



Year 12 Curriculum Booklet 2019-2020



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INTRODUCTION

We look forward to welcoming you to the WMG Academy for Young Engineers in September 2019. As you begin your Post 16 studies you will be developing new skills, knowledge and exploring the world of engineering through your programmes.

Please read carefully through all of the information about the courses that will be on offer in September, along with the support and guidance programme, to help you make a final decision on your programme of study with us. We will guide you to a programme which takes into consideration your future career, aspirations and interests. Where possible we will accommodate your chosen options however, due to group sizes being either too small or too large, this may be reviewed. We reserve the right not to run courses which are not viable. If this is the case we will talk to you as soon as possible to advise you of this.

Choosing your Post 16 programme of study is an important decision to make. We recommend that you carry out research into your choice of potential careers, talk to your parents/carers and contact universities and companies about apprenticeships to ensure that you are as informed as possible before making your final decisions.

In addition to your programme of study, all Y12 learners are expected to participate fully in the pastoral programme and enrichment. In line with Government regulations, any Post 16 student who has not achieved a grade 4 in Maths or English will be expected to re-sit this during their time at WMG Academy until they have achieved this level.

GUIDANCE ON PROGRAMME OF STUDY

The WMG Academy for Young Engineers understands the complexity of choosing your Post 16 programme of study and has prepared the following support to assist you:

STEP 1: RESEARCH

Please read through all of the course information within this booklet. Think about where you want to be in two, five and ten years' time and find out what you need to do to achieve your aspirations and aims. Contact universities, further education colleges and companies that offer apprenticeships and then think about your strengths and weaknesses. Do they match up?

STEP 2: GUIDANCE MEETING

Once you accept your place in Y12 you will be invited to attend a guidance meeting to discuss your option choices and pathways. This will be with you, your parents and a member of the guidance team from the academy. Please make sure that you bring with you your research from Step 1.

STEP 3: COMPLETION OF THE OPTION FORM

In your guidance meeting, you will need to complete your options form. Where possible we will accommodate your chosen options however, due to group sizes being either too small or too large, this may be reviewed. We reserve the right not to run courses which are not viable. If this is the case we will talk to you as soon as possible to advise you of this.

STEP 4: POST GCSE RESULTS

On the day of your GCSE results, we ask that you come to the academy, bringing a copy of your GCSE results so we can confirm your programme of study. Your programme of study can be adjusted at this stage if you have performed differently to as you expected in your GCSE.

STEP 5: JOINING THE ACADEMY

You will have an induction when you join the academy, to familiarise you with academy. For us this induction starts as soon as you are offered a place. There are events coming up in the summer term and a secure log in is provided for students joining Y10 and Y12 to keep up with all our latest news.

A-LEVEL BIOLOGY

Awarding Body: AQA

Course Code: 7402

QUAN: 601/4625/4

OVERVIEW OF THE COURSE

Biology A-level will give you the skills to make connections and associations with all living things around you. Biology literally means the study of life and if that's not important, what is? Being such a broad topic, you're bound to find a specific area of interest, plus it opens the door to a fantastic range of interesting careers. This qualification is linear. Linear means that students will sit all their exams at the end of the course.

CONTENT AND ASSESSMENT

Paper 1 – 2 hour exam worth 35% of the final grade.

- Biological molecules.
- Cells.
- Organisms exchange substances with their environment.
- Genetic information, variation and relationships between organisms.

Paper 2 – 2 hour exam worth 35% of the final grade.

- Energy transfers in and between organisms
- Organisms respond to changes in their internal and external environments
- Genetics, populations, evolution and ecosystems
- The control of gene expression

Paper 3 – 2 hour exam worth 30% of the final grade.

Any content from the 2-year course can be assessed from any unit and any practical.

There is no coursework on this A-Level. However, your performance during practicals will be assessed. At least 15% of the marks for A-Level Biology are based on what you learned in your practicals.

ENTRY REQUIREMENTS

GCSE Biology at grade 6 or GCSE Combined Science at grade 6 (with grade 6 in the Biology unit exams) is required.

