1. Title	Piston engine I
2. Code	EMAMAG403A
3. Range	The knowledge is needed for a wide range of aircraft repair and maintenance works,e.g. applicable to aircrafts, analysis, machineries, airworthiness, airframes, avionics, materials, tests, documentation, safety, health and tools etc.
4. Level	4
5. Credit	2
6. Competency	Performance Requirement 6.1 Knowledge ♦ Able to understand the piston engine fundamentals ♦ Able to understand the engine performance ♦ Able to understand the engine construction ♦ Able to understand the engine fuel systems • Carburetors type, construction and principles of operation. • Carburetors icing and heating. • Fuel injection systems type, construction and principles of operation. ♦ Able to understand the starting and ignition systems • Starting systems. • Magneto types, construction and principles of operation. • Ignition harnesses and spark plugs. • Low and high tension systems. ♦ Able to understand the induction, exhaust and cooling systems • Construction and operation of induction systems, including alternate air systems • Exhaust systems and engine cooling systems.

	♦ Able to understand the supercharging / turbocharging • Principles and purpose of supercharging and its effects on engine parameters. • Construction and operation of supercharging / turbocharging system. • System terminology. • Control systems. • System protection. ♦ Able to understand the lubricants and fuels • Properties and specifications. • Fuel additives. • Safety precautions. ♦ Able to understand the lubrication systems • System operation / lay-out and components. ♦ Able to understand the engine indication systems • Engine speed. • Cylinder head temperature. • Oil pressure and temperature. • Exhaust Gas Temperature. • Fuel pressure and flow. • Manifold pressure. ♦ Able to understand the powerplant installation • Configuration of firewalls, cowlings, acoustic panels, engine mounts, anti-vibration mounts, hoses, pipes, feeders, connectors, wiring looms, control cables and rods, lifting points and drains.

		♦ Able to understand the engine monitoring and ground operation • Procedures for starting and ground run-up. • Interpretation of engine power output and parameters. • Inspection of engine and components: criteria, tolerances, and data specified by engine manufacturer.
	6.2 Professional approach	♦ Able to understand the principal elements of the subjects.
7. Assessment Criteria	The integral outcomes requirement of this UoC are: (i) Able to understand the basic elements of the subject. (ii) Able to give a simple description of the whole subject, using common words and examples. (iii) Able to use the typical terms.	
8. Remarks	Ref: HKAR-66 Module 16: Piston engine.	