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3 YEARS TRAINING PROGRAMME
FOR
CATEGORY B1.1 COURSE (2400 Hrs.)
THEORY
(HOURS – 1440 Hrs.)
PRACTICALS
(HOURS – 960 Hrs.)

SIGNATURE OF TRAINING MANAGER

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4.2 SYLLABUS OF EACH TRAINING COURSE B 1.1 (AEROPLANE TURBINE)

TERM/ SEM	MODULES	THEORY	PRACTICAL (IN-HOUSE)	AMO
			OTHER THAN ACTUAL MAINTENANCE WORKING ENVIRONMENT	ACTUAL MAINTENANCE WORKING ENVIRONMENT
1 st	7 A (MAINTENANCE PRACTICE -PART A)	80	100	00
	8 (BASIC AERODYNAMICS)	55	36	00
	10 (AVIATION LEGISLATION- PART A)	100	00	00
2 nd	3 (ELECTRICAL FUNDAMENTALS PART-A)	60	50	00
	7 A (MAINTENANCE PRACTICE –PART-B)	75	60	00
	10 (AVIATION LEGISLATION-PART B)	100	00	00
	9A (HUMAN FACTORS)	60	00	00
3 rd	3 (ELECTRICAL FUNDAMENTALS-PART-B)	60	50	00
	7 A (MAINTENANCE PRACTICE –PART-C)	80	33	00
	05 (DIGITAL TECHNIQUES/ELECTRONICS INSTRUMENTS SYSTEM)	60	50	00
4 th	4 (ELECTRONIC FUNDAMENTALS)	60	28	25
	11A (TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS- PART A)	75	21	33
	15 (GAS TURBINE ENGINE PART-A)	85	00	80
5 th	6 (MATERIAL & HARDWARE-PART-A)	65	73	00
	11A (TURBIN AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS- PART B)	115	00	80
	15 (GAS TURBINE ENGINE PART-B)	85	00	60
6 th	6 (MATERIAL & HARDWARE-PART-B)	75	84	00
	11A (TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS- PART C)	100	15	42
	17A(PROPELLER)	50	00	40
	TOTAL		600	360
		1440		

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FRIST SEMESTER TRAINING SYLLABUS
MECHANICAL B1.1
SEMESTER – I (THEORY)

MODULE	SUBJECT	SUBJECT CODE	ALLOTTED HOURS
MODULE – 7A	MAINTENANCE PRACTICE-PART-A	AME 101	80
MODULE – 08	BASIC AERODYAMICS	AME 102	55
MODULE – 10	AVIATION LEGISLATION-PART-A	AME 103	100
TOTAL			235

SEMESTER – I (PRACTICAL)

MODULE	SUBJECT	SUBJECT CODE	OTHER THAN ACTUAL WORKING ENVIRONMENT	ACTUAL WORKING ENVIRONMENT
MODULE – 7A	MAINTENANCE PRACTICE-PART-A	AME 104	100	00
MODULE-08	BASIC AERODYAMICS	AME 105	36	00
TOTAL			136	

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

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTE D HOURS
1.	---	7.1	Safety Precautions-Aircraft and Workshop <ul style="list-style-type: none"> 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. 	3	5 Hrs
2.	---	7.2	Workshop Practices <ul style="list-style-type: none"> Care of tools, control of tools, use of workshop materials; Dimensions, allowances and tolerances, standards of workmanship; Calibration of tools and equipment, calibration standards. 	3	10 Hrs
3.	---	7.3	Tools <ul style="list-style-type: none"> Common hand tool types; Common power tool types; Operation and use of precision measuring tools; Lubrication equipment and methods. Operation, function and use of electrical general test equipment; 	3	20 Hrs
4.	---	7.4	Avionic General Test Equipment <ul style="list-style-type: none"> Operation, function and use of avionic general test equipment. 	2	5 Hrs
5.	---	7.5	Engineering Drawings, Diagrams and Standards <ul style="list-style-type: none"> Drawing types and diagrams, their symbols, dimensions, tolerances and projections; Identifying title block information 	2	10 Hrs