A-LEVEL CHEMISTRY

Awarding Body: AQA

Course Code: 7405

QUAN: 601/5731/8

OVERVIEW OF THE COURSE

A-Level Chemistry attempts to answer the big question ‘what is the world made of’ and it is the search for this answer that makes this subject so fascinating. From investigating how one substance can be changed drastically into another, to researching a new wonder drug to save millions of lives, the opportunities that chemistry provides are endless.

CONTENT AND ASSESSMENT

Paper 1 – 2 hour exam worth 35% of the final grade.

Physical Chemistry: Atomic structure, amount of substance, bonding, energetics, chemical equilibria, Le Chatelier’s principle and K_c , Oxidation, reduction and redox equations, Thermodynamics, Equilibrium constant K_p for homogenous systems, Electrode potentials and electrochemical cells, acids and bases.

Inorganic Chemistry: Periodicity, group 2, group 7, properties of period 3 elements and their oxides, transition metals, reactions of ions in aqueous solution.

Paper 2 – 2 hour exam worth 35% of the final grade.

Physical Chemistry: Amount of substance, bonding, energetics, kinetics, chemical equilibria, Le Chatelier’s principle and K_c , rate equations.

Organic Chemistry: Introduction to organic chemistry, alkanes, halogenoalkanes, alkenes, alcohols, organic analysis, optical isomerism, aldehydes and ketones, carboxylic acids and derivatives, aromatic chemistry, amines, polymers, amino acids, proteins and DNA, organic synthesis, NMR, chromatography.

Paper 3 – 2 hour exam worth 30% of the final grade.

Any content from the 2-year course can be assessed from any unit and any practical.

There is no coursework on this A-Level. However, your performance during practicals will be assessed. At least 15% of the marks for A-Level Chemistry are based on what you learned in your practicals.

ENTRY REQUIREMENTS

GCSE Chemistry at grade 6 or GCSE Combined Science at grade 6 (with grade 6 in the Chemistry unit exams) is required.

A-LEVEL COMPUTER SCIENCE

Awarding Body: OCR

Course Code: H446

QUAN: 60149115

OVERVIEW OF THE COURSE

This course helps students understand the core academic principles of computer science. Classroom learning is transferred into creating real-world systems through the creation of an independent programming project. This A-Level will develop the student's technical understanding and their ability to analyse and solve problems using computational thinking.

CONTENT AND ASSESSMENT

Paper 1 – Systems [40% of A-Level]

The internal workings of the (CPU), data exchange, software development, data types and legal and ethical issues.

Assessment: Written exam, 2 hours and 30 minutes.

Paper 2 – Algorithms and programming [40% of A-Level]

This builds on component 01 to include computational thinking and problem solving. Using computational thinking to solve problems.

Assessment: Written exam, 2 hours and 30 minutes.

Paper 3 – Programming project [20% of A-Level]

Students are expected to apply the principles of computational thinking to a practical programming project. They will analyse, design, develop, test, evaluate and document a program written in a suitable programming language. The project is designed to be independently chosen by the student and provides them with the flexibility to investigate projects within the diverse field of computer science.

Assessment: Written exam, 2 hours and 30 minutes.

ENTRY REQUIREMENTS

Grade 6 or above in GCSE Computer Science or relevant ICT course.

A-LEVEL ECONOMICS

Awarding Body: Pearson

Course Code: 9EC0

QUAN: 601/4105/0

OVERVIEW OF THE COURSE

Economics is a social science that studies how individuals, businesses, governments and nations make choices around the allocation of resources to satisfy needs and wants. It is an interesting study into the wider picture of global economies, and the narrower picture of the individual consumer. The course will look at topics such as Supply and Demand, Government failure, Macroeconomic objectives and the features of developing countries. It will prove to be a fascinating look into how the world works and be a tool for explaining topical issues such as the recent global recession and financial crisis.

CONTENT AND ASSESSMENT

There are 4 key themes within A-Level Economics, within which students will develop an understanding of various topics:

Theme 1: Introduction to markets and market failure – The nature of economics, how markets work, market failure and government intervention.

Theme 2: The UK economy – performance and policies – Measures of economic performance, aggregate demand, aggregate supply, national income, economic growth, macroeconomic objectives and policy.

