tutors and students.

For any further additional support or queries regarding this document, please email btecdelivery@pearson.com.