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			<ul style="list-style-type: none"> • Microfilm, microfiche and computerized presentations; • Specification 100 of the Air Transport Association (ATA) of America; • Aeronautical and other applicable standards including ISO, AN, MS, NAS and MIL; • Wiring diagrams and schematic diagrams. 		
6.	---	7.6	Fits and Clearances <ul style="list-style-type: none"> • Drill sizes for bolt holes, classes of fits; • Common system of fits and clearances; • Schedule of fits and clearances for aircraft and engines; • Limits for bow, twist and wear; • Standard methods for checking shafts, bearings and other parts. 	2	10 Hrs
7.	---	7.7	Electrical Wiring Interconnection System (EWIS)h <ul style="list-style-type: none"> • Continuity, insulation and bonding techniques and testing; • Use of crimp tools: hand and hydraulic operated; • Testing of crimp joints; • Connector pin removal and insertion; • Co-axial cables: testing and installation precautions; • Identification of wire types, their inspection criteria and damage tolerance. • Wiring protection techniques: Cable looming and loom support, cable clamps, protective sleeving techniques including heat shrink wrapping, shielding. • EWIS installations, inspection, repair, maintenance and cleanliness standards. 	3	10 Hrs

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8.	---	7.15	Welding, Brazing, Soldering and Bonding <ul style="list-style-type: none">• Soldering methods; inspection of soldered joints.• Welding and brazing methods;• Inspection of welded and brazed joints;• Bonding methods and inspection of bonded joints.	2	10 Hrs
TOTAL					80 Hrs

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MODULE 8. BASIC AERODYNAMICS- THEORY

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTED HOURS
1.	---	8.1	Physics of the Atmosphere <ul style="list-style-type: none"> International Standard Atmosphere (ISA), application to aerodynamics. 	2	5 Hrs
2.	---	8.2	Aerodynamics <ul style="list-style-type: none"> Airflow around a body; Boundary layer, laminar and turbulent flow, free stream flow, relative airflow, up wash and downwash, vortices, stagnation; 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. 	2	30 Hrs
3.	---	8.3	Theory of Flight <ul style="list-style-type: none"> Relationship between lift, weight, thrust and drag; Glide ratio; Steady state flights, performance; Theory of the turn; Influence of load factor: stall, flight envelope and structural limitations; Lift augmentation. 	2	10 Hrs
4.	---	8.4	Flight Stability and Dynamics <ul style="list-style-type: none"> Longitudinal, lateral and directional stability (active and passive). 	2	10 Hrs
TOTAL					55 Hrs

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MODULE 10. AVIATION LEGISLATION PART-A- THEORY

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	---	10.1	Regulatory Framework <ul style="list-style-type: none"> • Role of International Civil Aviation Organization; • The Aircraft Act and Rules made there under • Role of the DGCA; • Relationship between CAR-21, CAR-M, CAR-145, CAR-66, CAR 147 • The Aircraft Rules (Applicable to Aircraft Maintenance and Release) • Aeronautical Information Circulars (Applicable to Aircraft Maintenance and Release) • CAR Sections 1 and 2 	1	25 Hrs
2.	---	10.2	CAR-66 Certifying Staff – Maintenance <ul style="list-style-type: none"> • Detailed understanding of CAR-66. 	2	25 Hrs
3.	---	10.4	Aircraft Operations <ul style="list-style-type: none"> • Commercial Air Transport/Commercial Operations • Air Operators Certificates; • Operators Responsibilities, in particular regarding continuing airworthiness and maintenance; • Documents to be carried on board; • Aircraft Placarding (Markings); 	1	15 Hrs
4.	---	10.7	Applicable National and International Requirements <ul style="list-style-type: none"> • Maintenance Programme, Maintenance checks and inspections; • Master Minimum Equipment Lists, Minimum Equipment List, Dispatch Deviation Lists; • Airworthiness Directives; Service Bulletins, manufacturers service information; Modifications and repairs; • Maintenance documentation: maintenance manuals, structural repair manual, illustrated parts catalogue, etc.; 	2	25 Hrs
			<ul style="list-style-type: none"> • Continuing airworthiness; 	1	10 Hrs

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			<ul style="list-style-type: none"> • Test flights; • ETOPS /EDTO, maintenance and dispatch requirements; • RVSM, maintenance and dispatch requirements • RNP, MNPS Operations • All Weather Operations, • Category 2/3 operations and minimum equipment requirements. 		
				TOTAL	100 Hrs

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MODULE 7A. (MAINTENANCE PRACTICES PART-A) – PRACTICAL
LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE

