

PCHS Curriculum Information

Course Title: Pearson BTEC Level 3 AAQ Extended Certificate	Exam Board: Pearson Edexcel	Specification Code: QAN: 610/3962/7
COURSE CONTENT: The course consists of 4 mandatory units of work. Mandatory content (100%). Two of these are externally set and assessed in exams. External assessment (50%). The remaining two are externally set and assessed in school. Internal assessment (50%). The four units are 1. Engineering Principles: Engineering data and applying mathematical procedures in mechanical and electrical contexts 2. Engineering Applications: Advances in modern technology and how they are reshaping the engineering sector's function; materials and processes to devise sustainable solutions to engineering problems. 3. Engineering Design: Three-dimensional (3D) models and two-dimensional (2D) detailed drawings using a computer-aided design (CAD) system 4. Engineering Project: Project management processes in Engineering products from concept to solution. Units 1 and 2 are externally assessed in the form of a written exam, which students must pass to complete the award. Students will develop the following knowledge and skills: · • Knowledge of units of measure, understanding of engineering data and information, application of mechanical, electronic, and electrical engineering mathematical procedures in engineering contexts. • Knowledge of the engineering industry, including its functional areas, emerging technologies, and understanding of materials and their use in the sector. • Engineering design skills, including design development and technical communication skills, interpreting technical specifications, and responding to briefs. • Knowledge and application of Engineering project management processes and techniques. • Transferable skills such as creativity and innovation, problem-solving, personal responsibility in managing one's own learning, and communication skills The ability to apply mathematical and scientific principles to solve engineering problems and demonstrate critical thinking and technical communication skills in engineering contexts is a key attribute needed for higher education in STEM. The experiential approach to learning and the knowledge and skills gained will give students a solid foundation for progression and demonstrate their aptitude for STEM and meeting the demands of a range of engineering degrees.		

UNIT 1: ENGINEERING PRINCIPLES

Assessment

The unit will be assessed through one examination of 90 marks lasting 2 hours 15 minutes.

Unit in brief

Modern life depends on engineers to develop, support, and control the mechanical and electrical products and systems that are all around us, for example, vehicles, machinery, communication systems, computers, and game consoles. To contribute as an engineer, you must be able to draw on an important range of principles developed by early engineering scientists, such as Newton, Watt, Faraday, Ohm, and Edison.

The assessment is available twice a year in January and May/June.

UNIT 2: ENGINEERING APPLICATIONS

Assessment

The unit will be assessed through one examination of 70 marks lasting 2 hours

Unit in brief

In this unit, students will explore how advances in modern technology are reshaping how a wide range of engineering sectors function. They will also explore how engineers use their understanding of materials and processes to devise sustainable solutions to engineering problems.

The assessment is available twice a year in January and May/June.

UNIT 3: ENGINEERING DESIGN

Assessment

The exam board 'Pearson' sets the assignment brief for the assessment of this unit. It will take 32 hours to complete. This Non-Examined Assessment (NEA) will be marked by centres (PCHS staff) and verified by Pearson.

Unit in brief

Students will create a design solution in response to an engineering design challenge by developing three-dimensional (3D) models and two-dimensional (2D) detailed drawings, including the use of a computer-aided design (CAD) system and other modelling techniques.

Unit introduction

Engineering products are part of our daily lives, from aircraft to the smallest electronic circuits found in medical devices. Engineering products are designed as a result of the identification of a need or opportunity. Engineers use creative skills and technical knowledge to devise and deliver a new design or improvements to an existing design. For example, advances in the development of battery and material technologies are leading to electric vehicles being able to travel greater distances.

UNIT 4: ENGINEERING

Assessment

The exam board 'Pearson' sets the assignment brief for the assessment of this unit. It will take 30 hours to complete. This Non-Examined Assessment (NEA) will be marked by centres (PCHS staff) and verified by Pearson.

Unit in brief

Students apply project management principles to undertake an individual project and will develop conceptual or practical solutions to a chosen engineering problem related to a relevant engineering specialist area.

Unit introduction

Project management and understanding the project life cycle are fundamental parts of all engineering disciplines, which may involve the development of new products and services, or which may involve refurbishment or installation of 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.

CAREER PROGRESSION:

Part of a two-year study programme for students wanting a strong focus on a specialist area within engineering, such as mechanics, electronics, or avionics, with progression to employment as an Engineering Technician, Specialist Engineering Technician, or Advanced Apprentice in the engineering sector. This qualification can lead to progression to the following degrees: · Mechanical Engineering BEng · Civil Engineering BEng · General Engineering BEng · Electronic and Electrical Engineering BEng. Students may also progress to HNC or Foundation Degrees in Engineering. It is always advisable to check the Individual University entry requirements to ensure that this course is acceptable before registering for it.