





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**3 YEARS TRAINING PROGRAMME**  
**FOR**  
**CATEGORY B1.2 COURSE (2000 Hrs.)**  
**THEORY**  
**(HOURS – 1200 Hrs.)**  
**PRACTICALS**  
**(HOURS – 800 Hrs.)**



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**4.2 SYLLABUS OF EACH TRAINING COURSE B 1.2 (AEROPLANE PISTON)**

TERM/ SEM	MODULES	THEORY	PRACTICAL (IN-HOUSE)	AMO
			OTHER THAN ACTUAL MAINTENANCE WORKING ENVIRONMENT	ACTUAL MAINTENANCE WORKING ENVIRONMENT
1 <sup>st</sup>	7 A (MAINTENANCE PRACTICE -PART A)	75	100	00
	8 (BASIC AERODYNAMICS)	50	00	00
	10 (AVIATION LEGISLATION- PART A)	75	00	00
	<b>TOTAL</b>	<b>200</b>	<b>100</b>	<b>00</b>
2 <sup>nd</sup>	3 (ELECTRICAL FUNDAMENTALS )	50	45	00
	7 A (MAINTENANCE PRACTICE –PART-B )	70	55	00
	10 (AVIATION LEGISLATION-PART B )	80	00	00
	<b>TOTAL</b>	<b>200</b>	<b>100</b>	<b>00</b>
3 <sup>rd</sup>	3 (ELECTRICAL FUNDAMENTALS-PART-A)	60	40	00
	7 A (MAINTENANCE PRACTICE –PART-C )	70	45	50
	9 (HUMAN FACTORS)	70	00	00
	<b>TOTAL</b>	<b>200</b>	<b>85</b>	<b>50</b>
4 <sup>th</sup>	6 (MATERIAL & HARDWARE-PART-A)	40	00	00
	11B (PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS- PART A)	80	40	00
	16 (PISTON ENGINE PART-A)	80	40	50
	<b>TOTAL</b>	<b>200</b>	<b>80</b>	<b>50</b>
5 <sup>th</sup>	6 (MATERIAL & HARDWARE-PART-B)	40	00	00
	11B ( PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS- PART B)	80	30	50
	16 (PISTON ENGINE PART-B)	80	60	50
	<b>TOTAL</b>	<b>200</b>	<b>90</b>	<b>100</b>
6 <sup>th</sup>	4 (ELECTRONIC FUNDAMENTALS)	40	35	00
	5 (DIGITAL TECHNIQUS/ ELECTRONIC INSTRUMENT SYSTEMS)	40	10	00
	11B(PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS- PART C)	70	30	50
	17A(PROPELLER)	50	20	00
	<b>TOTAL</b>	<b>200</b>	<b>95</b>	<b>50</b>
			<b>345</b>	

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**4.2.1 FRIST SEMESTER TRAINING SYLLABUS**  
**Mechanical B1.2**  
**SEMESTER – I (THEORY)**

MODULE	SUBJECT	SUBJECT CODE	ALLOT TED HOU RS
MODULE 7A	MAINTENANCE PRACTICE -PART A	AME 101	<b>75</b>
MODULE 8	BASIC AERODYNAMICS	AME 102	<b>50</b>
MODULE 10	AVIATION LEGISLATION- PART A	AME 103	<b>75</b>
TOTAL		200	Hrs

**SEMESTER – I (PRACTICAL)**

MODULE	SUBJECT	SUBJECT CODE	OTHER THAN ACTUAL WORKING ENVIRONMENT	ACTUAL WORKING ENVIRONME NT
MODULE 7A	MAINTENANCE PRACTICE –PART A	AME 104	25	75
TOTAL			100 Hrs	

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**MODULE 7A. (MAINTENANCE PRACTICES- PART A)- THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTE D HOURS
1.	---	7.1	<b>Safety Precautions-Aircraft and Workshop</b> <ul style="list-style-type: none"> <li>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 including knowledge on extinguishing agents.</li> </ul>	3	5 Hrs
2.	---	7.2	<b>Workshop Practices</b> <ul style="list-style-type: none"> <li>Care of tools, control of tools, use of workshop materials;</li> <li>Dimensions, allowances and tolerances, standards of workmanship;</li> <li>Calibration of tools and equipment, calibration standards.</li> </ul>	3	5 Hrs
3.	---	7.3	<b>Tools</b> <ul style="list-style-type: none"> <li>Common hand tool types;</li> <li>Common power tool types;</li> <li>Operation and use of precision measuring tools;</li> <li>Lubrication equipment and methods.</li> <li>Operation, function and use of electrical general test equipment;</li> </ul>	3	30 Hrs
4.	---	7.4	<b>Avionic General Test Equipment</b> <ul style="list-style-type: none"> <li>Operation, function and use of avionic general test equipment.</li> </ul>	2	5 Hrs
5.	---	7.5	<b>Engineering Drawings, Diagrams and Standards</b>	2	10 Hrs

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			<ul style="list-style-type: none"> <li>• Drawing types and diagrams, their symbols, dimensions, tolerances and projections;</li> <li>• Identifying title block information</li> <li>• Microfilm, microfiche and computerized presentations;</li> <li>• Specification 100 of the Air Transport Association (ATA) of America;</li> <li>• Aeronautical and other applicable standards including ISO, AN, MS, NAS and MIL;</li> <li>• Wiring diagrams and schematic diagrams.</li> </ul>		
6.	---	7.6	<b>Fits and Clearances</b> <ul style="list-style-type: none"> <li>• Drill sizes for bolt holes, classes of fits;</li> <li>• Common system of fits and clearances;</li> <li>• Schedule of fits and clearances for aircraft and engines;</li> <li>• Limits for bow, twist and wear;</li> <li>• Standard methods for checking shafts, bearings and other parts.</li> </ul>	2	5 Hrs
7.	---	7.7	<b>Electrical Wiring Interconnection System (EWIS)h</b> <ul style="list-style-type: none"> <li>• Continuity, insulation and bonding techniques and testing;</li> <li>• Use of crimp tools: hand and hydraulic operated;</li> <li>• Testing of crimp joints;</li> <li>• Connector pin removal and insertion;</li> <li>• Co-axial cables: testing and installation precautions;</li> <li>• Identification of wire types, their inspection criteria and damage tolerance.</li> <li>• Wiring protection techniques: Cable looming and loom support, cable clamps, protective sleeving techniques including heat shrink wrapping, shielding.</li> </ul>	3	5 Hrs

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			<ul style="list-style-type: none"><li>EWIS installations, inspection, repair, maintenance and cleanliness standards.</li></ul>		
8.	---	7.15	<b>Welding, Brazing, Soldering and Bonding</b> <ul style="list-style-type: none"><li>Soldering methods; inspection of soldered joints.</li><li>Welding and brazing methods;</li><li>Inspection of welded and brazed joints;</li><li>Bonding methods and inspection of bonded joints.</li></ul>	2	10 Hrs
TOTAL					75 Hrs

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**MODULE 8. BASIC AERODYNAMICS- THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	---	8.1	<b>Physics of the Atmosphere</b> <ul style="list-style-type: none"> <li>International Standard Atmosphere (ISA), application to aerodynamics.</li> </ul>	2	2 Hrs
2.	---	8.2	<b>Aerodynamics</b> <ul style="list-style-type: none"> <li>Airflow around a body;</li> <li>Boundary layer, laminar and turbulent flow, free stream flow, relative airflow, up wash and downwash, vortices, stagnation;</li> <li>The terms: camber, chord, mean aerodynamic chord, profile (parasite) drag, induced drag, center of pressure, angle of attack, wash in and wash out, fineness ratio, wing shape and aspect ratio; Thrust, Weight, Aerodynamic Resultant; Generation of Lift and Drag: Angle of Attack, Lift coefficient, drag coefficient, polar curve, stall; Aerofoil contamination including ice, snow, frost.</li> </ul>	2	28 Hrs
3.	---	8.3	<b>Theory of Flight</b> <ul style="list-style-type: none"> <li>Relationship between lift, weight, thrust and drag;</li> <li>Glide ratio;</li> <li>Steady state flights, performance;</li> <li>Theory of the turn;</li> <li>Influence of load factor: stall, flight envelope and structural limitations;</li> <li>Lift augmentation.</li> </ul>	2	10 Hrs
4.	---	8.4	<b>Flight Stability and Dynamics</b> <ul style="list-style-type: none"> <li>Longitudinal, lateral and directional stability (active and passive).</li> </ul>	2	10 Hrs
<b>TOTAL</b>					<b>50 Hrs</b>

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**MODULE 10. AVIATION LEGISLATION PART-A- THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	---	10.1	<b>Regulatory Framework</b> <ul style="list-style-type: none"> <li>• Role of International Civil Aviation Organization;</li> <li>• The Aircraft Act and Rules made there under</li> <li>• Role of the DGCA;</li> <li>• Relationship between CAR-21, CAR-M, CAR-145, CAR-66, CAR 147</li> <li>• The Aircraft Rules (Applicable to Aircraft Maintenance and Release)</li> <li>• Aeronautical Information Circulars (Applicable to Aircraft Maintenance and Release)</li> <li>• CAR Sections 1 and 2</li> </ul>	1	45 Hrs
2.	---	10.2	<b>CAR-66 Certifying Staff – Maintenance</b> <ul style="list-style-type: none"> <li>• Detailed understanding of CAR-66.</li> </ul>	2	10 Hrs
3.	---	10.4	<b>Aircraft Operations</b> <ul style="list-style-type: none"> <li>• Commercial Air Transport/Commercial Operations</li> <li>• Air Operators Certificates;</li> <li>• Operators Responsibilities, in particular regarding continuing airworthiness and maintenance;</li> <li>• Documents to be carried on board;</li> <li>• Aircraft Placarding (Markings);</li> </ul>	1	5 Hrs
4.	---	10.7	<b>Applicable National and International Requirements</b> <ul style="list-style-type: none"> <li>• Maintenance Programme, Maintenance checks and inspections;</li> <li>• Master Minimum Equipment Lists, Minimum Equipment List, Dispatch Deviation Lists;</li> <li>• Airworthiness Directives; Service Bulletins, manufacturers service information; Modifications and repairs;</li> <li>• Maintenance documentation: maintenance manuals, structural repair manual, illustrated parts catalogue, etc.;</li> </ul>	2	10 Hrs
			<ul style="list-style-type: none"> <li>• Continuing airworthiness;</li> </ul>	1	5 Hrs

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			<ul style="list-style-type: none"><li>• Test flights;</li><li>• ETOPS /EDTO, maintenance and dispatch requirements;</li><li>• RVSM, maintenance and dispatch requirements</li><li>• RNP, MNPS Operations</li><li>• All Weather Operations,</li><li>• Category 2/3 operations and minimum equipment requirements.</li></ul>			
					TOTAL	75 Hrs

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**MODULE 7A. (MAINTENANCE PRACTICES PART-A)**

**LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE**

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFOR-MED IN	ALLOTED HOURS
1	---	7A-65	Use multimeter to meters to measure AC and DC volts, amps and resistance.	In-House	1 Hrs
2	---	7A-66	Check an aircraft electrical circuit for continuity in conjunction with an electrical wiring diagram	In-House	1 Hrs
3	---	7A-67	Check the insulation resistance by using megger	In-House	1 Hrs
4	---	7A-68	Perform wire splicing.	In-House	1 Hrs
5	---	7A-69	Insert / extract electrical inserts (pins) in a variety of electrical connectors.	In-House	1 Hrs
6	---	7A-70	Perform the tying and lacing of aircraft wire bundle.	In-House	1 Hrs
7	---	7A-71	Perform crimping to prepare cable ends or plug / socket terminals.	In-House	1 Hrs
8	---	7A-72	Perform cutting, stripping of coaxial cable and crimping of BNC connector with co-axial cable.	In-House	1 Hrs
9	---	7A-73	Find out the cable length, amperage, voltage and size of the cables by referring charts and identification of codes.	In-House	1 Hrs
10	---	7A-74	Measure the resistance of bonding jumpers by using mill ohmmeter.	In-House	1 Hrs
11	---	7A-75	Perform the electrical wire and component soldering	In-House	1 Hr.
TOTAL					11 Hrs

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INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFOR-MED IN	ALLOTED HOURS
1	---	7A-57	Cut the metal sheet by using Sheet metal guillotine/hand shear machine.	Out Source	1 Hrs
2	---	7A-58	Perform the turning operation for a job on lathe machine.	Out Source	2 Hrs
3	---	7A-59	Perform the Counter boring, spot facing and countersinking operation.	Out Source	1 Hrs
4	---	7A-60	To cut a spur gear tooth on a given circular blank by gear cutting processes on horizontal milling machine.	Out Source	2 Hrs
5	---	7A-61	Perform electric arc welding and make the different joints.	Out Source	2 Hrs
6	---	7A-62	Perform TIG welding and make the different joints.	Out Source	2 Hrs
7	---	7A-63	Perform the oxy Acetylene welding by using different flame.	Out Source	2 Hrs
8	---	7A-64	Perform the spot welding on a job peace.	Out Source	2 Hrs
TOTAL					14 Hrs