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.	In- House	10 Hrs
2	---	7A-02	Scribe the lines on metal piece for laying out work	In- House	1 Hrs
3	---	7A-03	To make a square fit from the given mid steel pieces	In- House	6 Hrs
4	---	7A-04	To make a V-fit from the given mid steel pieces	In- House	6 Hrs
5	---	7A-05	Use the plan and Philips screw drivers to open and tight the panel mounted screws.	In- House	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.	In- House	1 Hrs
7	---	7A-07	Open and tight the panel mounted screws by using speed handle, bits and holder.	In- House	1 Hrs
8	---	7A-08	Open the panel mounted screw by using power operated screw drivers.	In- House	1 Hrs
9	---	7A-09	Install and remove the nut and bolts	In- House	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.	In- House	1 Hrs
11	---	7A-11	Install and remove the nut and bolts assembly by using offset and offset socket wrenches.	In- House	1 Hrs
12	---	7A-12	Remove and installed the set head screw or socket head screws.	In- House	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.	In- House	1 Hrs
14	---	7A-14	Perform the wire locking by using locking wire pliers	In- House	1 Hrs
15	---	7A-15	Set and use the given torque value of torque in different units in torque wrenches.	In- House	1 Hrs
16	---	7A-16	Use the screw extractor to remove the damage screw	In- House	1 Hrs
17	---	7A-17	Remove and install the stud from assembly part.	In- House	1 Hrs
18	---	7A-18	Use the crowfoot wrench and hook spanners to remove and installed nut and bolt from the assembly part.	In- House	1 Hrs
19	---	7A-19	Remove and installed the circlip by using the circlip pliers.	In- House	1 Hrs
20	---	7A-20	Use the impact drivers to break loose a stubborn fastener.	In- House	1 Hrs
21	---	7A-21	Perform the measurements by using the steel rule (metric and Inches).	In- House	1 Hrs
22	---	7A-22	Perform the measurement by the using the rule depth gauge.	In- House	1 Hrs

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23	---	7A-23	Perform the measurements by using the outside micrometer (imperial and metric).	In- House	1 Hrs
24	---	7A-24	Perform the measurements by using the inside Micrometer (imperial and metric).	In- House	1 Hrs
25	---	7A-25	Perform the measurements by using the Vernier calipers (imperial and metric).	In- House	1 Hrs
26	---	7A-26	Perform the measurements by using the Vernier height gauge.	In- House	1 Hrs
27	---	7A-27	Perform the measurements by using the Vernier depth gauge.	In- House	1 Hrs
28	---	7A-28	Perform the measurements by using the Telescoping gauge.	In- House	1 Hrs
29	---	7A-29	Perform the measurements by using the small hole gauge.	In- House	1 Hrs
30	---	7A-30	Perform the measurements by using the dial test indicator (imperial and metric).	In- House	1 Hrs
31	---	7A-31	Perform the angle measurement by using the simple bevel protector.	In- House	1 Hrs
32	---	7A-32	Perform the angle measurements by using the precession bevel protector.	In- House	1 Hrs
33	---	7A-33	Perform the angle measurements by using the universal and combination bevel.	In- House	1 Hrs
34	---	7A-34	Perform measurement by using the combination set.	In- House	1 Hrs
35	---	7A-35	Perform the measurements by use of sine bar.	In- House	1 Hrs
36	---	7A-36	Measure the inside diameter of a job by using the inside callipers	In- House	1 Hrs
37	---	7A-37	Measure the outside diameter of a job by using the outside callipers	In- House	1 Hrs
38	---	7A-38	Transfer the measurement from outside to inside calipers	In- House	1 Hrs
39	---	7A-39	Measure the distance and draw an arc & circle by using the dividers.	In- House	1 Hrs
40	---	7A-40	Draw parallel lines by using the jenny	In- House	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.	In- House	1 Hrs
42	---	7A-42	Check the accuracy of holes by using plug gauge	In- House	1 Hrs
43	---	7A-43	Check the size of the drill bits by using the drill gauge	In- House	1 Hrs
44	---	7A-44	Measure the clearance or gaps by using feeler or thickness gauge	In- House	1 Hrs
45	---	7A-45	Check the inside and outside radius of a component by using a fillet or radius gauge.	In- House	1 Hrs
46	---	7A-46	Check the pitch of a thread by using screw pitch gauge	In- House	1 Hrs
47	---	7A-47	Perform the measurement by use of Go and not go gauge	In- House	1 Hrs
48	---	7A-48	Check the wire size by using the SWG/AWG.	In- House	1 Hrs
49	---	7A-49	Check the flatness of surface by using inclinometer	In- House	1 Hrs
50	---	7A-50	Drill holes as per the given size by using of pillar and sensitive drill machine.	In- House	1 Hrs
51	---	7A-51	Perform the reaming operation to enlarge the drilled holes to accurate dimensions.	In- House	1 Hrs
52	---	7A-52	Cut the internal screw thread on drilled holes by using the taps.	In- House	1 Hrs
53	---	7A-53	Cut the external screw threads on round bar metals by using the dies.	In- House	1 Hrs
54	---	7A-54	Perform the grinding operation on a specimen job	In- House	1 Hrs
55	---	7A-55	Perform the buffing operation on a specimen job	In- House	1 Hrs
56	---	7A-56	Cut the job peace by Powered hacksaw.	In- House	1 Hrs

