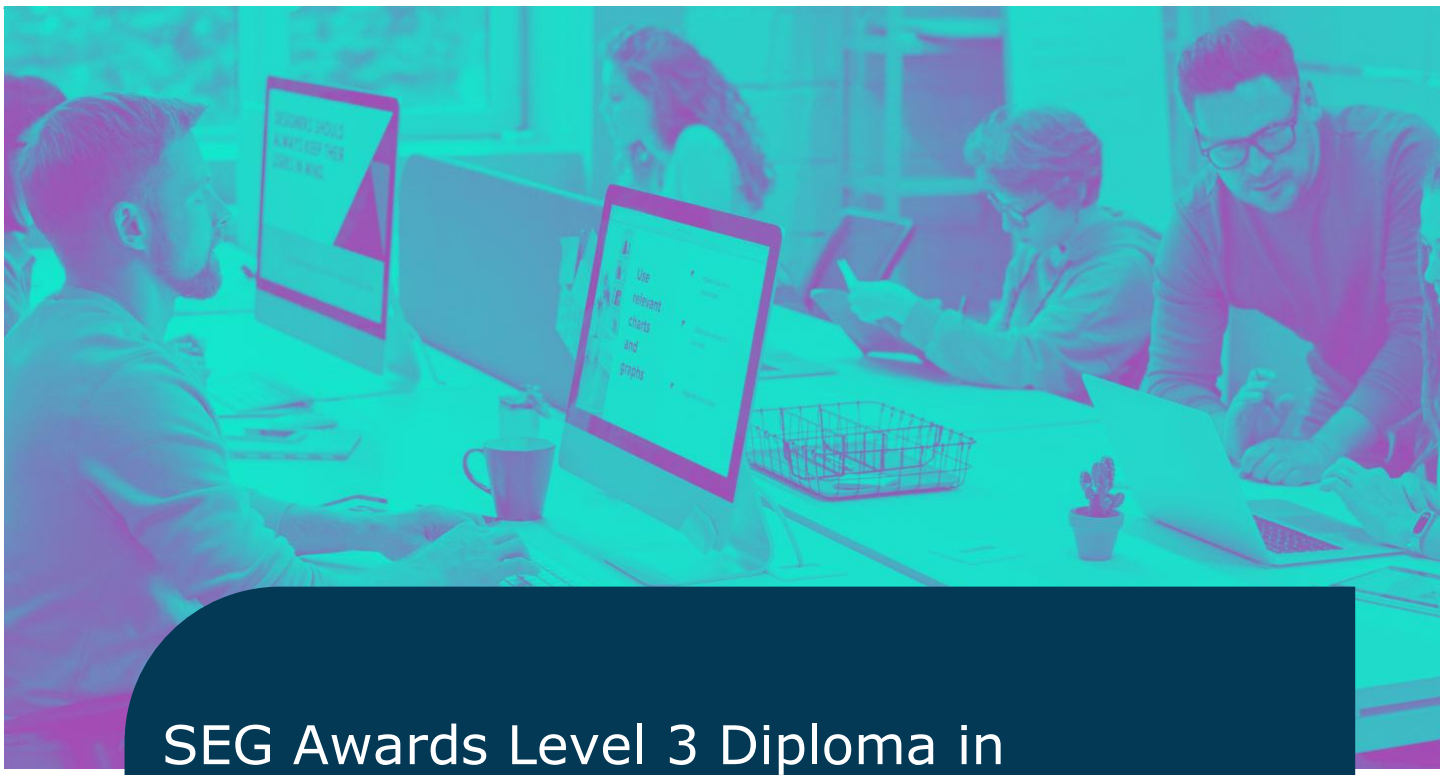
Skills & Education Group Awards

In association with UK AWARDS Education Excellence

Qualification Guidance



SEG Awards Level 3 Diploma in Smart Computing

England – 610/3280/3

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About Us

At Skills and Education Group Awards we continually invest in high quality qualifications, assessments and services for our chosen sectors. As a UK leading sector specialist, we continue to support employers and skills providers to enable individuals to achieve the skills and knowledge needed to raise professional standards across our sectors.

