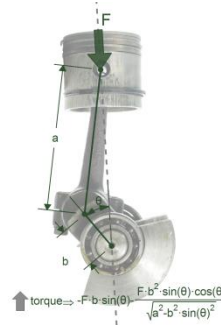
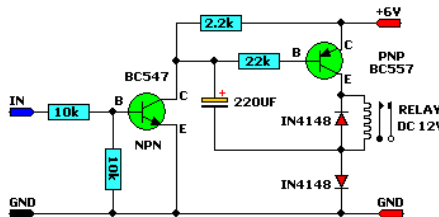
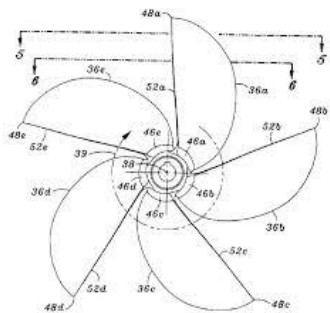


BTEC Level 3 Summer Task & Information

Pearson BTEC Level 3 National Extended Certificate in Engineering

Studying Level 3 Btec in Engineering gives students the opportunity to study a vocational related course in combination with other A levels and vocational courses whilst still in full time education. We offer this course to enable students to experience some of the possible career routes and areas of technical expertise that they could specialise in, if they choose to follow Engineering as a career path through an apprenticeship, or within further education. The qualification is made up of units which can be built up to count towards further extensions of the qualification should a student wish to continue their study in this subject.

The BTEC Engineering courses are NQF level 3 qualifications designed to provide highly specialist, work-related qualifications in a range of vocational sectors. They give learners the knowledge, understanding and skills that they need to prepare for employment. The qualifications provide career development opportunities for those already in work, and progression opportunities to higher education, degree and professional development for those still in full time education. The BTEC qualifications provide much of the underpinning knowledge and understanding for the National Occupational Standards for the sector. They are supported by the relevant Sector Skills Councils (SSCs) and/or Standards Setting Bodies (SSBs). Certain BTEC qualifications are recognised as Technical Certificates and form part of the Apprenticeship Framework. They attract UCAS points that equate to similar-sized general qualifications within education institutions within the UK. On successful completion of a BTEC level 3 qualification, a learner can progress to or within employment and/or continue their study in the same, or related vocational area.



Pearson Level 3 Btec in Engineering

If you have an interest in the man made world and how stuff works, this course will be of interest to you. The course will give you an appreciation of many aspects of the vast world of engineering and give an insight in the varied careers on offer in one of the world's most diverse and rewarding fields of expertise. Engineering is divided into many areas. The following are just some of the specialist fields or sectors. There are however many more than this, and more specialised areas within them!

- Mechanical
- Electronic and Electrical
- Automotive
- Marine
- Aerospace
- Civil
- Transport
- Structural
- Architectural
- Nuclear
- Fluids
- Sustainable Energies
- Utilities
- Telecommunications

The list is endless, and the opportunities for further study in all of these areas are plentiful. Choose your area of interest, and there is sure to be a career for you.

Our course will study the underpinning knowledge of the mechanical and electrical basics needed for many sectors. The course is undertaken in units and assessed with assignments based on the knowledge you have learnt.

During your course you will undertake units which cover the following topics:

Single (Extended Cert) 4 Units

Unit 1 Engineering Principles – Maths & Science

Unit 2 Engineering processes as a team -practical

Unit 3 Engineering Design

Unit 4 Fabrication - Practical

Useful Resources:

<http://www.bbc.co.uk/learningzone/clips>

There are many engineering related clips on here which are relevant to the course:

Clip nos: 6616 – 6627 8997, 8999, 9001, 9004, 9006, 9008

You tube:

- How Its Made
- Formula 1 technology
- Manufacturing methods
- Applications of materials
- Material Processing

Text Book: Pearson Education - Pearson Btec National Engineering (for the 2016 Specification) - ISBN 978 1 292 14100 8

Equipment Required for the Course

Organisation is central to success. Please ensure you bring the following equipment to your Engineering lessons.

- Assignment Folders - Provided
- Good Quality Pens & Pencils – Fineliners
- Rubbers, Sharpeners, 300mm rule.

It is also helpful to have access to a reasonable specification home laptop/computer to enable home study, as there is a high proportion of work completed online and using provided CAD software. Home study is necessary for completion of assignments.

BTEC Level 3 Engineering

Summer Research Task:

To be completed during the summer and be prepared ready for the start of the course in September.

Part A:

Research the following **historical** engineers and their engineering achievements:

- A. Thomas Telford
- B. IK Brunel
- C. Thomas Newcomen/ Boulton and Watt
- D. Abraham Darby

Research the following recent engineering projects

- E. UK Channel Tunnel construction
- F. Kobe Bridge
- G. Red Bull Stratos

Present your findings as an online portfolio of information using writing, drawings, diagrams, and photos where necessary to illustrate your understanding of each. This task can be completed as a set assignment on Google Classroom, or if you have limited access can be completed on paper. You have been assigned a google doc to work in and submit your work. Ensure you have accepted the invitation to join the class if you want to complete it online.

Answer these questions as part of your writing:

- 1. What was the reason for the development of this engineered solution?
- 2. How did this change things compared to what had gone before?
- 3. What were the major problems facing the project?
- 4. What engineering breakthroughs/ new technology was developed as a result?
- 5. How did this development lead onto further technological advances and what were they (or are they likely to be)?

Part B:

Research these examples of **future** engineering projects:

- A. HS2
- B. Baring Straits Tunnel
- C. Bloodhound SSC

Use your research to help you answer the following:

- 1. What barriers or problems are (or were) facing the engineering teams?
- 2. What new technology is being developed (if any) to overcome the engineering challenges?
- 3. How might the project influence the future in terms of technology/trade/ social issues/ setting new standards?

Criteria for success: We are looking for:

- Your ability to use research sources to investigate and learn from.
- Your ability to complete a task to a high level of presentation, communication (written and pictorial)
- Technical understanding