

WJEC Level 1/Level 2 VCSE Engineering

Approved by Qualifications Wales

Specification

Teaching from September 2027

For award from September 2029



This Qualifications Wales regulated qualification is not available to centres in England.

Made for Wales.
Ready for the world.

The UK Government has announced plans to restrict social media use by children under 16, which may impact some of our qualifications. We will keep our qualifications under review and make any necessary updates as further details become available.

Qualification title	WJEC Level 1/Level 2 VCSE Engineering
Qualification objective	To equip learners with sector-specific knowledge and practical skills that prepare them for further study or apprenticeships, while fostering personal development and engagement through applied learning.
WJEC Qualification Code	5719Q0
QiW Number	C00/5270/7
Age groups approved for	14–16, 16–19, 19+
First teaching	September 2027
First certification	Summer 2029

Version	Description	Date
Our specifications may change over time. WJEC will inform centres of any amendments and the most up to date version of the specification will always be on the website.		

This specification meets the requirements of the following regulatory documents published by Qualifications Wales:

- VCSE Qualification Approval Criteria which set out requirements for VCSE qualifications approved for first teaching from September 2027 and beyond
- Standard Conditions of Recognition which contains the rules that all awarding bodies and their qualifications must meet when offering qualifications to learners in Wales.

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Empowering learners, supporting teachers

As Wales' largest awarding body, we have over 75 years of experience in delivering trusted, high-quality qualifications that support learners, educators, and employers across Wales.

We provide a wide range of bilingual qualifications that are accessible, engaging, and designed to meet the needs of today's learners.

Our qualifications are backed by expert subject teams, high quality resources, and responsive, specialist support. Our work is guided and shaped through close collaboration with schools, colleges, regional consortia, sector experts and Qualifications Wales.

As the only awarding body offering qualifications in every suite of the 14–16 National Qualifications offer, we are proud to play a key role in supporting the Welsh Government's ambition to make education in Wales a source of national pride, and we remain committed to helping every learner achieve their potential and progress with confidence.

Engaging, practical, and built for progression

Our Vocational Certificate of Secondary Education (VCSE) qualifications are designed to inspire and support learners aged 14–16, offering a two-year programme that is accessible, engaging, and rooted in real-world learning. With a strong emphasis on practical activities and hands-on experience, these qualifications help learners build confidence, develop essential skills and achieve meaningful success.

VCSEs are unitised, allowing learners to complete some assessments in Year 10 and others in Year 11. This flexible approach supports steady progress, reduces assessment pressure, and enables learners to demonstrate achievement throughout the course. For our VCSEs, external assessments are designed to assess foundational knowledge and can be completed near the start of the course, giving learners more time to focus on developing higher-level skills. This structure adds rigour and credibility to the qualification while helping to reduce teacher workload.

The compensatory nature of our VCSEs recognises learners' strengths across different units. High achievement in one area can offset lower performance in another, promoting a more inclusive and supportive assessment experience.

With content that is relevant, motivating, and tailored to learners' needs, WJEC VCSEs provide a solid foundation for progression to further study at Levels 1 to 3. Whether learners continue in the subject or not, they will gain valuable knowledge, practical skills, and a sense of accomplishment that prepares them for life, learning, and work.

Contents

Summary of assessment.....	5
1. Introduction	6
1.1. Purpose and Aims	6
1.2. Curriculum for Wales	7
1.3. Prior learning and progression	8
1.4. Guided learning hours (GLH) and Total Qualification Time (TQT).....	8
1.5. Use of language.....	8
1.6. Equality and fair access	9
2. Units	10
2.1. Unit format	10
2.2. How to read the amplification	10
2.3. Content.....	11
Unit 1 Introduction to the Engineering Sector	12
Opportunities for integration of learning experiences relating to the world of work	15
Unit 2 Applying Engineering Processes	16
Opportunities for integration of learning experiences relating to the world of work	27
Unit 3 Engineering Principles	28
Opportunities for integration of learning experiences relating to the world of work	36
3. Assessment	37
3.1. Assessment objectives and weightings.....	37
3.2. Assessment overview	37
3.3. Managing non-examination assessment.....	39
3.4. Resubmission of centre-marked non-examination assessments.....	40
3.5. Malpractice	41
4 Technical Information.....	42
4.1. Unit entries	42
4.2. Qualification entry	42
4.3. Grading and reporting	43
4.4. Resitting unit assessments	43
4.5. Retaking the qualification	44
Appendix A: Opportunities for embedding elements of the Curriculum for Wales	45

Summary of assessment

Unit 1: Introduction to the Engineering Sector Non-examination assessment: 8 hours 20% of qualification	40 marks
Set and marked by WJEC. The assessment will feature tasks based on an assessment brief from the selected engineering sector. The assessment will be available via Portal.	
Unit 2: Applying Engineering Processes Non-examination assessment: 26 hours 60% of qualification	145 marks
Set by WJEC, marked by the Centre and moderated by WJEC. The assessment will feature tasks based on an assessment brief. The assessment brief will be available via Portal.	
Unit 3: Engineering Principles External assessment (Written test): 1 hour 20% of qualification	60 marks
Set and marked by WJEC. Questions requiring objective responses, short and extended answers, with some based around applied situations.	

This is a unitised qualification.

The qualification comprises of **three mandatory** units.

Unit 1 is an introductory unit and is intended to be taught first. Beyond this, the order in which the remaining units are presented does not imply any hierarchy or prescribed teaching order.

Unit 1 will be available in January 2028 and in every summer and January series thereafter.

Unit 2 will be available for the first time in in summer 2029.

Unit 3 will first be available in January 2028 and will then be available every summer and January series. Unit 3 is a written test, available in paper format only.

The first award of the qualification will be summer 2029.

1. Introduction

1.1. Purpose and Aims

WJEC Vocational Certificates of Secondary Education (VCSEs) are designed to meet the needs of learners aged 14 to 16, providing relevant and meaningful learning experiences that reflect their stage of development. The qualifications are firmly rooted in the context of Wales and the Welsh economy, ensuring that learners engage with content that is locally authentic and nationally significant.

They offer engaging and accessible content and assessment that supports the development of practical skills, knowledge, and understanding. By aligning with the Curriculum for Wales, these qualifications contribute to the realisation of its four purposes and principles of progression, helping learners become ambitious, capable, and ready to learn throughout life.

In addition, VCSE qualifications support learners in developing an awareness of employment opportunities and pathways to post-16 study, including vocational courses that lead to occupational competence. This ensures that learners are well-prepared for their next steps, whether in education, training, or the world of work.

