

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

Functional Area - Product Manufacturing

Title	Foundation computer numerical control (CNC) turning
Code	106403L3
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) turning processing, and able to operate the computer numerical control (CNC) turning machine.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Understand the process of foundation computer numerical control (CNC) turning processing</p> <ul style="list-style-type: none"> • Understand the foundation operation principles of computer numerical control (CNC) turning machines, including storage, output, finding and editing programs, starting and stopping CNC lathes, CNC set manual key input program (eg GM Code), the NC program single and automatic operation, CNC program empty test, and the workpiece reference point • Understand the programming methods of computer numerical control turning machine, including facing, drilling, inner & outer turning, taper turning, convex arc, standard threading, metric threading, multi-lead threading, grooving, chamfering, tool nose radius compensation program, fixed program, recycling program and turning subroutine programming. • Understand the calculation of intersection of oval and round • Understand the usage and safety precautions of CNC machine used gas, hydraulic fixtures, soft jaws and spring sleeve fixtures • Understand the coordinate system of tool • Understand the types and applications of foundation standard fixtures • Understand the material characteristics, specifications, types, selection conditions, applicable for steel processing, handling methods, and safety precautions of all kinds of tool • 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 turning machines • Know the automatic loading/unloading workpiece system of turning <p>2. Foundation computer numerical control (CNC) turning processing</p> <ul style="list-style-type: none"> • According to the tool specifications and position, carry out amendment • Properly fix, loading/unloading and calibrate workpiece • Select, configure and set suitable tool in accordance with engineering drawings and materials • With the processing order, and configure and load the tool appropriately • According to the engineering drawings, carry out CNC turning processing • In accordance with the tool position and radius, create Tool Nose Radius Compensation program • Measure the finished product and carry out turning correction, including the inner and outer diameter, length, arc, thread and groove • Determine and manage the performance and life of cutters, and preventatively maintain the cutter, such as using the turning cutter grinder to correct the shape and edge angle • Preventatively maintenance computer numerical control milling machine, and carry out troubleshooting

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	<p>3. Professional handling of foundation computer numerical control (CNC) turning</p> <ul style="list-style-type: none">• Follow safety guidelines (handle metal scrap produced in the turning process) and related code of practices, and in accordance with design drawings, specifications and production efficiency requirements to carry out CNC turning
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none">• Capable to compile program and carry out foundation computer numerical control (CNC) turning• Capable to select, configure and load/unload the appropriate turning tools in accordance with workpiece materials and finished products design specification.• Capable to solve the general operation problems of computer numerical control milling machine and carry out preventive maintenance
Remark	<p>Person who has the above knowledge and ability should also acquire the knowledge and competence of Manual operated lathe turning (106409L3) at the same time.</p>