2.	Resource Implications	*The following resources must be provided:* 2.1 Resources the same as that of workplace are advised to be applied Computer, Software, Internet, Data
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.

PERFORM SYSTEM ANALYSIS AND DESIGN

UNIT CODE: IT/OS/ICT/CR/12/6

UNIT DESCRIPTION

This unit covers the competencies required to perform system analysis and design. It involves understanding System Analysis and Design Fundamentals, understanding approaches to system Development and Project planning, Performing System Analysis, identifying Essentials of System Design, understanding advanced Design Concepts, Performing System Implementation and understand Current Trends in System Development.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicised terms are elaborated in the Range)*

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicised terms are elaborated in the Range)*
1. Understand System Analysis and Design Fundamentals	1.1. Definition of system, system design and system Analysis is done. 1.2. Constraints of a system are identified 1.3. Properties of a system are identified 1.4. Elements of a system are identified 1.5. Classification of systems is done. 1.6. Types of Information system are identified 1.7. System models are identified 1.8. Categories of Information are identified.
2. Understand Approaches to system Development and Project planning.	2.1. System development Approaches are identified 2.2. System development methodologies are identified 2.3. *System development life cycle models* are identified 2.4. Activities involved in SDLC are identified. 2.5. *SDLC phases* are identified. 2.6. Project planning concepts are identified
3. Perform System Analysis	3.1. Overview of system analysis is done. 3.2. *Attributes of structured analysis* are identified 3.3. Tools and techniques of system analysis are identified. 3.4. Activities performed during System analysis are identified
4. Identify Essentials of System Design	4.1. Design with Software specification requirements (SRS) document 4.2. *Components of system design* are identified 4.3. Inputs and outputs of System Design are identified 4.4. *Stages of system design* are identified 4.5. Types of system design are identified 4.6. *Data Modelling techniques* are identified
5. Understand advanced Design Concepts	5.1. Types of Advance Design modelling are identified 5.2. File Organization and access methods are identified 5.3. Design strategies are identified 5.4. System design Security and control measures are identified 5.5. Structured Design concepts are identified
6. Perform System Implementation	6.1. System implementation procedures are identified 6.2. *Types of the system testing* are identified 6.3. Deployment procedures of the system are identified

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicised terms are elaborated in the Range)*
7. Understand Current Trends in System Development	7.1.Frameworks, components and services are identified 7.2.Model driven architecture is understood 7.3.Adaptive methodologies to development are understood 7.4.Software principles and practices are identified

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. System development life cycle models	1.1 Waterfall 1.2 Prototyping 1.3 Dynamic system Development model (DSDM) 1.4 Object oriented model
2. SDLC phases	2.1 Planning 2.2 Analysis 2.3 Design 2.4 Implementation 2.5 Maintenance

Variable	Range
	May include but is not limited to:
3. Attributes of structures analysis	3.1 Graphic 3.2 Logical 3.3 Process division 3.4 High level to lower level approach
4. Components of system design	4.1 Quality 4.2 Timeliness 4.3 Cost-Effectiveness
5. Stages of system design	5.1 Requirements determination 5.2 Requirements specifications 5.3 Feasibility Analysis 5.4 Final Specifications 5.5 Hardware study 5.6 System Design
6. Data Modelling techniques	6.1 Conceptual 6.2 Relational 6.3 Object Oriented
7. Types of the system testing	7.1 Software 7.2 Unit 7.3 Integration 7.4 usability

REQUIRED KNOWLEDGE AND UNDERSTANDING

The individual needs to demonstrate knowledge and understanding of:

1. system design and system Analysis concepts
2. System development Approaches
3. System development methodologies
4. System development life cycle models
5. SDLC phases are identified.
6. Project planning concepts
7. Tools and techniques of system analysis
8. Activities performed during System analysis
9. Components and concepts of system design
10. Data Modelling techniques
11. System implementation procedures
12. Types of the system testing
13. Deployment procedures of the system

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. Should be able to differentiate between system analysis and design 2. Identified activities and phases involved in SDLC 3. Identified tools, techniques and activities of system analysis 4. Identified components, stages and types of system design 5. Identified data modeling techniques 6. Identified different types of advanced system design modelling 7. Identified system implementation procedures 8. Identified current trends in system development

2.	Resource Implications	*The following resources must be provided:* 2.1 Resources the same as that of workplace are advised to be applied Computer, Software, virtual users
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.