WJEC VCSEs:

- provide a broad basis for progression to post-16 study, including vocational study at Level 1 to 3 as appropriate
- allow learners to develop a range of knowledge, understanding and skills, with an emphasis on practical skills
- provide opportunities for learners to be assessed in relevant, engaging and meaningful ways, using technology where appropriate
- provide opportunities, where appropriate, for learners to develop:
 - the cross-curricular skills of literacy, numeracy and digital competence as set out in the Curriculum for Wales
 - the integral skills set out in the Curriculum for Wales
 - an understanding of sustainability in the world of work
- provides opportunities, where appropriate, for learners to engage with relevant aspects of the cross-cutting themes of:
 - local, national and international contexts
 - diversity
 - human rights
 - relationships and sexuality education (RSE)
- are aligned with Levels 1 and 2 of the Credit and Qualification Framework for Wales (CQFW).

These aims align with the aims set out in Qualifications Wales' VCSE Approval Criteria.

The VCSE in Engineering aims to:

- develop learners' practical skills in planning, preparing, and carrying out engineering activities
- embed essential theoretical knowledge of engineering principles
- promote understanding of the engineering sector in Wales
- enhance problem-solving through applying knowledge and skills to realistic engineering situations

- develop transferable employability skills such as communication teamwork, and time management
- prepare learners for progression into further study, apprenticeships or employment in engineering
- equip learners with the skills to effectively plan, prepare and carry out engineering activities.

1.2. Curriculum for Wales

This VCSE in Engineering qualification is underpinned by the Curriculum for Wales framework and has been designed to ensure that learners can continue to make progress towards the four purposes whilst studying for this qualification. Central to this design are the principles of progression, along with the statements of what matters in the Area of Learning and Experience for Science and Technology.

In developing this qualification, we have considered where there are opportunities to embed the cross-curricular themes and where there are opportunities for integral skills and cross-curricular skills to be developed. Appendix A provides a simple mapping, and information to support teachers will be provided in the Guidance for Teaching.

We have also considered where the qualification can generate opportunities for integrating the learning experiences noted after each unit; the Guidance for Teaching will include further information on integrating these learning experiences into delivery.

The VCSE Engineering qualification supports the Curriculum for Wales by:

- supporting the Science and Technology statements of what matters¹ by giving learners the opportunity to:
 - gain a deeper understanding of the concepts underpinning engineering, and their application in local, national and global contexts
 - apply their experiences, skills and knowledge to design and shape innovative engineering solutions
 - develop user-centred design processes to encourage creativity
 - manage and minimise risks and complexities
 - develop accuracy, precision, dexterity and quality of craft
 - design and engineer outcomes that meet learners needs and wants.
- supporting the Science and Technology principles of progression² by encouraging learners to:
 - ask increasingly sophisticated enquiry questions
 - demonstrate greater independence in exploring, analysing, problem solving and design
 - increase their breadth and depth of knowledge and underlying concepts
 - develop an increased accuracy to produce physical environments
 - demonstrate an ability to explore and investigate problems and the resulting formulation of creative solutions
 - consider problems which include ethical or moral dilemmas, and an increased understanding in the way in which these dilemmas should be approached
 - demonstrate a growing ability to apply learning to inform thinking beyond the classroom.

¹ <https://hwb.gov.wales/curriculum-for-wales/science-and-technology/statements-of-what-matters/>

² <https://hwb.gov.wales/curriculum-for-wales/science-and-technology/principles-of-progression/>

1.3. Prior learning and progression

Although there is no specific requirement for prior learning, the qualification is designed primarily for learners between the ages of 14 and 16 and builds on the conceptual understanding learners have developed through their learning from ages 3–14. Learners may have completed a Work-Related Foundation Qualification (WRFQ) in the subject prior to starting this course, which can further support their readiness and progression.

The qualification allows learners to develop a strong foundation of knowledge, skills and understanding which supports progression to post-16 study and prepares learners for life, learning and work. It provides a suitable basis for progression to further study at levels 1 to 3, including Level 2 and Level 3 vocationally related and occupational qualifications in Engineering. In addition, the qualification provides a coherent, satisfying and worthwhile course of study for learners who do not progress to further study in this subject.

1.4. Guided learning hours (GLH) and Total Qualification Time (TQT)

VCSE Engineering has been designed to be delivered within 120–140 guided learning hours (GLH). The qualification has been primarily designed as a 2-year programme for learners in years 10 and 11. Centres have flexibility in how they structure and deliver their courses within the total GLH for the qualification. The amount of content within each unit and its weighting within the qualification provides an indication of the anticipated percentage of GLH that may be required for each unit.

	Weighting	GLH
Unit 1	20%	24 hours
Unit 2	60%	72 hours
Unit 3	20%	24 hours
Totals	100%	120 hours

Total qualification time (TQT) is the total amount of time, in hours, expected to be spent by a learner to achieve a qualification. It includes both the GLH and additional time spent in preparation, study and some formative assessment activities.

The total qualification time for this qualification has been calculated as 140-160 hours. This includes:

- 120-140 hours of guided learning and/or supervised assessment
- 20 hours of self-directed study which may include additional assignments and tasks set by the teacher (homework) and independent use of online learning resources.

1.5. Use of language

As our understanding of diversity, equity, and inclusion evolves, so must our language. Terminology will be updated as needed to ensure it reflects individual identities and fosters respect and accuracy. Language used will be as specific as possible. Staying informed and adaptable is crucial, as inclusive language promotes dignity and equity. Recognising that language will continue to evolve, we will remain open to further amendments to ensure it accurately represents and supports all individuals. WJEC will inform centres of any amendments and the most up to date version of the specification will always be on the website.

1.6. Equality and fair access

This qualification is designed to be accessible to all learners, regardless of gender, ethnicity, religion, culture, or any other protected characteristic as defined by the Equality Act 2010. These characteristics include age, disability, gender reassignment, pregnancy and maternity, race, religion or belief, sex, and sexual orientation. Inclusive design principles have been applied throughout the qualification, including the use of varied assessment formats, clear and unbiased language, and diverse examples that reflect the breadth and diversity of the engineering sector. Every effort has been made to avoid, where possible, features that could unjustifiably create barriers to access or achievement.

Access arrangements and reasonable adjustments are available for eligible learners to ensure they can participate fully in assessments and demonstrate their knowledge and skills. These adjustments do not alter the intended demand of the assessment but support fair access. Guidance on access arrangements and reasonable adjustments is provided in the Joint Council for Qualifications (JCQ) document *Access Arrangements, Reasonable Adjustments: General and Vocational Qualifications*, available at www.jcq.org.uk.

This qualification adheres to the principles outlined in the JCQ guidance. As a result of inclusive design and provision for reasonable adjustments, very few learners should encounter a complete barrier to any part of the assessment process.

