

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

Functional Area - Product Manufacturing

Title	Perform drilling and tapping to obtain various processing data to improve quality of mould components
Code	106404L2
Range	This unit of competency is applicable to the product manufacturing departments / production departments of companies engaged in the tooling industries. Practitioners should be capable to understand the knowledge of various drilling and tapping operations and are able to operate different types of drilling machines, portable drilling tools, and tapping tools to perform drilling and tapping on mould components
Level	2
Credit	3
Competency	Performance Requirements - Understand relevant knowledge of drilling and tapping processes - Understand principles and applications of drilling and tapping - Understand international standards for different thread sizes - Understand structure, application methods, and safe usage guidelines for various clamping devices - Understand structure of benchtop, vertical, and deep hole drilling machines - Understand types, materials, specifications, cutting edge angles, and selection criteria of various drill bits and tapping bits - Understand operation methods and safety rules of hand drills and tapping tools - Understand structure and transmission method of radial drilling machines - Understand the structure, precision, applications and operation methods of computer numerical control (CNC) drilling machines - Understand machining structure and programming methods of computer numerical control (CNC) drilling and tapping - Understand functions of various cutting fluids, their applications in drilling and tapping, and methods for handling metal scrap - Understand maintenance and troubleshooting methods of drilling machines, portable drilling tools, and tapping tools, as well as relevant safety rules - Perform drilling and tapping operations - Able to use appropriate jigs and fixtures according to the shape of the workpiece - Able to select suitable drills, taps, drilling machines, feed rates, and drilling methods in accordance with engineering drawings and workpiece materials to reduce tool wear and improve machining accuracy - Able to perform drilling and tapping operations using manual machinery - Able to operate bench and vertical drilling machines to perform drilling - Able to operate radial drilling machines to perform drilling and tapping operations - Able to write CNC machining programs for drilling and tapping and operate CNC drilling machines accordingly - Able to evaluate and manage the performance and lifespan of drills and taps, and perform maintenance, include using tool grinders to sharpen drills to the correct shape and cutting angle

	• Able to maintain drilling machines, portable drilling tools, and tapping equipment, and perform troubleshooting and adjustments 3. Professional handling of drilling and tapping • Able to comply with drilling and tapping requirements (include the handling of metal chips generated during the process), safety guidelines, and relevant procedures, and to perform drilling and tapping operations according to design drawings, specifications, and production efficiency requirements
Assessment Criteria	The integrated outcome requirements of this unit of competency are: • Able to adapt to processing requirements, workpiece materials, and engineering design drawings, and apply appropriate drilling machines, hand drills, and tapping tools • Able to correctly and safely operate CNC programming for drilling and tapping, achieving excellent production efficiency, product quality, and precision requirements • Able to identify common abnormalities of various drilling machines, hand-held drilling tools, and tapping tools, and perform corrections, adjustments, and maintenance
Remark	This is the updated version of UoC 106404L3