

系统开发导论

COMPUTING: Software Development

HIGHER NATIONAL DIPLOMA

【英】苏格兰学历管理委员会 (SQA)
Scottish Qualifications Authority

Unit Student Guide

Systems Development: Introduction DG8W 04



中国时代经济出版社

SCOTTISH
QUALIFICATIONS
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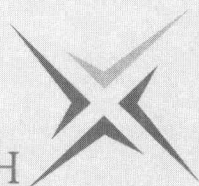
Systems Development: Introduction

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Systems Development : Introduction

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1

Introduction to the Scottish Qualifications Authority

This Unit DG8W 04 has been devised and developed by the Scottish Qualifications Authority (SQA). Here is an explanation of the SQA and its work:

The SQA is the national body in Scotland responsible for the development, accreditation, assessment, and certification of qualifications other than degrees.

Its website can be viewed on: www.sqa.org.uk

SQA's functions are to:

- devise, develop and validate qualifications, and keep them under review
- accredit qualifications
- approve education and training establishments as being suitable for entering people for these qualifications
- arrange for, assist in, and carry out, the assessment of people taking SQA qualifications

- quality assure education and training establishments which offer SQA qualifications
- issue certificates to candidates.

In order to pass SQA units, students must complete prescribed assessments. These assessments must meet certain standards.

The Unit Specification outlines the four Outcomes that students must complete in order to achieve this unit. The Specification also details the knowledge and/or skills required to achieve the outcome or outcomes. The Evidence Requirements prescribe the type, standard and amount of evidence required for each outcome or outcomes.

Please use the number **DG8W 04** in your correspondence.

2

Introduction to the Unit

2.1

What is the Purpose of this Unit?

This Unit is about introducing candidates to the system development process. It provides a broad knowledge of system development and candidates will be able to apply the main techniques used within systems analysis and design. It is primarily intended to prepare candidates who expect to gain employment in an IT/Computing related post at technician or professional level in a software development role. Candidates undertaking this unit may be working towards HNC in Computing, HND Computing: Software Development or HND Computing: Technical Support.

2.2

What are the Outcomes of this Unit?

1. Describe system development life cycle models
2. Describe the techniques involved in systems requirements analysis
3. Use structured systems analysis techniques
4. Use object oriented design techniques

2.3

What do I Need
to be Able to do
in Order to
Achieve this
Unit?

Please refer to Section 3.

2.4

Approximate
Study Time for
This Unit

This unit is one HN credit—40 hours.

2.5

Symbols Used
in this Unit

The various Learning Materials sections are designed so that you can work at your own pace, with tutor support. As you work through the Learning Materials (see Section 5), you will encounter symbols. These symbols indicate that you are expected to do a task. **These tasks are not Outcome Assessments.** They are exercises designed to consolidate learning or encourage thought, in preparation for the Outcome Assessment (see Section 3—Assessment Information for this Unit).

Activity

This symbol indicates an Activity (A). Usually, activities are used to improve or consolidate your understanding of the subject in general or a particular feature of it.

The activities will not serve this purpose if you refer to the responses prior to having attempted the Activity.

**Self Assessed
Question**

This symbol indicates a Self Assessed Question. Using a Self Assessed Question helps you check your understanding of the content that you have already covered.

Everything is provided for you to check your own responses. Answers to the Self Assessed Questions are to be found at the back of the Unit Student Guide. Where suggested responses to activities are provided in the Unit Student Guide, **students are strongly discouraged from looking at these responses before they attempt the activity.** The activities throughout the Unit Student Guide will help you to prepare yourself for the formal assessments, and to identify topic areas in

which you will require clarification and additional tutor support. The activities will not serve this purpose if you look at the answers before trying the activity!

Self Assessed Questions and activities are designed to be checked by you. No tutor input is necessary at this stage unless special help is requested, although from time to time your tutor may wish to view your responses to Self Assessed Questions to see how you are progressing.

3

Assessment Information for this Unit

3.1

What Do I
Have to Do to
Achieve This
Unit?

Outcome1

You will be required to answer 20 multiple choice questions in the areas of Current System Development Life Cycle Models, the main Stages of the Traditional Life Cycle Model and issues involved in System Implementation and Changeover.

Outcome 2

You will be required to answer 20 multiple choice questions in the areas of Fact Finding methods, Fact Recording, Feasibility Study and Requirements Specification.

Outcome 3

You will use Structured Systems Analysis techniques within the context of a case study. You will produce a set of Data Flow Diagrams to model the sample system and a Data Model showing the system's data structure.

Outcome 4

You will use Object Oriented Design techniques within the context of a case study. You will produce a Use Case diagram to show the behavioural model of the system and a Class diagram to show the structural model of the system.

4

Suggested Lesson Plan

The Learning Materials (see Section 5) are designed to lead you through a series of activities which will allow you to consolidate your learning and check on your own progress.

You are advised to read the tutorial materials carefully and to pay attention to the main points of each section. Note that there are several Activities to be carried out. Some of these suggest that you compare your answers to others within your group. This is because it is quite possible for there to be several possible answers to each exercise and you should consider which answer is the best.

The sections on Structured Systems Analysis and Object oriented System Design are designed to combine the theory and the case study together so that you can immediately see what each part of the methodology actually does.

Some learners may find it useful to create their own “manual” as they progress through the material. This means that you will have your own reference materials

expressed in your own style.

Note also that certain topics in the text are described using sets of “rules”. You are advised to follow the rules—they are designed to make the process of learning the methodology much easier.

5

Learning Material

5.1 Section 1

5.1.1 Some Basic System Theory

Before we start this Unit we should define what we mean by the term “system”. Systems are very much part of our everyday lives. Here are some examples which most of us interact with regularly:

- Payroll System
- Mobile Phone System
- Travel Agent Booking System
- HiFi System
- Supermarket Checkout System.

Activity



Can you think of FIVE more systems with which you are familiar? List their names—we will come back to them later.

We now have several systems with which to continue our study! Now it is time to examine them in more detail.

The main point to understand here is that systems produce something. For example, the Payroll system mentioned above may produce the following products:

- **Payslips for employees**
- **Bank transfer details**
- **Various reports as required (for example, Overtime Hours worked this month).**

(Of course different payroll systems may produce different products).

In our role as System Developers we consider that all systems produce information. In the Payroll system above the products produced are simply information. This information may exist on different media (paper,