Skills and Education Group Awards has an on-line registration system to help customers register learners on its qualifications, units and exams. In addition, it provides features to view exam results, invoices, mark sheets and other information about learners already registered.

The system is accessed via a web browser by connecting to our secure website using a username and password:

Skills and Education Group Awards Secure Login

Sources of Additional Information

Skills and Education Group Awards website www.skillsandeducationgroupawards.co.uk provides access to a wide variety of information.

Copyright

Specification Code

The specification code is D5058-03.

Issue	Date	Details of change
1.0	01 November 2023	New qualification guide
2.0	February 2026	New End Date and Certification End Date given

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This guide should be read in conjunction with the Indicative Content document which is available on our secure website using the link above.

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Contents

This is a live document and as such will be updated when required. It is the responsibility of the approved centre to ensure the most up-to-date version of the Qualification Guide is in use. Any amendments will be published on our website and centres are encouraged to check this site regularly.

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Introduction

The SEG Level 3 Diploma in Smart Computing covers theoretical and practical aspects needed for beginners or even mature learners to acquire an in-depth knowledge of the fundamentals of IT, which would function as a foundation on which they can build their future careers.

The key areas covered include:

- IT Concepts
- MS Office
- Computer Hardware
- Network Technology
- Internet
- Email & Web Design
- Graphics and Multimedia
- Software Engineering
- Programming with Python
- Databases with SQL
- Programming with C#

The knowledge and skills gained will prepare learners to progress onto higher programmes of study, and related qualifications, in Computing and Information Technology.

Pre-requisites

There are no entry requirements for this qualification, however, learners should be working to at least a Level 2.

Skills and Education Group Awards expects approved centres to recruit with integrity on the basis of a trainee's ability to contribute to and successfully complete all the requirements of a unit(s) or the full qualification.

Qualification Structure and Rules of Combination

Rules of Combination: Level 3 Diploma in Smart Computing

Learners must achieve **all** credits from **all** the mandatory units.

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Unit	Unit Number	Level	Credit Value	GL
Mandatory Group Min Credit Target - 120				
Foundations of Programming	R/650/8565	3	20	60
Foundations of Web Design	T/650/8566	3	20	60
Hardware and Networks	Y/650/8567	3	20	60
IT Concepts and Productivity	A/650/8568	3	20	60
Software Engineering and Databases	D/650/8569	3	20	60
Final Project	J/650/8570	3	20	60

Aims

Upon successful completion of the SEG Awards Level 3 Diploma in Smart Computing, learners will be able to:

- Explain the concepts, techniques and equipment used in computer systems
- Undertake simple programming with Python and C# and SQL
- Carry out basic web design
- Explain software engineering
- Make use of software applications to organise work in a productive manner
- Communicate effectively in written and oral form.

Target Group

The SEG Awards Level 3 Diploma in Smart Computing is designed for learners, 16 years of age and over, who are looking to acquire an in-depth knowledge of the fundamentals of IT, which would function as a foundation on which they can build their future careers.

Assessment

The curriculum is set up to support a portfolio approach to continuous assessment. Learners will study units and develop a portfolio of evidence. Each unit will have milestones where formative assessment is provided, and learners can then continue to work on their portfolios before a final submission at the end of the unit.

For each unit, there will supporting learning outcomes which will need to be achieved, along with an outline of evidence required to support learner's attainment. The criteria are cumulative, so to achieve a merit grade a

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learner must satisfy the criteria for both a pass and for a merit. Similarly, to achieve a distinction grade a learner must satisfy, pass, merit, and distinction criteria.

To achieve a pass in a unit, a pass grade must be attained for all learning outcomes. The overall grade for each unit will be determined by the predominant attainment in each of the learning outcomes. For example, most units have four learning outcomes so if three are attained at merit, then a merit grade is the outcome. If the outcome is that two learning outcomes are graded pass and two at merit, then a merit for the unit would be awarded. For a distinction grade, the predominant attainment in each of the learning outcomes must be at distinction grade with all learning outcomes achieving at least a merit grade.

