DEVELOP COMPUTER PROGRAM

UNIT CODE: IT/OS/ICT/CR/10/6

UNIT DESCRIPTION

This unit covers the competencies required to Develop Computer Program. It involves Identifying program and programming concepts, identifying phases of program development, perform program design and Analysis, develop a Computer program, Perform Program testing and debugging, Perform User training and Program Maintenance.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicised terms are elaborated in the Range)*
1 Identify program and programming concepts	1.1 Definition of program and programming is done 1.2 *Types of programming languages* are identified 1.3 *Programming concepts* are identified 1.4 Approaches of program development are identified
2 Identify Phases of Program development	2.1 Process of creating programs are identified 2.2 *Phases of program development* are identified 2.3 Activities that take place during Program Development are identified
3 Perform program design and Analysis	3.1 Program design and Analysis tools are identified 3.2 *Algorithm writing tools* are identified 3.3 Factors affecting program design and analysis are identified. 3.4 *System development methodologies* are identified 3.5 Criteria for choosing the appropriate methodology is done
4 Develop a Computer program	4.1 Format of a computer program is identified 4.2 Fundamentals of structured programming using C language are done 4.3 Fundamentals of Object Oriented programming using Java are done 4.4 Well written and readable programs using disciplined coding styles and standards are adopted
5 Perform Program testing and debugging	5.1 Difference between testing and debugging is understood. 5.2 Testing types, levels and methods are identified 5.3 Debugging steps, requirements, principles and techniques are identified 5.4 Error correction is done
6 Perform User training and Program Maintenance	6.1 User training needs are identified 6.2 Methods of user training are identified 6.3 User training manuals are generated 6.4 Maintenance schedule is developed 6.5 Maintenance tools and techniques are determined.

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicised terms are elaborated in the Range)*
	6.6 System performance is monitored, bugs are rectified and requested changes are made.

RANGE

This section provides work environment and conditions to which the performance Criteria apply. It allows for different work environment and situations that will affect Performance.

Variable	Range *May include but is not limited to:*
1. Types of programming languages	1.1 Imperative 1.2 Declarative 1.3 Functional 1.4 Object Oriented

Variable	Range
	May include but is not limited to:
2. Programming concepts	2.1 Program structure 2.2 Variable declaration 2.3 Looping structures 2.4 Control structures 2.5 Syntax
3. Algorithm writing tools	3.1 Flowcharts 3.2 Pseudocode 3.3 Modular charts 3.4 Decision tables 3.5 Decision trees 3.6 JSP 3.7 Data Flow Diagrams
4. System development methodologies	4.1 Waterflow 4.2 Agile 4.3 Spiral etc

REQUIRED KNOWLEDGE AND UNDERSTANDING

The individual needs to demonstrate knowledge and understanding of:

1. Programming concepts
2. Software development methodologies
3. System Design and Analysis tools
4. System testing debugging methods
5. Fundamentals of C, Java and PhP
6. Program development techniques
7. Data types and operators

FOUNDATION SKILLS

The individual needs to demonstrate the following foundation skills:
- Communications (verbal and written);   - Proficient in ICT;   - Time management;   - Analytical   - Planning;   - Decision making;   - Report writing;

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required knowledge and understanding and range.

1. Critical Aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Identified types of programming languages and concepts 1.2 Identified Approaches of program development 1.3 Identified Phases of program development 1.4 Identified Program design and Analysis tools 1.5 Identified Format of a computer program

		1.6 Adopted Well written and readable programs using disciplined coding styles and standards
		1.7 Developed Maintenance schedule
		1.8 Determined Maintenance tools and techniques
2.	Resource Implications	*The following resources must be provided:*
		2.1 Resources the same as that of workplace are advised to be applied
		Networks, Hardware, Software, Data and People
3.	Methods of Assessment	**Competency may be assessed through:**
		3.1 Oral test
		3.2 Observation
		3.3 Practical demonstration
4.	Context of Assessment	4.1 Competency may be assessed individually in the actual workplace or through a simulated work place setting
5.	Guidance information for assessment	5.1 Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

MOBILE APPLICATION DEVELOPMENT

UNIT CODE: IT/OS/ICT/CR/11/6

UNIT DESCRIPTION

This unit covers the competencies required to Develop Mobile Application. It involves identifying Mobile application concepts, identifying mobile application development environment, identifying Application Design Issues, developing of the mobile application, testing the developed mobile application and publishing and Commercialize the developed Application.

ELEMENTS AND PERFORMANCE CRITERIA