Theme 3: Business behaviour and the labour market – Business growth, business objectives, revenues, costs and profits, market structures, labour markets and government intervention.

Theme 4: A global perspective – International economics, poverty and inequality, emerging and developing economies, the financial sector and the role of the state in the macroeconomy.

Assessment:

Paper 1 is a 2 hour paper assessing Theme 1 and 3, worth 35% of the final grade.

Paper 2 is a 2 hour paper assessing Theme 2 and 4, worth 35% of the final grade.

Paper 3 is a 2 hour paper assessing Themes 1-4, worth 30% of the final grade.

ENTRY REQUIREMENTS

Grade 5 or above in GCSE English and Maths.

A-LEVEL FURTHER MATHEMATICS

Awarding Body: Pearson

Course Code: 9FM0

QUAN: 603/1499/0

OVERVIEW OF THE COURSE

In this course you will complete more units from the GCE (A-Level) in Mathematics, leading to an additional A-Level qualification in Further Maths. The course is designed to be taught alongside A-Level Mathematics and consists of two compulsory Core Pure Maths units (CP1 & CP2) and two more optional units. There is a degree of flexibility with the optional units to be studied, and this is to be decided in conjunction with teachers. This year we are teaching the FS1 (Further Statistics) and FM1 (Further Mechanics) units.

Many students who take a qualification in Further Maths go on to read Mathematics at university and perhaps then become professional mathematicians. Most, however, are taking Mathematics as a support subject for a wide variety of fields including financial services and medicine.

CONTENT AND ASSESSMENT

The Advanced GCE in Further Mathematics consists of distinct pure and applied topics:

- Pure (CP1 and CP2) – Proof, Complex numbers, Matrices, Algebra and functions, Calculus, Vectors, Polar coordinates, Hyperbolic functions & Differential equations.
- Statistics (FS1) – Probability distributions and functions, Statistical distributions, Hypothesis testing, Statistical testing.
- Mechanics (FM1) – Momentum and impulse, Work, energy and power, Elastic collisions in one and two dimensions.

Assessment is in the form of externally assessed written examinations, which are taken at the end of the two year programme.

- Four written papers: each contributes 25% of the final grade.
- Each paper lasts 1 hour 30 minutes.
- 75 marks on each paper.

ENTRY REQUIREMENTS

Grade 8 or above in GCSE Mathematics.

A-LEVEL GEOGRAPHY

Awarding Body: AQA

Course Code: 7037

QUAN: 601/8940/X

OVERVIEW OF THE COURSE

Studying Geography gives students the opportunity to travel the world via the classroom, learning about both natural and social sciences along the way. This qualification is linear meaning that students will sit all their exams and submit all their non-exam assessment at the end of the course.

CONTENT AND ASSESSMENT

There are 3 components to A-Level Geography:

1. Physical Geography [40% of A-Level]

Section A: Water and carbon cycles.

Section B: Either hot desert systems and landscapes or coastal systems and landscapes or glacial systems and landscapes.

Section C: Either hazards or ecosystems under stress.

Assessment: Written exam: 2 hours and 30 minutes.

2. Human Geography [40% of A-Level]

Section A: Global systems and global governance.

Section B: Changing places.

Section C: Either Contemporary urban environments or population and the environment or resource security.

Assessment: Written exam: 2 hours and 30 minutes.

3. Geography fieldwork investigation [20% of A-Level]

Students complete an individual investigation which must include data collected in the field. The individual investigation must be based on a question or issue defined and developed by the student relating to any part of the specification content.

Assessment: 3,000 - 4,000 words.

ENTRY REQUIREMENTS

Grade 6 or above in GCSE Geography.

A-LEVEL MATHEMATICS

Awarding Body: Pearson

Course Code: 9MA0

QUAN: 603/1333/X

OVERVIEW OF THE COURSE

In this course you will build on the knowledge, skills and understanding learnt during your GCSE Maths studies, as well as develop confidence in applications of mathematics, such as statistics and mechanics, which will help consolidate learning in other subjects, especially the sciences and engineering. A-Level Maths encourages students to develop confidence in, and a positive attitude towards, mathematics and to recognise the importance of mathematics in their own lives and to society. This qualification prepares students to make informed decisions about the use of technology, further learning opportunities and career choices.