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INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFOR-MED IN	ALLOTED HOURS
1	---	7A-01	Perform care procedure of hand tools a. Care of Hammers. b. Care of Screwdrivers. c. Care of Wrenches. d. Care of Pliers and Tongs. e. Care of Chisels. f. Care of Punches. g. Care of Files. h. Care of Taps. i. Care of Dies. j. Care of Dividers & Callipers. k. Care of Micrometres. l. Care of Rules. m. Care of Scriber.	Work Shop	10 Hrs
2	---	7A-02	Scribe the lines on metal piece for laying out work	Work Shop	1 Hrs
3	---	7A-03	To make a square fit from the given mid steel pieces	Work Shop	6 Hrs
4	---	7A-04	To make a V-fit from the given mid steel pieces	Work Shop	6 Hrs
5	---	7A-05	Use the plan and Philips screw drivers to open and tight the panel mounted screws.	Work Shop	1 Hrs
6	---	7A-06	Use the apex bits & plain bits of screwdrivers in a combination of plain bit holders and ratchet and extension bar to open and tight the panel mounted screws.	Work Shop	1 Hrs
7	---	7A-07	Open and tight the panel mounted screws by using speed handle, bits and holder.	Work Shop	1 Hrs
8	---	7A-08	Open the panel mounted screw by using power operated screw drivers.	Work Shop	1 Hrs
9	---	7A-09	Install and remove the nut and bolts	Work Shop	1 Hrs

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			assembly by using the combination spanners & adjustable spanners.		
10	---	7A-10	Install and remove the nut and bolts assembly by using sockets, extension, ratchet, T handle, universal joint, expanders & reducers.	Work Shop	1 Hrs
11	---	7A-11	Install and remove the nut and bolts assembly by using offset and offset socket wrenches.	Work Shop	1 Hrs
12	---	7A-12	Remove and installed the set head screw or socket head screws.	Work Shop	1 Hrs
13	---	7A-13	Grip the job at C clamp, tool maker clamp and grip vise pliers and remove the damaged exposed screw by using grip vise pliers.	Work Shop	1 Hrs
14	---	7A-14	Perform the wire locking by using locking wire pliers	Work Shop	1 Hrs
15	---	7A-15	Set and use the given torque value of torque in different units in torque wrenches.	Work Shop	1 Hrs
16	---	7A-16	Use the screw extractor to remove the damage screw	Work Shop	1 Hrs
17	---	7A-17	Remove and install the stud from assembly part.	Work Shop	1 Hrs
18	---	7A-18	Use the crowfoot wrench and hook spanners to remove and installed nut and bolt from the assembly part.	Work Shop	1 Hrs
19	---	7A-19	Remove and installed the circlip by using the circlip pliers.	Work Shop	1 Hrs
20	---	7A-20	Use the impact drivers to break loose a stubborn fastener.	Work Shop	1 Hrs
21	---	7A-21	Perform the measurements by using the steel rule (metric and Inches).	Work Shop	1 Hrs
22	---	7A-22	Perform the measurement by the using the rule depth gauge.	Work Shop	1 Hrs

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23	---	7A-23	Perform the measurements by using the outside micrometer (imperial and metric).	Work Shop	1 Hrs
24	---	7A-24	Perform the measurements by using the inside Micrometer (imperial and metric).	Work Shop	1 Hrs
25	---	7A-25	Perform the measurements by using the Vernier calipers (imperial and metric).	Work Shop	1 Hrs
26	---	7A-26	Perform the measurements by using the Vernier height gauge.	Work Shop	1 Hrs
27	---	7A-27	Perform the measurements by using the Vernier depth gauge.	Work Shop	1 Hrs
28	---	7A-28	Perform the measurements by using the Telescoping gauge.	Work Shop	1 Hrs
29	---	7A-29	Perform the measurements by using the small hole gauge.	Work Shop	1 Hrs
30	---	7A-30	Perform the measurements by using the dial test indicator (imperial and metric).	Work Shop	1 Hrs
31	---	7A-31	Perform the angle measurement by using the simple bevel protector.	Work Shop	1 Hrs
32	---	7A-32	Perform the angle measurements by using the precession bevel protector.	Work Shop	1 Hrs
33	---	7A-33	Perform the angle measurements by using the universal and combination bevel.	Work Shop	1 Hrs
34	---	7A-34	Perform measurement by using the combination set.	Work Shop	1 Hrs
35	---	7A-35	Perform the measurements by use of sine bar.	Work Shop	1 Hrs
36	---	7A-36	Measure the inside diameter of a job by using the inside callipers	Work Shop	1 Hrs
37	---	7A-37	Measure the outside diameter of a job by using the outside callipers	Work Shop	1 Hrs
38	---	7A-38	Transfer the measurement from outside to inside calipers	Work Shop	1 Hrs
39	---	7A-39	Measure the distance and draw an arc & circle by using the dividers.	Work Shop	1 Hrs
40	---	7A-40	Draw parallel lines by using the jenny	Work Shop	1 Hrs

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			calipers & find the centre of round bars by using jenny calipers.		
41	---	7A-41	Check the hole of exact size by using Ring gauge.	Work Shop	1 Hrs
42	---	7A-42	Check the accuracy of holes by using plug gauge	Work Shop	1 Hrs
43	---	7A-43	Check the size of the drill bits by using the drill gauge	Work Shop	1 Hrs
44	---	7A-44	Measure the clearance or gaps by using feeler or thickness gauge	Work Shop	1 Hrs
45	---	7A-45	Check the inside and outside radius of a component by using a fillet or radius gauge.	Work Shop	1 Hrs
46	---	7A-46	Check the pitch of a thread by using screw pitch gauge	Work Shop	1 Hrs
47	---	7A-47	Perform the measurement by use of Go and not go gauge	Work Shop	1 Hrs
48	---	7A-48	Check the wire size by using the SWG/AWG.	Work Shop	1 Hrs
49	---	7A-49	Check the flatness of surface by using inclinometer	Work Shop	1 Hrs
50	---	7A-50	Drill holes as per the given size by using of pillar and sensitive drill machine.	Work Shop	1 Hrs
51	---	7A-51	Perform the reaming operation to enlarge the drilled holes to accurate dimensions.	Work Shop	1 Hrs
52	---	7A-52	Cut the internal screw thread on drilled holes by using the taps.	Work Shop	1 Hrs
53	---	7A-53	Cut the external screw threads on round bar metals by using the dies.	Work Shop	1 Hrs
54	---	7A-54	Perform the grinding operation on a specimen job	Work Shop	1 Hrs
55	---	7A-55	Perform the buffing operation on a specimen job	Work Shop	1 Hrs
56	---	7A-56	Cut the job peace by Powered hacksaw.	Work Shop	1 Hrs
TOTAL					75 Hrs

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**4.2.2 SECOND SEMESTER TRAINING SYLLABUS**  
**MECHANICAL B1.2**  
**SEMESTER – 2 (THEORY)**

MODULE	SUBJECT	SUBJECT CODE	ALLOTTED HOURS
MODULE 3	ELECTRICAL FUNDAMENTALS – PART A	AME 201	50
MODULE 7A	MAINTENANCE PRACTICE –PART-B	AME 202	70
MODULE 10	AVIATION LEGISLATION-PART B	AME 203	80
TOTAL		200 Hrs	

**SEMESTER – 2 (PRACTICAL)**

MODULE	SUBJECT	SUBJECT CODE	OTHER THAN ACTUAL WORKING ENVIRONMENT	ACTUAL WORKING ENVIRONMENT
MODULE 3	ELECTRICAL FUNDAMENTALS – PART A	AME 204	45	-----
MODULE 7A	MAINTENANCE PRACTICE –PART B	AME 205	-----	55
TOTAL			100 Hrs	

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**MODULE 3. (ELECTRICAL FUNDAMENTALS) PART-A - THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	---	3.1	<b>Electron Theory</b> <ul style="list-style-type: none"> <li>Structure and distribution of electrical charges within: atoms, molecules, ions, compounds;</li> <li>Molecular structure of conductors, semiconductors and insulators.</li> </ul>	1	2 Hrs
	---	3.2	<b>Static Electricity and Conduction</b> <ul style="list-style-type: none"> <li>Static electricity and distribution of electrostatic charges;</li> <li>Electrostatic laws of attraction and repulsion; Units of charge, Coulomb's Law;</li> <li>Conduction of electricity in solids, liquids, gases and a vacuum.</li> </ul>	2	2 Hrs
2.	---	3.3	<b>Electrical Terminology</b> <ul style="list-style-type: none"> <li>The following terms, their units and factors affecting them: <ul style="list-style-type: none"> <li>Potential difference,</li> <li>electromotive force,</li> <li>voltage, current,</li> <li>resistance, conductance,</li> <li>Charge, conventional current flow, electron flow.</li> </ul> </li> </ul>	2	2 Hrs
3.	---	3.4	<b>Generation of Electricity</b> <ul style="list-style-type: none"> <li>Production of electricity by the following methods: <ul style="list-style-type: none"> <li>Light, heat,</li> <li>Friction, pressure,</li> <li>Chemical action, magnetism and motion.</li> </ul> </li> </ul>	1	2 Hrs
4.	---	3.5	<b>DC Sources of Electricity</b>	2	10 Hrs

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			<ul style="list-style-type: none"> <li>Construction and basic chemical action of: primary cells, secondary cells, lead acid cells, nickel cadmium cells, other alkaline cells; Cells connected in series and parallel; Internal resistance and its effect on a battery;</li> <li>Construction, materials and operation of thermocouples; Operation of photo-cells.</li> </ul>		
5.	---	3.6	<b>DC Circuits</b> <ul style="list-style-type: none"> <li>Ohms Law, Kirchhoff's Voltage and Current Laws;</li> <li>Calculations using the above laws to find resistance, voltage and current;</li> <li>Significance of the internal resistance of a supply.</li> </ul>	2	4 Hrs
6.	---	3.7	<b>Resistance/Resistor</b> <ul style="list-style-type: none"> <li>Resistance and affecting factors;</li> <li>Specific resistance;</li> <li>Resistor color code, values and tolerances, preferred values, wattage ratings</li> <li>Resistors in series and parallel;</li> <li>Calculation of total resistance using series, parallel and series parallel combinations;</li> <li>Operation and use of potentiometers and rheostats;</li> <li>Operation of Wheatstone bridge.</li> </ul>	2	4 Hrs
			<ul style="list-style-type: none"> <li>Positive and negative temperature coefficient conductance;</li> <li>Fixed resistors, stability, tolerance and limitations, methods of construction;</li> <li>Variable resistors, thermistors, voltage dependent resistors;</li> </ul>	1	2 Hrs

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			<ul style="list-style-type: none"> <li>• Construction of potentiometers and rheostats;</li> <li>• Construction of Wheatstone Bridge;</li> </ul>		
7.	---	3.8	<b>Power</b> <ul style="list-style-type: none"> <li>• Power, work and energy (kinetic and potential);</li> <li>• Dissipation of power by a resistor;</li> <li>• Power formula;</li> <li>• Calculations involving power, work and energy.</li> </ul>	2	4 Hrs
8.	---	3.9	<b>Capacitance/Capacitor</b> <ul style="list-style-type: none"> <li>• Operation and function of a capacitor;</li> <li>• Factors affecting capacitance area of plates, distance between plates, number of plates, dielectric and dielectric constant, working voltage, voltage rating;</li> <li>• Capacitor types, construction and function;</li> <li>• Capacitor color coding;</li> <li>• Calculations of capacitance and voltage in series and parallel circuits;</li> <li>• Exponential charge and discharge of a capacitor, time constants;</li> <li>• Testing of capacitors.</li> </ul>	2	6 Hrs

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9.	---	3.10	<b>Magnetism</b> <ul style="list-style-type: none"> <li>Theory of magnetism;</li> <li>Properties of a magnet</li> <li>Action of a magnet suspended in the Earth's magnetic field;</li> <li>Magnetization and demagnetization;</li> <li>Magnetic shielding;</li> <li>Various types of magnetic material;</li> <li>Electromagnets construction and principles of operation;</li> <li>Hand clasp rules to determine: magnetic field around current carrying conductor.</li> </ul>	2	4 Hrs
			<ul style="list-style-type: none"> <li>Magneto motive force, field strength, magnetic flux density, permeability, hysteresis loop, retentively, coercive force reluctance, saturation point, eddy currents;</li> <li>Precautions for care and storage of magnets.</li> </ul>	2	2 Hrs
10.	---	3.11	<b>Inductance/Inductor</b> <ul style="list-style-type: none"> <li>Faraday's Law;</li> <li>Action of inducing a voltage in a conductor moving in a magnetic field;</li> <li>Induction principles;</li> <li>Effects of the following on the magnitude of an induced voltage: magnetic field strength, rate of change of flux, number of conductor turns;</li> <li>Mutual induction;</li> <li>The effect the rate of change of primary current and mutual inductance has on induced voltage;</li> <li>Factors affecting mutual inductance: number of turns in coil, physical size of</li> </ul>	2	6 Hrs

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			coil, permeability of coil, position of coils with respect to each other; <ul style="list-style-type: none"><li>• Lenz's Law and polarity determining rules;</li><li>• Back EMF, self-induction;</li><li>• Saturation point;</li><li>• Principle uses of inductors;</li></ul>		
TOTAL					50 Hrs

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**MODULE 7A. (MAINTENANCE PRACTICES PART-B)- THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTE D HOURS
1.	---	7.8	<b>Riveting</b> <ul style="list-style-type: none"> <li>Riveted joints, rivet spacing and pitch;</li> <li>Tools used for riveting and dimpling;</li> <li>Inspection of riveted joints.</li> </ul>	2	10 Hrs
2.	---	7.9	<b>Pipes and Hoses</b> <ul style="list-style-type: none"> <li>Bending and belling/flaring aircraft pipes;</li> <li>Inspection and testing of aircraft pipes and hoses;</li> <li>Installation and clamping of pipes.</li> </ul>	2	10 Hrs
3.	---	7.10	<b>Springs</b> <ul style="list-style-type: none"> <li>Inspection and testing of springs.</li> </ul>	2	2 Hrs
4.	---	7.11	<b>Bearings</b> <ul style="list-style-type: none"> <li>Testing, cleaning and inspection of bearings;</li> <li>Lubrication requirements of bearings;</li> <li>Defects in bearings and their causes.</li> </ul>	2	8 Hrs
5.	---	7.12	<b>Transmissions</b> <ul style="list-style-type: none"> <li>Inspection of gears, backlash;</li> <li>Inspection of belts and pulleys, chains and sprockets;</li> <li>Inspection of screw jacks, lever devices, push-pull rod systems.</li> </ul>	2	10 Hrs
6.	---	7.13	<b>Control Cables</b> <ul style="list-style-type: none"> <li>Swaging of end fittings;</li> <li>Inspection and testing of control cables;</li> <li>Bowden cables; aircraft flexible control systems.</li> </ul>	2	5 Hrs
7.	---	7.14	<b>Material handling</b>	2	10 Hrs
		7.14.1	<b>Sheet Metal</b> <ul style="list-style-type: none"> <li>Marking out and calculation of bend allowance;</li> <li>Sheet metal working, including bending and</li> </ul>		

