1. Title	Design mechanical equipment of trains
2. Code	EMRADE501A
3. Range	Fully master the theories of mechanical dynamics, and calculate and analyze the dynamic reaction of the mechanical structure in order to design the mechanical equipment of trains.
4. Level	5
5. Credits	5
6. Competency	Performance Requirements 6.1 Calculate and analyze the dynamic reaction of the mechanical structure ♦ Apply the equation of motion in the linear system of single-degree of freedom and multi-degree of freedom to estimate the reaction of system to resonance ♦ Master the theory of calculating the dynamic reaction of the structure to vibration ♦ Capable to calculate the lateral vibration of the beam ♦ Capable to calculate the circular vibration of the axle 6.2 Apply the calculation and analysis of mechanical dynamics to design mechanical equipment of trains ♦ Capable to design system parameters for isolating and absorbing vibration so as to control unnecessary vibration ♦ Capable to apply the techniques of calculating and analyzing mechanical dynamics in the design of mechanical equipment of trains 6.3 Professionalism in designing mechanical equipment of trains ♦ Design mechanical equipment of trains according to the standards and requirements for work safety, health, environmental protection and quality management of railway works ♦ Understand the safety guidelines as required by the law and codes of practice in designing mechanical equipment of trains
7. Assessment Criteria	The integrated outcome requirement of this unit of competency is: (i) Capable to design system parameters for major train equipment so as to control unnecessary vibration; and (ii) Capable to calculate and analyze the dynamic vibration of machinery and use the data to design major mechanical equipment of trains.
8. Remarks	The credit value of this unit of competency is set on the presumption that the person already possesses the professional knowledge of the theories of mechanical dynamics.