CONTENT AND ASSESSMENT

This A-Level consists of distinct pure and applied topics:

- Pure – Proof, Algebra and functions, Coordinate geometry in the (x, y) plane, Sequences and series, Trigonometry, Exponentials and logarithms, Differentiation, Integration, Numerical methods, and Vectors.
- Statistics – Statistical sampling, Data presentation and interpretation, Probability, Statistical distributions, Statistical hypothesis testing.
- Mechanics – Quantities and units in mechanics, Kinematics, Forces and Newton’s laws, Moments.

Assessment is in the form of externally assessed written examinations, which are taken at the end of the two year programme.

- Three written papers: each contributing 33.3% of the final grade.
- Each paper lasts 2 hours.
- 100 marks on each paper.

ENTRY REQUIREMENTS

Grade 7 or above in GCSE Mathematics.

A-LEVEL PHYSICS

Awarding Body: AQA

Course Code: 7408

QUAN: 601/4747/7

OVERVIEW OF THE COURSE

Studying Physics gives students the opportunity to expand upon their understanding from GCSE science and is a common prerequisite for further study of engineering or sciences. This qualification is linear meaning that students will sit all their exams and submit all their non-exam assessment at the end of the course.

CONTENT AND ASSESSMENT

1. Measurements and their errors
2. Particles and radiation
3. Waves
4. Mechanics and materials
5. Electricity
6. Further mechanics and thermal physics
7. Fields and their consequences
8. Nuclear physics
9. Astrophysics

Assessment:

Paper 1 – 2 hour written exam based on sections 1-5 and 6.1 worth 34% of the final grade.

Paper 2 – 2 hour written exam based on Sections 6.2, 7 and 8 with assumed knowledge from previous sections worth 34% of the final grade.

Paper 3 – 2 hour written exam based on practical skills and astrophysics worth 32% of the final grade.

ENTRY REQUIREMENTS

GCSE Physics at grade 6 or GCSE Combined Science at grade 6 (with grade 6 in the Physics unit exams) is required.

Studying A-Level Mathematics is highly recommended, but not required.

A-LEVEL PRODUCT DESIGN

Awarding Body: AQA

Course Code: 7552

QUAN: 603/1133/2

OVERVIEW OF THE COURSE

This creative and thought-provoking qualification gives students the practical skills, theoretical knowledge and confidence to succeed in a number of careers. Especially those in the creative industries. They will investigate historical, social, cultural, environmental and economic influences on design and technology, whilst enjoying opportunities to put their learning in to practice by producing products of their choice. Students will gain a real understanding of what it means to be a designer, alongside the knowledge and skills sought by higher education and employers.

CONTENT AND ASSESSMENT

Paper 1: Technical principles – Written exam: 2 hours and 30 minutes worth 30% of the A-Level.

Students are expected to be able to name specific materials for a wide range of applications. They must also be able to provide detailed and justified explanations of why specific materials and combinations of materials are suitable for given applications, with reference to: physical and mechanical properties (working characteristics), product function, aesthetics, cost, manufacture and disposal.

Paper 2: Designing and making principles – Written exam: 1 hour and 30 minutes worth 20% of the A-Level.

Students should be aware of, and able to explain, different approaches to user centred design. That in approaching a design challenge there is not a single process, but that good design always addresses many issues, including: designing to meet needs, wants or values, investigations to inform the use of primary and secondary data, the development of a design proposal, the planning and manufacture of a prototype solution and the evaluation of a prototype solution to inform further development.

Non-exam assessment (NEA) – Practical application of technical principles, designing and making principles

A substantial design and make project worth 50% of the A-Level. Evidence can be written or digital design portfolio and photographic evidence of final prototype.

ENTRY REQUIREMENTS

Grade 5 or above in GCSE Mathematics is recommended.