For the diploma to be awarded, a pass grade must be achieved in all units. The overall grade for the diploma will be determined based on the predominant outcome for each of the units. There are six units, so to achieve an overall grade of merit at least three units must be graded at merit. To achieve a distinction, all units must be graded at minimum of merit and at least three at distinction.

Internal assessment, internal and external moderation. Specific requirements and restrictions may apply to individual units within qualifications. Please check unit and qualification details for specific information.

Practice Assessment Material

Skills and Education Group Awards confirm that there is no practice material available for the SEG Awards Level 3 Diploma in Smart Computing.

Teaching Strategies and Learning Activities

The fundamental philosophy that guides this curriculum is 'learning by doing' with a balance between the following elements:

- Lectures and lessons – where knowledge is acquired
- Seminars and tutorials – where knowledge is consolidated and know-how developed
- Laboratories – where practical skills are demonstrated and developed
- Projects – where learners can develop their skills of synthesis

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Centres should adopt a delivery approach which supports the development of all individuals. The aims and aspirations of all the learners, including those with identified special needs or learning difficulties/disabilities, should be considered and appropriate support mechanisms put in place.

Progression Opportunities

Learners who achieve this qualification could progress onto the SEG Awards Level 4 Diploma in Smart Computing.

Centres should be aware that Reasonable Adjustments, which may be permitted for assessment, may in some instances limit a learner's progression into the sector. Centres must, therefore, inform learners of any limits their learning difficulty may impose on future progression.

Tutor / Assessor Requirements

Skills and Education Group Awards require those involved in the teaching and assessment process to be suitably experienced and / or qualified. Assessors should also be trained and qualified to assess or be working towards appropriate qualifications.

Those responsible for Internal Quality Assurance (IQA) must be knowledgeable of the subject/occupational area to a suitable level to carry out accurate quality assurance practices and processes.

Language

This specification and associated assessment materials are in English only.

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Qualification Summary

Qualification									
SEG Awards Level 3 Diploma in Smart Computing									
Qualification Purpose	Prepare for further learning or training and/or develop knowledge and/or skills in a subject area								
Age Range	**Pre 16**		**16-18**	✓	**18+**	✓	**19+**	✓	
Regulation	The above qualifications are regulated by: • Ofqual								
Assessment	• Portfolio of Evidence								
Type of Funding Available	See FaLA (Find a Learning Aim)								
Grading	Pass/Merit/Distinction/Fail								
Operational Start Date	01/11/2023								
Review Date	01/11/2026								
Operational End Date	**13/02/2026**								
Certification End Date	**31/07/2026**								
Guided Learning (GL)	360 hours								
Total Qualification Time (TQT)	1200 Hours								
Credit Value	120								
Skills and Education Group Awards Sector	Computing and Software								
Regulator Sector	6.1 Digital technology (practitioners)								
Support from Trade Associations									

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Unit Details

Foundations of Programming

Unit Reference	**R/650/8565**	
Level	**3**	
Credit Value	**20**	
Guided Learning (GL)	**60 hours**	
Unit Summary	This unit aims to provide learners with the fundamental programming concepts and techniques using the Python and C# programming languages. The unit will equip learners with a strong foundation in programming, problem-solving, and critical thinking skills.	
Unit Aim	The learner should develop a portfolio based on their learning.	
Learning Outcomes (1 to 6)	**Assessment Criteria (1.1 to 6.3)**	
The learner will	***The learner can***	
1. Understand programming with C# and Python including data types and operators	1.1	Describe the use of C# and its functions
	1.2	Describe the data types and operators used in Python
	1.3	Outline the varying operators with C#
2. Understand how algorithm design techniques can be used to structure programme	2.1	Describe the various types of algorithms used in Python
	2.2	Explain the use of structured programming
	2.3	Analyse the control constructs used within structure programming
	2.4	Summarise the advantages of using techniques to represent algorithm
3. Understand the fundamental concepts of .NET framework	3.1	Explain what is meant by the term .NET framework

