

Specification of Competency Standards
for the Manufacturing Technology
Unit of Competency

Functional Area - Process Design and Development

Title	Apply “Industry 4.0” digital lean principles and use real-time data collected from relevant departments, initially identify wasteful processes or procedures throughout enterprise’s value chain, enable focused operational improvements and lean practices within corresponding departments
Code	111559L3
Range	This unit of competency is applicable to the business intelligence and information technology departments, financial management and cost control departments / finance departments / accounts 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 understand the principles of Industry 4.0 digital lean and apply digital lean production practices in operational management
Level	3
Credit	6
Competency	Performance Requirements - Understand relevant knowledge of digital lean in Industry 4.0 - Understand principles of digital lean under Industry 4.0 - Understand five steps of the DMAIC method (define, measure, analyse, improve, control) - Understand how to define and develop digital key performance indicators (KPIs) - Understand reasons and benefits for implementing digital lean production in Industry 4.0 - Understand steps for implementing Industry 4.0 digital lean production - Understand real-time monitoring and continuous improvement case studies in Industry 4.0 lean production - Apply digital lean concepts of Industry 4.0 - Able to utilise industrial internet of things (IIoT) to capture real-time data, making production data transparent, using digital KPIs to organise workshop and operational management, thereby streamline business processes and support application of lean manufacturing - Able to determine visualisation methods, include digital shop floor dashboards, mobile displays, and real-time message notifications - Able to apply the steps of Industry 4.0 digital lean for continuous improvement within the enterprise - Able to analyse production line status, include processing time and waiting time, and monitor real-time changes in processing time and work-in-progress (WIP) quantities using data-driven tools for process optimisation - Able to use collected real-time data to initially identify wasteful processes or areas in the entire enterprise value chain - Able to integrate digital KPIs into workshop and operational management, to streamline operations and drive lean manufacturing - Able to implement Industry 4.0 digital lean production under supervision and guidance from senior management - Professional handling of digital lean production in Industry 4.0

	• Able to systematically apply digital lean tools and methods in process improvement and operational efficiency • Able to evaluate and interpret real-time data for decision-making and lean implementation
Assessment Criteria	The integrated outcome requirements of this unit of competency are: • Able to understand and apply the steps of Industry 4.0 digital lean production • Able to identify current wasteful processes or areas in the entire enterprise value chain based on real-time data collection, execute steps of digital lean production in Industry 4.0
Remark	Waste refers to the following seven types: (1) Waiting waste (2) Transportation waste (3) Defect waste (4) Motion waste (5) Overprocessing waste (6) Inventory waste (7) Overproduction or premature manufacturing waste Individuals who possess the above knowledge and competency are also required to possess the knowledge and competency of “Develop lean manufacturing and flexible manufacturing processes, layouts, and facilities; analyse flexible manufacturing requirements; select equipment; and achieve flexible manufacturing goals (106500L5)” Individuals who possess the above knowledge and competency are able to support the enterprise to achieve the Industry 4.0 digital maturity level of visualisation (1i)