LEVEL 3 CAMBRIDGE TECHNICAL IN BUSINESS

(EXTENDED CERTIFICATE)

Awarding Body: OCR

Course Code: 05835

QUAN: 601/7699/4

OVERVIEW OF THE COURSE

This qualification will provide learners with the skills, knowledge and understanding to progress into Higher Education on a business-related programme. The mandatory unit will give learners an understanding of the wider external contexts in which businesses operate and of internal business functions and their interdependencies, and allow learners to appreciate how legal, financial, ethical and resource constraints can affect business behaviour and the influence that different stakeholders can have and how businesses must respond. The optional units cover a wide range of topics to give learners the opportunity to take a unit that is relevant to a specific aspect of business.

CONTENT AND ASSESSMENT

Unit 1: The business environment – In this unit you will develop an understanding of how and why businesses operate in the way they do. You will look at a range of different types of business and business structures, and explore how the ownership of a business and its objectives are interrelated.

Unit 2: Working in business – This unit will cover the skills and understanding needed to work effectively within a business environment. This includes arranging meetings, working with business documents, making payments, prioritising business activities and communicating with stakeholders.

Unit 4: Customers and communication – In this unit you will learn the purpose, methods and importance of communication in business and the appropriateness of different forms of communication for different situations. You will develop the skills that will help you create a rapport with customers and have the opportunity to practise and develop your communication skills.

Unit 5: Marketing and market research – This unit has particular emphasis on the role of market research and how it contributes to marketing decision-making, and the actions a business may take.

Unit 8: Introduction to human resources – In this unit you will gain an overview of the HR function and learn about factors affecting human resources planning.

Assessment: Units 1 and 2 are external examinations that take place in Year 12 and 13. Units 4, 5 and 8 are internally assessed pieces of coursework.

ENTRY REQUIREMENTS

GCSE English and Maths at grade 5 or above and a grade 5 or above in Business GCSE if studied.

LEVEL 3 CAMBRIDGE TECHNICAL ENGINEERING (EXTENDED CERTIFICATE)

Awarding Body: OCR

Course Code: 05823

QUAN: 601/4594/8

OVERVIEW OF THE COURSE

This qualification is designed for students aged 16-19 wishing to gain an understanding of the engineering sector and who wish to study Engineering alongside other A-Levels or vocational qualifications. This qualification could provide entry to employment through an apprenticeship in engineering (e.g. Advanced or Higher Apprenticeships) or could also lead directly to employment in areas of engineering such as mechanical engineering and design, electrical and electronic engineering, manufacturing, automation and systems and control.

CONTENT AND ASSESSMENT

Unit 1: Mathematics for engineering (External assessment) – This unit will develop your knowledge and understanding of the mathematical techniques commonly used to solve a range of engineering problems.

Unit 2: Science for engineering (External assessment) – This unit will develop your knowledge and understanding of principles of engineering science and consider how these can be applied to a range of engineering situations.

Unit 3: Principles of mechanical engineering (External assessment) – All machines and structures are constructed using the principles of mechanical engineering. Machines are made up of components and mechanisms working in combination. Engineers need to understand the principles that govern the behaviour of these components and mechanisms.

Unit 4: Principles of electrical and electronic engineering (External assessment) – This unit will develop your knowledge and understanding of the fundamental principles that underpin electrical and electronic engineering.

Unit 9: Mechanical design (Internal assessment) – The aim of this unit is for you to develop the knowledge, understanding and skills to be successful in their design of mechanical engineering components and products.

Unit 10: Computer-aided Design (Internal assessment) – The aim of this unit is for you to develop the ability to be able to create 3D models using CAD, and to go on to create 3D assemblies of components within a CAD system.

ENTRY REQUIREMENTS

Grade 5 or above in GCSE Mathematics and any relevant Engineering qualification.

LEVEL 3 BTEC ART AND DESIGN (EXTENDED CERTIFICATE)

Awarding Body: Pearson

QUAN: 601/7588/6

OVERVIEW OF THE COURSE

The qualification gives a coherent introduction to the study of art and design. Learners develop art and design projects and gain an understanding of the creative process. The qualification is designed for post-16 learners who aim to progress to higher education and ultimately to employment, possibly in the creative industries, as part of a programme of study alongside other BTEC Nationals or A Levels.

CONTENT AND ASSESSMENT

There are three mandatory units (one internal and two external) and one optional unit.

