

**EDEXCEL LEVEL 5 BTEC  
HIGHER NATIONAL DIPLOMA (HND) IN COMPUTING (GENERAL)**

**FIRST YEAR UNITS**

**UNIT 2: SYSTEMS ANALYSIS**

This unit will provide learners with a detailed insight into the systems analysis life cycle, modeling tools and techniques, testing procedures and the need for systems evaluation. This unit will examine the requirements of analysis for both commercial and technical applications. It will also introduce the data and functional modeling techniques which learners can be expected to use.

**Summary of learning outcomes**

**To achieve this unit a learner must:**

1. Understand the systems analysis life cycle
2. Use systems analysis tools and techniques
3. Perform a system investigation
4. Investigate functional and data modeling

**UNIT 3: PROGRAMMING CONCEPTS**

An understanding of the general principles and concepts of programming should underpin some of the basic knowledge that learners need. Learners will develop programs and although the content could be delivered from a range of languages, compilers or platforms, the unit should aim to deliver skills and knowledge that will easily transfer to other areas of the qualification life cycle. This unit will design programs using industry techniques in order that learners will adopt good practice.

**Summary of learning outcomes**

**To achieve this unit a learner must:**

1. Design and develop code using structured programming methods
2. Use modularisation appropriate to the chosen programming language
3. Produce appropriate documentation for a given program application
4. Create and apply appropriate test schedules.

**UNIT 4: DATABASE DESIGN CONCEPTS**

Databases play an integral part in both academic and commercial domains, they provide users with a tool in which to store, model and retrieve data. Database development is fundamental to the area of computing and ICT as it offers so many links to other areas such as programming, systems analysis, HCI as well as embracing issues of compatibility and end user interfacing. This core unit introduces learners to the practical aspects of designing a database. Learners will be expected to use applications software to a prescribed level in order to design, use basic tools, develop and demonstrate a database that is fully functional.

### **Summary of learning outcomes**

#### **To achieve this unit a learner must:**

1. Understand database environments
2. Use and manipulate appropriate database software
3. Design a database
4. Demonstrate the database.

### **UNIT 13: DATA ANALYSIS AND DESIGN**

An understanding of databases is fundamental to the development of any significant information system. Database systems are predominant in the world of IT and continue to demand more complex data structures as applications get increasingly sophisticated. The aim of this unit is to provide an essential knowledge of database systems including design principles, practical implementation and development skills for both system designer and software engineer.

The importance of structured query languages should be stressed, and once created, databases will be used or demonstrated for a variety of tasks including querying and report writing.

### **Summary of learning outcomes**

#### **To achieve this unit a learner must:**

1. Understand data models and database technology
2. Design a relational database to meet user requirements
3. Use manipulation and query tools and techniques
4. Implement and test database design.

### **UNIT 5: NETWORKING CONCEPTS**

The importance of networked solutions in the business world grows year on year. The increasingly sophisticated technologies and widening user base mean a fundamental understanding of networks is essential for many. The aim of this unit is to provide a rigorous introduction to networks, and practical experience in installing users and software on a network.

This unit will clarify the issues associated with network use and how this has developed. It will identify the architectural concepts behind networking and help develop the preliminary skills necessary to install and manage networks.

### **Summary of learning outcomes**

#### **To achieve this unit a learner must:**

1. Evaluate the benefit of networks
2. Apply architectural concepts to the design/evaluation of networks
3. Install network software
4. Perform network management responsibilities.

## **UNIT 6: PERSONAL SKILLS DEVELOPMENT**

Personal skills development implies the professional and personal growth in knowledge and skills. Personal skills development embraces a whole range of practical and transferable skills that can be applied within higher education and the workplace.

This unit examines a range of skills that are deemed necessary to aid learners through various scenarios which are not necessarily implicit within the content of more theoretical or academically orientated units within the HN programme. Learners will be able to improve their own learning, be involved with team work and be more capable of problem solving through the use of case studies, role play and real-life activities.

This unit can be taught traditionally or integrated within other units on the programme. The rationale behind this unit is to enable learners to have exposure to softer skills that are critical in the work place and higher education. This unit attempts to encapsulate a range of key and common skills and deliver this information in a dynamic learning environment.

### **Summary of learning outcomes**

**To achieve this unit a learner must:**

1. Demonstrate and deliver a range of transferable skills
2. Show evidence of working and contributing to a group situation
3. Identify a given problem and provide feasible solutions
4. Monitor and review own learning experience.

## **UNIT 7: QUALITY SYSTEMS**

This unit will enable the learner to learn about the quality process as applied to IT related systems development. Quality control and assurance relies on the establishment of standards by which projects can be measured. This is carried out through reviews, tests and inspections to ensure that the end product meets requirements.

### **Summary of learning outcomes**

**To achieve this unit a learner must:**

1. Understand the need for quality assurance during all stages of the development of an IT system
2. Employ standard documentation in the quality control of development and maintenance
3. Employ project management tools
4. Contribute to the review of stages of system development.

## **UNIT 32: MATHEMATICS FOR SOFTWARE DEVELOPMENT**

This unit is an introduction to some of the mathematical concepts and techniques that will be required by software engineers. To develop the mathematical skills necessary for software engineering learners must gain a range of mathematical skills. The unit aims are to allow the learner to appreciate the mathematical knowledge required for software engineering and prepare them for more advance concepts of mathematics in relation to software engineering.

### **Summary of learning outcomes**

**To achieve this unit a learner must:**

1. Develop the mathematical skills necessary for software engineering
2. Demonstrate an understanding of linear algebra
3. Apply the fundamentals of formal methods
4. Employ statistical techniques to analyse data.

## **UNIT 42: VISUAL PROGRAMMING**

The development of visual environments has dramatically increased over the last decade. Most people are now familiar with graphical based operating systems and programs.

These graphical interfaces have made the life of the end user much easier.

The aim of this unit is to enable learners to develop these graphical interfaces in the form of visual applications. The learners will learn how to develop a user interface and then build code into that environment to create an application.

### **Summary of learning outcomes**

**To achieve this unit a learner must:**

1. Use visual objects
2. Design a variety of visual applications
3. Use advanced features of a visual development environment to implement an application
4. Use suitable testing methods in a visual environment.