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			forming; • Inspection of sheet metal work.		
8.	---	7.14.2	<b>Composite and non-metallic</b> • Bonding practices; • Environmental conditions • Inspection methods	2	15 Hrs
Total					70 Hrs

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**MODULE 10. AVIATION LEGISLATION -PART-B THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	----	10.3	<b>CAR-145 — Approved Maintenance Organizations</b> <ul style="list-style-type: none"> <li>Detailed understanding of CAR-145 and CAR M Subpart F</li> </ul>	2	30 Hrs
2.	----	10.5	<b>Aircraft Certification</b>	1	10 Hrs
			<b>General</b> <ul style="list-style-type: none"> <li>Certification rules: such as FAA &amp; EACS 23/25/27/29;</li> <li>Type Certification;</li> <li>Supplemental Type Certification;</li> <li>CAR-21 Design/Production Organization Approvals.</li> <li>Aircraft Modifications and repairs approval and certification</li> <li>Permit to fly requirements</li> </ul>		
			<b>Documents</b> <ul style="list-style-type: none"> <li>Certificate of Airworthiness;</li> <li>Certificate of Registration;</li> <li>Noise Certificate;</li> <li>Weight Schedule;</li> <li>Radio Station License and Approval.</li> </ul>	2	5 Hrs
3.	----	10.6	<b>CAR-M</b> <ul style="list-style-type: none"> <li>Detail understanding of CAR M provisions related to Continuing Airworthiness</li> <li>Detailed understanding of CAR-M.</li> </ul>	2	20 Hrs
4.	----	10.7	<b>Applicable National and International Requirements</b> <ul style="list-style-type: none"> <li>Maintenance Programme, Maintenance checks and inspections;</li> <li>Master Minimum Equipment Lists, Minimum Equipment List, Dispatch Deviation Lists;</li> <li>Airworthiness Directives; Service Bulletins, manufacturers service information; Modifications and repairs;</li> <li>Maintenance documentation: maintenance manuals, structural repair manual, illustrated parts catalogue, etc.;</li> </ul>	2	3 Hrs

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			<ul style="list-style-type: none"> <li>Continuing airworthiness;</li> <li>Test flights;</li> <li>ETOPS /EDTO, maintenance and dispatch requirements;</li> <li>RVSM, maintenance and dispatch requirements</li> <li>RNP, MNPS Operations</li> <li>All Weather Operations,</li> <li>Category 2/3 operations and minimum equipment requirements.</li> </ul>	1	2 Hrs
5.	----	10.8	<b>Safety Management System</b> <ul style="list-style-type: none"> <li>State Safety Programme</li> <li>Basic Safety Concepts</li> <li>Hazards &amp; Safety Risks</li> <li>SMS Operation</li> <li>SMS Safety performance</li> <li>Safety Assurance</li> </ul>	2	5 Hrs
6.	----	10.9	<b>Fuel Tank Safety</b> <ul style="list-style-type: none"> <li>Special Federal Aviation Regulations (SFARs) from 14 CFR SFAR 88 of the FAA and of JAA TGL 47</li> <li>Concept of CDCCL,</li> <li>Airworthiness Limitations Items (ALI)</li> </ul>	2	5 Hrs
<b>TOTAL</b>					<b>80 Hrs</b>

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**MODULE: 3 (ELECTRICAL FUNDAMENTALS PART-A) – PRACTICAL**

**LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE**

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFORMED ON	ALLOTTED HOURS
1	--	3-01	Measure the Voltage by thermocouple with the simple experiment.	In-house	5 Hrs
2	--	3-02	Verify the ohm law with experiments.	In-house	4 Hrs
3	--	3-03	Verify the Kirchhoff law with experiment.	In-house	4 Hrs
4	--	3-04	Fabricate the circuit containing the following appliance like, Switch, relay, shunt, bulb, ammeter, voltmeter, frequency meter, Fuse, circuit breaker, current limiter.	In-house	5 Hrs
5	--	3-05	Identify the various types of resistors and practice the value of colour code resistor.	In-house	3 Hrs
6	--	3-06	Demonstration of the resistor in series, parallel and in combination and measure the value of resistor through AMM/DMM	In-house	5 Hrs
7	--	3-07	With the simple electrical circuit demonstration of use of potentiometer and rheostat.	In-house	3 Hrs
8	--	3-08	Application of Wheatstone Bridge to find out unknown resistance value.	In-house	3 Hrs
9	--	3-09	Identify the various type of capacitor value; practice the value of color code capacitor, Connect the capacitor in series, parallel and in combination and measure the value of capacitor through capacitor meter.	In-house	5 Hrs
10	--	3-10	Connect the inductor in series and parallel and measure the value of inductor through inductor meter.	In-house	3 Hrs
11	--	3-11	Verify the of faradays law of electromagnetic Induction	In-house	5 Hrs
TOTAL					45 Hrs

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**MODULE 7A. (MAINTENANCE PRACTICES PART-B)- PRACTICAL**

**LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE**

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFOR-MED ON	ALLOTED HOURS
1	---	7A-76	Perform the riveting in panel by use of hand riveter	Hangar / Workshop	2 Hrs
2	---	7A-77	Perform the riveting in panel by use of pneumatic hammer.	Hangar / Workshop	4 Hrs
3	---	7A-78	Perform of the inspection of Riveted Joints	Hangar / Workshop	2 Hrs
4	---	7A-79	Perform the single and double wire locking in nut and bolts assembly in groups, fittings, electrical connector.	Hangar / Workshop	6 Hrs
5	---	7A-80	Remove and install the cotter pin	Hangar / Workshop	2 Hrs
6	---	7A-81	Perform the tube bending by using the hand tube bender as per given dimensions	Hangar / Workshop	4 Hrs
7	---	7A-82	Perform the tube flaring practice single and double flare method	Hangar / Workshop	4 Hrs
8	---	7A-83	Perform the tube beelling practice to join the two tube.	Hangar / Workshop	4 Hrs
9	---	7A-84	Perform the tube beading practices to join the rigid and flexible hoses.	Hangar / Workshop	4 Hrs
10	---	7A-85	Remove and installed the flare and flameless pipelines and inspect the pipelines, fitting and sleeve and B nuts.	Hangar / Workshop	3 Hrs
11	---	7A-86	Perform the tube/flexible hose Installation, Inspection practice.	Hangar / Workshop	2 Hrs
12	---	7A-87	Fabricate the flexible hose for flare and flare less fittings.	Hangar / Workshop	2 Hrs
13	---	7A-88	Measure the dimensions of coils springs	Hangar /	2 Hrs

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				Workshop	
14	---	7A-89	Perform cleaning, lubrication and inspection of bearings	Hangar / Workshop	2 Hrs
15	---	7A-90	Inspect and lubricate the screw jacks.	Hangar / Workshop	2 Hrs
16	---	7A-91	Inspect the levers, push-pull rod, belts, pulleys, chain and sprockets.	Hangar / Workshop	2 Hrs
17	---	7A-92	Check backlash of gears	Hangar / Workshop	2 Hrs
18	---	7A-93	Perform the control cable swaging with end fitting	Hangar / Workshop	2 Hrs
19	---	7A-94	Perform the Inspection and tension testing of control cable	Hangar / Workshop	4 Hrs
TOTAL					55 Hrs.

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**4.2.3 THIRD SEMESTER TRAINING SYLLABUS**  
**MECHANICAL B1.2**  
**SEMESTER – 3 (THEORY)**

MODULE	SUBJECT	SUBJECT CODE	ALLOTTED HOURS
MODULE 3	ELECTRICAL FUNDAMENTALS-PART-B	AME 301	60
MODULE 7A	MAINTENANCE PRACTICE –PART-C	AME 302	70
MODULE 9	HUMAN FACTORS	AME 303	70
TOTAL			200 Hrs

**SEMESTER – 3 (PRACTICAL)**

MODULE	SUBJECT	SUBJECT CODE	OTHER THAN ACTUAL WORKING ENVIRONMENT	ACTUAL WORKING ENVIRONMENT
MODULE 3	ELECTRICAL FUNDAMENTALS-PART-B	AME 304	40	-----
MODULE 7A	MAINTENANCE PRACTICE –PART-C	AME 305	-----	95
TOTAL			135 Hrs	

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**MODULE 3. (ELECTRICAL FUNDAMENTALS) PART-B - THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	---	3.12	<b>DC Motor/Generator Theory</b> <ul style="list-style-type: none"> <li>• Basic motor and generator theory;</li> <li>• Construction and purpose of components in DC generator;</li> <li>• Operation of, and factors affecting output and direction of current flow in DC generators;</li> <li>• Operation of, and factors affecting output power, torque, speed and direction of rotation of DC motors;</li> <li>• Series wound, shunt wound and compound motors;</li> <li>• Starter Generator construction.</li> </ul>	2	15 Hrs.
2.	---	3.13	<b>AC Theory</b> <ul style="list-style-type: none"> <li>• Sinusoidal waveform: phase, period, frequency, cycle; Instantaneous, average, root mean square, peak, peak to peak current values and calculations of these values, in relation to voltage, current and power</li> <li>• Triangular/Square waves;</li> <li>• Single/3 phase principles.</li> </ul>	2	5 Hrs
3.		3.14	<b>Resistive (R), Capacitive (C) and Inductive (L) Circuits</b> <ul style="list-style-type: none"> <li>• Phase relationship of voltage and current in L, C and R circuits, parallel, series and series parallel;</li> <li>• Power dissipation in L, C and R circuits;</li> <li>• Impedance, phase angle, power factor and current calculations;</li> </ul>	2	5 Hrs

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			<ul style="list-style-type: none"> <li>• True power, apparent power and reactive power calculations.</li> </ul>		
4.	---	3.15	<b>Transformers</b> <ul style="list-style-type: none"> <li>• Transformer construction principles and operation;</li> <li>• Transformer losses and methods for overcoming them;</li> <li>• Transformer action under load and no-load conditions;</li> <li>• Power transfer, efficiency, polarity markings;</li> <li>• Calculation of line and phase voltages and currents;</li> <li>• Calculation of power in a three phase system;</li> <li>• Primary and Secondary current, voltage, turns ratio, power, efficiency;</li> <li>• Auto transformers.</li> </ul>	2	10 Hrs
5.	---	3.16	<b>Filters</b> <ul style="list-style-type: none"> <li>• Operation, application and uses of the following filters: low pass, high pass, band pass, band stop.</li> </ul>	1	5 Hrs
6.	---	3.17	<b>AC Generators</b> <ul style="list-style-type: none"> <li>• Rotation of loop in a magnetic field and waveform produced;</li> <li>• Operation and construction of revolving armature and revolving field type AC generators;</li> <li>• Single phase, two phase and three phase alternators;</li> <li>• Three phase star and delta connections advantages and uses;</li> <li>• Permanent Magnet Generators.</li> </ul>	2	15 Hrs
7.	---	3.18	<b>AC Motors</b>	2	15 Hrs

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			<ul style="list-style-type: none"><li>• Construction, principles of operation and characteristics of: AC synchronous and induction motors both single and polyphase;</li><li>• Methods of speed control and direction of rotation;</li><li>• Methods of producing a rotating field: capacitor, inductor, shaded or split pole.</li></ul>		
<b>TOTAL</b>					<b>70 Hrs</b>

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**MODULE 7A. (MAINTENANCE PRACTICES PART-C)- THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTE D HOURS
1.	08	7.16	<b>Aircraft Weight and Balance</b> <ul style="list-style-type: none"><li>• Centre of Gravity/Balance limits calculation: use of relevant documents;</li><li>• Preparation of aircraft for weighing;</li><li>• Aircraft weighing;</li></ul>	2	15 Hrs
2.	08,10,12	7.17	<b>Aircraft Handling and Storage</b> <ul style="list-style-type: none"><li>• Aircraft taxiing/towing and associated safety precautions;</li><li>• Aircraft jacking, chocking, securing and associated safety precautions;</li><li>• Aircraft storage methods;</li><li>• Refueling/defueling procedures;</li><li>• De-icing/anti-icing procedures;</li><li>• Electrical, hydraulic and pneumatic ground supplies.</li><li>• Effects of environmental conditions on aircraft handling and operation.</li></ul>	2	25 Hrs

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3.	---	7.18	<b>Disassembly, Inspection, Repair and Assembly Techniques</b> <ul style="list-style-type: none"> <li>Types of defects and visual inspection techniques.</li> <li>Corrosion removal, assessment and reproduction.</li> <li>General repair methods, Structural Repair Manual;</li> <li>Ageing, fatigue and corrosion control programmes;</li> <li>Nondestructive inspection techniques including, penetrant, radiographic, eddy current, ultrasonic and borescope methods.</li> <li>Disassembly and re-assembly techniques.</li> <li>Trouble shooting techniques</li> </ul>	3	20 Hrs
				2	
				2	
4.	---	7.19	<b>Abnormal Events</b> <ul style="list-style-type: none"> <li>Inspections following lightning strikes and HIRF penetration.</li> <li>Inspections following abnormal events such as heavy landings and flight through turbulence.</li> </ul>	2	5 Hrs
5.	----	7.20	<b>Maintenance Procedures</b> <ul style="list-style-type: none"> <li>Maintenance planning;</li> <li>Modification procedures;</li> <li>Stores procedures;</li> <li>Certification/release procedures;</li> <li>Interface with aircraft operation;</li> <li>Maintenance Inspection/Quality Control/Quality Assurance;</li> <li>Additional maintenance procedures.</li> <li>Control of life limited components</li> </ul>	2	5 Hrs
<b>TOTAL</b>					<b>70 Hrs</b>

