

**Learner Unit Achievement Checklist**

**SEG Awards Level 5 Diploma in Software Engineering**

**610/4002/2**

###### SEG Awards Level 5 Diploma in Software Engineering

## Centre Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Learner Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Notes to learners – this checklist is to be completed, to show that you have met all the mandatory and required optional units for the qualification.

**A/651/1077 Web Application Development - Mandatory Unit**

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| Assessment Criteria | Evidence (Brief description/title) | Portfolio Reference | Date Completed | Comment |
| **1.1** Design a user interface layout that is responsive and user-friendly on mobile devices**1.2** Implement navigation elements that allow user to interact with the application efficiently**1.3** Test the user interface on multiple devices to ensure compatibility and usability |  |  |  |  |
| **2.1** Use a chosen programming language to integrate a range of standard mobile application features**2.2** Apply an appropriate Software Development Kit to support cross-platform compatibility and optimise application performance**2.3** Incorporate data storage and retrieval mechanisms effectively within the application**2.4** Develop and integrate user authentication processes to safeguard user access and data |  |  |  |  |
| **3.1** Create a layout that adjusts seamlessly across different screen sizes and orientations**3.2** Implement touch-friendly navigation elements that enhance user interaction**3.3** Use adaptive fonts and images that maintain clarity and visual appeal on all devices**3.4** Test the user interface design for responsiveness on various devices and resolutions |  |  |  |  |
| **4.1** Create, using appropriate architecture, a mobile application that functions consistently across different device platforms**4.2** Conduct thorough testing to identify and rectify functional or usability issues**4.3** Debug application code to resolve identified issues and ensure optimal performance**4.4** Publish the final application to appropriate app stores, ensuring compliance with platform guidelines |  |  |  |  |

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**D/651/1078 Software Project Management - Mandatory Unit**

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| Assessment Criteria | Evidence (Brief description/title) | Portfolio Reference | Date Completed | Comment |
| **1.1** Identify key components necessary for interactive web applications including: a) client-side scripts b) server-side technologies **1.2** Describe the processes involved in developing and maintaining interactive web applications, including data handling and security measures**1.3** Explain the technologies commonly used in interactive web application development, including: a) HTML b) CSS c) JavaScript d) backend frameworks  |  |  |  |  |
| **2.1** Design a user-friendly interface that incorporates responsive design principles**2.2** Use front-end functionalities using HTML, CSS, and JavaScript**2.3** Utilise appropriate frameworks to improve interactivity**2.4** Demonstrate that the web application is cross-browser compatible for a seamless user experience |  |  |  |  |
| **3.1** Explain the concept of responsive design and its importance in creating adaptable interfaces**3.2** Evaluate the responsiveness of a web application across different devices and screen sizes**3.3** Analyse the accessibility features implemented in the interface for a diverse user base**3.4** Critically assess the user experience design elements for intuitive navigation and interaction |  |  |  |  |
| **4.1** Identify potential security threats and vulnerabilities in web applications**4.2** Explain how secure communication protocols such as HTTPS protects data in transit**4.3** Integrate authentication mechanisms like OAuth or JWT for user verification**4.4** Discuss the importance of conducting regular security audits and testing to ensure the application is resilient to attacks |  |  |  |  |

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**Y/651/1076 Mobile Application Development - Mandatory Unit**

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| Assessment Criteria | Evidence (Brief description/title) | Portfolio Reference | Date Completed | Comment |
| **1.1** Analyse key success factors in IT ventures, distinguishing between project and organisational levels**1.2** Evaluate the impact of identified success factors on the outcomes of IT projects**1.3** Analyse factors that can lead to the failure of IT ventures**1.4** Critically evaluate the relationship between project success and organisational success in IT ventures |  |  |  |  |
| **2.1** Identify proactive measures to prevent project failure in computing projects**2.2** Reflect on potential risk mitigation strategies to minimise project failure in a computing environment**2.3** Propose actionable steps to address and mitigate project failure risks in computing projects**2.4** Evaluate the effectiveness of proposed measures in minimising project failure within computing projects |  |  |  |  |
| **3.1** Describe the stages of the software life cycle and their sequential order**3.2** Explain the key processes involved in each phase of the software life cycle**3.3** Apply the concepts of the software life cycle to a practical project scenario**3.4** Analyse the impact of effectively implementing the software life cycle on project outcomes |  |  |  |  |

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**F/651/1079 Object-Oriented Design and Development - Mandatory Unit**

