

Year

13

What will I be studying in Year 13?

During the course of your final year with us at the Energy Coast UTC, you will study various subjects, details of which can be found below. If you have any questions about any aspect of your courses, please speak to your subject teacher or your Form Tutor.



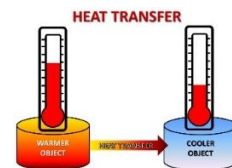
Engineering Level 3 (Single Award)

In Engineering this year, you will start by studying “Materials Technology and Science” which will include elements such as properties of materials, ‘engineering materials’ and ‘engineering chemistry’.



During the Spring term of Year 13, you will continue to investigate “Materials Technology and Science”, you will look deeper into properties of materials, beginning to look at electricity and electronics.

In the Summer term, you will be rounding off “Materials Technology and Science” by learning about the transfer of energy. You will then revise the whole of “Materials Technology and Science” in preparation for your end of year exam.



Throughout the year, you will be assessed in Engineering in a variety of ways including end of topic tests, mock exams and successful completion of technical work. The year will end with a formal written exam in June which will be your chance to prove how much you know, understand and can evaluate your Engineering course so far.

Engineering Level 3 (Double Award)

In Engineering this year, you will start by studying “Materials Technology and Science” which will include elements such as properties of materials, engineering materials and engineering chemistry.



During the Spring term of Year 13, you continue to investigate “Materials Technology and Science” which will develop your knowledge of electricity and electronics and the transfer of energy. You will then go on to explore engineering design where you will look at producing and managing detailed engineering designs.

Finally, in the Summer term, you will explore engineering design in more depth as you become more confident and competent with producing detailed engineering designs.



Throughout the year, you will be assessed in Engineering in a variety of ways including mock exams and synoptic assignments. The year will end with a formal written mock exam in June which will be your chance to prove how much you know, understand and can evaluate your Engineering course so far.

Civil Engineering (Single Award)

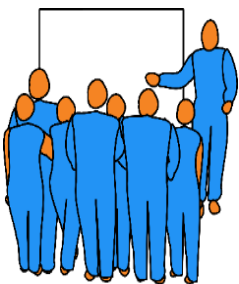
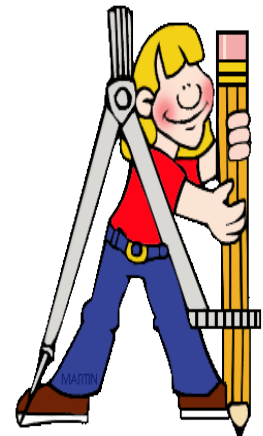
(Level 3 Construction and the Built Environment)

In Level 3 Construction this year, you will start by studying construction technology and project management. These two topics which enable you to develop a wider awareness of construction and design management techniques. You will research into the roles and responsibilities of construction design and production teams, exploring team relationships, interactions and methods of communication. You will also investigate management procedures used to plan, organise and control construction projects and will develop knowledge of the Royal Institute of British Architects (RIBA) Plan of Work and how this is used for developing strategic design planning.



During the Spring term of Year 13, you will investigate design principles within construction and, using a series of clearly identified stages, you will respond to a client's brief and develop a strategy to solve a construction design problem. You will maintain records of progress and produce a series of graphical details for professional presentation. You will develop an understanding of drawing standards and conventions and will apply these principles to a completed project portfolio.

Finally, in the Summer term, you will further explore civil engineering, through which you will develop knowledge of methods used to perform earthwork activities to control groundwater; explore plant and equipment used to undertake civil engineering activities and how substructures and superstructures are constructed. During this term, you will also develop an understanding of building regulations. You will explore their historical development and how these developments affect current building design; this will include solving design queries that require you to access current legislation and interpret the Approved Documents.



Throughout the year, you will be formatively assessed in each subject in a variety of ways. This can include group discussion, presentations and researching and reporting on case studies. Summative assessments will also continue throughout the year; these will be related to the respective unit being studied and will be assignment based; they can include writing a technical report, producing a poster, leaflet or producing a range of drawings.

Maths A-Level

In Maths this year, you will start by looking at complex sequences, functions and radians.



During the Spring term of Year 12, you will investigate further calculus which will allow you to expand on the learning from Year 12 and to see how rates of change is used in real world situations.

Finally, in the Summer term, you will explore Mechanics where you will be given the opportunity to learn about Maths modelling, kinetics and Newton's laws.



Throughout the year, you will be assessed in Maths in a variety of ways including end of topic tests, past papers, exam questions on topics and mock exams. The year will end with a formal written mock exam in June which will be your chance to prove how much you know, understand and can evaluate your Maths course so far.

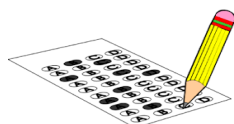
Maths Level 3

In Maths this year, you will start by studying "Mathematical Estimation" which will include elements such as data sampling, bias and measures of spread. You will then go on to look at budgeting and payslips, developing your understanding of VAT and percentages.



