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

Functional Area - Product Manufacturing

Title	Foundation computer numerical control (CNC) milling and cutting
Code	106402L3
Range	This unit of competency is applicable to the production department of the corporation of tooling manufacturing industry. Practitioners should be capable to understand the knowledge of foundation computer numerical control/ (CNC) milling and cutting, and operate computer numerical control milling machine and implement milling and cutting
Level	3
Credit	3 （For Reference Only）
Competency	Performance Requirements 1. Understand the process of foundation computer numerical control/ (CNC) milling and cutting • Understand the foundation operation principle of computer numerical control milling machine, including storage, output, finding and editing program, start and stop the CNC milling machine, CNC manual key input program (eg GM Code), NC program single and automatic operation, set the empty testing of CNC programs, the workpiece reference point, as well as edge finder and the principles and applications of Z-axis setting • Understand the program of computer numerical control milling machine, fixed program, recycling program and subroutines milling program including face milling, face milling, reaming, tapping and 2D form milling • Understand the calculation methods of intersection of slash and slash, intersection and cut-off point of oval and oval, and intersection of round and round and the cut-off point • Understand the applications and safety precautions of commonly used fixtures and all kinds of gaskets, such as vice and angle plate • Understand the characteristics of all kinds of tool materials, steel specifications, types, selection conditions, applicable steel for processing, handling methods, and safety precautions • Understand the types and applications of foundation standard fixtures, such as EROWA and 3R • Understand the functions and applications of all kinds of cutting fluid and the handling methods of metal scraps • Understand the co-ordinated approach of processing order and tool configurations • Understand the troubleshooting and maintenance methods of CNC milling machines 2. Computer numerical control/ (CNC) milling and cutting • Measure the workpiece reference point • According to engineering drawings, select the milling plane and process the milling program • According to the tool specifications and position, carry out amendment • Carry out computer simulation of milling paths and fix the program • Properly fix, load/unload and calibrate workpiece • Select suitable tool in accordance with engineering drawings and materials • With the processing order and configuration and load/unload the tool appropriately • According to the engineering drawings, carry out face milling, face milling, angular milling, step milling, groove milling and 2D form milling • Carry out hole processing, including boring, reaming and tapping • Measure the finished products and carry out milling and cutting amendment, including size, accuracy, grooves, gradient, surface roughness, arc and gap • Determine and manage the performance and life of cutters, and preventatively maintain the cutter, such as using the milling cutter grinder to correct the shape and edge angle

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	- Preventatively maintenance computer numerical control milling machine, and carry out troubleshooting 3. Professional handling of computer numerical control/ (CNC) milling and cutting - Follow safety guidelines of CNC milling and cutting(handle metal scrap produced in the milling process) and related Code, and in accordance with design drawings, specifications and production efficiency requirements, carry out CNC milling and cutting
Assessment Criteria	The integrated outcome requirements of this unit of competency are: - Capable to carry out computer numerical control CNC milling and cutting program and numerical control milling and cutting. 2D - Capable to select, configure and load/unload the appropriate tool with workpiece materials and finished goods design selection. - Capable to solve the operation problems of computer numerical control milling machine and carry out maintenance
Remark	Person who has the above knowledge and ability should also obtain the knowledge and ability of Manual operational machine milling and grinding (106408L3) at the same time. (106408L3)