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| Assessment Criteria | Evidence (Brief description/title) | Portfolio Reference | Date Completed | Comment |
| **1.1** Explain the following conception Object-Oriented programming: a) encapsulation b) inheritance c) polymorphism **1.2** Identify the significance of the following in software design: a) classes b) objects c) message passing **1.3** Discuss how fundamental OO principles contribute to software reuse and maintenance**1.4** Analyse the impact of using OO concepts on enhancing software scalability and maintainability |  |  |  |  |
| **2.1** Develop an OO software application using a chosen programming language**2.2** Use efficient coding practices to optimise the performance of the software application**2.3** Demonstrate the reusability of code components within the OO software application **2.4** Evaluate the effectiveness of the chosen programming language in facilitating OO design principles for the software application |  |  |  |  |
| **3.1** Identify suitable data structures for storing and manipulating data in an OO program**3.2** Implement the identified data structures effectively within the OO program**3.3** Demonstrate the use of the chosen data structures to manipulate data accurately**3.4** Evaluate the efficiency of the selected data structures in terms of performance and scalability within the OO program |  |  |  |  |
| **4.1** Explain the advantages of software reuse in developing object-oriented software applications**4.2** Discuss the limitations associated with utilising objects in software development**4.3** Analyse how software reuse can enhance productivity and efficiency in software development**4.4** Evaluate the potential challenges and drawbacks of relying on object-oriented design in software applications |  |  |  |  |

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**K/651/1080 Software Testing and Quality Assurance - Mandatory Unit**

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| Assessment Criteria | Evidence (Brief description/title) | Portfolio Reference | Date Completed | Comment |
| **1.1** Explain various software testing techniques including: a) unit testing b) integration testing c) system testing d) acceptance testing **1.2** Describe different software testing methodologies including: a) agile testing b) waterfall testing c) v-Model testing **1.3** Apply appropriate testing techniques to scenarios to ensure software quality**1.4** Evaluate the effectiveness of different testing methods in detecting and preventing software defects |  |  |  |  |
| **2.1** Explain commonly used software quality assurance standards such as ISO 9001 and CMMI**2.2** Identify specific quality assurance standards relevant to the software development industry**2.3** Discuss the importance of applying software quality assurance standards to ensure product quality and compliance**2.4** Analyse the impact of implementing quality assurance standards on software development processes and outcomes |  |  |  |  |
| **3.1** Apply theoretical knowledge to select appropriate testing practices for software systems**3.2** Use industry-standard tools to conduct software testing effectively**3.3** Demonstrate proficiency in deploying testing practices to assess software system functionality**3.4** Evaluate the effectiveness of chosen testing tools in ensuring software system reliability and quality |  |  |  |  |
| **4.1** Use suitable software testing tools to test a software program**4.2** Set up and configure testing tools for software evaluation**4.3** Undertake various test cases using the chosen software testing tools**4.4** Evaluate the results obtained from testing tools to enhance software program quality and reliability |  |  |  |  |

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**L/651/1081 Software Project - Mandatory Unit**

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| Assessment Criteria | Evidence (Brief description/title) | Portfolio Reference | Date Completed | Comment |
| **1.1** Develop a detailed project specification aligning with the outlined problem brief**1.2** Create a comprehensive project plan outlining key milestones and deliverables**1.3** Identify suitable processes to be implemented throughout the project lifecycle**1.4** Select appropriate resources and tools necessary to carry out the programme of work effectively |  |  |  |  |
| **2.1** Explain the importance of adhering to professional codes of conduct throughout project activities**2.2** Apply legal and ethical principles to decision-making processes within the project**2.3** Use safety and security measures in all project-related tasks**2.4** Discuss social responsibilities associated with the project work |  |  |  |  |
| **3.1** Examine the importance of data confidentiality in project environments**3.2** Analyse the significance of maintaining data integrity in software projects**3.3** Identify strategies to ensure data availability throughout project execution**3.4** Explain the interplay between data confidentiality, integrity, and availability in project contexts |  |  |  |  |
| **4.1** Explain the importance of using appropriate development approaches to scope, time-manage and organise a project**4.2** Apply relevant theoretical frameworks to analyse system requirements effectively**4.3** Specify clear and achievable objectives for system testing procedures**4.4** Implement system components in accordance with specified requirements**4.5** Evaluate system performance against predefined criteria recommending improvements where necessary |  |  |  |  |

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