SKILLS FRAMEWORK FOR INFOCOMM TECHNOLOGY
TECHNICAL SKILLS & COMPETENCIES (TSC) REFERENCE DOCUMENT

TSC Category	Development and Implementation					
TSC Title	Intelligent Reasoning					
TSC Description	Design and build intelligent machine reasoning systems that can integrate, make sense of, and act upon heterogeneous sensory information sources, using domain knowledge accumulated in respective industries					
TSC Proficiency Description	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 6**
				ICT-ACE-4030-1.1	**ICT-ACE-5030-1.1**	
				Build knowledge-based intelligent software applications using machine reasoning techniques and computer programming	Evaluate, design and build intelligent software systems	
Knowledge				• Machine reasoning applications and technology • Core machine reasoning techniques • Components and techniques in knowledge-based systems • Reasoning system architectures • Requirements and explainability formachine learning systems • Types and sources of uncertainty and certainty factor technique • Contemporary machine reasoning systems • AI Ethics	• Cognitive systems • Cognitive knowledge representation and techniques • Speech comprehension and processing • Vision comprehension and processing • Natural language comprehension and processing • Reasoning systems • Search techniques for search-based reasoning applications • Optimisation techniques for optimisation reasoning applications • Knowledge discovery techniques for reasoning applications • Hybrid reasoning systems • Data mining framework • AI Ethics	

Abilities				• Analyse the business drivers and main application areas of machine reasoning • Analyse reasoning systems for problem solving • Analyse the forms to organise and represent knowledge, business rules and natural language • Analyse techniques to draw new conclusions based on existing knowledge rules and new facts • Analyse characteristics and results evaluation of advanced computational deductive reasoning techniques • Examine uncertainty issues in machine learning • Analyse characteristics and results evaluation of uncertainty handling techniques • Apply logical inference to deduce new conclusions • Evaluate performance of advanced mathematical models, inductive and deductive reasoning techniques • Design and create reasoning systems	• Identify required cognitive functions based on business needs • Design cognitive applications based on business requirements • Analyse business drivers and application areas of intelligent reasoning systems • Design and apply search techniques to realise expected business outcomes • De-compose complex application scenarios into subproblems • Resolve subproblems by assembling cooperative intelligent subsystems • Design cooperative reasoning modules based on decomposed business outcomes • Create hybrid reasoning systems by applying suitable techniques and computer programming • Build reasoning systems using hybrid reasoning techniques and sub-modules	
Range of Application						