Appendix 1 – Digital & Technology Solutions professional - Formative Assessment Approaches

A – Assessing the Skills Outcomes

Area of competence	Outcome Required	Typical Assessment	Assessment Criteria
Information Systems:	is able to critically analyse a business domain in order to identify the role of information systems, highlight issues and identify opportunities for improvement through evaluating information systems in relation to their intended purpose and effectiveness.	• Report identifying the current business processes • Benefits analysis • Solution model	• Well structured analysis • Clear benefits vs cost • Well reasoned solution
Systems Development:	analyses business and technical requirements to select and specify appropriate technology solutions. Designs, implements, tests, and debugs software to meet requirements using contemporary methods including agile development. Manages the development and assurance of software artefacts applying secure development practises to ensure system resilience. Configures and deploys solutions to end users.	• Review of specification • Solution design • Software solution plan • Software artefacts • Test acceptance plan • Deployment plan	• Well structured specification review prioritising functional and non-functional requirements • Clear solution plan • Robust well documented solution • Test verification • Clear deployment plan addressing technical build and release
Data:	identifies organisational information requirements and can model data solutions using conceptual data modelling techniques, developing data models and solutions. Is able to implement a database solution using an industry standard database management system (DBMS). Can perform database administration tasks and is cognisant of the key concepts of data quality and data security. Is able to manage data effectively and undertake data analysis.	• Review of data requirements • Database design and data model • Database solution • Database optimisation • Data security plan • Data analysis	• Well structured review of data requirements • Clear data models that represent the business domain • Robust well documented database design • Fit for purpose database solution • Clear security plan • Routine data analysis outcomes
Cyber Security:	is able to undertake a security risk assessment for a simple system and propose remediation advice. Can identify, analyse and evaluate security threats and hazards to planned and installed information systems or services (e.g. Cloud services).	• Threat analysis • Risk assessment • Remediation solution	• Well structured threat analysis • Well reasoned risk assessment that identifies the major risks and their potential impact • Clear solution plan to mitigate each of the risks in the context of the information system under study
Business Organisation:	can apply organisational theory, change management, marketing, strategic practice, human resource management and IT service management to technology solutions development. Develops well-reasoned investment	• Organisational structure chart • Change plan • Investment proposal	• Well structured organisational structure chart • Robust change plan identifying the organisational culture, the main actors

	proposals and provides business insights.	• Value analysis	and the outcomes desired • Accurate investment proposal taking account of all costs and identifying the benefits to be gained • Clear value analysis showing the impact of various investment proposals on business performance outcomes
IT Project Management:	follows a systematic methodology for initiating, planning, executing, controlling, and closing projects. Applies industry standard processes, methods, techniques and tools to manage technology solutions projects. Is able to manage a project (typically less than six months, no inter-dependency with other projects and no strategic impact) including identifying and resolving deviations and the management of problems and escalation processes.	• Project scope and methodology selection • Activity estimates • Project plan • Project costs • Project risk log • Project tolerances • Project escalation plan	• Clear scoping report identifying project deliverables, the project domain and the elected methodology being used • Well reasoned activity estimates • Accurate project plan with clear schedule of deliverables taking into account contingencies • Full costs identified • Clear project risk review • Specification of tolerances • Defined escalation process and mitigation
Computer and Network Infrastructure:	can plan, design and manage computer networks with an overall focus on the services and capabilities that network infrastructure solutions enable in an organisational context. Identifies network security risks and their remediation.	• Network dimension report • Network design • Network implementation plan • Service level agreement	• Accurate network dimensioning report identifying current and future network traffic demands • Clear design that meets the specification • Well structured network plan • Well reasoned network availability targets

B – Assessing the Knowledge Outcomes

Area of competence	Knowledge Outcome Required	Typical Assessment	Assessment Criteria
Business	why technology is important to business and society	• Review of technology impact	• Identifies important aspects and differentiates between business and society
	the technology, people, and organisational components of information systems.	• Business interaction model • Cade study review	• Recognises the interactions people, processes and technology
	the alignment between organisational strategy and technology strategy	• Case study review	• Defines hoe technology strategy supports business objectives
	how business exploits technology solutions for competitive advantage vs. necessity	• Case study review	• Identifies technology exploitation processes
	the value of technology systems investments and how to formulate a business case for a new technology solution, including estimation of both costs and benefits	• Case study review	• Identifies benefits analysis
	how to conduct system/business process analysis	• Exam or in module test question • Case study review	• Identifies key processes
	how strategic decisions are made concerning acquiring technology solutions resources and capabilities including the ability to evaluate the different sourcing options	• Review report • Case study review	• Evaluation of technology make or buy decisions
	the various functions and activities related to technology solutions within an organisation, including the role of the CIO, and managing and developing technology solutions professionals	• Exam or in module test question	• List and describe the main functions
Technology	contemporary techniques for design, developing, testing, correcting, deploying and documenting software systems from specifications, using agreed standards and tools	• Evaluation of solution development methodologies and techniques	• Main methods and activities recognised
	the role and position of legacy technology systems in organisations and how new technology environments interface and integrate with them	• Appraisal of the usage of legacy systems and how they are maintained	• Recognise the importance of legacy systems • Identify key factors in their maintainability