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**MODULE 9 A. HUMAN FACTORS- THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	----	9.1	<b>General</b> <ul style="list-style-type: none"> <li>• The need to take human factors into account;</li> <li>• Incidents attributable to human factors/human error;</li> <li>• 'Murphy's' law.</li> </ul>	2	2 Hrs
2.	----	9.2	<b>Human Performance and Limitations</b> <ul style="list-style-type: none"> <li>• Vision;</li> <li>• Hearing;</li> <li>• Information processing;</li> <li>• Attention and perception;</li> <li>• Memory;</li> <li>• Claustrophobia and physical access.</li> </ul>	2	15 Hrs
3.	----	9.3	<b>Social Psychology</b> <ul style="list-style-type: none"> <li>• Responsibility: individual and group;</li> <li>• Motivation and de-motivation;</li> <li>• Peer pressure;</li> <li>• 'Culture' issues;</li> <li>• Team working;</li> <li>• Management, supervision and leadership</li> </ul>	1	5 Hrs
4.	----	9.4	<b>Factors Affecting Performance</b> <ul style="list-style-type: none"> <li>• Fitness/health;</li> <li>• Stress: domestic and work related;</li> <li>• Time pressure and deadlines;</li> <li>• Workload: overload and underload;</li> <li>• Sleep and fatigue, shiftwork;</li> <li>• Alcohol, medication, drug abuse.</li> </ul>	2	10 Hrs
5.	----	9.5	<b>Physical Environment</b> <ul style="list-style-type: none"> <li>• Noise and fumes;</li> <li>• Illumination;</li> <li>• Climate and temperature;</li> <li>• Motion and vibration;</li> </ul>	1	10 Hrs

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			<ul style="list-style-type: none"> <li>Working environment.</li> </ul>		
6.		9.6	<b>Tasks</b> <ul style="list-style-type: none"> <li>Physical work;</li> <li>Repetitive tasks;</li> <li>Visual inspection;</li> <li>Complex systems.</li> </ul>	1	6 Hrs
7.		9.7	<b>Communication</b> <ul style="list-style-type: none"> <li>Within and between teams;</li> <li>Work logging and recording;</li> <li>Keeping up to date, currency;</li> <li>Dissemination of information.</li> </ul>	2	5 Hrs
8.		9.8	<b>Human Error</b> <ul style="list-style-type: none"> <li>Error models and theories;</li> <li>Types of error in maintenance tasks;</li> <li>Implications of errors (i.e. accidents)</li> <li>Avoiding and managing errors.</li> </ul>	2	15 Hrs
9.		9.9	<b>Hazards in the Workplace</b> <ul style="list-style-type: none"> <li>Recognizing and avoiding hazards;</li> <li>Dealing with emergencies.</li> </ul>	2	2 Hrs
				<b>TOTAL</b>	<b>70 Hrs</b>

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**MODULE: 3 (ELECTRICAL FUNDAMENTALS PART-B)– PRACTICAL**

**LIST OF PRACTICALS CARRIED OUT AT INHOUSE / OUTSOURCE**

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFORMED ON	ALLOTTED HOURS
1	--	3-12	Perform the brush inspection of DC generator.	In-house	2 Hrs
2	--	3-13	Test the armature in Growler and through multimeter/test lamp	In-house	2 Hrs
3	--	3-14	Operate the DC motor and perform the direction reversing method of DC motor.	In-house	2 Hrs
4	--	3-15	Measure the single phase, three phase, and DC Voltage by AMM/Multimeter.	In-house	2 Hrs
5	--	3-16	Operate the AC motors & Perform reversing of direction of rotation of single phase and three phase Induction AC motors.	In-house	2 Hrs
6	--	3-17	Perform the speed control of single phase and three phase Induction AC Motors.	In-house	2 Hrs
7	--	3-18	Connect the single phase and three phase synchronous motor with starter.	In-house	2 Hrs
8	--	3-19	Connect the DC alternator with voltage regulator and measure the Voltage at varying RPM of prime mover.	In-house	2 Hrs
9	--	3-20	Connect the AC generator with voltage regulator and measure the Voltage at varying RPM of prime mover.	In-house	2 Hrs
10	--	3-21	Fabricate the Transformer rectifier unit	In-house	3 Hrs
11	--	3-22	Control the intensity of light by simple circuit.	In-house	3 Hrs
12	--	3-23	Perform the connection of push to start and push to stop for electrical appliances light motors and lights.	In-house	3 Hrs
13	--	3-24	Perform the operation of phase sequence relay.	In-house	2 Hrs
14	--	3-25	Perform the operation of timer relay.	In-house	2 Hrs

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15	--	3-26	Perform the star and delta wiring.	In-house	2 Hrs
16	--	3-27	Demonstrate the operation of thermistor through experiments.	In-house	2 Hrs
17	--	3-28	Demonstrate the operation of overload sensor with experiments.	In-house	2 Hrs
18	--	3-29	Demonstrate the operation of overvoltage and under voltage relay with experiments.	In-house	3 Hrs
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**MODULE 7A. (MAINTENANCE PRACTICES PART-C)- PRACTICAL**

**LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE**

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFORMED ON	ALLOTTED HOURS
1	---	7A-95	Remove and refit aircraft access panels.	Hangar	1 Hrs
2	---	7A-96	Demonstration of the levelling of an aircraft	Hangar	2 Hrs
3	---	7A-97	Perform jacking of nose or tail wheel	Hangar	2 Hrs
4	---	7A-98	Perform jacking of complete aircraft	Hangar	2 Hrs
5	---	7A-99	Perform the use of chocks, sling, trestle, ladder and other ground handling equipment	Hangar	4 Hrs
6	---	7A-100	Parking, mooring, chocking and grounding of aircraft	Hangar	2 Hrs
7	---	7A-101	Perform long time parking	Hangar	2 Hrs
8	---	7A-102	Perform the towing of aircraft	Hangar	2 Hrs
9	---	7A-103	Check the tire pressure and charge the hydraulic fluid in to the tank/reservoir of brakes	Hangar	4 Hrs
10	---	7A-104	Connect and use external electrical power in the aircraft	Hangar	2 Hrs
11	---	7A-105	Perform the fueling and defueling of aircraft	Hangar	4 Hrs
12	---	7A-106	Perform the de-icing operation	Hangar	2 Hrs
13	---	7A-107	Perform the special inspection schedule	Hangar	2 Hrs
14	---	7A-108	Perform the Dy. Penetrate color contrast on sample Job	Hangar	4 Hrs
15	---	7A-109	Perform the Florescent Penetrant Inspection on sample job Magnetic particle NDT method for flaw detection.	Hangar	2 Hrs
16	---	7A-110	Perform the Magnetic particle NDT method for flaw detection.	Hangar	4 Hrs
17	---	7A-111	Perform the eddy current NDT method for flaw detection.	Hangar	4 Hrs
18	---	7A-112	Familiarization and identification of major components of Cessna 152 & 172R Aircrafts and	Hangar	05 Hrs

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			Engines.		
19	---	7A-113	Perform the daily / pre- flight Inspection of aircraft	Hangar	10 Hrs
20	---	7A-114	Perform the Marshaling for Aircraft	Hangar	10 Hrs
21	---	7A-115	Towing of Aircraft form Hanger to Tarmac and Vice versa	Hangar	05 Hrs
22	---	7A-116	Perform the refueling of aircraft.	Hangar	05 Hrs
23	---	7A-117	The Preparation of aircraft for weighing / Various procedure for leveling /and weighing for CG calculation	Hangar	05 Hrs
24	---	7A-118	Perform the procedures to be followed at stores	Hangar	05 Hrs
25	---	7A-119	Performed the procedures to be followed at CAMO	Hangar	05 Hrs
TOTAL					95 Hrs

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**4.2.4 FORTH SEMESTER TRAINING SYLLABUS**  
**MECHANICAL B1.2**  
**SEMESTER – 4 (THEORY)**

MODULE	SUBJECT	SUBJECT CODE	ALLOTTED HOURS
MODULE 6	MATERIAL & HARDWARE-PART-A	AME 401	80
MODULE 11B	PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS- PART A	AME 402	40
MODULE 16	PISTON ENGINE PART-A	AME 403	80
<b>TOTAL</b>			<b>200 Hrs</b>

**SEMESTER – 4 (PRACTICAL)**

MODULE	SUBJECT	SUBJECT CODE	OTHER THAN ACTUAL WORKING ENVIRONMENT	ACTUAL WORKING ENVIRONMENT
MODULE 11B	PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS- PART A	AME 404	-----	40
MODULE 16	PISTON ENGINE PART-A	AME 405	-----	90
<b>TOTAL</b>				<b>130 Hrs</b>

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**MODULE 6. (MATERIALS AND HARDWARE)- THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	---	6.1	<b>Aircraft Materials — Ferrous</b>		
			<ul style="list-style-type: none"> <li>Characteristics, properties and identification of common alloy steels used in aircraft;</li> <li>Heat treatment and application of alloy steels;</li> </ul>	2	8 Hrs
			<ul style="list-style-type: none"> <li>Testing of ferrous materials for hardness, tensile strength, fatigue strength and impact resistance.</li> </ul>	1	2 Hrs
2.	---	6.2	<b>Aircraft Materials — Non-Ferrous</b>		
			<ul style="list-style-type: none"> <li>Characteristics, properties and identification of common non-ferrous materials used in aircraft;</li> <li>Heat treatment and application of non-ferrous materials;</li> </ul>	2	8 Hrs
			<ul style="list-style-type: none"> <li>Testing of non-ferrous material for hardness, tensile strength, fatigue strength and impact resistance.</li> </ul>	1	2 Hrs
3.	---	6.3	<b>Aircraft Materials - Composite and Non- Metallic</b>	2	10 Hrs
		6.3.1	<b>Composite and non-metallic other than wood and fabric</b>		
			<ul style="list-style-type: none"> <li>Characteristics, properties and identification of common composite and non-metallic materials, other than wood, used in aircraft; Sealant and bonding agents.</li> </ul>		
		<ul style="list-style-type: none"> <li>The detection of defects/deterioration in composite and non-metallic material.</li> <li>Repair of composite and non-metallic material.</li> </ul>	2	1 Hrs	
4.	---	6.3.2	<b>Wooden structures</b>	2	1 Hrs
			<ul style="list-style-type: none"> <li>Construction methods of wooden airframe structures;</li> <li>Characteristics, properties and types of wood and glue used in aeroplanes;</li> <li>Preservation and maintenance of wooden structure;</li> </ul>		

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			<ul style="list-style-type: none"> <li>Types of defects in wood material and wooden structures;</li> <li>The detection of defects in wooden structure;</li> <li>Repair of wooden structure.</li> </ul>		
5.	---	6.3.3	<b>Fabric covering</b> <ul style="list-style-type: none"> <li>Characteristics, properties and types of fabrics used in aeroplanes;</li> <li>Inspections methods for fabric;</li> <li>Types of defects in fabric;</li> <li>Repair of fabric covering.</li> </ul>	2	1 Hrs
6.	---	6.4	<b>Corrosion</b> <ul style="list-style-type: none"> <li>Chemical fundamentals;</li> <li>Formation by, galvanic action process, microbiological, stress;</li> </ul>	1	5 Hrs
			<ul style="list-style-type: none"> <li>Types of corrosion and their identification;</li> <li>Causes of corrosion;</li> <li>Material types, susceptibility to corrosion.</li> </ul>	3	2 Hrs
				Total	40 Hrs

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**MODULE 11B. PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS – PART-A THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	-----	<b>11.1</b>	<b>Theory of Flight</b>	2	40 Hrs
		<b>11.1.1</b>	<b>Aeroplane Aerodynamics and Flight Controls</b> <ul style="list-style-type: none"> <li>• Operation and effect of:               <ul style="list-style-type: none"> <li>a. Roll control: ailerons and spoilers;</li> <li>b. Pitch control: elevators, stabilators, variable incidence stabilisers and canards;</li> <li>c. Yaw control, rudder limiters;</li> </ul> </li> <li>• Control using elevens', ruddervators;</li> <li>• High lift devices, slots, slats, flaps, flaperons;</li> <li>• Drag inducing devices, spoilers, lift dumpers, speed brakes;</li> <li>• Effects of wing fences, saw tooth leading edges;</li> <li>• Boundary layer control using, vortex generators, stall wedges or leading-edge devices;</li> <li>• Operation and effect of trim tabs, balance and anti-balance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels;</li> </ul>		
2.	-----	<b>11.2</b>	<b>Airframe Structures – General Concepts</b> <b>(a)</b> <ul style="list-style-type: none"> <li>• Airworthiness requirements for structural strength; Structural classification, primary, secondary and tertiary;</li> <li>• Fail safe, safe life, damage tolerance concepts;</li> <li>• Zonal and station identification systems;</li> <li>• Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue;</li> <li>• Drains and ventilation provisions;</li> <li>• System installation provisions;</li> <li>• Lightning strike protection provision.</li> </ul>	2	10 Hrs