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57	---	7A-57	Cut the metal sheet by using Sheet metal guillotine/hand shear machine.	In- House	1 Hrs
58	---	7A-58	Perform the turning operation for a job on lathe machine.	In- House	2 Hrs
59	---	7A-59	Perform the Counter boring, spot facing and countersinking operation.	In- House	1 Hrs
60	---	7A-60	To cut a spur gear tooth on a given circular blank by gear cutting processes on horizontal milling machine.	In- House	2 Hrs
61	---	7A-61	Perform electric arc welding and make the different joints.	In- House	2 Hrs
62	---	7A-62	Perform TIG welding and make the different joints.	In- House	2 Hrs
63	---	7A-63	Perform the oxy Acetylene welding by using different flame.	In- House	2 Hrs
64	---	7A-64	Perform the spot welding on a job peace.	In- House	2 Hrs

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LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE

65	---	7A-65	Use multimeter to meters to measure AC and DC volts, amps and resistance.	In - House	1 Hrs
66	---	7A-66	Check an aircraft electrical circuit for continuity in conjunction with an electrical wiring diagram	In - House	1 Hrs
67	---	7A-67	Check the insulation resistance by using megger	In - House	1 Hrs
68	---	7A-68	Perform wire splicing.	In - House	1 Hrs
69	---	7A-69	Insert / extract electrical inserts (pins) in a variety of electrical connectors.	In - House	1 Hrs
70	---	7A-70	Perform the tying and lacing of aircraft wire bundle.	In - House	1 Hrs
71	---	7A-71	Perform crimping to prepare cable ends or plug / socket terminals.	In - House	1 Hrs
72	---	7A-72	Perform cutting, stripping of coaxial cable and crimping of BNC connector with co-axial cable.	In - House	1 Hrs
73	---	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
74	---	7A-74	Measure the resistance of bonding jumpers by using mill ohmmeter.	In - House	1 Hrs
75	---	7A-75	Perform the electrical wire and component soldering	In - House	1 Hrs
Total					100

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MODULE 08. (BASIC AERODYNAMICS) – PRACTICAL
LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFOR-MED IN	ALLOTED HOURS
1	---	08-02	Practices on demonstration of Bernoulli's principle.	In-House	2 Hrs
2	---	08-02	Aircraft Flight Controls	In-House	2 Hrs
3	---	08-02	Familiarization of Aerofoil	In-House	3 Hrs
4	---	08-02	Familiarization of Terms associated with Aircraft Wing	In-House	3 Hrs
5	---	08-02	Understanding of Incidence board and dihedral board	In-House	3 Hrs
6	---	08-02	Location of ICE prone area	In-House	3 Hrs
7	---	08-03	Familiarization of construction of Aircraft Wing	In-House	3 Hrs
8	---	08-03	Practices to understand the methods of Controlling Boundary Layer.	In-House	3 Hrs
9	---	08-03	Lift Augmentation Devices (Flaps, Leading edge devices, Fixed airflow devices)	In-House	5 Hrs
10	---	08-04	Familiarization of High wing, Mid wing & Low wing	In-House	4 Hrs
11	---	08-04	Practices to understand the concept of stability (Longitudinal, Lateral & Directional)	In-House	5 Hrs
Total					36 Hrs

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SECOND SEMESTER TRAINING SYLLABUS
MECHANICAL B1.1
SEMESTER – II (THEORY)

MODULE	SUBJECT	SUBJECT CODE	ALLOTTED HOURS
MODULE – 03	ELECTICAL FUNDAMENTALS PART-A	AME 201	60
MODULE – 7A	MAINTENANCE PRACTICE PART-B	AME 202	75
MODULE – 10	AVIATION LEGISLATION PART-A	AME 203	100
MODULE – 9A	HUMAN FACTOR	AME 204	60
TOTAL			295