During the Spring term of Year 13, you will investigate modelling, standard form and estimation.

Finally, in the Summer term, you will explore critical analysis, Gantt charts and cost benefit analysis, allowing you to explore the links between Maths and Engineering.



Throughout the year, you will be assessed in Maths in a variety of ways including mock exams, consolidation exercises, investigations and presentations. The year will end with a formal written exam in June which will be your chance to prove how much you know, understand and can evaluate your Maths course.

Level 3 Science – Applied Science (OCR)

In Applied Science this year, you will complete coursework units in product testing, microbiology and hazards. You will be assessed regularly through the marking and feedback of your submitted assignments. Your practical skills will also be assessed so that you receive regular feedback on how to progress throughout the course.



In Laboratory Skills this year you will be studying science fundamentals and laboratory techniques. These will be assessed by external exams at the end of the year. There will be two exams which will both last two hours.

Sport

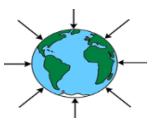
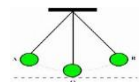
In Unit 2 you will explore the process required for screening clients and assessing their lifestyle and nutritional intake. How to interpret this information will then be examined. From this information you will explore how to make judgements on a specific individual's current lifestyle and then suggest modifications to help improve the individual's fitness, health and overall well-being. Fitness training methods will be examined for each component of physical and skill-related fitness. The selection of appropriate training methods for a selected individual and their application into a training programme will then be explored.



For unit 3 you will research the different possible careers and the associated job roles in the sports industry, then action plan your development towards achieving a selected career aim. You will analyse your own skills and identify how to develop them into a career through the use of a career plan. You will research your chosen career to understand how to access and progress within it. You will take part in application and interview assessment activities for a selected career pathway, drawing on knowledge and skills from across the qualification to identify your own strengths and gaps in knowledge and skills. You will evaluate your own performance to gain an understanding of the generic employability and specific-technical knowledge and skills required to access and progress in a selected career pathway in the sports industry. This unit will prepare you for progression to a career in the sports industry either directly or through higher education, by developing your understanding of investigation, career planning and awareness of the skills and qualities that sports employers look for in a potential employee.

Physics (AQA)

In Physics this year, you will begin by studying periodic motion, nuclear physics, thermal physics, fields and nuclear physics.



During the Spring term of Year 13, you will continue to investigate fields which will deepen your awareness of electric, gravitational and magnetic fields. You will then go on to look at turning points in Physics.

Finally, in the Summer term, you will revise the work that you've completed since beginning the course and then work on improving your exam technique in order to get the best possible overall grade.



Throughout the year, you will be assessed in Physics in various different ways such as required practical assessment, end of unit assessments and mock exams. This will prepare you for the end of course examinations that will take place in the Summer term.

Business Studies (Enterprise and Entrepreneurship)

In Business Studies this year, you will start by studying marketing which will include such elements as promotion, advertising, pricing and investigating why companies develop specific campaigns. You will then go on to look at planning a specific marketing campaign, using research to produce a rationale and recommendations which will develop your understanding of reading technical texts, effective writing, analytic skills, self-management and creative development.



During the Spring term of Year 13 you will investigate social enterprises and you will then focus on developing your own, using a team-based approach to generate a project that aims to benefit a community of your choice. You will be allocated roles and have a set timeframe in which to complete the activity. This will deepen your awareness of the essentials of teamwork as well as the opportunities and risks involved in creating a social enterprise, as well as developing an understanding of the importance of such skills as analysis, critical thinking and effective writing, while also exploring and improving your own interpersonal skills.



Throughout the year, you will be assessed in Business Studies in a variety of ways including controlled assessments, academic writing, report writing and a final presentation. The year will end with a formal “Dragons Den” style assessment in June which will be your chance to prove how much you know, understand and can evaluate your Business course so far.

Computer Science (OCR)

In Computer Science this year you will be building on your knowledge and skills developed during year 12 and over the summer break. Helping to build competence and confidence in the subject of computer science to enable you to sit your exams at the end of the year.

- The ‘**Computer Systems**’ module contains the majority of the content of the specification and is assessed in a written paper recalling knowledge and understanding.
- The ‘**Algorithms and Programming**’ module relates principally to problem solving skills needed to apply the knowledge and understanding covered in Computer systems.



Your ‘**Programming Project**’ is a practical portfolio-based assessment with a task that is chosen by the teacher or you and is produced in an appropriate complex programming language of the learner’s or teacher’s choice. This is a significant piece of work that reflects your knowledge and skills in producing a solution to a complex problem.

Throughout the year, you will be assessed in a variety of ways including, controlled assessments, academic writing, report writing and problem solving using the techniques you have been taught. In addition, you will be practicing exam questions using questions provided by OCR using Exam Builder. This helps you gain confidence and the necessary exam techniques to help you realise your potential in the written exams.