2. Units

2.1. Unit format

GLH	Indicates the estimated number of hours a learner will spend under direct supervision or instruction to complete the unit. This includes classroom teaching, practical activities, and supervised study.
Contribution to qualification grade	Indicates the contribution this unit makes to the overall grade of the qualification.
Overview of unit	Provides a concise summary of the unit's purpose, scope, and relevance. It outlines the key themes, skills, and knowledge areas covered, and how the unit supports progression in the vocational area.
Topics	Lists the topics learners will study as part of the unit.
Summary of assessment	Summarises the assessment methods for the unit.
Resources required for assessment	Details the materials, equipment and facilities needed to carry out the assessment effectively. This ensures consistency and fairness in delivery across centres.
Links to other WJEC units and qualifications	Identifies connections with other units or qualifications offered by WJEC, including progression routes and/or opportunities for integrated delivery.
Content	Outlines the knowledge, understanding, and skills that learners need to be taught to meet the assessment criteria.
Opportunities for integrating learning experiences relating to the world of work	Highlights learning experiences which may be generated by delivery of the unit. More information is provided in the Guidance for Teaching. Experiences will not be directly assessed.

2.2. How to read the amplification

The amplification provided in the right-hand column uses the following four stems to indicate the expected depth of learning.

'Learners should be aware of' is used when learners only need a general awareness of the specified content, without detailed understanding. Teachers should refer to Guidance for Teaching documents for more detailed guidance on the depth of coverage.

'Learners should know' is used when learners are required to demonstrate basic knowledge and understanding of content.

'Learners should understand' signifies that learners must show a deeper level of knowledge and understanding, including the ability to apply knowledge to familiar or unfamiliar contexts and to analyse and evaluate information for a given purpose.

'Learners should be able to' is used when learners are expected to use their knowledge and understanding in practical situations or demonstrate application of practical skills and techniques.

2.3. Content

Content is provided for each topic, outlining the knowledge, understanding, and skills that learners need to be taught.

All content must be delivered unless otherwise indicated:

- the use of 'including' indicates that the specified content is mandatory and may be assessed. Centres may choose to incorporate additional content or examples beyond those listed
- the use of 'for example' or 'such as' indicates that the specified content is provided for guidance only, and alternative examples may be used.

Unit 1 Introduction to the Engineering Sector

GLH	24
Contribution to qualification grade	20%
Overview of unit	The engineering sector is innovative and essential. It spans multiple disciplines, including mechanical, electrical, civil, and chemical engineering, all focused on designing, building, and maintaining systems and structures that drive progress. Engineers apply scientific principles and creative problem-solving to develop technologies, infrastructure, and solutions that improve quality of life and support sustainable development across industries worldwide. This unit introduces learners to the sector, its scope and major activities, considerations and processes. It explores: - the significance of engineering in Wales - the main engineering sectors operating in Wales - factors influencing the location of engineering activities - the potential benefits of engineering projects, and the challenges they may face. Learners completing this unit will be prepared for further study, with a strong foundation in industry knowledge, practical awareness, and future-facing skills.
Topics	This unit will focus on: - the importance of engineering in Wales - engineering sector focus: reason for location - engineering and its benefits and challenges.
Summary of assessment	Non-examination assessment: 8 hours Set and marked by WJEC 40 marks
Resources required for assessment	There are no specific requirements for assessment.
Links to other WJEC units and qualifications	The following Skills for Work units could complement the delivery of this unit: - Sustainable economic development - Working in Wales - Understanding the changing labour market - Jobs for the future - Exploring career pathways - Rights and responsibilities in the workplace.

Content

1.1 Introduction to the engineering sector	
In this topic learners will gain knowledge, understanding and skills in the following areas:	
1.1.1 The importance of engineering in Wales 1.1.2 Engineering sector focus: reason for location 1.1.3 Engineering and its benefits and challenges	
Section	Section
1.1.1 The importance of engineering in Wales	Learners should be aware of the importance of engineering in Wales, including: - its contribution to the Welsh economy, such as: - providing employment opportunities - attracting investment - supporting supply chains and local businesses - contributing to exports and global trade - key employers and employment opportunities - recent trends.
1.1.2 Engineering sector focus: reason for location	Learners should understand: - the key engineering sectors operating in Wales, such as: - aerospace - automotive - biomedical - environmental - food and drink - mechanical manufacturing - marine and offshore - oil and gas - rail and transport - semi-conductor - space engineering - sustainable energy production - the reasons engineering sectors are located in particular areas, such as: - transport links - access to raw materials - skilled and qualified workforce - supply chain and customers - government incentives - tradition and heritage.

1.1.3 Engineering and its benefits and challenges	Learners should be aware of different types of initiatives/projects/operations within the engineering sector in Wales, including: • infrastructure • manufacturing • energy • research and development • environmental. Learners should understand the: • potential benefits of an initiative/project/operation based on factors such as: • improving people's lives or work through employment opportunities • providing economic value • protecting or enhancing the environment • adding to technological progress • potential challenges of an initiative/project/operation based on factors such as: • budget constraints • environmental impact • regulatory and compliance issues • technological limitations • stakeholder conflicts • workforce and skill shortages • safety risks • public perception and social impact.
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Opportunities for integration of learning experiences relating to the world of work

This unit generates opportunities for the following learning experiences to be developed (experiences will not be directly assessed):

- interacting with guest speakers from the engineering sector to gain first-hand insight into real-world engineering practices, expectations, and professional roles
- asking questions and discussing current trends, challenges, and innovations in engineering with industry professionals
- learning about different engineering career pathways, training routes, and qualifications directly from employers, professional bodies, and training providers
- developing networking and professional communication skills by engaging with engineering professionals and organisations
- visiting engineering workplaces, facilities, infrastructure projects, or attending sector events to understand engineering activities and environments first-hand
- gaining inspiration and motivation from personal career journeys and success stories shared by engineers and sector representatives.

The Guidance for Teaching will include further information on the opportunities provided by the qualification for teachers/centres to integrate these learning experiences and skills into delivery.

For opportunities to develop cross-cutting themes, cross-curricular skills and integral skills, please see Appendix A.

Unit 2 Applying Engineering Processes

GLH	72
Contribution to qualification grade	60%
Overview of unit	This unit enables learners to develop and practical engineering skills through hand fitting and core engineering processes. Learners will gain the ability to: • interpret and use technical engineering drawings • plan and prepare engineering activities • carry out risk assessments to ensure safe working practices • produce components • evaluate the accuracy of completed work. Completion of this unit equips learners with hands-on experiences and transferable skills for further study. It ensures awareness of professional environments where planning, technical execution, and quality control are essential.
Topics	This unit will focus on: • interpreting engineering information • planning and preparing for engineering activities • carrying out engineering activities • close of engineering activities.
Summary of assessment	Non-examination assessment: 26 hours Set by WJEC, marked by centre, moderated by WJEC 145 marks
Resources required for assessment	As a minimum, the following resources are required to deliver the assessment: • callipers – internal, external • centre punch • dividers • files (various cuts and grades) • hacksaw/junior hacksaw • rivet gun and rivet sets • scriber • soldering iron • taps and dies (full set) • engineers square • micrometers • steel rule • vernier callipers • digital callipers

	• pliers (assorted) • screwdrivers (various types) • drill bits • reamers • deburring tools • shears/snips for sheet metals • pillar drill/pedestal drill • bench vices • marking out medium. At least one of the following machine tools is required to deliver the assessment: • centre lathe and standard associated tooling, equipment and workholding • milling machine and standard associated tooling, equipment and workholding • shaping machine and standard associated tooling, equipment and workholding • other multi-axis machine tool (pillar drill/pedestal drill is not regarded as a machine tool). At least one of the following pieces of equipment for other engineering processes is required to deliver the assessment: • sheet metal equipment – such as guillotine / bending / roller • brazing hearth • welding equipment and plant • laser cutter • 3D printer • CNC lathe and standard associated tooling, equipment and workholding • CNC mill and standard associated tooling, equipment and workholding • CNC router and standard associated tooling, equipment and workholding • CAD/CAM Software and Hardware.
Links to other WJEC units and qualifications	Learners completing this unit may also be interested in the following Skills for Life units: • Basic First Aid • Home management and maintenance • Personal safety • Science and technology in everyday life • Sustainability in action.

