

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

Functional Area - Process Design and Development

Title	Metal extrusion products manufacturing process design and planning
Code	106584L5
Range	This unit of competency is applicable to the engineering or manufacturing development department of the corporation of Metal extrusion products. Practitioners should be capable to master all kinds of metal extrusion products manufacturing process design and planning
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Understand metal extrusion products manufacturing methods and process</p> <ul style="list-style-type: none"> • Understand characteristics and principles of all extrusion technologies, including Cold Extrusion, Warm Extrusion, Hot Extrusion, Hydrostatic Extrusion and High Rate Extrusion • Understand the classifications of extrusion, including Forward Extrusion, Backward Extrusion, Compound Extrusion and Radial Extrusion • Understand the design principles and requirements of metal extrusion products, such as determining the complete exclusion of the way after the extrusion of excess material, determine the product surface roughness grade and geometric tolerance values • Recognise the impact all kinds of materials composition and elements on metal extrusion products • Understand the design approach and selection of steel of all types of extrusion die • Understand the interrelation between the design of different shapes of extrusion products and the tonnage of equipment, number of processes and products precision • Understand engineering analysis methods and tools, such as the processing roadmap, work flowcharts, work factor analysis and work measurement • Recognise the latest technology of the design and manufacture of metal products and CAD/CAE/CAM software <p>2. Develop metal extrusion products manufacturing process</p> <ul style="list-style-type: none"> • Analyse and review customer's requirements on metal extrusion products • According to customer s requirements on cost, environmental protection, quality, functions and appearance etc, propose the best manufacturing plan and procedure for materials, equipment and extrusion technologies • Analyse and design metal extrusion products manufacturing processes and set the manufacturing schedule • Balance the manufacturing time and product quality, so as to optimize the manufacturing process • Communicate with customers, product development and marketing staff, give feedback to improve product design, so as to improve product quality, lower cost and optimise productivity <p>3. Professional handling of developing metal extrusion products manufacturing process</p> <ul style="list-style-type: none"> • Carefully consider elements of safety, risk, capacity, quality, environmental protection and cost etc, design, plan and optimise metal extrusion products manufacturing process, ensure safety operation and also meet all aspects of requirements
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Capable to design and plan the best manufacturing plan and process of metal extrusion products in accordance with customer s different requirements • Capable to formulate manufacturing schedule and flexibly revise it with idiopathic cases

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