J8DY 44 – Computing Project (SCQF Level 4) Assessment

Instructions for Assessors

Introduction

The Computing Project Unit (SCQF Level 4) provides learners with an opportunity to apply their existing knowledge and skills in a practical, team-based project. The purpose of this unit is to develop a range of essential skills required to work effectively in the IT industry, including project planning, teamwork, collaboration, and self-evaluation.

This unit involves working in teams of 2–4 learners to create a solution to a given project brief. The project brief will outline a routine problem requiring a computing-based solution, and learners will work collaboratively to analyse, plan, design, implement, test, and evaluate their solution.

Learners will document their contributions throughout the project and reflect on their development of meta-skills, such as self-management, communication, and innovation. While teamwork is essential, each learner will be assessed individually, and their contributions to the project must meet the required standards for SCQF Level 4.

The project can be based on various computing contexts, such as programming, cyber security, data analysis, AI, game development, or PC and network setup. The scope and complexity of the project will be appropriate for the level and sufficient to justify a team approach.

Assessors will provide guidance and will evaluate learners based on both product and performance evidence, ensuring the required standards are met.

This project offers learners valuable experience in applying their skills in a real-world context while preparing them for further study or employment in the computing field.

Before the Project Begins

1. Assessors should create a detailed project brief based on the generic example provided in the Instructions for Candidates and Project Brief. The specific brief should reflect the learners' prior studies and available resources. It must specify the area of computing (e.g., programming, data analysis, or PC building), a realistic scenario, the essential criteria for a successful final product, any constraints (such as time and resources), and a clear timescale with deadlines for milestones. The project scope must align with SCQF Level 4 standards.

2. Assessors must assign learners to teams of two to four members, ensuring groups reflect a mix of skills and abilities. Teams should not be self-selected, and smaller cohorts may require teams with learners from different levels (e.g., levels 4, 5, and 6). In such cases, each learner's contribution must align with their respective level's standards.

3. Learners should be provided with access to the SOLAR assessment, which includes Instructions for Candidates and the four assessment tasks: planning, designing, developing and testing, and evaluating. Assessors may choose to introduce all tasks upfront or sequentially. It must be made clear that, while the project is team-based, each learner is assessed individually. Each learner must make a significant contribution to all evidence items, even if specific tasks are led by certain team members. Individual performance is critical - learners can meet the evidence requirements regardless of the team's overall success, but inadequate personal contributions will result in failure to meet standards.

4. Depending on the learners' prior experience, some teaching and learning may be required around the project development process, including project planning, design documentation, testing, and evaluation. This teaching should be delivered in general terms, not specific to the given project brief. Learners should also have the opportunity to explore the meta-skills framework and understand the relevance of meta-skills in the IT industry. Resources such as the Skills Development Scotland Meta-Skills Toolkit and My World of Work website can be used to help learners understand how meta-skills apply in real-world computing contexts.

During the Project

During the project, assessors should monitor progress and provide guidance as needed to ensure learners meet the unit requirements. While there is no requirement for regular check-ins, assessors may choose to meet with teams at key stages of the project to review progress, check adherence to the project plan, and confirm that all team members are contributing meaningfully.

These check-ins provide an opportunity to address any challenges, offer guidance, and ensure that the project remains on track. Assessors should observe team dynamics, collaboration, and individual contributions, recording evidence to support final evaluations. While guidance can be provided, learners should retain ownership of their project and be encouraged to solve problems independently.

Assessors should also monitor documentation, such as the project plan, design documentation, and test plan, ensuring that these are being completed effectively and align with the requirements of the project brief.

Assessments 3 and 4 require the Assessor to observe the candidate and complete the relevant observation checklists. These checklists, along with detailed instructions, are included in the assessment materials.

While it is recommended that the checklists be completed and uploaded during the assessment, they may also be uploaded at the time of marking.

Guidance for writing a Project Brief

The following generic project brief is provided to assessors and learners. It is intentionally broad to accommodate a wide range of projects from all aspects of computing, including Artificial Intelligence (AI), emerging technologies, hardware, game design and development, networking, programming, data science, and cyber security.

This generic project brief does not include specifics on each individual project, as these will be determined by each centre's own timings, resources, and learner needs. It is important that assessors provide additional specific information to accompany this generic brief to ensure it is tailored to the context of the learner group, the available resources, and any constraints (e.g., time, budget, equipment) that might affect the project.

Assessors should work closely with learners to refine the project focus and objectives, ensuring that the project is both challenging and achievable within the given timeframe and with the available resources. The specific details (such as the scope of the problem, client needs, and technological requirements) should be added to the project brief based on the area of computing chosen.

Generic Project Brief

Scenario:

Your team has been contracted by Tech Solutions Ltd., a technology consultancy that supports small businesses in adopting digital tools and systems. The company has identified a need for an innovative solution to address a specific problem faced by one of their clients.

Your team will work collaboratively to plan, design, develop, and test a solution that meets the needs of the client. The solution must be high-quality, functional, and meet the criteria outlined below.

The final product must:

- Address the client’s needs as outlined in the chosen area of computing.

- Be functional and demonstrate a clear purpose and usability.
- Be accompanied by documentation that outlines the project plan, design, testing process, and evaluation.
- Be tested thoroughly, with results documented in a completed test plan.
- Be presented in a way that demonstrates how it meets the client's requirements.

The project can focus on any of the following areas of computing, agreed upon in negotiation with your assessor:

- Artificial Intelligence: Create a simple AI model to automate a basic task or analyse some data.
- Game Design/Development: Design and build a simple game that is fun to play or teaches a concept.
- PC Build: Assemble and configure a PC to meet the needs of a small business.
- Network Build: Set up a basic network for a client including a least three devices.
- Programming: Create a simple software program that solves a problem or helps improve work efficiency.
- Data Science: Analyse data to find patterns or trends that can help make better decisions.
- Cyber Security: Create a basic solution to keep client information safe and secure.
- Emerging Technologies: Use a new or interesting technology to create a solution for a real-world problem.

Your assessor will provide further information on specific expectations and detailed requirements for your chosen project.

Example Specific Project Brief for Programming Project

This specific project brief focuses on a programming solution for a small business, but you should adjust the details based on the learner group and available resources. Ensure that the scope and complexity of the project are suitable for SCQF Level 4 learners, with clear milestones and tasks to be completed within the given timeframe.

Client: Tech Solutions Ltd.

Scenario:

Tech Solutions Ltd. has been contracted by a local café to develop a simple program that helps them calculate the total cost of a customer's order. The café sells three items: coffee, tea, and cake. The program should allow the cashier to input how many of each item the customer wants to buy and calculate the total cost of the order. Prices are as follows:

- Coffee: £3.00
- Tea: £2.00
- Cake: £2.50

Additionally, the café offers a 10% discount on cakes when the customer buys three or more cakes. The program should apply this discount and calculate the total accordingly.

Your team will be responsible for designing, coding, and testing the program to ensure it meets the café's needs. The program should also generate a receipt with the order details.

The final product must:

- Allow the cashier to input the quantity of each item (coffee, tea, and cake).
- Calculate the total cost of the order.
- Apply a 10% discount to cakes if three or more cakes are purchased.
- Display a receipt that includes:
    - Product name
    - Quantity
    - Price per item
    - Total cost for each item (with discount, if applicable)
    - Grand total for the entire order
- Use variables and appropriate data types (e.g., integers for quantities, floats for prices).