Content

2.1 Interpreting engineering information	
In this topic learners will gain knowledge, understanding and skills in the following areas: 2.1.1 Extract and use information from engineering drawings and sources 2.1.2 Properties and characteristics of materials 2.1.3 Reviewing technical Information	
Section	Amplification
2.1.1 Extract and use information from engineering drawings and sources	Learners should understand how to extract and interpret: • standard engineering information including: • component features • detail views • exploded views • isometric projections • orthographic 3rd angle projections • sectional views • title blocks • standard engineering symbols, such as: • angle • countersink • diameter • geometric tolerance information • depth • radius • third angle projection symbol • tolerance • key features, such as: • blind holes • chamfers • counterbore • countersink • datums • external threads • finishes • internal threads • radii • slots (open and enclosed) • through holes • undercuts • line types, such as: • centre lines • construction lines • hidden detail • projection lines • visible/object line. Learners should understand how to recognise and resolve dimensional issues, including:

	• applying numeracy skills to calculate or determine missing or incorrect dimensions where required • using practical discretion to recognise and address errors or omissions in drawing.
2.1.2 Properties and characteristics of materials	Learners should understand: • the properties and characteristics of materials that make them fit for purpose such as: • ABS (acrylonitrile butadiene styrene) • acrylic • aluminium • brass • hard wood • low carbon steel • nylon • PLA (polylactic acid) • resins • stainless steel.
2.1.3 Reviewing technical Information	Learners should be able to use technical information from: • engineering drawings • sources. Learners should be able to: • calculate: • angles • sizes • converting imperial to metric units • spindle speed (Revolutions per Minute (RPM)) • surface speed (Metres per Minute (m/min)) • identify: • surface finishes • tapping drill sizes.

2.2 Planning and preparing for engineering activities

In this topic learners will gain knowledge, understanding and skills in the following areas:

2.2.1 Planning engineering operations

2.2.2 Selecting appropriate tools, instruments and equipment

2.2.3 Producing a risk assessment of the key engineering processes

Section	Amplification
2.2.1 Planning engineering operations	Learners should be able to: - plan the engineering operations, including: - detailing technical information - identifying appropriate time frames - prioritising stages - sequencing the main processes. - identify key requirements, including: - components - features - finishes - tolerances.
2.2.2 Selecting appropriate tools, instruments and equipment	Learners should be able to select appropriate tools and instruments required to complete engineering activities, such as: - tooling: - callipers - external - internal - odd leg - centre punch - dividers - files - fret saw - hacksaw - rivet sets - scriber - soldering iron - taps and dies. - instruments: - engineers square - micrometer - steel rule - vernier callipers - digital callipers. Learners should be able to identify the correct items of equipment, such as: - arc welding equipment and plant - brazing hearth

	• Computer Aided Manufacture (CAM): • 3 Dimensional (3D) Printers • Digital Light Processing (DLP – resin printing) • Fused Deposition Modelling (FDM) • Computer Numerical Control (CNC) lathe • Computer Numerical Control (CNC) milling machine • Computer Numerical Control (CNC) router • hand drill • laser cutter • lathe • finisher • milling machine.
2.2.3 Producing a risk assessment of the key engineering processes	Learners should be able to produce a risk assessment for all key engineering processes, including: • details of the potential risks for each key process • a ranked or scored method to show the likelihood of potential harm • a range of appropriate control measures • a revised risk level after control measures are implemented.

2.3 Carrying out engineering activities

In this topic learners will gain knowledge, understanding and skills in the following areas:

- 2.3.1 Using tools and equipment
- 2.3.2 Applying hand fitting techniques
- 2.3.3 Applying machining tool operations
- 2.3.4 Applying other engineering processes
- 2.3.5 Using materials appropriately
- 2.3.6 Applying appropriate health and safety practices

Section	Amplification
2.3.1 Using tools and equipment	Learners should be able to demonstrate: - the preparation of stock material for all engineering tasks, such as: - removing rust, oil and debris - removing sharp edges and burrs - applying marking medium - setting a datum edge - engineering operations, including: - applying appropriate marking out techniques - appropriate selection and use of tools and equipment for each stage - appropriate application of health and safety procedures in the workshop environment.
2.3.2 Applying hand fitting techniques	Learners should be able to demonstrate a range of hand fitting techniques, such as: - de-burring - drilling - fitting - finishing - profiling - reaming - tapping a hole (internal threads), such as: - taper tap - second tap - bottoming tap - threading a bar (external thread). Learners should be able to use a number of hand fitting techniques and skills to cut, shape and produce components, such as: - applying a chamfer - bending - filing - forming arcs and curves - sawing.

2.3.3 Applying machine tool operations	Learners should be able to demonstrate a range of machine tool operations, such as: • milling • angle milling • angles • bevel • chamfers • counterboring • countersinking • drilling • tapping • end milling • face milling • slot milling • turning, such as: • boring • facing off • grooving/undercutting • knurling • parting off • turning diameter • taper turning.
2.3.4 Applying other engineering processes	Learners should be able to demonstrate: • the logical application of a range of engineering processes, such as: • Computer Aided Design (CAD) and Computer Aided Manufacturing (CAM) • Computer Numerical Control (CNC) turning, such as: • facing off • grooving/undercutting • turning diameter • taper turning • Computer Numerical Control (CNC) milling, such as: • face milling • end milling • slot milling (open and enclosed) • 3D profiling • Computer Numerical Control (CNC) router, such as: • cutting and profiling • engraving • laser cutting, such as: • cutting • engraving • hand drilling • finishing • joining, such as: • brazing (including correct temperatures) • welding (including correct plant settings) • soldering (including correct temperatures)