SEMESTER – II (PRACTICALS)

MODULE	SUBJECT	SUBJECT CODE	OTHER THAN ACTUAL WORKING ENVIRONMENT	ACTUAL WORKING ENVIRONMENT
MODULE – 03	ELECTICAL FUNDAMENTALS PART-A	AME 205	50	00
MODULE- 7A	MAINTENANCE PRACTICE PART-B	AME 206	60	00
Total			110	

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

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	---	3.1	Electron Theory <ul style="list-style-type: none"> • Structure and distribution of electrical charges within: atoms, molecules, ions, compounds; • Molecular structure of conductors, semiconductors and insulators. 	1	5 Hrs
	---	3.2	Static Electricity and Conduction <ul style="list-style-type: none"> • Static electricity and distribution of electrostatic charges; • Electrostatic laws of attraction and repulsion; Units of charge, Coulomb's Law; • Conduction of electricity in solids, liquids, gases and a vacuum. 	2	5 Hrs
2.	---	3.3	Electrical Terminology <ul style="list-style-type: none"> • The following terms, their units and factors affecting them: <ul style="list-style-type: none"> ▪ Potential difference, ▪ electromotive force, ▪ voltage, current, ▪ resistance, conductance, ▪ Charge, conventional current flow, electron flow. 	2	3 Hrs
3.	---	3.4	Generation of Electricity <ul style="list-style-type: none"> • Production of electricity by the following methods: <ul style="list-style-type: none"> ▪ Light, heat, ▪ Friction, pressure, ▪ Chemical action, magnetism and motion. 	1	4 Hrs
4.	---	3.5	DC Sources of Electricity	2	10 Hrs

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

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			<ul style="list-style-type: none"> Construction of potentiometers and rheostats; Construction of Wheatstone Bridge; 		
7.	---	3.8	Power <ul style="list-style-type: none"> Power, work and energy (kinetic and potential); Dissipation of power by a resistor; Power formula; Calculations involving power, work and energy. 	2	5 Hrs
8.	---	3.9	Capacitance/Capacitor <ul style="list-style-type: none"> Operation and function of a capacitor; Factors affecting capacitance area of plates, distance between plates, number of plates, dielectric and dielectric constant, working voltage, voltage rating; Capacitor types, construction and function; Capacitor color coding; Calculations of capacitance and voltage in series and parallel circuits; Exponential charge and discharge of a capacitor, time constants; Testing of capacitors. 	2	5 Hrs

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9.	---	3.10	Magnetism <ul style="list-style-type: none"> Theory of magnetism; Properties of a magnet Action of a magnet suspended in the Earth's magnetic field; Magnetization and demagnetization; Magnetic shielding; Various types of magnetic material; Electromagnets construction and principles of operation; Hand clasp rules to determine: magnetic field around current carrying conductor. 	2	3 Hrs
			<ul style="list-style-type: none"> Magneto motive force, field strength, magnetic flux density, permeability, hysteresis loop, retentively, coercive force reluctance, saturation point, eddy currents; Precautions for care and storage of magnets. 	2	2 Hrs
10.	---	3.11	Inductance/Inductor <ul style="list-style-type: none"> Faraday's Law; Action of inducing a voltage in a conductor moving in a magnetic field; Induction principles; Effects of the following on the magnitude of an induced voltage: magnetic field strength, rate of change of flux, number of conductor turns; Mutual induction; The effect the rate of change of primary current and mutual inductance has on induced voltage; Factors affecting mutual inductance: number of turns in coil, physical size of 	2	5 Hrs

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			coil, permeability of coil, position of coils with respect to each other; <ul style="list-style-type: none"> • Lenz's Law and polarity determining rules; • Back EMF, self-induction; • Saturation point; • Principle uses of inductors; 		
				TOTAL	60 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	Riveting <ul style="list-style-type: none"> Riveted joints, rivet spacing and pitch; Tools used for riveting and dimpling; Inspection of riveted joints. 	2	10 Hrs
2.	---	7.9	Pipes and Hoses <ul style="list-style-type: none"> Bending and belling/flaring aircraft pipes; Inspection and testing of aircraft pipes and hoses; Installation and clamping of pipes. 	2	10 Hrs
3.	---	7.10	Springs <ul style="list-style-type: none"> Inspection and testing of springs. 	2	7 Hrs
4.	---	7.11	Bearings <ul style="list-style-type: none"> Testing, cleaning and inspection of bearings; Lubrication requirements of bearings; Defects in bearings and their causes. 	2	7 Hrs
5.	---	7.12	Transmissions <ul style="list-style-type: none"> Inspection of gears, backlash; Inspection of belts and pulleys, chains and sprockets; Inspection of screw jacks, lever devices, push-pull rod systems. 	2	8 Hrs
6.	---	7.13	Control Cables <ul style="list-style-type: none"> Swaging of end fittings; Inspection and testing of control cables; Bowden cables; aircraft flexible control systems. 	2	10 Hrs
7.	---	7.14	Material handling	2	15 Hrs
		7.14.1	Sheet Metal <ul style="list-style-type: none"> Marking out and calculation of bend allowance; Sheet metal working, including bending and 		

