

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

Functional Area - Process Design and Development

Title	Establish methods and processes for flexible small-batch manufacture of sheet metal, pipes, and wire components, select appropriate processing equipment, and master various processing parameters to improve quality of small -batch production of sheet metal, pipes, and wire components
Code	106489L5
Range	This unit of competency is applicable to the process design and development departments / engineering departments of enterprises engaged in the metal stamping and sheet metal industries. Practitioners should be capable to master flexible small- to medium-batch manufacturing solutions and processes for sheet metal, tubing, and wire components
Level	5
Credit	4
Competency	Performance Requirements - Understand relevant knowledge of methods and processes for flexible small-batch manufacturing of sheet metal, pipes, and wires - Understand production methodologies in depth such as lean manufacturing and flexible manufacturing systems (FMS), etc. - Understand various workshop equipment improvement methods in depth, such as error-proofing and quick mould change, etc. - Understand types, applications, and specifications of various highly flexible production equipment, such as CNC turret punching presses, CNC press brakes, water jet cutting machines, and laser cutting and welding machines, etc. - Understand types, principles, and specifications of different CNC and manual pipe bending machines and pipe end forming equipment - Understand structure, types, applications, and specifications of multi-slide forming machines for sheet metal and wire - Understand advantages, disadvantages, upgrades and maintenance methods of different flexible production equipment - Understand structure and design specifications of dies for multi-head stamping, bending, pipe bending, pipe end forming, line forming, and bending, etc., as well as common defects and solutions - Understand intelligent solutions applicable to sheet metal, pipes, and wire component small-batch production, such as data acquisition and data processing, etc. - Formulate methods and processes for flexible small-batch manufacturing of sheet metal, pipes, and wire components - Able to review internal processes, integrate and simplify unnecessary processes, formulate and design appropriate flexible manufacturing cells - Able to analyse equipment requirements for flexible production units - Able to liaise with and lead various departments in procurement, make order, or improve processing equipment to enhance production line flexibility - Able to integrate logistics and manpower allocation within factory to meet small to medium batch orders for sheet metal, pipe, and wire components of different products, thereby improving flexibility

	of production line • Able to select appropriate machinery to enable flexible small-batch manufacturing of sheet metal, pipes, and wire components • Able to analyse the collected production data to evaluate quality of sheet metal, pipes, and wire components, as well as equipment performance 3. Professional handling of methods and manufacturing specialisations formulation for flexible small-batch manufacturing of sheet metal, pipes, and wire components • Able to a wide range of factors such as safety, risk, production capacity, quality, environmental protection, and cost, and design, plan, and optimise flexible small-batch manufacturing process for sheet metal, pipes, and wiring components to ensure operational safety and to coordinate and meet the requirements of all parties
Assessment Criteria	The integrated outcome requirements of this unit of competency are: • Able to set up flexible manufacturing methods and processes for small to medium batches of sheet metal, pipes, wire components, and select appropriate processing equipment according to different customer requirements
Remark	This is the updated version of UoC 106489L4