	• riveting (including correct calculations) • mechanical fixings and fastenings (including appropriate types for function) • 3-Dimensional (3D) printing • scaffolding • infill • slicing • threading • bed temperature • build plate adhesion • exposure time • infill density • layer height • nozzle temperature • speed • support structures • wall/top/bottom thickness.
2.3.5 Using materials appropriately	Learners should be able to use a range of materials appropriately, during hand fitting engineering processes and machine tool operations, such as: • ABS (acrylonitrile butadiene styrene) • acrylic • aluminium • brass • low carbon steel • nylon • PLA (polylactic acid) • resins • stainless steel.
2.3.6 Applying appropriate health and safety practices	Learners should be able to apply health and safety practices when completing engineering activities, including: • application of the Provision and Use of Work Equipment Regulations (PUWER), including the use of physical barriers (guards) • safe systems of work and risk assessments • using appropriate Personal Protective Equipment (PPE) • the ability to safely follow their operations plan during the task. Learners should understand that different materials require different machining/process parameters, such as: • alloys • metals • plastics. Learners should be able to demonstrate setting the correct speeds and feeds, such as: • spindle speed (Revolutions per Minute (RPM))

	• surface speed (Metres per Minute (m/min)) • feed rate (Millimetres per Minute (mm/min)) • the correct settings for: • laser cutting: • power settings • speed (mm/sec).
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2.4 Close of engineering activities

In this topic learners will gain knowledge, understanding and skills in the following areas:

2.4.1 Performing shut down procedures for engineering activities

2.4.2 Evaluating the quality of completed tasks

2.4.3 Evaluating engineering processes and suggesting improvements

Section	Amplification
2.4.1 Performing shut down procedures for engineering activities	Learners should be able to perform the shut down procedures for engineering activities, including: • visual inspection of all tools to check for and identify the following: • blunt cutting edges • visual signs of wear or damage • visual inspection of equipment, including: • emergency stop switches are functional • equipment is isolated • guards are present and functional • a workspace which is clear, including: • removal of waste material • removal and storage of tools • visual checks on Personal Protection Equipment (PPE) condition to identify any damage, faults or wear and tear and replace (where appropriate). Learners should be able to report any issues appropriately.
2.4.2 Evaluating the quality of completed tasks	Learners understand the quality of the engineering outcomes against tolerances stated in the engineering drawings, including: • accuracy of dimensions • accuracy of geometric features • reflecting on the finished quality of the completed workpiece.
2.4.3 Evaluating engineering processes and suggesting improvements	Learners should understand: • how appropriate the selected engineering processes were, and the extent to which they supported completing the work within the planned timeframe • how to suggest realistic improvements that would benefit the quality of finish of engineering outcomes, including: • engineering processes • machine tool operations • materials for enhanced efficiency and finish.

Opportunities for integration of learning experiences relating to the world of work

This unit generates opportunities for the following learning experiences to be developed (experiences will not be directly assessed):

- visiting engineering workshops, manufacturing facilities, laboratories, or engineering departments to observe real engineering processes, equipment, and working environments
- taking part in practical engineering activities in simulated or real workshop settings, such as machining, assembly, testing, or prototyping tasks
- observing engineers and technicians carrying out engineering operations, including setting up machines, using tools and instruments, and applying quality control procedures
- participating in engineering projects or challenges, such as designing, building, testing, or improving components, systems, or structures
- engaging with engineering professionals during site visits, demonstrations, or question and answer sessions to understand workplace expectations, safety practices, and operational procedures
- reflecting on their practical experiences to evaluate engineering processes, identify improvements, and consider how engineering activities link to real-world applications.

The Guidance for Teaching will include further information on the opportunities provided by the qualification for teachers/centres to integrate these learning experiences and skills into delivery.

For opportunities to develop cross-cutting themes, cross-curricular skills and integral skills, please see Appendix A.

Unit 3 Engineering Principles

GLH	24
Contribution to qualification grade	20%
Overview of unit	This unit is about the core principles that underpin engineering. The purpose of this unit is to explore: • the principles of engineering • technical drawing in engineering • materials used in engineering and their properties • mathematics used in engineering.
Topics	This unit will focus on: • practical engineering operations • technical drawings • materials and properties of materials • application of engineering maths.
Summary of assessment	Examination: 1 hour Marked by WJEC 60 marks
Resources required for assessment	There are no specific requirements for assessment.
Links to other WJEC units and qualifications	GCSE Mathematics and Numeracy

Content

3.1 Practical Engineering Operations	
In this topic learners will gain knowledge and understanding in the following areas: 3.1.1 Gauging and measuring 3.1.2 Material removal and joining operations 3.1.3 Surface finishing 3.1.4 Health and safety in engineering 3.1.5 Sustainability	
Section	Amplification
3.1.1 Gauging and measuring	Learners should know the purpose and uses of the following groups of tools and instruments, including: • gauging tools: • external calliper • go / no go gauges • internal calliper • plug gauges • slip gauges • snap gauges • measuring instruments: • continuity tester • dial calliper • digital calliper • micrometer • multimeter • steel rule • vernier calliper • vernier height gauge. Learners should be able to explain why a particular tool or instrument is appropriate for a specific operation.
3.1.2 Material removal and joining operations	Learners should understand the purpose and uses of material removal and joining operations, including: • material removal • drilling and reaming • filing • hack sawing • manual milling • manual turning • joining • arc welding • brazing • engineering adhesives • using fixings and fastenings.
3.1.3 Surface finishing	Learners should understand the properties, purpose, suitability and application of surface finishes for metal-based products, including:

	• cross filed finish • draw filed finish • galvanising • machine finishes • paint • plastic coatings • polish.
3.1.4 Health and safety in engineering	Learners should understand the requirements of The Health and Safety at Work Act 1974 in the Engineering sector, including: • the duties of the employer • the duties of the employee • risk assessments • penalties and risks of non-compliance • the management of the Act through regulations. Learners should know the main health and safety workplace hazards, including: • common workplace hazards: Slips, Trips and Falls (STF) • Manual Handling Operations (MHO). Learners should know Health and Safety regulations and requirements, including: • Provision and Use of Work Equipment Regulations (PUWER), including: • immediate operator safety precautions before switching on a machine • suitability of equipment • maintenance and inspection • training and competence • guards and safety devices • safe working environment • Control of Substances Hazardous to Health (COSHH): safe storage, handling, and disposal of hazardous materials. • Personal Protective Equipment (PPE), including: • eye and face protection • foot protection • hand protection • hearing protection • Respiratory Protective Equipment (RPE) • recognising the purpose and necessary action for the following health and safety signs: • hazard, including: • corrosive substance • explosive risk • flammable material • toxic material

	• mandatory, including: • wear ear protection • wear gloves • wear safety footwear • wear safety goggles • warning, including: • forklift trucks operating • high voltage • hot surface • slippery surface.
3.1.5 Sustainability	Learners should know methods to reduce the environmental impact of engineering products, including: • the life cycle of polymers • the life cycle of pure metals. Learners should understand methods to reduce the environmental impact of engineered products using the Department for Environment, Food and Rural Affairs (DEFRA) Waste Hierarchy, including: • prevention (refuse or reduce) • preparing for reuse (reuse or repurpose) • recycling (recycle) • other recovery (recover) • disposal.