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			(b) <ul style="list-style-type: none"> <li>• Aircraft bonding</li> <li>• Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement,</li> <li>• methods of skinning, anti-corrosive protection, wing, empennage and engine attachments;</li> <li>• Structure assembly techniques: riveting, bolting, bonding;</li> <li>• Methods of surface protection, such as chromating,</li> <li>• Anodising, painting;</li> <li>• Surface cleaning;</li> <li>• Airframe symmetry: methods of alignment and symmetry checks.</li> </ul>	2	
3.	52,53,56	<b>11.3</b> <b>11.3.1</b>	<b>Airframe Structures — Aeroplanes</b> <b>Fuselage</b> <ul style="list-style-type: none"> <li>• Construction and pressurisation sealing;</li> <li>• Wing, tail-plane pylon and undercarriage attachments;</li> <li>• Seat installation;</li> <li>• Doors and emergency exits: construction and operation;</li> <li>• Window and windscreen attachment</li> </ul>	2	10 Hrs
4.	57	<b>11.3.2</b>	<b>Wings</b> <ul style="list-style-type: none"> <li>• Construction;</li> <li>• Fuel storage;</li> <li>• Landing gear, pylon, control surface and high lift/drag attachments.</li> </ul>	2	5 Hrs
5.	55	<b>11.3.3</b>	<b>Stabilisers</b> <ul style="list-style-type: none"> <li>• Construction;</li> <li>• Control surface attachment.</li> </ul>	2	5 Hrs
6.	55/57	<b>11.3.4</b>	<b>Flight Control Surfaces</b> <ul style="list-style-type: none"> <li>• Construction and attachment;</li> </ul>	2	5 Hrs

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			<ul style="list-style-type: none"><li>Balancing — mass and aerodynamic</li></ul>		
7.	54	11.3.5	<b>Nacelles/Pylons</b> <ul style="list-style-type: none"><li>Nacelles/Pylons:<ul style="list-style-type: none"><li>— Construction;</li><li>— Firewalls;</li><li>— Engine mounts</li></ul></li></ul>	2	5 Hrs
Total					80 Hrs

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**MODULE 16. PISTON ENGINE- PART-A, THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	72	16.1	<b>Fundamentals</b> <ul style="list-style-type: none"> <li>Mechanical, thermal and volumetric efficiencies;</li> <li>Operating principles — 2 stroke, 4 stroke, Otto and Diesel;</li> <li>Piston displacement and compression ratio;</li> <li>Engine configuration and firing order</li> </ul>	2	10 Hrs
2.	72	16.2	<b>Engine Performance</b> <ul style="list-style-type: none"> <li>Power calculation and measurement</li> <li>Factors affecting engine power;</li> <li>Mixtures/leaning, pre-ignition.</li> </ul>	2	5 Hrs
3.	72	16.3	<b>Engine Construction</b> <ul style="list-style-type: none"> <li>Crank case, crank shaft, cam shafts, sumps;</li> <li>Accessory gearbox;</li> <li>Cylinder and piston assemblies;</li> <li>Connecting rods, inlet and exhaust manifolds;</li> <li>Valve mechanisms;</li> <li>Propeller reduction gearboxes</li> </ul>	2	40 Hrs
4.	73	16.4	<b>Engine Fuel Systems</b>		
		1	<b>Carburettors</b> <ul style="list-style-type: none"> <li>Types, construction and principles of operation;</li> <li>Icing and heating.</li> </ul>	2	10 Hrs
		2	<b>Fuel injection systems</b> <ul style="list-style-type: none"> <li>Types, construction and principles of operation.</li> </ul>	2	5 Hrs
		3	<b>Electronic engine control</b> <ul style="list-style-type: none"> <li>Operation of engine control and fuel metering systems including electronic engine control (FADEC);</li> <li>Systems lay-out and components.</li> </ul>	2	10 Hrs
<b>TOTAL</b>					<b>80 Hrs</b>

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**MODULE 11. MODULE 11B. PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS PART-A – PRACTICAL**

**LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE**

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFOR-MED ON	ALLOTED HOURS
1	06	11B-01	Locate component(s) by zone/station number.	Hangar	3 Hrs
2	11	11B-02	Check aircraft for correct placards	Hangar	3 Hrs
3	11	11B-03	Check aircraft for correct markings	Hangar	3 Hrs
4	12	11B-04	Perform the schedule lubrication of aircraft	Hangar	6 Hrs
5	12	11B-05	Perform pre-flight/daily check	Hangar	3 Hrs
6	12	11B-06	Review of Aircraft Maintenance log for correct completion	Hangar	2 Hrs
7	27	11B-07	Perform the extension and retraction of Flap	Hangar	2 Hrs
8	27	11B-08	Replace horizontal stabiliser	Hangar	3 Hrs
9	27	11B-09	Replace elevator.	Hangar	3 Hrs
10	27	11B-10	Replace aileron.	Hangar	3 Hrs
11	27	11B-11	Replace rudder.	Hangar	3 Hrs
12	27	11B-12	Replace trim tab	Hangar	3 Hrs
13	27	11B-13	Inspect primary flight controls and related component with AMM and perform Functional test of primary flight controls	Hangar	3 Hrs
TOTAL					40 Hrs

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**MODULE 16. PISTON ENGINE PART- A – PRACTICAL**

**LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE**

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFOR-MED AT	ALLOTED HOURS
1	72	16A-01	Identification of components of Continental E-185/ Lycoming Engine and perform the removal/fitment of components like cylinders, pistons, Piston rings, Piston Pins, connecting rods, valves, springs, rocker shaft, Intake manifold, exhaust manifold, assessor gear case, crank case and its bearing, gasket, crank shaft, cam shaft. etc	Hangar	10 Hrs
2	71	16A-02	Remove Engine Cowling and inspect for good condition	Hangar	4 Hrs
3	71	16A-03	Clean the Engine	Hangar	4 Hrs
4	71/ 05	16A-04	Perform the Daily Inspection Engine	Hangar	2 Hrs
5	72	16A-05	Visually inspect the air Intake system for leak and secure condition.	Hangar	2 Hrs
6	73	16A-06	Removal/fitment and cleaning of carburetor air filter and clean	Hangar	2 Hrs
7	72	16A-07	Visually Inspect the cylinder baffles for crack, cleanness, proper fit around cylinder and secure mounting.	Hangar	1 Hrs
8	73	16A-08	Check for full range of operation of carburetor throttle and mixture control.	Hangar	2 Hrs
9	72	16A-09	Remove rocker box cover and inspect the valve mechanism	Hangar	2 Hrs
10	73	16A-10	Remove fuel filter bowl, clean, replace and safety	Hangar	2 Hrs
11	73	16A-11	Check fuel connection for leaks	Hangar	1 Hrs
12	73	16A-12	Remove and clean fuel strainers	Hangar	2 Hrs

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13	72	16A-13	Check crankshaft run-out	Hangar	1 Hrs
14	73	16A-14	Remove/Install engine driven pump	Hangar	2 Hrs
15	73	16A-15	Remove/Install carburettor/injector	Hangar	2 Hrs
16	73	16A-16	Inspection of primer line.	Hangar	1 Hrs
17	79	16A-17	Engine oil, filler cap, dipstick, drain plug and external oil filter 1. Drain engine oil sump, change external oil filter and refill with correct quantity and with and with correct grade. Cut oil filter and inspect for high concentration of aluminum or any other metallic residue trapped in the paper filter element. 2. Check dipstick for looseness, condition of O ring, distortion and oil level marking, Check the condition of gasket in the drain plug, proper tightness and safe tying.	Hangar	2 Hrs
18	72	16A-18	Spark Plug- Remove, clean, inspect, re-gap & reinstall	Hangar	3 Hrs
19	73	16A-19	Carburetor Air Filter- Remove, Clean and inspect for holes and tears.	Hangar	3 Hrs
20	72	16A-20	Cylinder Baffles - Inspect for loose or damaged cylinder	Hangar	3 Hrs
21	72	16A-21	Cylinder Overheating- Inspect for evidence of paint burned off of the cylinder assembly	Hangar	3 Hrs
22	78	16A-22	Exhaust System- Inspect for leaking connections between the exhaust and the exhaust ports of the cylinders. Check the mufflers for loose baffles	Hangar	3 Hrs
23	73	16A-23	Mixture Control- Check the mixture control for insufficient travel, for freedom of movement, security and adequate lubrication.	Hangar	3 Hrs
24	-----	16A-24	Remove the engine cowling and check for evidence of oil and fuel leaks, and clean entire engine compartments.	Hangar	3 Hrs
25	79	16A-25	Check the oil cooler for obstructions, leaks, and security of attachment	Hangar	3 Hrs
26	75	16A-26	Induction air filter – Remove, Inspect and	Hangar	3 Hrs

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			clean the filter with compressed air or warm/ cold water solution of mild detergent. Replace the air filter		
27	71	16A-27	Check the condition, routing and security of Cold and Hot air hoses	Hangar	3 Hrs
28	71	16A-28	Check condition and security of attachment of engine baffles.	Hangar	3 Hrs
29	72	16A-29	Cylinders, Rockers box covers and push rod housing: Check for fin damage, oil leakage, security of attachment and general condition. Visually Inspect the mounting base and cylinder barrel.	Hangar	3 Hrs
30	72	16A-30	Crankcase, oil sump, accessory section and front crankshaft seal: inspect for cracks and evidence of oil leakage. Check bolts and nuts for looseness and re-torque as necessary. Check crankcase breather lines for obstructions, security, and general condition.	Hangar	3 Hrs
31	71	16A-31	Hose, metal Lines and fitting: Inspect all hoses for internal swelling, chaffing through protective plies, cuts, breaks, stiffness, damaged thread and loose connection. Examine the exterior of the hoses for evidence of leakage and wetness.	Hangar	3 Hrs
32	78	16A-32	Intake and exhaust system: Inspect for cracks, evidence of leakage and security.	Hangar	3 Hrs
33	78	16A-33	Inspect the condition of Exhaust Valves and guides.	Hangar	3 Hrs
<b>TOTAL</b>					<b>90 Hrs</b>

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**4.2.5 FIFTH SEMESTER TRAINING SYLLABUS**  
**MECHANICAL B1.2**  
**SEMESTER – 5 (THEORY)**

MODULE	SUBJECT	SUBJECT CODE	ALLOTTED HOURS
MODULE 6	MATERIAL & HARDWARE-PART-B	AME 501	40
MODULE 11B	PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS- PART B	AME 502	80
MODULE 16	PISTON ENGINE PART-B	AME 503	80
<b>TOTAL</b>			<b>200 Hrs</b>

**SEMESTER – 5 (PRACTICAL)**

MODULE	SUBJECT	SUBJECT CODE	OTHER THAN ACTUAL WORKING ENVIRONMENT	ACTUAL WORKING ENVIRONMENT
MODULE 11B	PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS- PART B	AME 504	-----	<b>90</b>
MODULE 16	PISTON ENGINE PART-B	AME 505	-----	<b>110</b>
<b>TOTAL</b>				<b>200 Hrs</b>

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**MODULE 6. (MATERIALS AND HARDWARE) PART B- THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
	---	6.5	<b>Fasteners</b>	2	5 Hrs
		6.5.1	<b>Screw threads</b> <ul style="list-style-type: none"> <li>Screw nomenclature;</li> <li>Thread forms, dimensions and tolerances for standard threads used in aircraft;</li> <li>Measuring screw threads;</li> </ul>		
7.	---	6.5.2	<b>Bolts, studs and screws</b> <ul style="list-style-type: none"> <li>Bolt types: specification, identification and marking of aircraft bolts, international standards;</li> <li>Nuts: self-locking, anchor, standard types;</li> <li>Machine screws: aircraft specifications;</li> <li>Studs: types and uses, insertion and removal;</li> <li>Self-tapping screws, dowels.</li> </ul>	2	10 Hrs
8.	---	6.5.3	<b>Locking devices</b> <ul style="list-style-type: none"> <li>Tab and spring washers, locking plates, split pins, palnuts, wire locking, quick release fasteners, keys, circlips, cotter pins.</li> </ul>	2	5 Hrs
9.	---	6.5.4	<b>Aircraft rivets</b> <ul style="list-style-type: none"> <li>Types of solid and blind rivets: specifications and identification, heat treatment.</li> </ul>	2	5 Hrs
10.	---	6.6	<b>Pipes and Unions</b> <ul style="list-style-type: none"> <li>Identification of, and types of rigid and flexible pipes and their connectors used in aircraft;</li> </ul>	2	5 Hrs
			<ul style="list-style-type: none"> <li>Standard unions for aircraft hydraulic, fuel, oil, pneumatic and air system pipes.</li> </ul>	2	1 Hrs
11.	---	6.7	<b>Springs</b> <ul style="list-style-type: none"> <li>Types of springs, materials, characteristics and applications.</li> </ul>	2	1 Hrs
12.	---	6.8	<b>Bearings</b>	2	1 Hrs

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			<ul style="list-style-type: none"> <li>• Purpose of bearings, loads, material, construction;</li> <li>• Types of bearings and their application.</li> </ul>		
13.	---	6.9	<b>Transmissions</b> <ul style="list-style-type: none"> <li>• Gear types and their application;</li> <li>• Gear ratios, reduction and multiplication gear systems, driven and driving gears, idler gears, mesh patterns;</li> <li>• Belts and pulleys, chains and sprockets.</li> </ul>	2	3 Hrs
14.	---	6.10	<b>Control Cables</b> <ul style="list-style-type: none"> <li>• Types of cables; End fittings, turnbuckles and compensation devices;</li> <li>• Pulleys and cable system components;</li> <li>• Bowden cables;</li> <li>• Aircraft flexible control systems.</li> </ul>	2	2 Hrs
15.	---	6.11	<b>Electrical Cables and Connectors</b> <ul style="list-style-type: none"> <li>• Cable types, construction and characteristics;</li> <li>• High tension and co-axial cables;</li> <li>• Crimping;</li> <li>• Connector types, pins, plugs, sockets, insulators, current and voltage rating,</li> <li>• Coupling, identification codes.</li> </ul>	2	2 Hrs
<b>TOTAL</b>					<b>40 Hrs</b>

