

Specification of Competency Standards
for the Manufacturing Technology
Unit of Competency

Functional Area - Business Intelligence and Information Technology

Title	Implement “Industry 4.0” vertical and horizontal integration and connecting various departments and levels within enterprise to achieve data interconnection and interoperability, comprehensive digital transformation can be realised
Code	111552L5
Range	This unit of competency is applicable to the business intelligence and information technology departments, product design and development departments, process design and development departments / engineering departments, product manufacturing departments / production departments, and supply chain management departments of companies in the manufacturing technology industry. Practitioners should be capable to master the vertical and horizontal integration methods of “Industry 4.0” and set up and configure the IT systems and infrastructure required for higher-level vertical and horizontal integration
Level	5
Credit	6
Competency	Performance Requirements - Understand relevant knowledge of vertical and horizontal integration of “Industry 4.0” - Understand foundation for building “Industry 4.0” smart factory / enterprise - Understand definition of vertical integration in “Industry 4.0” - Understand “Industry 4.0” enterprise value chain, comprehending key enterprise processes, and handling information integration between these processes - Understand methods and supporting infrastructure for Industry 4.0 to integrate and connect enterprise’s internal logistics, information flow, capital flow, and even various departments, production processes, and the entire product lifecycle - Understand basic information systems, including the overall enterprise resource planning (ERP) of the enterprise, manufacturing execution system (MES), product lifecycle management (PLM), and internal office automation (OA) software - Understand definition of horizontal integration in “Industry 4.0” - Understand “Industry 4.0” industrial value chain involves comprehending the integration between upstream materials and downstream end users - Understand basic information systems, including supply chain management (SCM) and customer relationship management (CRM), as well as systems for connecting information between different companies - Vertical and horizontal integration of “Industry 4.0” - Able to master vertical and horizontal integration methods of “Industry 4.0” - Able to fully integrate enterprise resource planning (ERP) and manufacturing execution system (MES) to track, record, and analyse the process from raw materials to finished products - Able to effectively integrate and utilise systems such as customer relationship management (CRM), product data management (PDM), supply chain management (SCM), product lifecycle management (PLM), and computer-aided design (CAD) to aggregate and analyse scattered information, assisting top management in making intelligent decisions

	• Able to identify and filter IT systems and infrastructure that support higher levels of vertical and horizontal integration in “Industry 4.0” • Able to plan and strengthen an enterprise’s IT systems and infrastructure • Able to adapt to company’s circumstances, integrate company’s main processes, and handle information between various processes 3. Professional handling of vertical and horizontal integration of “Industry 4.0” • Able to comprehensively consider factors such as safety, risk, and cost, conduct vertical and horizontal integration of “Industry 4.0” and ensure data accuracy
Assessment Criteria	The integrated outcome requirements of this unit of competency are: • Able to master vertical and horizontal integration methods of “Industry 4.0” • Able to adapt to specific circumstances of enterprises, strengthen IT systems and infrastructure to support enterprises in achieving digital transformation and intelligent operations
Remark	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 (2i)