Year 13 Pre-Course Tasks: Engineering

Learner Name:	
Qualification	**Pearsons BTEC Level 3 National Extended Certificate in Engineering**
Unit number and title	Unit 5: A Specialist Engineering Project.
Learning aim(s)	**Learning Aim A:** Investigate an engineering project in a relevant specialist area
Assignment title	**Assignment 1:** Project Investigation
Assessor	Mr C Brown
Issue date	Summer 2017
Hand in deadline	September 2017

Context	Project management, and understanding the project life cycle, is a fundamental part of all engineering disciplines, from aerospace and computing – which may involve the development of new products and services – to the manufacturing sector, which may involve refurbishing or installing equipment. The output from a project is varied and could be a product/service, system or process that is relevant to your specialist area of study. There are many approaches to project management, and in this unit you will understand and apply one project-management approach over the life cycle of a project to solve an engineering-based problem on a given theme or idea. This will involve you researching an engineering-based problem and using your creative skills to generate a range of solutions to the problem. You will produce a feasibility study to select the most appropriate solution given the known constraints. Over the life cycle of the project you will make use of project-management processes, such as monitoring progress and managing risks, to design and develop a solution that is fit for audience and purpose.

	You will demonstrate high-standard behaviours during the development of your solution and will present your solution in a portfolio of evidence. In this unit, you will draw on your learning from across your programme to complete assessment tasks. The purpose of the specialist engineering project is for you to consolidate and build on the knowledge and skills gained throughout your BTEC National programme of study. The completion of this unit will help you to progress to employment as an engineering technician, or to an apprenticeship or higher education.
Assignment 1 **Criteria:** **A.P1:** Research an engineering problem based on a given theme and scope out at least three alternative solutions. **A.P2** Outline at least three alternative solutions to an engineering problem and select a preferred solution.	Learners will produce research evidence containing a series of at least three possible solutions to the given theme or initial idea. The research evidence and alternative solutions to an engineering problem will be realistic, accurate and concise. For example, a project to design and manufacture a scale model (1 : 43) body shell of a Formula 1® racing car will involve researching computer-aided design (CAD)/computer-aided manufacturing (CAM) processes, as well as manufacturing the model using a vacuum-forming process. Learners should consider projects that have been developed by major manufacturers at component, assembly and product level in their research. Consider the development of the Airbus A380 and the development and use of titanium within additive machining for aerospace parts. The feasibility study will be fully supported by research applied consistently across each solution.