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**MODULE 11B. PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS – PART-B THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
	31	<b>11.5</b> <b>11.5.1</b>	<b>Instruments/Avionic Systems</b> <b>Instrument Systems</b> <ul style="list-style-type: none"> <li>• Pitot static: altimeter, air speed indicator, vertical speed indicator;</li> <li>• Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator;</li> <li>• Compasses: direct reading, remote reading;</li> <li>• Angle of attack indication, stall warning systems.</li> <li>• Glass cockpit;</li> <li>• Other aircraft system indication.</li> </ul>	2	40 Hrs
8.	22,23,3 34	11.5.2	<b>Avionic Systems</b> <ul style="list-style-type: none"> <li>• Fundamentals of system lay-outs and operation of: <ul style="list-style-type: none"> <li>— Auto Flight</li> <li>— Communications</li> <li>— Navigation Systems</li> </ul> </li> </ul>	1	10 Hrs
9.	24	<b>11.6</b>	<b>Electrical Power</b> <ul style="list-style-type: none"> <li>• Batteries Installation and Operation;</li> <li>• DC power generation;</li> <li>• Voltage regulation;</li> <li>• Power distribution;</li> <li>• Circuit protection;</li> <li>• Inverters, transformers.</li> </ul>	3	25 Hrs
10.	33	<b>11.14</b>	<b>Lights</b> <ul style="list-style-type: none"> <li>• External: navigation, anti-collision, landing, taxiing, ice;</li> <li>• Internal: cabin, cockpit, cargo;</li> <li>• Emergency.</li> </ul>	3	5 Hrs
<b>TOTAL</b>					<b>80 Hrs</b>

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**MODULE 16. PISTON ENGINE- PART-B, THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	74	16.5	<b>Starting and Ignition Systems</b> <ul style="list-style-type: none"> <li>Starting systems, pre-heat systems;</li> <li>Magneto types, construction and principles of operation;</li> <li>Ignition harnesses, spark plugs;</li> <li>Low and high tension systems.</li> </ul>	2	10 Hrs
2.	78	16.6	<b>Induction, Exhaust and Cooling Systems</b> <ul style="list-style-type: none"> <li>Construction and operation of: induction systems including alternate air systems;</li> <li>Exhaust systems, engine cooling systems — air and liquid.</li> </ul>	2	10 Hrs
3.	81	16.7	<b>Supercharging/Turbocharging</b> <ul style="list-style-type: none"> <li>Principles and purpose of supercharging and its effects on engine parameters;</li> <li>Construction and operation of supercharging/turbocharging systems;</li> <li>System terminology;</li> <li>Control systems;</li> <li>System protection.</li> </ul>	2	10 Hrs
4.	73	16.8	<b>Lubricants and Fuels</b> <ul style="list-style-type: none"> <li>Properties and specifications;</li> <li>Fuel additives;</li> <li>Safety precautions</li> </ul>	2	10 Hrs
5.	79	16.9	<b>Lubrication Systems</b> <ul style="list-style-type: none"> <li>System operation/lay-out and components.</li> </ul>	2	5 Hrs
6.	77	16.10	<b>Engine Indication Systems</b> <ul style="list-style-type: none"> <li>Engine speed;</li> <li>Cylinder head temperature;</li> <li>Coolant temperature;</li> </ul>	2	20 Hrs

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			<ul style="list-style-type: none"> <li>Oil pressure and temperature;</li> <li>Exhaust Gas Temperature;</li> <li>Fuel pressure and flow;</li> <li>Manifold pressure.</li> </ul>		
7.	71	16.11	<b>Powerplant Installation</b> <ul style="list-style-type: none"> <li>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.</li> </ul>	2	5 Hrs
8.	71	16.12	<b>Engine Monitoring and Ground Operation</b> <ul style="list-style-type: none"> <li>Procedures for starting and ground run-up;</li> <li>Interpretation of engine power output and parameters;</li> <li>Inspection of engine and components: criteria, tolerances, and data specified by engine manufacturer.</li> </ul>	3	5 Hrs
9.	71	16.13	<b>Engine Storage and Preservation</b> <ul style="list-style-type: none"> <li>Preservation and depreservation for the engine and accessories/ systems</li> </ul>	2	5 Hrs
<b>TOTAL</b>					<b>80 Hrs</b>

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**MODULE 11. MODULE 11B. PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS PART-B – PRACTICAL**

**LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE**

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFOR-MED ON	ALLOTED HOURS
1	23	11B-14	Removal and Installation of the static discharger wicks	Hangar	1 Hrs
2	24	11B-15	Charge Procedure of lead acid battery	Battery Shop	3 Hrs
3	24	11B-16	Removal and Installation switches.	Hangar	1 Hrs
4	24	11B-17	Removal and Installation circuit breakers.	Hangar	1 Hrs
5	24	11B-18	Removal and Installation voltage regulator.	Hangar	1 Hrs
6	24	11B-19	Change voltage regulator	Hangar	1 Hrs
7	24	11B-20	Perform functional check of voltage regulator.	Hangar	1 Hrs
8	24	11B-21	Removal and Installation clock.	Hangar	1 Hrs
9	24	11B-22	Removal and Installation master caution	Hangar	1 Hrs
10	31	11B-23	Implement ESDS procedures.	Hangar	1 Hrs
11	31	11B-24	Inspect for HIRF requirements	Hangar	1 Hrs
12	31	11B-25	Perform the Instrument Panel Removal/Installation	Hangar	1 Hrs
13	31	11B-26	Perform the annunciator panel removal and fitment	Hangar	1 Hrs
14	31	11B-27	Associated with Pitot static instrument identification in cockpit and leak test practice	Hangar	1 Hrs
15	31	11B-28	Associated with gyroscopic Instruments identification and removal and fitment	Hangar	1 Hrs
16	31	11B-29	Associated with Cleaning of Instrument Glass Lenses of aircraft cockpit Instruments.	Hangar	1 Hrs
17	31	11B-30	Associated with Removal/installation of pitot tube operational check.	Hangar	1 Hrs
18	31	11B-31	Associated with the removal and fitment with magnetic compass	Hangar	1 Hrs

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19	31	11B-32	Associated with magnetic compass compensation	Hangar	2 Hrs
20	31	11B-33	Associate with stall warning system component removal and fitment	Hangar	1 Hrs
21	31	11B-34	Removal and Installation rotating beacon.	Hangar	1 Hrs
22	31	11B-35	Removal and Installation landing lights.	Hangar	2 Hrs
23	31	11B-36	Removal and Installation navigation lights.	Hangar	1 Hrs
24	33	11B-37	Removal and Installation interior lights.	Hangar	2 Hrs
25	33	11B-38	Check for condition of Starter, solenoid and electrical connections.	Hangar	2 Hrs
26	33	11B-39	check for condition and insulation of Starter brushes, brush leads and commutator	Hangar	3 Hrs
27	33	11B-40	check for condition and security of Alternator mounting bracket	Hangar	3 Hrs
28	24	11B-41	Check for condition, check belt tension of Alternator, belt and electrical connection:	Hangar	3 Hrs
29	24	11B-42	check for condition and security of Alternator brushes, brush leads, commutator or slip rings:	Hangar	3 Hrs
30	24	11B-43	Inspect general condition, wiring, mounting, condition, and wire routing of Voltage regulator mounting and electrical leads:	Hangar	3 Hrs
31	24	11B-44	Inspect the Instrument plumbing for security of attachment, leakage, proper routing, cracks, chafing, obstruction, corroded terminals, deterioration & over-tightening	Hangar	3 Hrs
32	24	11B-45	Inspect for security of attachment of shock panels and shock mounts, deterioration, missing or loose shock mounts. Inspect interior of the aircraft decals & labeling for presence, legibility and security.	Hangar	3 Hrs
33	24	11B-46	Inspect pitot system for proper heating, obstruction, corrosion, proper cleanliness and leakage.	Hangar	3 Hrs

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34	31	11B-47	Inspect for cleanliness, obstruction and operation of horn of stall warning system.	Hangar	3 Hrs
35	31	11B-48	Inspect for security of attachment, proper routing, loose, broken or corroded terminals of Antennas and Cables	Hangar	2 Hrs
36	31	11B-49	Remove and installed the battery in Aircraft	Hangar	2 Hrs
37	31	11B-50	Aircraft Structure – Inspect for loose or missing rivets and hardware, security of attachment, cracks, metal distortion, corrosion, and any other apparent damage	Hangar	2 Hrs
38	31	11B-51	<b>Flap Motor, Transmission, Limit Switches, Structure, Linkage, Bell-Cranks, Etc.</b> – Inspect flap motor and transmission jack screw for security of attachment, for proper lubrication and proper operation. Inspect limit switches for security of attachments, proper insulation, operation, condition of wiring, lose or broken wire terminals, cam for wear. Inspect linkage and bell-Crank for lubrication, excessive wear, corrosion, security of attachment, proper operation, binding and cleanliness	Hangar	2 Hrs
39	24	11B-52	<b>Ailerons, Hinges and Push-Pull Rods</b> – Check for general condition, proper operation, excessive wear, distortion, lubrication and security of attachment.	Hangar	2 Hrs
40	53	11B-53	<b>Vertical Fin Attach Bracket</b> – Visually inspect for security of attachment, and indication of cracks in the fittings, if applicable	Hangar	2 Hrs
41	53	11B-54	Vertical Fin Attach Bracket Nutplate – Inspect nutplate on upper and lower flange of attach bracket for cracks, if applicable.	Hangar	2 Hrs
42	53	11B-55	<b>Lights, switches, circuit breakers, fuses and spa</b>	Hangar	1 Hrs

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			Check operation, terminals, Wiring and mounting for conditions, secu interference. Check for required Number of spare fuses.		
43	53	11B-56	<b>Exterior lights:</b> Inspect for condition and security.	Hangar	1 Hrs
44	53	11B-57	<b>Battery, battery box and battery cables:</b> C remove any corrosion. Check for General condition and security. Check for electrolyte. Check cables for proper Routing, support and security of connections.	Hangar	1 Hrs
45	33	11B-58	<b>Emergency Locator Transmitter:</b> Inspect ELT i. ELT unit and mount- for improper installation and insecure mounting. ii. Wiring and conduits - for improper routing, insecure mounting, and obvious defect. iii. Bonding and shielding – for improper installation and poor condition. iv. Antenna, including trailing antenna - for poor condition, insecure mounting, and Improper operation.	Hangar	1 Hrs
46	33	11B-59	<b>Instruments and markings:</b> Check general condition and markings for legibility	Hangar	1 Hrs
47	24	11B-60	<b>Gyro central air filter:</b> Remove, clean and inspect damage, deterioration and Contamination. Replace, if required.	Hangar	1 Hrs
48	23	11B-61	<b>Magnetic compass compensation:</b> Inspect for sec installation, cleanliness and Evidence of damage.	Hangar	1 Hrs
<b>TOTAL</b>				80 Hrs	

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**MODULE 16. PISTON ENGINE PART-B – PRACTICAL**

**LIST OF PRACTICALS CARRIED OUT AT INHOUSE / OUTSOURCE**

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFOR-MED ON	ALLOTE D HOURS
1	74	16A-34	Removal/fitment and cleaning of spark plug	Hangar	5 Hrs
2	74	16A-35	Visual Inspection of Ignition wiring and security and attachments.	Hangar	5 Hrs
3	79	16A-36	Removal/fitment of oil screen and cleaning.	Hangar	4 Hrs
4	78	16A-37	Check the exhaust system for cracks or looseness of mounting and connections. Check for blown gasket. Check cabin heater for exhaust gas leaks.	Hangar	2 Hrs
5	80	16A-38	Removal/fitment of starter	Hangar	2 Hrs
6	80	16A-39	Removal/ fitment of alternator	Hangar	2 Hrs
7	73	16A-40	Clean injector nozzles	Hangar	2 Hrs
8	74	16A-41	Test spark plug	Hangar	2 Hrs
9	74	16A-42	Removal /Fitment of magneto	Hangar	2 Hrs
10	74	16A-43	Install new ignition leads.	Hangar	2 Hrs
11	74	16A-44	Set magneto timing	Hangar	2 Hrs
12	77	16A-45	Removal and fitment of engine Instruments	Hangar	3 Hrs
13	77	16A-46	Inspection of thermocouple assembly and cleaning.	Hangar	2 Hrs
14	78	16A-47	Inspection of exhaust system	Hangar	2 Hrs
15	79	16A-48	Drain and uplift the engine oil	Hangar	3 Hrs
16	79	16A-49	Perform oil dilution test.	Hangar	2 Hrs
17	80	16A-50	Fitment check of start relay.	Hangar	3 Hrs
18	71	16A-51	Perform motoring of engine	Hangar	2 Hrs
19	71	16A-52	Perform the engine starting and ground run	Hangar	4 Hrs
20	74	16A-53	Check for proper routing, deterioration and condition of terminals of ignition harness.	Hangar	2 Hrs
21	74	16A-54	Remove, clean, analyses, test gap of spark plug	Hangar	2 Hrs