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	3.2	Describe the fundamental concepts used in C# and .NET
	3.3	Compare and contrast the different fundamental concepts of .NET frameworks
4. Be able to implement basic algorithms to carry out operations in C#	4.1	Outline basic algorithms required to carry out operations in C#
	4.2	Demonstrate basic algorithms to carry out operations in C#
	4.3	Prepare code that implements an algorithm in use
5. Be able to create console applications using visual studio	5.1	Explain the benefits of creating console applications using visual studio
	5.2	Prepare code that creates a console application
	5.3	Demonstrate how to use visual studio to create a console application
6. Be able to implement windows form applications, classes and database connections	6.1	Explain the difference between windows form applications, classes and database connections
	6.2	Create a code to support the implementation of application
	6.3	Demonstrate how to implement windows form applications, classes and database connections

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Foundations of Web Design

Unit Reference	**T/650/8566**	
Level	**3**	
Credit Value	**20**	
Guided Learning (GL)	**60 hours**	
Unit Summary	This unit introduces the Internet and the world wide web together with developing an understanding of graphic design and its value in web design.	
Unit Aim	The learner should develop a portfolio based on their learning.	
Learning Outcomes (1 to 6)	**Assessment Criteria (1.1 to 6.4)**	
The learner will	***The learner can***	
1. Understand the value and use of the Internet in everyday life and its associated security risks	1.1	Describe the history and development of the internet and the worldwide web
	1.2	Analyse the associated security risks linked to the internet
	1.3	Explain different ways to which you could use the internet
	1.4	Explain the different values associated with using the internet to everyday life
2. Understand the value and use of the Internet in a business context including e-commerce, online payment systems, and associated security risks	2.1	Describe development of the Internet and the world wide web in support of business and commerce
	2.2	Explain the value of the Internet to the business sector including the main security risks
	2.3	Evaluate the different values associated with using the internet in a business context
	2.4	Explain the use of the Internet in a business context including e-commerce, online payment

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		systems, and associated security risks
3. Be able to demonstrate an understanding of graphic design including basic tools and methods	3.1 3.2 3.3 3.4	Describe the basic concepts of graphic design Explain the value of graphic design Carry out basic methods to create a graphic design Prepare a graphic design by using basic tools
4. Be able to undertake video editing	4.1 4.2 4.3 4.4	Outline the considerations before, during and after video editing Explain the importance of video editing and the ramification of poorly edited videos Demonstrate how to effectively use a variety of programme tools when video editing Prepare a video edit, showing the before and after pieces, clearly identifying the changes made and purpose behind it
5. Be able to undertake audio editing	5.1 5.2 5.3 5.4	Outline the considerations before, during and after audio editing Explain the importance of audio editing and the ramification of poorly edited videos Demonstrate how to effectively use a variety of programme tools when audio editing Prepare an audio edit, showing the before and after pieces, clearly identifying the changes made and purpose behind it
6. Be able to develop webpages and websites incorporating multimedia	6.1	Describe the tools and software required to create a web page

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	6.2	Explain the legalities that need to be taken into consideration when developing webpages and incorporating multimedia
	6.3	Demonstrate a hyperlink function connecting a website to a webpage
	6.4	Develop a web page in HTML

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Hardware and Networks

Unit Reference	**Y/650/8567**	
Level	**3**	
Credit Value	**20**	
Guided Learning (GL)	**60 hours**	
Unit Summary	This unit introduces learners to the fundamental concepts and principles of information technology.	
Unit Aim	The learner should develop a portfolio based on preparations for a meeting.	
Learning Outcomes (1 to 5)	**Assessment Criteria (1.1 to 5.4)**	
The learner will	***The learner can***	
1. Understand the types of storage used in the industry including different devices	1.1	Describe the storage devices in use within the computer system
	1.2	Compare and analyse the different storage devices and when would be appropriate to use them
	1.3	Outline the legalities for storing devices including GDPR
2. Be able to identify the parts of a total computer system, including hardware components and input/output devices	2.1	List and explain the different parts of a total computer system
	2.2	Describe the function of a hardware component and when it would be of use
	2.3	Describe the function of an input/output device and when this would be required
3. Understand the computer networks and types of networks	3.1	Explain what a computer network is and what it allows for the computer system to do
	3.2	Describe the various types of wired networks in common use
	3.3	Explain the purpose of computer networks and how these originate