3.2 Technical Drawing

In this topic learners will gain knowledge, understanding and skills in the following areas:

- 3.2.1 Technical drawing conventions
- 3.2.2 Dimensioning
- 3.2.3 Orthographic 3rd angle projection
- 3.2.4 Isometric projection

Section	Amplification
3.2.1 Technical drawing conventions	Learners should understand the purpose and correct use of 2D technical drawing conventions, including: • centre lines • construction lines • hidden detail • projection lines • scale • visible/object line • symbols, including: • 3rd angle projection • datum • section view.
3.2.2 Dimensioning	Learners should be able to use BS 8888 (British Standard Technical Product Documentation and Specification) to accurately dimension a drawing, including: • consistent labelling across the drawing • correct use of arrowhead (and type) • correct use of extension lines • correctly dimension diameter, radius and angles • correct placement of dimension lines in both 3rd angle and isometric drawings • correct use of geometric tolerancing, including: • parallelism • concentricity • squareness.
3.2.3 Orthographic 3rd angle projection	Learners should know that Orthographic 3rd angle projection is a method used to show different views of an object (front, side, top) on paper. Learners should be able to construct a 3rd angle projection drawing, including: • laying out the front, side and plan view • using a 45° projection line to correctly place views • completing a 3rd angle projection drawing from an isometric view • using appropriate drawing conventions and symbols. Learners should be aware of 1st angle projection.

3.2.4

Isometric projection

Learners should know that isometric projection is a way to draw 3D objects so that all sides are shown at equal angles, helping to visualise the shape clearly.

Learners should be able to draw a product in isometric projection, including:

- constructing an isometric drawing from a 3rd angle projection drawing
- complete partially complete drawings
- use of 30° angle projection lines
- use of 90° vertical projection lines
- use appropriate drawing conventions and symbols.

3.3 Materials and Properties of Materials

In this topic learners will gain knowledge, understanding and skills in the following areas:

3.3.1 Properties of materials

3.3.2 Classification and properties of common engineering metals

3.3.3 Classification and properties of common engineering polymers

Section	Amplification
3.3.1 Properties of materials	Learners should understand the importance and definitions of physical and mechanical properties of materials, including: - physical properties: - conductivity - corrosion resistance - optical clarity - mechanical properties: - ductility - hardness - malleability - strength, including compressive and tensile - toughness - weldability.
3.3.2 Classification and properties of common engineering metals	Learners should understand the properties, classification, uses and suitability of a range of engineering metals, including: - alloys: - brass - stainless steel - ferrous metals: - iron - steel, including mild, bright, tool and high carbon - non-ferrous metals: - aluminium - copper.
3.3.3 Classification and properties of common engineering polymers	Learners should understand the properties, classification, uses and suitability of a range of engineering polymers, including: - thermoforming polymers - thermosetting polymers.

3.4 Application of Engineering Maths

In this topic learners will gain knowledge, understanding and skills in the following areas:

3.4.1 International System (SI) of units and unit conversions

3.4.2 Area and volume for engineering

3.4.3 Basic feeds and speeds

3.4.4 Ohm's Law

Section	Amplification
3.4.1 International System (SI) of units and unit conversions	Learners should be able to convert SI units of measurement, including: • time • distance • imperial • metric • angles (degrees, minutes, seconds) • temperature • electrical based units (amperes, voltage, resistance) • using conversions, including: • imperial to metric • decimals to fractions • angle degrees and decimals.
3.4.2 Area and volume for engineering	Learners should be able to calculate surface area and volume of a range of shapes related to engineering scenarios, including: • calculation of waste materials • maximising use of materials • quantities of materials • tessellation • quadrilaterals • triangles • circles • compound shapes. Learners should be able to demonstrate correct use of SI units covered in 3.4.1
3.4.3 Basic feeds and speeds	Learners should be able to calculate metric feeds and speeds for specific machine tool operations. Learners should demonstrate understanding of: • surface speed (Metres per Minute (m/min)) • spindle speed (Revolutions per Minute (RPM)) • feed rate (Millimetres per Minute mm/min) • feed rate (Millimetres per Revolution (mm/rev)).

3.4.4 Ohm's Law	Learners should be able to use and rearrange Ohm's Law to calculate engineering related scenarios, including: • current • resistance • voltage.
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Opportunities for integration of learning experiences relating to the world of work

This unit generates opportunities for the following learning experiences to be developed (experiences will not be directly assessed):

- visiting local engineering businesses to observe engineering processes
- undertaking site visits to bridges or other major building projects to see structural engineering in practice
- undertaking discussions with local colleges or providers of engineering education and training
- attending careers fairs or engineering expositions to engage with multiple employers and apprenticeships
- touring a water treatment or waste management plant to connect engineering to sustainability
- exploring innovation hubs or technology centres that focus on emerging fields such as robotics, artificial intelligence (AI), or renewable technologies
- attending engineering exhibitions.

The Guidance for Teaching will include further information on the opportunities provided by the qualification for teachers/centres to integrate these learning experiences and skills into delivery.

For opportunities to develop cross-cutting themes, cross-curricular skills and integral skills please see Appendix A.

3. Assessment

The Assessment Pack will include all detailed information relating to assessment.

3.1. Assessment objectives and weightings

Below are the assessment objectives for this specification. Learners must:

AO1

Demonstrate knowledge and understanding of engineering

AO2

Apply knowledge and understanding of engineering

AO3

Interpret and evaluate information, ideas and evidence of engineering

AO4

Demonstrate and apply skills in engineering

The table below shows the weighting of each assessment objective for each unit and for the qualification as a whole.

	AO1	AO2	AO3	AO4	Total
Unit 1	-	10%	10%	-	20%
Unit 2	-	-	10%	50%	60%
Unit 3	10%	10%	-	-	20%
Overall weighting	10%	20%	20%	50%	100%

3.2. Assessment overview

Unit 1

This unit is assessed through an externally set and marked non-examination assessment. Learners are required to complete a series of tasks based on one of three sectors and one of two case studies selected by WJEC each year.

The three sectors and two case studies will be released through WJEC Portal during the first week of June and will be used for assessment for two academic years. Following this period, a new set of three sectors and two case studies will be released and used for the next two academic years. Learners should not have access to the tasks until the start of the assessment. Centres have the flexibility to decide when, during the academic year, learners undertake the non-examination assessment.

This non-examination assessment contributes to 20% of the overall qualification grade and will take 8 hours to complete, which includes teaching, research and assessment time. The

non-examination should be completed in multiple short sessions due its length of 8 hours. The non-examination assessment will be marked out of a total of 40 marks.

The non-examination assessment must be submitted digitally, either as scanned handwritten responses or completed digitally.