Unit 1: Visual Recording and Communication (External) – In this unit, you will develop your visual recording and communication skills through exploration and experimentation with materials and methods, gaining confidence in your ability to create work and express and communicate ideas. You will extend your skills through exploring the work of others, ongoing personal reflection and the refinement of your own work. You will demonstrate your practice by applying these skills to a set task.

Unit 2: Critical and Contextual Studies in Art and Design (External) – In this unit, you will develop contextual research and critical analysis skills. You will investigate the contextual influences on practitioners that drive and underpin their work. You will learn how to critically analyse pieces of art and design work, deconstructing images and thinking critically about what you see. You will develop these skills through investigation by selecting and sourcing relevant information in order to gain a full understanding of the work of artists and designers.

Unit 3: The Creative Process (Internal) – In this unit, you will explore the activities within the creative process. You will experiment with ideas generation techniques and contextual research activities. You will develop ideas through use of materials, techniques and processes, refining your ideas and reviewing your working practices. You will explore ways to present your work and understand the importance of self-reflection and evaluation as an ongoing process. You will also explore how these activities can relate and support each other, looking at alternative and innovative approaches. You will then apply your own creative process to a piece of art and design work, reflecting on what you have learned to help inform your future practice.

ENTRY REQUIREMENTS

Grade 6 in Art GCSE or a relevant art and design course.

LEVEL 3 BTEC ENGINEERING

(DIPLOMA/EXTENDED DIPLOMA)

Awarding Body: Pearson

QUAN: 601/7588/6

OVERVIEW OF THE COURSE

The BTEC Level 3 in Engineering has been designed to give new entrants to the engineering sector the underpinning knowledge and specific skills needed to meet the needs of modern mechanical engineering industries. This qualification gives both the designed both for those students who wish to enter employment, apprenticeships or those who plan to progress into Higher Education, for example to BTEC Higher Nationals and undergraduate engineering degree qualifications.

CONTENT AND ASSESSMENT

Students completing the Diploma (2 A-Level equivalent) will complete 10 units. Those on the full Extended Diploma (3 A-Level equivalent) will complete all 15 units.

*Units 1-5 are compulsory for the Diploma.

** Units 1-7 are compulsory for the Extended Diploma.

Unit	Unit Name	Internal / External
Unit 1	Engineering principles*	External
Unit 2	Delivery of engineering processes safely as a team*	Internal
Unit 3	Engineering product design and manufacture*	External
Unit 4	Applied commercial and quality principles in engineering*	Internal
Unit 5	A specialist engineering project*	Internal
Unit 6	Microcontroller systems for engineers**	External
Unit 7	Calculus to solve engineering problems**	Internal
Unit 10	Computer aided design in engineering	Internal
Unit 13	Welding technology	Internal
Unit 22	Electronic printed circuit board design and manufacture	Internal
Unit 24	Maintenance of mechanical systems	Internal
Unit 25	Mechanical behaviour of metallic materials	Internal
Unit 44	Fabrication manufacturing processes	Internal
Unit 45	Additive manufacturing processes	Internal
Unit 19	Electronic devices and circuits	Internal

ENTRY REQUIREMENTS

Students will need a grade 4 in GCSE English and Maths, however a grade 5 in Maths is recommended.

LEVEL 3 BTEC INFORMATION TECHNOLOGY (EXTENDED CERTIFICATE)

Awarding Body: Pearson

QUAN: 601/7575/8

OVERVIEW OF THE COURSE

The objective of this qualification is to give learners the opportunity to develop their knowledge and skills in IT systems, systems management and social media in business. This will enable learners to progress to further study in the IT sector or other sectors. Learners will develop a common core of IT knowledge and study areas such as the relationship between hardware and software that form an IT system, managing and processing data to support business and using IT to communicate and share information.

CONTENT AND ASSESSMENT

Learners will study three mandatory units (1, 2, and 3) and one optional unit (from 5 and 6):

Unit 1: Information Technology Systems – Learners study the role of computer systems and the implications of their use in personal and professional situations. This unit is a 2 hour externally assessed written paper.

Unit 2: Creating Systems to Manage Information – Learners study the design, creation, testing and evaluation of a relational database system to manage information. This unit is assessed through a controlled assessment under supervised conditions.