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	3.4	Describe best practices when securing a computer network
4. Understand network topologies, peripherals, and use of transmission media	4.1	Explain what a network topology is and its main purpose
	4.2	Explain what a peripheral is and its main purpose
	4.3	Explain what a transmission media is and its main purpose
	4.4	Describe the advantages and disadvantages to using wired networks
5. Understand of wireless networks	5.1	Describe the various types of wireless networks in common use
	5.2	Explain the key differences between wired and wireless networks
	5.3	Evaluate which is the most popular type of network and when wireless network would be of best use
	5.4	Evaluate the security risks when using wireless date and how these could be prevented

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IT Concepts and Productivity

Unit Reference	**A/650/8568**	
Level	**3**	
Credit Value	**20**	
Guided Learning (GL)	**60 hours**	
Unit Summary	This unit aims to enhance productivity with Microsoft Office, or equivalent, by providing learners with the necessary knowledge and skills to effectively use a suite of applications.	
Unit Aim	The learner should develop a portfolio based on a computer installation with which they are familiar.	
Learning Outcomes (1 to 6)	**Assessment Criteria (1.1 to 6.4)**	
The learner will	***The learner can***	
1. Understand the basic concepts of ICT and identify its use in everyday life	1.1	Describe the purpose and use of the computer system
	1.2	Provide different examples of how the use of a computer system could enhance everyday life
	1.3	List and evaluate different functions of ICT and their benefits
2. Understand the principal operating systems used in computing	2.1	Explain what an operating system is and its purpose
	2.2	Describe an operating system in use in the computer system
	2.3	Identify an alternative operating system that could be used in the system

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3. Be able to identify security threats associated with computer systems and mitigation techniques	3.1	Describe what is meant by the term security threat
	3.2	Explain the possible effects of a successful security threat
	3.3	Identify the security risks/threats that could affect the computer system
	3.4	Identify one threat and describe appropriate risk mitigation
4. Understand a word processing software	4.1	Outline the benefits of a word processing software and when it could be used
	4.2	Prepare a report for a meeting with appropriate formatting
	4.3	Demonstrate how to log changes to the report highlighting where changes need to be made
	4.4	Demonstrate how to create a mail merge to circulate to a list of recipients
5. Understand the function of spreadsheets	5.1	Outline the function of a spreadsheet and provide an example when it would be of use
	5.2	Provide examples of the different functions and data analysis that can be collated when using a spreadsheet
	5.3	Prepare a spreadsheet for an existing data set
	5.4	Apply data analysis to the spreadsheet and produce descriptive statistics
6. Understand the functions of presentation software	6.1	Outline the function of a presentation and provide an example when it would be of use
	6.2	Provide examples of different functions that a presentation software can do to make the

		presentation more attractive to its audience
	6.3	Prepare a presentation that will include a summary of the report and spreadsheet
	6.4	Be able to apply appropriate slide transactions and animations

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Software Engineering and Databases

Unit Reference	**D/650/8569**	
Level	**3**	
Credit Value	**20**	
Guided Learning (GL)	**60 hours**	
Unit Summary	The first part of this unit covers areas such as requirements gathering, design, development, testing, deployment, and maintenance of software systems. The second part of the unit provides an overview of databases and SQL (Structured Query Language), the standard language for managing and manipulating databases.	
Unit Aim	The learner should develop a portfolio based on in their learning as applied to an identified software need.	
Learning Outcomes (1 to 6)	**Assessment Criteria (1.1 to 6.3)**	
The learner will	***The learner can***	
1. Understand software classifications, product attributes, process models and software development with structured programming concepts	1.1	Analyse the principal software classifications, product attributes and process models
	1.2	Explain what a structured programming concept is and provide an example of this
	1.3	Evaluate the outcomes of using software classifications, product attributes, process models and software development and how they can be of benefit
	1.4	Provide examples for each of the classifications, attributes, and processes