Unit 2

This unit is assessed through an externally set non-examination assessment, which is marked by the centre and externally moderated by WJEC. Learners are required to select two out of seven available briefs (which include engineering drawings and sources):

- one brief from Hand Fitting Techniques
- and**
- one brief from Machine Tool Operations and Other Engineering Processes.

Learners are required to cut and shape material using appropriate hand fitting techniques to produce components using the selected brief from the two chosen hand-fitting techniques briefs. Learners are also required to apply machine tool operations and apply other engineering processes to produce components using the chosen brief from the machine tool operations and other engineering processes section. Details of these components, along with the requirements for producing them, will be outlined in the non-examination assessment pack.

The non-examination assessment pack will be released through WJEC Portal during the first week of June for use with learners starting their course in the next academic year. Each brief remains valid for a two-year period for one cohort of learners. Learners **must** be entered for assessment in the second academic year following the brief's release. It is the centre's responsibility to ensure that they are using the current version of the assessment as published on WJEC Portal. Centres have the flexibility to schedule the assessment at any point during the two academic years.

The tasks and mark schemes will not change, however the diagrams will be updated and reissued each year through the Portal. Learners should not have access to the assessment or tasks until appropriate learning has taken place, and they are ready for assessment.

This non-examination assessment contributes 60% of the overall qualification grade and will take 26 hours to complete. Due to the length of the assessment, centres will need to deliver the assessment in multiple shorter sessions over the two academic years. The assessment will be marked out of 145 marks.

Evidence submitted for external moderation must be submitted digitally, either as scanned handwritten responses or completed digitally. This may include reports, tables, charts, teacher observations and annotated photographic evidence.

Unit 3

This unit is assessed through an externally set and marked written examination available in the January and summer series. The first assessment will take place in January 2028.

The exam contributes to 20% of the overall qualification grade and will take one hour to complete. The examination will be marked out of 60 marks.

The exam must be sat under invigilated examination conditions in accordance with the JCQ Instructions for conducting examinations and requirements (see <http://www.jcq.org.uk>).

3.3. Managing non-examination assessment

Non-examination assessment (NEA) is structured across three key stages: task setting, task taking, and task marking.

All NEA must adhere to the principles set out in JCQ's Instructions for Conducting Non-Examination Assessments (Vocational and Technical Qualifications) and the JCQ Artificial Intelligence (AI) Use in Assessments: Protecting the Integrity of Qualifications. Please note that the JCQ guidance for GCE and GCSE Specifications is **not** applicable to this qualification.

Task Setting

Assessment packs are provided for each unit in line with the arrangements set out in 3.2.

Task Taking

The completion of non-examination assessment is guided by two phases:

- the research phase
- the NEA phase.

Learners may be asked to conduct research as part of the research phase, information about the research phase including research approach and referencing, can be found in the assessment pack.

During the NEA phase, information about the assessment conditions, categorised as high, medium and low, can be found in the assessment pack. Information about resources, categorised as none, specified and permitted, can also be found in the assessment pack.

Further information on the research phase and the NEA phase, including information on the use of AI, can be found in WJEC Conducting Non-examination Assessment in National 14–16 Qualifications Guide for Teachers and Conducting Non-examination Assessment in National 14–16 Qualifications Guide for Candidates.

Other consideration when task taking, include:

- time: each assessment pack specifies the total time available; a suggested time per task is provided although candidates may allocate this time across tasks as appropriate
- supervision and authentication: the assessment pack specifies the supervision requirements. In most cases, learners will be supervised by a teacher while completing assessment tasks. Teachers may clarify task requirements but must not provide feedback on the evidence being produced. Both learners and teachers must sign declarations confirming the authenticity of submitted work.

Task Marking

For centre-marked non-examination assessment, all marking must be carried out by a designated teacher with appropriate subject expertise, using the marking criteria provided in the assessment pack. Evidence must align with the expectations set out in the assessment pack.

Written evidence must be annotated to show how it meets the marking criteria.

Where required, performance evidence (for example, presentations) must be documented using observation records that include descriptive and summative comments.

Teachers are responsible for ensuring that:

- assessment is conducted in line with the expectations of the assessment pack and JCQ guidance
- judgements are made solely against the performance band statements
- evidence is authentic, clearly annotated, and accurately recorded
- when used, observation records contain sufficient detail to support assessment decisions.

3.4. Resubmission of centre-marked non-examination assessments

Before final marks are submitted for moderation, teachers may allow a learner one opportunity to improve their evidence and resubmit it for marking. This process is referred to as resubmission.

Internal assessment must be scheduled to allow sufficient time for this resubmission window, where needed, prior to external moderation. Learners must complete the full assessment before their work is initially marked, and any resubmission is authorised.

Any feedback provided to learners must:

- be factual, based on what has been observed in their work
- avoid directing learners on how to improve their mark
- be documented and made available for external moderation if requested.

Teachers must not:

- permit multiple resubmissions based on minor changes following feedback
- allow learners to add, amend, or remove any work after a resubmission has been marked.

Learners are not required to produce an entirely new set of evidence for a resubmission. They should focus only on the areas where they did not achieve the desired mark. As a result, they may not need the full time indicated in the assessment pack, although they can use up to the full allocation if necessary. The assessment pack indicates the approximate amount of time that learners should spend completing each task. Where learners are focusing on specific tasks for resubmission, the time allowed should not exceed the total suggested time allocated to those tasks.

There is no need to create a separate candidate mark submission sheet for resubmission; the original sheet can be updated with revised marks and additional comments. Centres should maintain internal records of resubmissions to provide a clear audit trail, which will be

helpful if queries arise. Only the final marks and evidence need to be submitted for external moderation.

Once marks have been submitted for moderation, no further resubmission of the same assessment is permitted. Learners have one opportunity to resit the assessment in a future assessment series. When resitting an assessment, centres must ensure that learners are using the assessment brief released for that series.

3.5. Malpractice

Before the course starts, the teacher is responsible for informing candidates of WJEC's regulations concerning malpractice. Candidates must not take part in any unfair practice in the preparation of work for VCSE Engineering.

Information regarding malpractice is available in our [Guide to preventing, reporting and investigating malpractice](#).

All cases of suspected or actual malpractice must be reported immediately to WJEC (malpractice@wjec.co.uk). If candidates commit malpractice, they may be penalised or disqualified from the examinations.

In all cases of malpractice, centres are advised to consult the JCQ booklet [Suspected Malpractice: Policies and Procedures](#).

4 Technical Information

4.1. Unit entries

This is a unitised qualification. Learners are entered for each unit separately.

Assessment opportunities will be available in the January and June assessment periods each year, until the end of the life of the qualification.

Unit 1 and Unit 3 will be available for the first time in January 2028 (and every January and June series thereafter).

Unit 2 will be available for the first time in June 2029 and every summer series thereafter.

Entry for individual units must be made by submitting the relevant unit shown below.