Unit 3: Using Social Media in Business – Learners explore how businesses use social media to promote their products and services. Learners also implement social media activities in a business to meet requirements.

Unit 5: Data Modelling – Learners study how data modelling can be used to solve problems. They will design and implement a data model to meet client requirements.

Unit 6: Website Development – Learners investigate website development principles. They will design and develop a website using scripting languages.

ENTRY REQUIREMENTS

Students will need a grade 4 in GCSE English and Maths, however a grade 5 is recommended.

LEVEL 3 BTEC APPLIED SCIENCE

(EXTENDED CERTIFICATE/DIPLOMA)

Awarding Body: Pearson

QUAN: 601/7435/3

OVERVIEW OF THE COURSE

This BTEC Science course aims to give students a solid foundation in all three sciences, extending their knowledge from GCSE and providing them with the practical skills needed to progress in a career in science or engineering, both in employment and in Higher Education. This course is designed for students who want to continue with science, but for whom A-Levels are not the chosen pathway. This course is made up of 4, 8 or 12 modules, depending on whether students are entering for the single, double or triple A-Level equivalent. Around 25% of the course is exam assessed, while the remaining units are coursework assessed.

CONTENT AND ASSESSMENT

The following units are mandatory units:

- 1. Principles and Applications of Science** - Externally assessed exam.
- 2. Practical Scientific Procedures and Techniques.**
- 3. Science Investigation Skills** - Controlled assessment.
- 4. Laboratory Techniques and their Application** (Diploma/Extended Diploma).
- 5. Principles and Applications of Science II** (Diploma/Extended Diploma) - Externally assessed exam.
- 6. Investigative Project** (Diploma/Extended Diploma).
- 7. Contemporary Issues in Science** (Extended Diploma) - Externally assessed exam.

In addition to those above, optional units will also be completed in order to bring up the total number of units to those needed for the chosen qualification.

ENTRY REQUIREMENTS

Students should be aiming to achieve a grade 55 in combined science, though discretion may be applied. Maths and English at grade 4 are also strongly recommended.

EXTENDED PROJECT QUALIFICATION

Awarding Body: OCR

Course Code: H857

QUAN: 603/2304/8

OVERVIEW OF THE COURSE

The Extended Project is a stand-alone task and the topic is chosen by the learner. It can relate to any aspect of engineering or manufacturing and will be assessed via an internal assessment which can be in the form of a dissertation, report, design portfolio, design-and-make or manufactured artefact. Learners will develop and extend research; identifying, designing, planning and completing an individual project as well as applying a range of organisational skills. They will need to select information from a range of sources, analyse data, and solve problems to complete their final project outcome. Learners will be allocated a supervisor to oversee and guide them through the project.

CONTENT AND ASSESSMENT

Learners must complete:

A project log which details how they have planned, researched and evaluated their project.

A Project which can be presented as:

- an artefact, model or construction
- a CD/video/DVD of performances or activities
- an audiotape/multimedia presentation
- a journal of activities or events
- a slide or PowerPoint presentation
- a photographic record of the project

Project products must include a written report of between 1000 and 5000 words and a presentation on the process followed and the outcomes produced.

ENTRY REQUIREMENTS

Students must be completing an A-Level programme and will typically be expecting to apply for university.

GCSE ENGLISH LANGUAGE & MATHEMATICS (RETAKE)

Awarding Body: AQA

Course Code: 8700 (English Language) & 8300 (Mathematics)

QUAN: 601/4292/3 (English Language) & 601/4608/4 (Mathematics)

OVERVIEW OF THE COURSE

Students who have not achieved a grade 4 in their English or Mathematics GCSEs are required to continue studying the course as part of their Sixth Form programme until they achieve that grade.

CONTENT AND ASSESSMENT

Students retaking either English or Maths GCSE will have the opportunity to retake their exams in November. If they are not successful at achieving a grade 4 or above, they will then continue studying the subject and sit the summer examinations.

ENTRY REQUIREMENTS

This option is only for students who have not achieved a grade 4 in their English or Mathematics GCSE. Students can only be offered a place in the Sixth Form where one retake subject is required. Students needing to retake both English and Mathematics will unfortunately not be able to attend the WMG Academy Sixth Form.