1. Title	Maintenance Practices II (Avionics Repair and Maintenance)
2. Code	EMAMBX443A
3. Range	The knowledge is needed for a wide range of aircraft repair and maintenance works, especially in avionics,e.g. applicable to aircrafts, analysis, machineries, airworthiness, airframes, avionics, materials, tests, documentation, safety, health and tools etc.
4. Level	4
5. Credit	4
6. Competency	Performance Requirement
	6.1 Knowledge ♦ Able to understand the safety precautions-Aircraft and Workshop • Aspects of safe working practices including precautions to take when working with electricity, gases especially oxygen, oils and chemicals. Also, instruction in the remedial action to be taken in the event of a fire or another accident with one or more of these hazards. ♦ Able to understand the workshop practices • Care of tools, control of tools, use of workshop materials. • Dimensions, allowances and tolerances, standards of workmanship. • Calibration of tools and equipment, calibration standards. ♦ Able to understand the tools • Common hand tool types. • Common power tool types. • Operation and use of precision measuring tools.

	• Lubrication equipment and methods. • Operation, function and use of electrical general test equipment. ♦ Able to understand the avionic general test equipment • Operation, function and use of avionic general test equipment. ♦ Able to understand the engineering drawings, diagrams and standards • Drawing types and diagrams, their symbols, dimensions, tolerances and projections. • Identifying title block information. • Microfilm, microfiche and computerized presentations. • Specification 100 of the Air Transport Association (ATA) of America. • Aeronautical and other applicable standards including ISO, AN, MS, NAS and MIL. • Wiring diagrams and schematic diagrams. ♦ Able to understand the fits and clearances • Drill sizes for bolt holes, classes of fits. • Common system of fits and clearances. • Schedule of fits and clearances for aircraft and engines. • Limits for bow, twist and wear. • Standard methods for checking shafts, bearings and other parts. ♦ Able to understand the electrical cables and connectors • Continuity, insulation and bonding techniques and testing. • Use of crimp tools: hand and hydraulic operated.

	• Testing of crimp joints. • Connector pin removal and insertion. • Co-axial cables: testing and installation precautions. • Wiring protection techniques: Cable looming and loom support, cable clamps, protective sleeving techniques including heat shrink wrapping, shielding. ♦ Able to understand the welding, brazing, soldering and bonding • Soldering methods. inspection of soldered joints. ♦ Able to understand the aircraft weight and balance • Centre of Gravity / Balance limits calculation: use of relevant documents. ♦ Able to understand the aircraft handling and storage • Aircraft taxiing / towing and associated safety precautions. • Aircraft jacking, chocking, securing and associated safety precautions. • Aircraft storage methods. • Refuelling / defuelling procedures. • De-icing/anti-icing procedures. • Electrical, hydraulic and pneumatic ground supplies. • Effects of environmental conditions on aircraft handling and operation. ♦ Able to understand the disassembly, inspection, repair and assembly techniques • Types of defects and visual inspection techniques. • Corrosion removal, assessment and reprotection.

		• Non-destructive inspection techniques including: penetrant, radiographic, eddy current, ultrasonic and boroscope methods. • Disassembly and re-assembly techniques. • Trouble shooting techniques. ♦ Able to understand the abnormal events • Inspections following lightning strikes and HIRF penetration. ♦ Able to understand the maintenance procedures • Maintenance planning. • Modification procedures. • Stores procedures. • Certification / release procedures. • Interface with aircraft operation. • Maintenance Inspection / Quality Control / • Quality Assurance. • Additional maintenance procedures. • Control of life limited components.
	6.2 Theoretical and practical aspects	♦ Able to apply the following knowledge in the aircraft maintenance. • Safety Precautions-Aircraft and Workshop • Workshop Practices • Tools • Avionic General Test Equipment • Engineering Drawings, Diagrams and Standards • Electrical Cables and Connectors • Soldering • Aircraft Balance

		• Aircraft Handling and Storage • Disassembly, Inspection, Repair and Assembly Techniques ‣ Types of defects and visual inspection techniques. ‣ Disassembly and re-assembly techniques. ‣ Trouble shooting techniques • Abnormal Events ‣ Inspections following lightning strikes and HIRF penetration. • Maintenance Procedures.
	6.3 Professional approach	♦ Able to understand the principal elements of the subjects. ♦ Able to understand the general knowledge of the theoretical and practical aspects of the following subjects. • Engineering Drawings, Diagrams and Standards • Electrical Cables and Connectors • Soldering • Aircraft Balance • Aircraft Handling and Storage • Disassembly, Inspection, Repair and Assembly Techniques ‣ Types of defects and visual inspection techniques. ‣ Disassembly and re-assembly techniques. ‣ Trouble shooting techniques • Abnormal Events ‣ Inspections following lightning strikes and HIRF penetration. • Maintenance Procedures

	♦ Able to apply the knowledge in the aircraft maintenance task. ♦ Able to understand the detailed knowledge of the theoretical and practical aspects of the following subjects. • Safety Precautions-Aircraft and Workshop • Workshop Practices • Tools • Avionic General Test Equipment ♦ Able to combine and apply the separate elements of knowledge in a logical and comprehensive manner.
7. Assessment Criteria	The integral outcomes requirement of this UoC are: (i) Able to understand the theory of the subjects and interrelationships with other subjects. (ii) Able to give a detailed description of the subject using theoretical fundamentals and specific examples. (iii) Able to understand and be able to use mathematical formulae related to the subject. (iv) Able to read, understand and prepare sketches, simple drawings and schematics describing the subject. (v) Able to apply the knowledge relating to avionics repair and maintenance in a practical manner using manufacturer's instructions. (vi) Able to interpret results from various sources and measurements and apply corrective action where appropriate.
8. Remarks	Ref: HKAR-66 Module 7: Maintenance practices