		Entry Codes	
		English medium	Welsh medium
Unit 1	Non-examination assessment	5719U1	5719N1
Unit 2	Non-examination assessment	5719U2	5719N2
Unit 3	Examination	5719U3	5719N3

4.2. Qualification entry

The qualification will be awarded for the first time in summer 2029.

Candidates will be entered for the qualification when entering for aggregation (cash-in).

Aggregation does not take place automatically; it is necessary to enter the relevant code for aggregation to take place.

	English medium	Welsh medium
Cash-in code	5719Q0	5719C0

The current edition of our Entry Procedures and Coding Information gives up-to-date entry procedures.

4.3. Grading and reporting

VCSE qualifications are reported on a six point scale: Level 2 Distinction* (L2D*), Level 2 Distinction (L2D), Level 2 Merit (L2M), Level 2 Pass (L2P), Level 1 Merit (L1M), Level 1 Pass (L1P).

Individual unit results are reported on a uniform mark scale (UMS) with the following grade equivalences:

	Max.	L2D*	L2D	L2M	L2P	L1M	L1P
Unit 1	80	72	64	56	48	40	32
Unit 2	240	216	192	168	144	120	96
Unit 3	80	72	64	56	48	40	32

The uniform marks obtained for each unit are added up and the qualification grade is based on this total.

	Max.	L2D*	L2D	L2M	L2P	L1M	L1P
Qualification	400	360	320	280	240	200	160

Candidates who do not achieve the uniform marks to achieve a Level 1 Pass will have their achievement recorded as U (unclassified) and will not receive a certificate.

4.4. Resitting unit assessments

Candidates may resit each externally assessed (WJEC marked) unit assessment twice (three attempts in total). The better uniform mark score from the three attempts will be used in calculating the final overall grade.

Candidates may resit each internally assessed (centre marked) unit assessment once (two attempts in total). The better uniform mark score from the two attempts will be used in calculating the final overall grade.

When resitting an assessment, the candidate must submit a new assessment, completed within the same levels of control. They cannot improve previously submitted work.

If a candidate has been entered for an assessment but is marked absent (a), the absence does not count as an attempt.

If a candidate is recorded as being awarded '0' marks, then it will be assumed that the evidence generated for assessment was not worthy of credit; this will be counted as an attempt.

When resitting an assessment, provided that the candidate has not exceeded the maximum number of attempts, marks from the other units will be carried forward.

If a candidate exceeds the number of attempts for any of the assessments, they will be required to retake the qualification.

4.5. Retaking the qualification

If a candidate enters an external (WJEC marked) unit assessment for a fourth time or an internal (centre marked assessment) for a third time, they must re-enter and retake all assessments.

When retaking a qualification, a candidate may have up to three attempts at each WJEC marked assessment and up to two attempts at each centre marked non-examination assessment. However, no results from units taken prior to the retake can be used in aggregating the new grade(s).

Appendix A: Opportunities for embedding elements of the Curriculum for Wales

The table below indicates where the qualification provides opportunities for embedding elements of the Curriculum for Wales. More detailed information is provided in the Guidance for Teaching: Unit Delivery Guides.

Curriculum for Wales Strands	Unit 1	Unit 2	Unit 3
Cross-cutting Themes			
Local, National and International Contexts	1.1.1, 1.1.2, 1.1.3.		
Sustainability	1.1.1, 1.1.2, 1.1.	2.1.2, 2.2.1, 2.2.2, 2.3.1, 2.3.2, 2.3.5	3.1.5
Relationships and Sexuality Education	1.1.1, 1.1.2, 1.1.3		
Human Rights Education	1.1.1, 1.1.2, 1.1.3		
Careers and Work-Related Experiences	1.1.1, 1.1.2, 1.1.3	2.1.1, 2.1.2, 2.1.3, 2.2.1, 2.2.2, 2.2.3, 2.3.1, 2.3.2, 2.3.3, 2.3.4, 2.3.5, 2.3.6, 2.4.2, 2.4.3	3.1.2, 3.1.4, 3.3.1, 3.3.2, 3.3.3
Cross-curricular Skills – Literacy			
Listening	1.1.1, 1.1.2, 1.1.3	2.1.1, 2.1.3, 2.2.1, 2.2.3, 2.3.4, 2.3.6, 2.4.3	3.1.4, 3.2.1, 3.2.3
Reading	1.1.1, 1.1.2, 1.1.3	2.1.1, 2.1.2, 2.1.3, 2.2.1, 2.2.2, 2.2.3, 2.3.4, 2.3.6, 2.4.2, 2.4.3	3.2.1, 3.2.2, 3.2.4, 3.3.1
Speaking	1.1.1, 1.1.2, 1.1.3	2.2.1, 2.2.3, 2.3.3, 2.4.2, 2.4.3	3.1.4, 3.2.3, 3.2.4

Curriculum for Wales Strands	Unit 1	Unit 2	Unit 3
Cross-cutting Themes			
Writing	1.1.1, 1.1.2, 1.1.3	2.1.3, 2.2.1, 2.2.3, 2.3.3, 2.4.2, 2.4.3	3.1.1, 3.1.4, 3.2.2, 3.4.1
Cross-curricular Skills - Numeracy			
Developing Mathematical Proficiency		2.1.3, 2.2.1, 2.4.2	3.4.1, 3.4.4
Understanding the number system helps us to represent and compare relationships between numbers and quantities		2.1.1, 2.3.3	
Learning about geometry helps us understand shape, space and position and learning about measurement helps us quantify in the real world		2.3.6	3.1.1, 3.4.2, 3.4.3
Learning that statistics represent data and that probability models chance help us make informed inferences and decisions	1.1.1, 1.1.2, 1.1.3		
Digital Competence			
Citizenship	1.1.1, 1.1.2, 1.1.3		
Interacting and Collaborating	1.1.1, 1.1.2, 1.1.3		

Curriculum for Wales Strands	Unit 1	Unit 2	Unit 3
Cross-cutting Themes			
Producing	1.1.1, 1.1.2, 1.1.3		
Data and Computational Thinking	1.1.1, 1.1.2, 1.1.3	2.2.1, 2.2.2, 2.2.3, 2.3.2, 2.3.4, 2.3.6, 2.4.3	3.1.1, 3.2.2, 3.2.3, 3.2.4, 3.4.1, 3.4.3
Integral Skills Integral Skills			
Creativity and Innovation	1.1.1, 1.1.2, 1.1.3		
Critical Thinking and Problem Solving	1.1.1, 1.1.2, 1.1.3	2.1.1, 2.1.3, 2.3.3, 2.4.3	3.1.1, 3.1.2, 3.3.1, 3.4.2, 3.4.5
Planning and Organisation	1.1.1, 1.1.2, 1.1.3	2.2.1, 2.2.3, 2.3.2, 2.3.4	3.1.2, 3.1.3, 3.1.4, 3.4.3
Personal Effectiveness	1.1.1, 1.1.2, 1.1.3	2.2.2, 2.3.6, 2.4.2	3.1.4, 3.3.1, 3.4.3



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