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			forming; • Inspection of sheet metal work.		
8.	---	7.14.2	Composite and non-metallic • Bonding practices; • Environmental conditions • Inspection methods	2	8 Hrs
Total					75 Hrs

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MODULE 10. AVIATION LEGISLATION -PART-B THEORY

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	----	10.3	CAR-145 — Approved Maintenance Organizations <ul style="list-style-type: none"> Detailed understanding of CAR-145 and CAR M Subpart F 	2	30 Hrs
2.	----	10.5	Aircraft Certification	1	10 Hrs
			General <ul style="list-style-type: none"> Certification rules: such as FAA & EACS 23/25/27/29; Type Certification; Supplemental Type Certification; CAR-21 Design/Production Organization Approvals. Aircraft Modifications and repairs approval and certification Permit to fly requirements 		
			Documents <ul style="list-style-type: none"> Certificate of Airworthiness; Certificate of Registration; Noise Certificate; Weight Schedule; Radio Station License and Approval. 	2	10 Hrs
3.	----	10.6	CAR-M <ul style="list-style-type: none"> Detail understanding of CAR M provisions related to Continuing Airworthiness Detailed understanding of CAR-M. 	2	30 Hrs

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5.	----	10.8	Safety Management System <ul style="list-style-type: none">• State Safety Programme• Basic Safety Concepts• Hazards & Safety Risks• SMS Operation• SMS Safety performance• Safety Assurance	2	10 Hrs
6.	----	10.9	Fuel Tank Safety <ul style="list-style-type: none">• Special Federal Aviation Regulations (SFARs) from 14 CFR SFAR 88 of the FAA and of JAA TGL 47• Concept of CDCCL,• Airworthiness Limitations Items (ALI)	2	10 Hrs
TOTAL					100 Hrs

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MODULE 9 A. HUMAN FACTORS- THEORY

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	-----	9.1	General <ul style="list-style-type: none"> • The need to take human factors into account; • Incidents attributable to human factors/human error; • 'Murphy's' law. 	2	5 Hrs
2.	-----	9.2	Human Performance and Limitations <ul style="list-style-type: none"> • Vision; • Hearing; • Information processing; • Attention and perception; • Memory; • Claustrophobia and physical access. 	2	7 Hrs
3.	-----	9.3	Social Psychology <ul style="list-style-type: none"> • Responsibility: individual and group; • Motivation and de-motivation; • Peer pressure; • 'Culture' issues; • Team working; • Management, supervision and leadership 	1	7 Hrs
4.	-----	9.4	Factors Affecting Performance <ul style="list-style-type: none"> • Fitness/health; • Stress: domestic and work related; • Time pressure and deadlines; • Workload: overload and underload; • Sleep and fatigue, shiftwork; • Alcohol, medication, drug abuse. 	2	7 Hrs
5.	-----	9.5	Physical Environment <ul style="list-style-type: none"> • Noise and fumes; • Illumination; • Climate and temperature; • Motion and vibration; 	1	7 Hrs

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			<ul style="list-style-type: none"> Working environment. 		
6.		9.6	Tasks <ul style="list-style-type: none"> Physical work; Repetitive tasks; Visual inspection; Complex systems. 	1	6 Hrs
7.		9.7	Communication <ul style="list-style-type: none"> Within and between teams; Work logging and recording; Keeping up to date, currency; Dissemination of information. 	2	7 Hrs
8.		9.8	Human Error <ul style="list-style-type: none"> Error models and theories; Types of error in maintenance tasks; Implications of errors (i.e. accidents) Avoiding and managing errors. 	2	7 Hrs
9.		9.9	Hazards in the Workplace <ul style="list-style-type: none"> Recognizing and avoiding hazards; Dealing with emergencies. 	2	7 Hrs
				TOTAL	60 Hrs