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2. Understand object-oriented programming with UML	2.1	Describe the concepts in object-oriented programming
	2.2	Describe the three object-oriented notations that combine to form UML
	2.3	Explain the benefits of using object-oriented programming with UML
3. Be able to develop test plans, test cases and system documentation	3.1	Explain what information is required before developing test plans, test cases and system documentation
	3.2	Evaluate the differentiate between black box and white box approaches to the preparation of test plans
	3.3	Prepare a test plan for the example of OOL
	3.4	Demonstrate how you know the test plans, test cases and system documentation have been prepared correctly
4. Be able to identify a database and database management systems	4.1	Describe the management system for a given database
	4.2	Explain what is meant when referring to a database
	4.3	Outline the main functions that a system must have to be able to prepare and store a database
5. Understand entity relationship modelling	5.1	Describe entity relationship modelling
	5.2	Evaluate the benefits of using entity relationship modelling
	5.3	Evaluate any potential risks of using entity relationship modelling
	5.4	Design an entity relationship model for any relevant scenario

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6. Understand the use of Structured Query Language (SQL)	6.1	Describe the main purpose of structure query language and when you would use it
	6.2	Summarise the different types of structured query language
	6.3	Demonstrate how to develop a database using structured query language

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Final Project

Unit Reference	**J/650/8570**	
Level	**3**	
Credit Value	**20**	
Guided Learning (GL)	**60 hours**	
Unit Summary	This unit will provide learners with an opportunity to demonstrate the knowledge and skills they have acquired throughout their studies as applied to chosen specialism and to have this recognised in the title of their award.	
Unit Aim	The learner should develop a portfolio based on a business problem in a company or organisation in their country and about which they have reasonable access to information. The business problem should be based around the chosen specialism.	
Learning Outcomes (1 to 4)	**Assessment Criteria (1.1 to 4.4)**	
The learner will	***The learner can***	
1. Be able to understand software development methodologies, tools, and techniques	1.1	Identify the available software development methodologies to address a business problem
	1.2	Evaluate the different methodologies along with when they would be most effective
	1.3	Identify a business problem and evaluate the best methodology to use to solve this problem
2. Be able to apply knowledge and skills to a real-world problem	2.1	Explain the use of the following forms when developing an outline system: • Input fields • Checkboxes • Radio buttons
	2.2	Explain the potential issues that could arise when developing an outline system and how to rectify these

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	2.3	Demonstrate the development of an outline system using an appropriate form including input fields, checkboxes and radio buttons
	2.4	Demonstrate appropriate testing when creating a functioning form, outlining potential errors
3. Be able to develop and test software	3.1	Describe what points need to be take into consideration before developing a software
	3.2	Develop a proposed software solution for the business problem
	3.3	Test the proposal and record the findings
	3.4	Prepare a plan for future developments including what went well and what changes you would make when testing a future software
4. Be able to effectively communicate a software system	4.1	Analyse the different communication methods when launching a new software system and outline the methods you deem to be most effective
	4.2	Evaluate the type of language used when communicating a software to attract different audiences
	4.3	Prepare a report on the business problem and the proposed solution
	4.4	Prepare an internal communication plan, including FAQs

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Recognition of Prior Learning (RPL), Exemptions, Credit Transfers and Equivalencies

Skills and Education Group Awards policy enables learners to avoid duplication of learning and assessment in a number of ways:

- Recognition of Prior Learning (RPL) – a method of assessment that considers whether a learner can demonstrate that they can meet the assessment requirements for a unit through knowledge, understanding or skills they already possess and do not need to develop through a course of learning.
- Exemption - Exemption applies to any certificated achievement which is deemed to be of equivalent value to a unit within Skills and Education Group Awards qualification but which does not necessarily share the exact learning outcomes and assessment criteria. It is the assessor's responsibility, in conjunction with the Internal Moderator, to map this previous achievement against the assessment requirements of the Skills and Education Group Awards qualification to be achieved in order to determine its equivalence. Any queries about the relevance of any certificated evidence, should be referred in the first instance to your centre's internal moderator and then to Skills and Education Group Awards.
  It is important to note that there may be restrictions upon a learner's ability to claim exemption or credit transfer which will be dependent upon the currency of the unit/qualification and a learner's existing levels of skill or knowledge.
  Where past certification only provides evidence that could be considered for exemption of part of a unit, learners must be able to offer additional evidence of previous or recent learning to supplement their evidence of achievement.
- Credit Transfer – Skills and Education Group Awards may attach credit to a qualification, a unit or a component. Credit transfer is the process of using certificated credits achieved in one qualification and transferring that achievement as a valid contribution to the award of another qualification. Units/Components transferred must share the same learning outcomes and assessment criteria along with the same unit number. Assessors must ensure that they review and verify the evidence through sight of:
  - Original certificates OR
  - Copies of certificates that have been signed and dated by the internal moderator confirming the photocopy is a real copy and make these available for scrutiny by the External Moderator.
- Equivalencies – opportunities to count credits from the unit(s) from other qualifications or from unit(s) submitted by other recognised organisations towards the place of mandatory or optional unit(s) specified in the rule of combination. The unit must have the same credit value or greater than the unit(s) in question and be at the same level or higher.

Skills and Education Group Awards encourages its centres to recognise the previous achievements of learners through Recognition of Prior Learning (RPL), Exemption, Credit Transfer and Equivalencies. Prior achievements may have resulted from past or present employment, previous study or voluntary activities.

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Centres should provide advice and guidance to the learner on what is appropriate evidence and present that evidence to the external moderator in the usual way.

Further guidance can be found in 'Delivering and Assessing Skills and Education Group Awards Qualifications' which can be downloaded from https://skillsandeducationgroupawards.co.uk/for-centres/

Certification

Learners will be certificated for all units and qualifications that are achieved and claimed.

Skills and Education Group Awards' policies and procedures are available on the website.

Exemptions

This qualification contains no exemptions. For further details see Recognition of Prior Learning (RPL), Exemptions, Credit Transfers and Equivalencies.

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Glossary of Terms

GL (Guided Learning)
GL is where the learner participates in education or training under the immediate guidance or supervision of a tutor (or other appropriate provider of education or training). It may be helpful to think – 'Would I need to plan for a member of staff to be present to give guidance or supervision?'

GL is calculated at qualification level and not unit/component level.

Examples of Guided Learning include:

- Face-to-face meeting with a tutor
- Telephone conversation with a tutor
- Instant messaging with a tutor
- Taking part in a live webinar
- Classroom-based instruction
- Supervised work
- Taking part in a supervised or invigilated formative assessment
- The learner is being observed as part of a formative assessment.

TQT (Total Qualification Time)
'The number of notional hours which represents an estimate of the total amount of time that could reasonably be expected to be required, in order for a learner to achieve and demonstrate the achievement of the level of attainment necessary for the award of a qualification.' The size of a qualification is determined by the TQT.

TQT is made up of the Guided Learning (GL) plus all other time taken in preparation, study or any other form of participation in education or training but not under the direct supervision of a lecturer, supervisor or tutor.

TQT is calculated at qualification level and not unit/component level.

Examples of unsupervised activities that could contribute to TQT include:

- Researching a topic and writing a report
- Watching an instructional online video at home/e-learning
- Watching a recorded webinar
- Compiling a portfolio in preparation for assessment
- Completing an unsupervised practical activity or work
- Rehearsing a presentation away from the classroom
- Practising skills unsupervised
- Requesting guidance via email – will not guarantee an immediate response.