

## School for Aircraft Maintenance Engineering (SAME)

### CAR 147 (Basic) Approved Maintenance Training

#### **SYLLABUS FOR CATEGORY - B 1.1**

TRAINING	LOCATION	TRAINING HOURS
Theory	SAME Campus	1440
Practical	Practical Training at SAME	672
	Practical Training at AMO	288
Total Hours		2400

Subject Modules	Name of the Module	Basic Knowledge Hours
Module 3	Electrical Fundamentals	70
Module 4	Electronic Fundamentals	40
Module 5	Digital Techniques, Electronic Instrument Systems	60
Module 6	Materials and Hardware	100
Module 7A	Maintenance Practices	180
Module 8	Basic Aerodynamics	60
Module 9A	Human Factors	50
Module 10	Aviation Legislation	150
Module 11A	Turbine Aeroplane Aerodynamics, Structures and Systems	370
Module 15	Gas Turbine Engine	280
Module 17A	Propeller	80
Total Hours		1440

#### **MODULE 3. ELECTRICAL FUNDAMENTALS**

3.1 Electron Theory

3.2 Static Electricity and Conduction

3.3 Electrical Terminology

3.4 Generation of Electricity

3.5 DC Sources of Electricity

3.6 DC Circuits

3.7 Resistance/Resistor

3.8 Power

3.9 Capacitance/Capacitor
3.10 Magnetism
3.11 Inductance/Inductor
3.12 DC Motor/Generator Theory
3.13 AC Theory
3.14 Resistive (R), Capacitive (C) and Inductive (L) Circuits
3.15 Transformers
3.16 Filters
3.17 AC Generators
3.18 AC Motors
<b>MODULE 4. ELECTRONIC FUNDAMENTALS</b>
4.1.1 Diodes
4.1.2 Transistors
4.1.3 Integrated Circuits
4.2 Printed Circuit Boards
4.3 Servomechanisms
<b>MODULE 5. DIGITAL TECHNIQUES ELECTRONIC INSTRUMENT SYSTEMS</b>
5.1 Electronic Instrument Systems
5.2 Numbering Systems
5.3 Data Conversion
5.4 Data Buses
5.5 Logic Circuits
5.6 Basic Computer Structure
5.7 Microprocessors
5.8 Integrated Circuits
5.9 Multiplexing
5.10 Fibre Optics
5.11 Electronic Displays
5.12 Electrostatic Sensitive Devices
5.13 Software Management Control
5.14 Electromagnetic Environment
5.15 Typical Electronic/Digital Aircraft Systems
<b>MODULE 6. MATERIALS AND HARDWARE</b>
6.1 Aircraft Materials — Ferrous
6.2 Aircraft Materials — Non-Ferrous
6.3.1 Composite and non-metallic other than wood and fabric
6.3.2 Wooden structures
6.3.3 Fabric covering
6.4 Corrosion
6.5.1 Screw threads
6.5.2 Bolts, studs and screws
6.5.3 Locking devices
6.5.4 Aircraft rivets
6.6 Pipes and Unions

6.7 Springs
6.8 Bearings
6.9 Transmissions
6.10 Control Cables
6.11 Electrical Cables and Connectors
<b>MODULE 7A. MAINTENANCE PRACTICES</b>
7.1 Safety Precautions-Aircraft and Workshop
7.2 Workshop Practices
7.3 Tools
7.4 Avionic General Test Equipment
7.5 Engineering Drawings, Diagrams and Standards
7.6 Fits and Clearances
7.7 Electrical Wiring Interconnection System (EWIS)
7.8 Riveting
7.9 Pipes and Hoses
7.10 Springs
7.11 Bearings
7.12 Transmissions
7.13 Control Cables
7.14.1 Sheet Metal
7.14.2 Composite and non-metallic
7.15 Welding, Brazing, Soldering and Bonding
7.16 Aircraft Weight and Balance
7.17 Aircraft Handling and Storage
7.18 Disassembly, Inspection, Repair and Assembly Techniques
7.19 Abnormal Events
7.20 Maintenance Procedures
<b>MODULE 8. BASIC AERODYNAMICS</b>
8.1 Physics of the Atmosphere
8.2 Aerodynamics
8.3 Theory of Flight
8.4 Flight Stability and Dynamics
<b>MODULE 9A. HUMAN FACTORS</b>
9.1 General
9.2 Human Performance and Limitations
9.3 Social Psychology
9.4 Factors Affecting Performance
9.5 Physical Environment
9.6 Tasks
9.7 Communication
9.8 Human Error
9.9 Hazards in the Workplace
<b>MODULE 10. AVIATION LEGISLATION</b>
10.1 Regulatory Framework

10.2 CAR-66 Certifying Staff – Maintenance
10.3 CAR-145 — Approved Maintenance Organisations
10.4 Aircraft Operations
10.5 Aircraft Certification
10.6 CAR-M
10.7 Applicable National and International Requirements
10.8 Safety Management System
10.9 Fuel Tank Safety
<b>MODULE 11 A. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS</b>
11.1.1 Aeroplane Aerodynamics and Flight Controls
11.1.2 High Speed Flight
11.2 Airframe Structures — General Concepts
11.3.1 Fuselage (ATA 52/53/56)
11.3.2 Wings (ATA 57)
11.3.3 Stabilisers (ATA 55)
11.3.4 Flight Control Surfaces (ATA 55/57)
11.3.5 Nacelles/Pylons (ATA 54)
11.4.1 Air supply
11.4.2 Air Conditioning
11.4.3 Pressurisation
11.4.4 Safety and warning devices
11.5.1 Instrument Systems (ATA 31)
11.5.2 Avionic Systems
11.6 Electrical Power (ATA 24)
11.7 Equipment and Furnishings (ATA 25)
11.8 Fire Protection (ATA 26)
11.9 Flight Controls (ATA 27)
11.10 Fuel Systems (ATA 28)
11.11 Hydraulic Power (ATA 29)
11.12 Ice and Rain Protection (ATA 30)
11.13 Landing Gear (ATA 32)
11.14 Lights (ATA 33)
11.15 Oxygen (ATA 35)
11.16 Pneumatic/Vacuum (ATA 36)
11.17 Water/Waste (ATA 38)
11.18 On Board Maintenance Systems (ATA 45)
11.19 Integrated Modular Avionics (ATA42 )
11.20 Cabin Systems (ATA44)
11.21 Information Systems (ATA46)
<b>MODULE 15. GAS TURBINE ENGINE</b>
15.1 Fundamentals
15.2 Engine Performance
15.3 Inlet
15.4 Compressors
15.5 Combustion Section

15.6 Turbine Section
15.7 Exhaust
15.8 Bearings and Seals
15.9 Lubricants and Fuels
15.10 Lubrication Systems
15.11 Fuel Systems
15.12 Air Systems
15.13 Starting and Ignition Systems
15.14 Engine Indication Systems
15.15 Power Augmentation Systems
15.16 Turbo-prop Engines
15.17 Turbo-shaft engines
15.18 Auxiliary Power Units (APUs)
15.19 Power plant Installation
15.20 Fire Protection Systems
15.21 Engine Monitoring and Ground Operation
15.22 Engine Storage and Preservation
<b>MODULE 17 A. PROPELLER</b>
17.1 Fundamentals
17.2 Propeller Construction
17.3 Propeller Pitch Control
17.4 Propeller Synchronising
17.5 Propeller Ice Protection
17.6 Propeller Maintenance
17.7 Propeller Storage and Preservation