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			and rotate top plugs to bottom and vice versa, Visually Inspect the condition of cylinder spark plug helicoils in all cylinders.		
22	74	16A-55	Remove top spark plugs, keep them cylinder wise and check differential compression and record	Hangar	3 Hrs
23	---	16A-56	Crankcase and vacuum system breather lines: Inspect for cracks and evidence of oil leakage, check bolts and nuts for looseness	Hangar	3 Hrs
24	31	16A-57	Electrical wiring: check for general condition, chaffing, broken or loose terminals, sharp bend in wiring, proper routing and insulations.	Hangar	3 Hrs
25	37	16A-58	Vacuum Pump: Check for condition and security. Check vacuum system breather line for obstructions, condition and security.	Hangar	3 Hrs
26	37	16A-59	Vacuum Relief Valve Filter: Clean and Inspect for damage,	Hangar	3 Hrs
27	----	16A-60	Engine control and Linkage: Check for general condition, freedom of movement through full range. Check for proper travel, security of attachment and evidence of wear. Check friction locks for proper operation.	Hangar	3 Hrs
28	78	16A-61	Engine shock mounts, mount structure and ground straps: Check condition, security and alignment	Hangar	3 Hrs
29	---	16A-62	Cabin heat valves, doors and controls: Check freedom of movement through full travel. Check friction locks for proper operation.	Hangar	3 Hrs
30	74	16A-63	Magneto and electrical leads: check external condition and security of electrical leads.	Hangar	3 Hrs
31	74	16A-64	Magneto: Inspect magneto internally from outside for any loose items & rotate the gear to check the play.	Hangar	3 Hrs
32	74	16A-65	Magneto timing: Check timing to engine and internal timing. Adjust the timing	Hangar	3 Hrs
33	73	16A-66	Carburetor and drain plug: Drain and flush carburetor bowl, clean inlet, strainer, and drain plug. Check general condition and security.	Hangar	3 Hrs

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			Inspect carburetor throttle body screw for security.		
34	71	16A-67	Firewall: Inspect for Wrinkles, damage, cracks, sheared rivets ets. Check cowl mounts for condition and security.	Hangar	3 Hrs
35	71	16A-68	Tappet Clearance: Check the tappet clearance.	Hangar	3 Hrs
36	37	16A-69	Vacuum system central air filter: Remove, clean and inspect for condition and damage	Hangar	3 Hrs
37	71	16A-70	Carry out Engine ground Run	Hangar	5 Hrs
38	05	16A-71	Carryout Cessna 152 50 Hrs and 100 Hrs complete schedule.	Hangar	5 Hrs
TOTAL				110 Hrs	

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**4.2.6 SIX SEMESTER TRAINING SYLLABUS**  
**MECHANICAL B1.2**  
**SEMESTER – 6 (THEORY)**

MODULE	SUBJECT	SUBJECT CODE	ALLOTTED HOURS
MODULE 4	ELECTRONIC FUNDAMENTALS	AME 601	40
MODULE 5	DIGITAL TECHNIQUES/ ELECTRONIC INSTRUMENT SYSTEMS	AME 602	40
MODULE 11B	PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS- PART C	AME 603	70
MODULE 17A	PROPELLER	AME 604	50
TOTAL			200 Hrs

**SEMESTER – 6 (PRACTICAL)**

MODULE	SUBJECT	SUBJECT CODE	OTHER THAN ACTUAL WORKING ENVIRONMENT	ACTUAL WORKING ENVIRONMENT
MODULE 4	ELECTRONIC FUNDAMENTALS	AME 605	35	----
MODULE 5	DIGITAL TECHNIQUES/ ELECTRONIC INSTRUMENT SYSTEMS	AME 606	10	-----
MODULE 11B	PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS- PART C	AME 607	-----	80
MODULE 17A	PROPELLER	AME 608	-----	20
TOTAL			135 Hrs	

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**MODULE 4. (ELECTRONICS FUNDAMENTALS) - THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.		<b>4.1</b>	<b>Semiconductors</b>	2	15 Hrs
		4.1.1	<b>Diodes</b> <ul style="list-style-type: none"> <li>• Diode symbols;</li> <li>• Diode characteristics and properties;</li> <li>• Diodes in series and parallel;</li> <li>• Main characteristics and use of silicon controlled rectifiers (thyristors), light emitting diode, photo conductive diode, varistor, rectifier diodes;</li> <li>• Functional testing of diodes.</li> </ul>		
2.		4.1.2	<b>Transistors</b> <ul style="list-style-type: none"> <li>• Transistor symbols;</li> <li>• Component description and orientation;</li> <li>• Transistor characteristics and properties.</li> </ul>	1	3 Hrs
3.		4.1.3	<b>Integrated Circuits</b> <ul style="list-style-type: none"> <li>• Description and operation of logic circuits and linear circuits/operational amplifiers.</li> </ul>	1	5 Hrs
4.		4.2	<b>Printed Circuit Boards</b> <ul style="list-style-type: none"> <li>• Description and use of printed circuit boards.</li> </ul>	1	10 Hrs
5.		4.3	<b>Servomechanisms</b> <ul style="list-style-type: none"> <li>• Understanding of the following terms: Open and closed loop systems, feedback, follow up, analogue transducers;</li> <li>• Principles of operation and use of the following synchro system components/features: resolvers, differential, control and torque, transformers, Inductance and capacitance transmitters.</li> </ul>	1	7 Hrs
<b>TOTAL</b>					<b>40 Hrs</b>

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**MODULE -5 (DIGITAL TECHNIQUES ELECTRONIC INSTRUMENT SYSTEMS) - THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
10.		5.1	<b>Electronic Instrument Systems</b> <ul style="list-style-type: none"> <li>• Typical systems arrangements and cockpit layout of electronic instrument systems.</li> </ul>	2	1 Hrs
11.		5.10	<b>Fiber Optics</b> <ul style="list-style-type: none"> <li>• Advantages and disadvantages of fiber optic data transmission over electrical wire propagation;</li> <li>• Fiber optic data bus;</li> <li>• Fiber optic related terms; Terminations; Couplers, control terminals, remote terminals;</li> <li>• Application of fiber optics in aircraft systems.</li> </ul>	1	5 Hrs
12.		5.11	<b>Electronic Displays</b> <ul style="list-style-type: none"> <li>• Principles of operation of common types of displays used in modern aircraft, including Cathode Ray Tubes, Light Emitting Diodes and Liquid Crystal Display.</li> </ul>	1	5 Hrs
13.		5.12	<b>Electrostatic Sensitive Devices</b> <ul style="list-style-type: none"> <li>• Special handling of components sensitive to electrostatic discharges;</li> <li>• Awareness of risks and possible damage, component and personnel anti-static protection devices.</li> </ul>	2	5 Hrs
14.		5.13	<b>Software Management Control</b> <ul style="list-style-type: none"> <li>• Awareness of restrictions, airworthiness requirements and possible catastrophic effects of unapproved changes to software programmes.</li> </ul>	1	5 Hrs
15.		5.14	<b>Electromagnetic Environment</b> <ul style="list-style-type: none"> <li>• Influence of the following phenomena on maintenance practices for electronic system: <ul style="list-style-type: none"> <li>▪ EMC-Electromagnetic Compatibility</li> <li>▪ EMI-Electromagnetic Interference</li> <li>▪ HIRF-High Intensity Radiated Field</li> </ul> </li> </ul>	2	5 Hrs

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			<ul style="list-style-type: none"> <li>▪ Lightning/lightning protection</li> </ul>		
16.		5.15	<p><b>Typical Electronic/Digital Aircraft Systems</b></p> <ul style="list-style-type: none"> <li>• General arrangement of typical electronic/digital aircraft systems and associated BITE (Built In Test Equipment) testing such as:               <ul style="list-style-type: none"> <li>▪ ACARS-ARINC Communication and Addressing and Reporting System</li> <li>▪ EICAS-Engine Indication and Crew Alerting System</li> <li>▪ FBW-Fly by Wire</li> <li>▪ FMS-Flight Management System</li> <li>▪ IRS-Inertial reference system</li> <li>▪ (ECAM-Electronic Centralized Aircraft Monitoring</li> <li>▪ EFIS-Electronic Flight Instrument System</li> <li>▪ GPS-Global Positioning System</li> <li>▪ TCAS-Traffic Collision Avoidance system</li> <li>▪ Integrated modular Avionics</li> <li>▪ Cabin System</li> <li>▪ Information system</li> </ul> </li> </ul>	2	14 Hrs
				TOTAL	40 Hrs

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**MODULE 11B. PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS – PART-C THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	21	11.4	<b>Air Conditioning and Cabin Pressurisation</b> <ul style="list-style-type: none"> <li>• Pressurisation and air conditioning systems;</li> <li>• Cabin pressure controllers, protection and warning devices</li> <li>• Heating Systems</li> </ul>	3	5 Hrs
2.	25	11.7	<b>Equipment and Furnishings</b> (a) <ul style="list-style-type: none"> <li>• Emergency equipment requirements;</li> <li>• Seats, harnesses and belts.</li> </ul>	3	4 Hrs
			(b) <ul style="list-style-type: none"> <li>• Cabin lay-out;</li> <li>• Equipment lay-out;</li> <li>• Cabin Furnishing Installation (level 2);</li> <li>• Cabin entertainment equipment;</li> <li>• Galley installation;</li> <li>• Cargo handling and retention equipment;</li> <li>• Airstairs.</li> </ul>	1	2 Hrs
3.	26	11.8	<b>Fire Protection</b> (a) <ul style="list-style-type: none"> <li>• Fire extinguishing systems;</li> <li>• Fire and smoke detection and warning systems;</li> <li>• System tests.</li> </ul>	3	3 Hrs
			(b) <ul style="list-style-type: none"> <li>• Portable fire extinguisher.</li> </ul>	3	1 Hrs
4.	27	11.9	<b>Flight Controls</b> <ul style="list-style-type: none"> <li>• Primary controls: aileron, elevator, rudder;</li> <li>• Trim tabs;</li> <li>• High lift devices;</li> <li>• System operation: manual;</li> </ul>	3	10 Hrs

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			<ul style="list-style-type: none"> <li>Gust locks;</li> <li>Balancing and rigging;</li> <li>Stall warning system.</li> </ul>		
5.	28	11.10	<b>Fuel Systems</b> <ul style="list-style-type: none"> <li>System lay-out;</li> <li>Fuel tanks;</li> <li>Supply systems;</li> <li>Cross-feed and transfer;</li> <li>Indications and warnings;</li> <li>Refuelling and defueling.</li> </ul>	3	10 Hrs
6.	29	11.11	<b>Hydraulic Power</b> <ul style="list-style-type: none"> <li>System lay-out;</li> <li>Hydraulic fluids;</li> <li>Hydraulic reservoirs and accumulators;</li> <li>Pressure generation: electric, mechanical;</li> <li>Filters</li> <li>Pressure Control;</li> <li>Power distribution;</li> <li>Indication and warning systems.</li> </ul>	3	1 Hrs
7.	30	11.12	<b>Ice and Rain Protection</b> <ul style="list-style-type: none"> <li>Ice formation, classification and detection;</li> <li>De-icing systems: electrical, hot air, pneumatic and chemical;</li> <li>Probe and drain heating;</li> <li>Wiper systems.</li> </ul>	3	5 Hrs
8.	32	11.13	<b>Landing Gear</b> <ul style="list-style-type: none"> <li>Construction, shock absorbing;</li> <li>Extension and retraction systems: normal and emergency;</li> <li>Indications and warning;</li> <li>Wheels, brakes, antiskid and auto braking</li> <li>Tyres;</li> <li>Steering.</li> <li>Air-ground sensing</li> </ul>	3	5 Hrs

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9.	25	11.15	<b>Oxygen</b> <ul style="list-style-type: none"> <li>• System lay-out: cockpit, cabin;</li> <li>• Sources, storage, charging and distribution;</li> <li>• Supply regulation;</li> <li>• Indications and warnings</li> </ul>	3	5 Hrs	
10.	26	11.16	<b>Pneumatic/Vacuum</b> <ul style="list-style-type: none"> <li>• System lay-out;</li> <li>• Sources: engine/APU, compressors, reservoirs, ground supply;</li> <li>• Pressure control;</li> <li>• Distribution;</li> <li>• Indications and warnings;</li> <li>• Interfaces with other systems.</li> </ul>	3	5 Hrs	
11.	38	11.17	<b>Water/Waste</b> <ul style="list-style-type: none"> <li>• Water system lay-out, supply, distribution, servicing and draining;</li> <li>• Toilet system lay-out, flushing and servicing;</li> <li>• Corrosion aspects</li> </ul>	3	5 Hrs	
TOTAL						70 Hrs

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**MODULE 17A. PROPELLER- THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	---	17.1	<b>Fundamentals</b> <ul style="list-style-type: none"> <li>• Blade element theory;</li> <li>• High/low blade angle, reverse angle, angle of attack, rotational speed;</li> <li>• Propeller slip;</li> <li>• Aerodynamic, centrifugal, and thrust forces;</li> <li>• Torque;</li> <li>• Relative airflow on blade angle of attack;</li> <li>• Vibration and resonance.</li> </ul>	2	10 Hrs
2.	---	17.2	<b>Propeller Construction</b> <ul style="list-style-type: none"> <li>• Construction methods and materials used in wooden, composite and metal propellers;</li> <li>• Blade station, blade face, blade shank, blade back and hub assembly;</li> <li>• Fixed pitch, controllable pitch, constant speed propeller;</li> <li>• Propeller/spinner installation.</li> </ul>	2	10 Hrs
3.	---	17.3	<b>Propeller Pitch Control</b> <ul style="list-style-type: none"> <li>• Speed control and pitch change methods, mechanical and electrical/electronic;</li> <li>• Feathering and reverse pitch;</li> <li>• Over speed protection.</li> </ul>	2	10 Hrs
4.	---	17.4	<b>Propeller Synchronizing</b> <ul style="list-style-type: none"> <li>• Synchronizing and synchrophasing equipment.</li> </ul>	2	5 Hrs
5.	---	17.5	<b>Propeller Ice Protection</b> <ul style="list-style-type: none"> <li>• Fluid and electrical de-icing equipment.</li> </ul>	2	5 Hrs
6.	---	17.6	<b>Propeller Maintenance</b> <ul style="list-style-type: none"> <li>• Static and dynamic balancing;</li> <li>• Blade tracking;</li> <li>• Assessment of blade damage, erosion, corrosion,</li> </ul>	3	5 Hrs