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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	PERFOR-MED ON	ALLOTED HOURS
1	--	3-01	Identification of conductors, semiconductors and insulator & their	In- House	5 Hrs
2	--	3-02	Associated with the Connection of the battery in series and parallel and calculation of the voltage	In- House	5 Hrs
3	--	3-03	Verify the ohm law with experiments.	In- House	5 Hrs
4	--	3-04	Verify the Kirchhoff law with experiment.	In- House	5 Hrs
5	--	3-05	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
6	--	3-06	Identify the various types of resister and practice the value of colour code resister.	In- House	5 Hrs
7	--	3-07	Demonstration of the resister in series ,parallel and in combination and measure the value of resister through AMM/DMM	In- House	4 Hrs
8	--	3-08	With the simple electrical circuit demonstration of use of potentiometer and rheostat.	In- House	3 Hrs
9	--	3-09	Application of Wheatstone Bridge to find out unknown resistance value.	In- House	3 Hrs
10	--	3-10	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
11	--	3-11	Connect the inductor in series and parallel and measure the value of inductor through inductor meter. Verify the of faradays law of electromagnetic Induction	In- House	5 Hrs
TOTAL					50 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	In- House	3 Hrs
2	---	7A-77	Perform the riveting in panel by use of pneumatic hammer.	In- House	4 Hrs
3	---	7A-78	Perform of the inspection of Riveted Joints	In- House	3 Hrs
4	---	7A-79	Perform the single and double wire locking in nut and bolts assembly in groups, fittings, electrical connector.	In- House	6 Hrs
5	---	7A-80	Remove and install the cotter pin	In- House	2 Hrs
6	---	7A-81	Perform the tube bending by using the hand tube bender as per given dimensions	In- House	4 Hrs
7	---	7A-82	Perform the tube flaring practice single and double flare method	In- House	4 Hrs
8	---	7A-83	Perform the tube beading practice to join the two tube.	In- House	4 Hrs
9	---	7A-84	Perform the tube beading practices to join the rigid and flexible hoses.	In- House	4 Hrs
10	---	7A-85	Remove and installed the flare and flameless pipelines and inspect the pipelines, fitting and sleeve and B nuts.	In- House	3 Hrs
11	---	7A-86	Perform the tube/flexible hose Installation, Inspection practice.	In- House	3 Hrs
12	---	7A-87	Fabricate the flexible hose for flare and flare less fittings.	In- House	2 Hrs
13	---	7A-88	Measure the dimensions of coils springs	In- House	2 Hrs
14	---	7A-89	Perform cleaning, lubrication and inspection of bearings	In- House	3 Hrs

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15	---	7A-90	Inspect and lubricate the screw jacks.	In- House	2 Hrs
16	---	7A-91	Inspect the levers, push-pull rod, belts, pulleys, chain and sprockets.	In- House	2 Hrs
17	---	7A-92	Check backlash of gears	In- House	2 Hrs
18	---	7A-93	Perform the control cable swaging with end fitting	In- House	3 Hrs
19	---	7A-94	Perform the Inspection and tension testing of control cable	In- House	4 Hrs
TOTAL					60 Hrs

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THIRD SEMESTER TRAINING SYLLABUS**MECHANICAL B1.1****SEMESTER – III (THEORY)**

MODULE	SUBJECT	SUBJECT CODE	ALLOTTED HOURS
MODULE – 03	ELECTRICAL FUNDAMENTALS PART- B	AME 301	60
MODULE – 7A	MAINTENANCE PRACTICE- PART-C	AME 302	80
MODULE – 05	DIGITAL TECHNIQUES/ INSTRUMENT SYSTEMS	AME 303	60
TOTAL			200

SEMESTER – III (PRACTICAL)

MODULE	SUBJECT	SUBJECT CODE	OTHER THAN ACTUAL WORKING ENVIRONMENT	ACTUAL WORKING ENVIRONMENT
MODULE – 03	ELECTRICAL FUNDAMENTALS PART- B	AME 304	50	00
MODULE – 7A	MAINTENANCE PRACTICE- PART-C	AME 305	33	00
MODULE – 05	DIGITAL TECHNIQUES/ ELECTRONIC INSTRUMENT SYSTEMS	AME 306	50	00
TOTAL			133	