	software design approaches & patterns and how to interpret and implement a given design	• Exam or in module test question • Review report	• Recognise the main design approaches • Identify commonly used software patterns
	how to develop and implement a data model and data solution	• Exam or in module test question • Reflective report	• Identify the stages in developing a data model and data solution
	the role of data management systems in managing organisational data and information	• Exam or in module test questions • Reflective report	• Identify the features of a data management system
	how to identify and characterise different threats, hazards and vulnerabilities, conducting a risk assessment and managing risk	• Exam or in module test question	• Describe the methods to identify threats and vulnerabilities
	the common vulnerabilities in computer networks and systems including un-secure coding and unprotected networks	• Exam or in module test questions • Case study review	• List and describe common vulnerabilities
	the role of service management frameworks in an organisation	• Reflective review	• Identify the main features
	the fundamental building blocks (e.g. routers, switches, hubs, storage, transmission) and typical architectures (e.g. server/client, hub/spoke) of computers networks and the Internet	• Exam or in module test question	• Describe the main networking technologies and their purpose
Project	how to *roll out* a technology solutions project accurately consistent with business needs	• Reflective report • Case study review	• Identify key stages in project planning and delivery
	the issues of *quality, cost and time* concerned with project implementation, including contractual obligations and resource constraints	• Exam or in module test question • Reflective report	• Recognise the interaction of quality, cost and time
	how teams work effectively to produce technology solutions	• Reflective report on project work • Case study review • Exam or in module test question	• List the main criteria for successful team-working
	the *different approaches* for managing projects in an IT environment.	• Review report • Case study review	• Identify aspects in different approaches
	the main features of standard network protocols including https, HTTP, SMTP, SNMP, TCP, IP, etc.	• Exam or in module test question	• Describe the main features

		• Reflective report	
	the main factors that affect network performance and the issues that may arise in the day to day operation of networks	• Exam or in module test question • Reflective report	• List the factors and identify issues

C – Assessing the Core Behavioural Skills

Area of competence	Knowledge Outcome Required	Typical Assessment	Assessment Criteria
Professional, interpersonal and business skills	• Fluent in written communications, able to articulate complex issues. • Makes concise, engaging and well-structured verbal presentations, arguments and explanations. • Able to deal with different, competing interests within and outside the organisation with excellent negotiation skills. • Is able to identify the preferences, motivations, strengths and limitations of other people and apply these insights to work more effectively with and to motivate others. • Competent in active listening and in leading, influencing and persuading others constructively. • Able to give and receive feedback constructively and incorporate it into their own development and life-long learning. • Applies analytical and critical thinking skills to Technology Solutions development and to systematically analyse and apply structured problem solving techniques to complex systems and situations. • Able to put forward, demonstrate value and gain commitment to a moderately complex technology-oriented solution, demonstrating understanding of business need, using open questions and summarising skills and basic negotiating skills. • Able to conduct effective research, using literature and other media, into IT and business related topics.	• Presentation • Report • Team based project • SWOT analysis • Solution design	• Well constructed concise presentation • Clear report with contents well structured and including management summary • Team organised and clear distribution of roles to achieve target outcomes • Peer assessment
Attributes and behaviours	• Have demonstrated that they have mastered basic business disciplines, ethics and courtesies, demonstrating timeliness and focus when faced with distractions and the ability to complete tasks to a deadline with high quality.		

	• Flexible attitude • Ability to perform under pressure • A thorough approach to work • Logical thinking and creative approach to problem solving		

Appendix 2 – Digital & Technology Solutions professional - Synoptic Project Competence Outcomes:

Occupational Specialism	Area of competence	Typical Project	Outcomes
Software Engineer:	Use software development processes, including the knowledge, skills, and professional competences necessary to practice as a software engineer in a business environment	This could be a project to design and develop a significant piece of software or a new software product prototype to achieve defined business objectives, for a defined user group or customer group, using one of the defined languages, within defined business processes, and applying appropriate levels of security. It will include significant project planning including estimations of both time and cost to proposed solutions, include technical and commercial aspects of the proposed solution.	• Clear prioritised specification • Well justified solution design with models • Appropriate test plan • Security appraisal • Solution deliverables • Well documented solution for maintainability
IT Consultant:	Perform technical, organisational, and process improvement tasks in a range of environments to solve business problems	This could be a project to undertake an IT consultancy project to formulate and evaluate technical alternatives to meet businesses requirements. This will likely include issues of integration with existing technology and procedures, maintenance and expansion and the consideration of both proprietary and open source solutions as appropriate. It will include significant project planning including estimations of both time and cost to proposed solutions, include technical and commercial aspects of the proposed solution.	• Clear business requirements • Business process models • Solution proposal and target state models • Integration issues • Make or buy and procurement decisions • Benefits analysis
Business Analyst:	Apply structured processes for identifying, defining and analysing unstructured business problems, their root cause and impact	This could be a Business Analysis study to analyse, and model a problem-specific domain and to develop a solution approach based upon the analysis. It will include significant project planning including estimations of both time and cost to proposed solutions, include technical and commercial aspects of the proposed solution.	• Analysis of current state with models • Problem definition • Requirements engineering • Analysis design models • Future state