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			impact damage, delamination; <ul style="list-style-type: none"><li>• Propeller treatment/repair schemes;</li><li>• Propeller engine running.</li></ul>		
7.	---	17.7	<b>Propeller Storage and Preservation</b> <ul style="list-style-type: none"><li>• Propeller preservation and de-preservation</li></ul>	2	5 Hrs
TOTAL					50 Hrs

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**MODULE 4. (ELECTRONICS FUNDAMENTALS) - PRACTICAL**

**LIST OF PRACTICALS CARRIED OUT AT INHOUSE / OUTSOURCE**

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFORMED ON	ALLOTE D HOURS
1	----	4-01	Identify the common electronics components and perform its testing by DMM/AMM.	In-house	6 Hrs
2	----	4-02	Perform the forwards and reverse bias of PN Junction through simple circuit.	In-house	4 Hrs
3	----	4-03	Fabricate the half wave & full wave bridge rectifier using circuit and filter the output voltage.	In-house	4 Hrs
4	----	4-04	To verify the truth tables of various logic Gates	In-house	5 Hrs
5	----	4-05	Set the different frequency, amplitude and wave form in Function generator.	In-house	4 Hrs
6	----	4-06	Count the unknown frequency by using frequency counter	In-house	4 Hrs
7	----	4-07	Study of CRO and to find the Amplitude and Frequency using CRO.	In-house	4 Hrs
8	----	4-08	Test the electronic component by using CRO	In-house	4 Hrs
TOTAL					35 Hrs

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**MODULE -5 (DIGITAL TECHNIQUES ELECTRONIC INSTRUMENT SYSTEMS) –**  
**PRACTICAL**

**LIST OF PRACTICALS CARRIED OUT AT INHOUSE / OUTSOURCE**

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFORMED ON	ALLOTTED HOURS
1	---	5-01	Perform the cutting, striping of fibre optic cable and termination with the connectors.	In-house	2 Hrs
2	---	5-02	Perform the handling and transportation of ESDS items	In-house	4 Hrs
3	---	5-03	Perform the method of protection of aircraft avionics from lightning strikes /HIRF	In-house	4 Hrs
TOTAL					10 Hrs

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**MODULE 11. MODULE 11B. PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS PART- C – PRACTICAL**

**LIST PF PRACTICALS CARRIED OUT AT INHOUSE / OUTSOURCE**

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFORMED ON	ALLOTTED HOURS
1	---	11B-63	Inspection of carpets	Hangar	1 Hrs
2	25	11B-64	Inspection of crew seats.	Hangar	1 Hrs
3	25	11B-65	Inspection of passenger seats	Hangar	1 Hrs
4	25	11B-66	Check seats/belts for security.	Hangar	1 Hrs
5	25	11B-67	Check emergency equipment.	Hangar	1 Hrs
6	25	11B-68	Check ELT for compliance with regulations	Hangar	1 Hrs
7	25	11B-69	Inspection of the fuel selector valve	Hangar	2 Hrs
8	28	11B-70	Inspection of tank unit of fuel quantity Indicator	Hangar	2 Hrs
9	29	11B-71	Perform the Inspection and operation of hydraulic actuator	Hangar	2 Hrs
10	29	11B-72	Apply the rain resistive coating on windshield	Hangar	2 Hrs
11	30	11B-73	Inspection nose wheel	Hangar	2 Hrs
12	32	11B-74	Inspection main wheel	Hangar	1 Hrs
13	32	11B-75	Inspection shimmy damper.	Hangar	1 Hrs
14	32	11B-76	Inspection brake unit	Hangar	2 Hrs
15	32	11B-77	Bleed brakes	Hangar	2 Hrs
16	32	11B-78	Charge the nose gear oleo	Hangar	2 Hrs
17	32	11B-79	Torque Link : Lubricate the torque link	Hangar	1 Hrs
18		11B-80	Inspect the complete aircraft exterior for dents, cleanliness, missing fasteners, fuel and oil leakage, deformation and condition of paint.	Hangar	1 Hrs
19	32	11B-81	Visually Inspect seats rails for cracks	Hangar	1 Hrs
20	32	11B-82	To Inspect the Rudder Horn for damage or distortion.	Hangar	1 Hrs
21	32	11B-83	To check the condition of Rudder horn for bends/distortion	Hangar	1 Hrs
22	32	11B-84	Condition of Rudder Pedals, Torque Tubes, Return	Hangar	1 Hrs

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			Spring Arm		
23	32	11B-85	Condition of rudder Horn stop plate	Hangar	1 Hrs
24	32	11B-86	To ensure correct rigging of rudder system including stop bolt.	Hangar	1 Hrs
25	32	11B-87	<b>Main gear wheel and fairings:</b> Inspect for cracks, wear, warps, dents, corrosion, condition of paints and other damage. Inspect wheel through-bolts and nuts for looseness. (If aircraft is flown from surfaces of mud, snow or ice, speed fairings should be checked that there is no accumulation, which could prevent normal wheel rotation)	Hangar	1 Hrs
26	32	11B-88	<b>Nose gear wheel, torque links, steering rods, boots and fairings:</b> Check for condition and security of attachment. (If aircraft is flown from surfaces of mud, snow or ice, speed fairings should be checked that there is no accumulation, which could prevent normal wheel rotation) Lubricate steering arm bearing as per CSM, Page no. 2-29.	Hangar	1 Hrs
27	32	11B-89	<b>Wheel bearings:</b> Clean, inspect and lubricate.	Hangar	1 Hrs
28	32	11B-90	<b>Nose gear strut and Shimmy dampener:</b> Check strut barrel for corrosion, pitting, and cleanliness. Check Shimmy dampener and bungees for operation, leakage, and attach points for wear and security. Service Shimmy dampener ( if due ) as per Service Manual para 2-27, page 2-17.	Hangar	1 Hrs
29	32	11B-91	<b>Tires:</b> Check tread wear and general condition. Check for proper inflation.	Hangar	1 Hrs
30	32	11B-92	<b>Brake fluid, lines and hoses, linings, discs, brake assemblies and master cylinders:</b> Check for general condition and security. Check for leaks, condition and security of hoses for bulges and deterioration. Check brake lines and hoses for proper routing and support.	Hangar	1 Hrs
31	32	11B-93	<b>Parking brake system:</b> Check for condition and security. Check fluid level and test operation of toe and parking brake.	Hangar	1 Hrs
32	10	11B-94	<b>Main gear springs:</b> Check both springs for corrosion and security, spring integrity,	Hangar	1 Hrs

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			deformation of tubular strut compression fit bushings and step brackets etc.		
33	83	11B-95	<b>Aircraft exterior:</b> Check A/F exterior for dent, loose rivets, integrity of components, paints, and decals etc. any other abnormalities.	Hangar	1 Hrs
34	53	11B-96	<b>Aircraft Structure:</b> Inspect for skin damage, loose rivets, condition of paints, and check Pitot-static ports and drain holes for obstructions. Inspect covers and fairings for security. Inspect bulk-heads door posts, stringers doublers, and skins for corrosion, cracks, buckles, loose rivets, bolts and nuts. Inspect vertical fin attach bracket & nut plates as per Service Manual para 4-14A , Cessna SE79-49R1 and Cessna CAP # 55-30-02 ( Through 1980 models ) Replace nut-plates if required.	Hangar	1 Hrs
35	53	11B-97	<b>Windows, windshield, doors and seals:</b> Inspect general condition. Check latches, hinges and seals for condition, operation and security of attachment.	Hangar	1 Hrs
36	56	11B-98	<b>Seat belts and shoulder harness:</b> Check general condition and security. Inspect belts for condition and security of fasteners. Inspect the Seat belt and Shoulder harness connections as per Cessna SEB96-2.	Hangar	1 Hrs
37	---	11B-99	<b>Seat stops, seat rails, upholstery, structure and mounting:</b> Check operation of seat stops and adjustment mechanism. Inspect seat tracks for condition and security of installation. Check seat track stops for damage and correct location. Check seat rails for condition, cracks and dimensions as called for as per DGCA / CESSNA 152 / 3R1 mandatory modification & FAA AD 2011-10-09. Check condition of upholstery, carpeting and mounting structure.	Hangar	1 Hrs
38	---	11B-100	<b>Control 'Y' bearings, sprockets, pulleys, cables, chains and turnbuckles:</b> Check for general condition, corrosion, security and proper operation through full and free movement.	Hangar	1 Hrs

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39	---	11B-101	<b>Control lock, control wheel and control 'Y' mechanism:</b> Check for general condition, corrosion, security and proper operation through full and free movement.	Hangar	1 Hrs
40	---	11B-102	<b>Magnetic compass compensation:</b> Inspect for se installation, cleanliness and evidence of damage.	Hangar	1 Hrs
41	24	11B-103	<b>Defrosting, heating and ventilating systems and</b> Check for general condition, security and operation. Check controls for free movement through full travel. Check friction locks for proper operation	Hangar	1 Hrs
42	---	11B-104	<b>Cabin upholstery, trim, sunvisors, and ash trays:</b> Check condition and clean as required.	Hangar	1 Hrs
43	---	11B-105	<b>Area beneath floor, lines, hose, wires and contro</b> Check for general condition, corrosion, cleanliness, security of attachment and proper routing.	Hangar	1 Hrs
44	---	11B-106	<b>Cables, terminals, pulleys, pulley brackets, cable turnbuckles and fairleads:</b> Check condition, operation and security of atta Check cables for tension, routing, Fraying, corrosion and turn-buckle for safety. Check cable tension requires Adjustment, or if stops are damaged. Check fair-leads and rub-strips for condition.	Hangar	1 Hrs
45	---	11B-107	<b>Chains, terminals, sprockets and chain guards:</b> C general condition, operation And security of attachment.	Hangar	1 Hrs
46	---	11B-108	<b>Trim control wheels, Indicators, Actuator and</b> Check freedom of movement and proper operation full range. Check pulleys, cables, sprockets, chains, bungees and turn-buckles for condition and securit electric trim control for operation as applicable. actuator for proper operation.	Hangar	1 Hrs
47	---	11B-109	<b>Travel stops:</b> Check for condition. Replace and c cable tension, if damaged.	Hangar	1 Hrs
48	---	11B-110	<b>Decals and labeling:</b> Inspect for presence, legib	Hangar	1 Hrs

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			security. Check POH for required placards.		
49	8	11B-111	<b>Flap control switch, flap rollers and tracks, flap indicator:</b> Check flap tracks, rollers as per Cessna SEB95-3R1 and control rods for security of attachment. Check wiring and terminals for condition and security. Check operation of control switch. Lubricate wing flap indicator as per CSM , Page no. 2-31.	Hangar	1 Hrs
50	---	11B-112	<b>Flap motor, transmission, limit switches, structure, bell cranks etc:</b> Check for condition, operation and security. Check wiring and terminals for condition and security. Lubricate wing flap actuator screw as per CSM, Page & Para. 2-44.	Hangar	1 Hrs
51	---	11B-113	<b>Elevator and trim tab hinges, tips and control rods:</b> Check for freedom of movement and proper operation through full travel with and without extended. Check for condition, security and operation.	Hangar	1 Hrs
52	----	11B-114	<b>Elevator trim tab actuator lubrication:</b> As per service manual ( if due).	Hangar	1 Hrs
53	---	11B-115	<b>Elevator trim tab free-play inspection:</b> Clean, inspect and repair / replacement as per section 9 of Service manual and record	Hangar	1 Hrs
54	---	11B-116	<b>Rudder pedal assemblies and linkage:</b> Check for general condition, proper rigging and operation. Check for security of attachment.	Hangar	1 Hrs
55	---	11B-117	<b>Rudder:</b> Inspect rudder spar for cracks or wrinkles at the upper one-inch diameter hole. ( Ref. Cessna SEB 94-3 & Supplemental Inspection Number <b>55-41-01</b> )	Hangar	1 Hrs
56	----	11B-118	<b>Vertical Stabilizer:</b> Inspect the vertical stabilizer rear attachments for signs of corrosion and cracks as per Supplemental Inspection Number <b>55-11-03</b>	Hangar	1 Hrs
57	55	11B-119	<b>Skins (external) of control surface:</b> Inspect skins for loose rivets, damage, wear,	Hangar	1 Hrs

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			failed fasteners and security.		
58	53	11B-120	<b>Internal structure of control surface:</b> Check for cond	Hangar	1 Hrs
59		11B-121	<b>Balance weight attachment:</b> Check for condition and security of attachment.	Hangar	2 Hrs
60	08	11B-122	<b>Ailerons, hinges and push-pull rods:</b> Check condition security and operation.	Hangar	1 Hrs
61	---	11B-123	Lubricate rod end bearings	Hangar	2 Hrs
62	---	11B-124	<b>Travel Stop</b> – Inspect all flying controls for correct rig and proper travel and Record.	Hangar	1 Hrs
<b>TOTAL</b>					80 Hrs

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**MODULE 17. PROPELLER – PRACTICAL**

**LIST OF PRACTICALS CARRIED OUT AT INHOUSE / OUTSOURCE**

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFORMED ON	ALLOTTED HOURS
1	---	17A-01	Perform the proper propeller lubrication.	Hangar	2 Hrs
2	---	17A-02	Measurement of blade angle with a propeller by protractor	Hangar	2 Hrs
3	---	17A-03	Inspect and clean a propeller	Hangar	2 Hrs
4	---	17A-04	Perform blade cuff inspection	Hangar	2 Hrs
5	---	17A-05	Perform the Inspection of governors	Hangar	3 Hrs
6	---	17A-06	Perform the vertical balance check	Hangar	2 Hrs
7	---	17A-07	Perform the horizontal balance check	Hangar	2 Hrs
8	---	17A-08	Perform the propeller blade tracking	Hangar	3 Hrs
9	---	17A-09	Perform the propeller hub safe tying.	Hangar	2 Hrs
TOTAL					20 Hrs

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