

Specification of Competency Standards
for the Manufacturing Technology.
Unit of Competency.

Functional Area - Business Intelligence and Information Technology

Title	Understand Industry 4.0, gain basic understanding of its content, application scope, data collection methods, benefits of digital operations for enterprises, and basic cybersecurity knowledge required for implementing data-driven operations
Code	111548L3
Range	This unit of competency is applicable to the all companies in the manufacturing technology industry. Practitioners should be capable to recognise the application areas of Industry 4.0, understand its content and scope, familiarise themselves with data collection pathways and methods, and support the digital transformation and intelligent upgrading of enterprises
Level	3
Credit	3
Competency	Performance Requirements - Understand relevant knowledge of the fundamental theories of Industry 4.0, digital operations, and their implications for cybersecurity - Understand basic concepts and theories of Industry 4.0, include digitalisation, automation, IoT, big data, and artificial intelligence - Understand basic network principles and technologies, include network topology, protocols, routing, and firewalls, and are able to comprehend structure and operation of enterprise networks - Understand application scope of Industry 4.0, and are familiar with various manufacturing domains (include production, logistics, supply chain management, quality control, etc.) - Understand data collection techniques and pathways for Industry 4.0 in different manufacturing sectors, such as plastics, metal products, and mould manufacturing - Understand pathways for data collection and benefits of digital operations in enterprises - Understand core of Industry 4.0 lies in data collection and analysis, covering sensors, IoT devices, production equipment and systems, and manual operations - Understand basic network security knowledge to better protect data security and privacy, prevent cyber attacks and data breaches, and ensure smooth data-driven operations - Understand basic concepts and theories of digitalisation, automation, IoT, big data, and AI - Possess basic knowledge of the manufacturing industry, include production processes, technologies, and equipment, and are able to understand the characteristics and needs of manufacturing operations - Establish “Industry 4.0” enterprise application scope, digital operation and cybersecurity - Able to identify network security risks and implement appropriate preventive measures under guidance - Able to use network security devices and tools, such as firewalls, intrusion detection systems, and security monitoring tools, and configure these devices and tools under supervision - Able to apply intelligent production and logistics technologies to collect and analyse data, and assist in solving issues related to production flexibility and time-sensitive manufacturing orders under supervision - Professional handling of establish “Industry 4.0” enterprise application scope, digital operation and cybersecurity

	• Able to ensure the security of enterprise databases and prevent unauthorised or misuse of enterprise data under guidance • Able to prevent abuse or fraud that may occur through analysis in Industry 4.0 application areas under guidance
Assessment Criteria	The integrated outcome requirements of this unit of competency are: • Able to cognitively understand the content, application areas, and data collection methods of Industry 4.0, and apply Industry 4.0 concepts to support production status analysis under supervision • Able to understand the application scope of Industry 4.0, and be familiar with the various domains it covers in the manufacturing industry, include production, logistics, supply chain management, and quality control • Able to understand the data collection and implementation pathways of Industry 4.0 in different manufacturing environments, such as automotive, electronics, and mechanical manufacturing
Remark	Industry 4.0 organises and controls the entire value chain of product lifecycle from new perspective, meeting the growing demand for personalised customer needs. It connects all parts of the value chain to collect real-time information and optimise value-adding processes through real-time data analysis Individuals who possess the above knowledge and competency are able to support the enterprise to achieve the Industry 4.0 digital maturity level of transparency (1i)