

SEVERN BUSINESS COLLEGE

SBC Level 3 Diploma in Computer Science

Course Handbook

Qualification
SBC Level 3 Diploma in Computer Science

Level
3

Total Qualification Time
1200

Credit Value
120

Aim of the Course
The Level 3 Diploma in Computer Science provides learners with comprehensive knowledge and practical skills in computing, software development, networking, and digital technologies. This program is designed to prepare students for higher education, professional IT certifications, and entry-level roles in the IT industry. Students will gain hands-on experience with programming, system design, data management, cybersecurity, and emerging technologies.

Assessment
Assessment is through practical assignments, with no exams - to more accurately reflect the real working environment.

Course Structure

SBC Level 3 Diploma in Computer Science			
Unit number	**Units**	**Unit level**	**Unit credit**
1	Fundamentals of Computing	3	20
2	Programming Fundamentals	3	20
3	Web Development and Databases	3	20
4	Networking and Cybersecurity	3	20
5	Software Development and Project Management	3	20
6	Emerging Technologies in Computing	3	20

Assessment Grades

Grade	Marking Criteria
Pass	All learning outcomes are achieved. All assessment criteria are met.
Fail	All learning outcomes are not achieved. All assessment criteria are not met.
No Marks	Plagiarism

UNIT SPECIFICATIONS

Unit Title
Computer Systems

Level
3

Learning Time Hours
200

Credit Value
20

Learning outcomes and assessment criteria
In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning Outcome	Assessment Criteria
1. Understand computer systems and their components	1.1: Describe hardware and software components of a computer system. 1.2: Explain how different components interact within a system.
2. Explain data representation and storage	2.1: Demonstrate how data is represented in binary and hexadecimal formats. 2.2: Describe methods of data storage and retrieval.
3. Understand operating systems and	3.1: Explain the role of an operating system in managing resources.

their functions	3.2: Compare different types of operating systems.
4. Understand basic networking concepts	4.1: Describe types of networks and their topologies. 4.2: Explain the principles of data transmission over networks.

UNIT SPECIFICATIONS

Unit Title
Programming Fundamentals

Level
3

Learning Time Hours
200

Credit Value
20

Learning outcomes and assessment criteria
In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning Outcome	Assessment Criteria
1. Understand programming concepts	1.1: Explain variables, data types, and operators. 1.2: Describe control structures such as loops and conditionals.
2. Develop simple programs using a high-level language	2.1: Write basic programs that use input/output operations. 2.2: Implement functions and modular code.
3. Debug and test programs	3.1: Identify and correct syntax and logic errors. 3.2: Test programs to ensure they meet requirements.
4. Understand algorithms and problem-solving techniques	4.1: Design basic algorithms to solve given problems. 4.2: Represent algorithms using flowcharts or pseudocode.

UNIT SPECIFICATIONS

Unit Title
Web Development and Databases

Level
3

Learning Time Hours
200

Credit Value
20

Learning outcomes and assessment criteria
In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning Outcome	Assessment Criteria
1. Understand web technologies and development tools	1.1: Describe HTML, CSS, and JavaScript roles in web development. 1.2: Use web development tools to create simple web pages.
2. Design and implement relational databases	2.1: Create database tables and define relationships. 2.2: Use SQL queries to manipulate and retrieve data.
3. Integrate databases with web applications	3.1: Develop web forms that interact with a database. 3.2: Demonstrate CRUD operations via a web interface.
4. Apply web security principles	4.1: Explain common web vulnerabilities and protection methods. 4.2: Implement basic security measures in web applications.

UNIT SPECIFICATIONS

Unit Title
Networking and Cybersecurity

Level
3

Learning Time Hours
200

Credit Value
20

Learning outcomes and assessment criteria
In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning Outcome	Assessment Criteria
1. Understand network architectures and protocols	1.1: Explain LAN, WAN, and internet architectures. 1.2: Describe key network protocols and their functions.
2. Configure basic network devices	2.1: Set up routers, switches, and access points. 2.2: Test network connectivity and troubleshoot issues.
3. Understand cybersecurity concepts	3.1: Explain threats, vulnerabilities, and risk management. 3.2: Describe common cybersecurity frameworks.
4. Implement basic security measures	4.1: Apply firewalls, antivirus, and encryption techniques. 4.2: Conduct simple security audits to identify weaknesses.

UNIT SPECIFICATIONS

Unit Title
Software Development and Project Management

Level
3

Learning Time Hours
200

Credit Value
20

Unit aim
The aim of this unit is to enable learners to understand cyber security and the consequences and implications of inadequate cyber security. They will understand the key terminology and the motivations of good and bad actors. They will also investigate the advantages and disadvantages of security by design.

Learning outcomes and assessment criteria
In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning Outcome	Assessment Criteria
1. Understand software development life cycle (SDLC)	1.1: Describe different stages of SDLC. 1.2: Compare development methodologies (Waterfall, Agile).
2. Develop software applications	2.1: Plan and design software based on user requirements. 2.2: Implement and test software modules.
3. Manage software projects effectively	3.1: Create project plans and timelines. 3.2: Allocate resources and track progress.
4. Apply quality assurance techniques	4.1: Conduct testing and debugging to ensure reliability. 4.2: Maintain documentation for project lifecycle.

UNIT SPECIFICATIONS

Unit Title
Emerging Technologies in Computing

Level
3

Learning Time Hours
200

Credit Value
20

Learning outcomes and assessment criteria
In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning Outcome	Assessment Criteria
1. Understand cloud computing concepts	1.1: Describe cloud service models (IaaS, PaaS, SaaS). 1.2: Explain advantages and challenges of cloud adoption.
2. Understand artificial intelligence and machine learning	2.1: Explain AI and ML concepts and applications. 2.2: Implement simple ML models using available tools.
3. Explore Internet of Things (IoT) applications	3.1: Describe IoT devices and communication protocols. 3.2: Implement a basic IoT solution.
4. Understand ethical, legal, and social implications of technology	4.1: Evaluate data privacy and intellectual property issues. 4.2: Discuss social impact of emerging technologies.

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