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

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	---	3.12	DC Motor/Generator Theory <ul style="list-style-type: none"> • Basic motor and generator theory; • Construction and purpose of components in DC generator; • Operation of, and factors affecting output and direction of current flow in DC generators; • Operation of, and factors affecting output power, torque, speed and direction of rotation of DC motors; • Series wound, shunt wound and compound motors; • Starter Generator construction. 	2	15 Hrs
2.	---	3.13	AC Theory <ul style="list-style-type: none"> • 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 • Triangular/Square waves; • Single/3 phase principles. 	2	10 Hrs
3.		3.14	Resistive (R), Capacitive (C) and Inductive (L) Circuits <ul style="list-style-type: none"> • Phase relationship of voltage and current in L, C and R circuits, parallel, series and series parallel; • Power dissipation in L, C and R circuits; • Impedance, phase angle, power factor 	2	5 Hrs

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

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7.	---	3.18	AC Motors <ul style="list-style-type: none">• Construction, principles of operation and characteristics of: AC synchronous and induction motors both single and polyphase;• Methods of speed control and direction of rotation;• Methods of producing a rotating field: capacitor, inductor, shaded or split pole.	2	10 Hrs
TOTAL					60 Hrs

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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	Aircraft Weight and Balance <ul style="list-style-type: none"> Centre of Gravity/Balance limits calculation: use of relevant documents; Preparation of aircraft for weighing; Aircraft weighing; 	2	15 Hrs
2.	08,10,12	7.17	Aircraft Handling and Storage <ul style="list-style-type: none"> Aircraft taxiing/towing and associated safety precautions; Aircraft jacking, chocking, securing and associated safety precautions; Aircraft storage methods; Refueling/defueling procedures; De-icing/anti-icing procedures; Electrical, hydraulic and pneumatic ground supplies. Effects of environmental conditions on aircraft handling and operation. 	2	25 Hrs

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3.	---	7.18	Disassembly, Inspection, Repair and Assembly Techniques <ul style="list-style-type: none"> Types of defects and visual inspection techniques. Corrosion removal, assessment and reproduction. General repair methods, Structural Repair Manual; Ageing, fatigue and corrosion control programmes; Nondestructive inspection techniques including, penetrant, radiographic, eddy current, ultrasonic and borescope methods. Disassembly and re-assembly techniques. Trouble shooting techniques 	3	20 Hrs
				2	
				2	
4.	---	7.19	Abnormal Events <ul style="list-style-type: none"> Inspections following lightning strikes and HIRF penetration. Inspections following abnormal events such as heavy landings and flight through turbulence. 	2	10 Hrs
5.	----	7.20	Maintenance Procedures <ul style="list-style-type: none"> Maintenance planning; Modification procedures; Stores procedures; Certification/release procedures; Interface with aircraft operation; Maintenance Inspection/Quality Control/Quality Assurance; Additional maintenance procedures. Control of life limited components 	2	10 Hrs
TOTAL					80 Hrs

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

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.		5.1	Electronic Instrument Systems <ul style="list-style-type: none">• Typical systems arrangements and cockpit layout of electronic instrument systems.	2	7 Hrs
2.		5.2	Numbering Systems <ul style="list-style-type: none">• Numbering systems: binary, octal and hexadecimal;• Demonstration of conversions between the decimal and binary, octal and hexadecimal systems and vice versa.	1	3 Hrs
3.		5.3	Data Conversion <ul style="list-style-type: none">• Analogue Data, Digital Data;• Operation and application of analogue to digital, and digital to analogue converters, inputs and outputs, limitations of various types.	1	2 Hrs
4.		5.4	Data Buses <ul style="list-style-type: none">• Operation of data buses in aircraft systems, including knowledge of ARINC and other specifications.	2	3 Hrs
5.		5.5	Logic Circuits <ul style="list-style-type: none">• Identification of common logic gate symbols, tables and equivalent circuits;• Applications used for aircraft systems, schematic diagrams.	2	2 Hrs

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6.		5.6	Basic Computer Structure <ul style="list-style-type: none"> Computer terminology (including bit, byte, software, hardware, CPU, IC, and various memory devices such as RAM, ROM, PROM); Computer technology (as applied in aircraft systems). 	2	5 Hrs
7.		5.10	Fiber Optics <ul style="list-style-type: none"> Advantages and disadvantages of fiber optic data transmission over electrical wire propagation; Fiber optic data bus; Fiber optic related terms; Terminations; Couplers, control terminals, remote terminals; Application of fiber optics in aircraft systems. 	1	3 Hrs
8.		5.11	Electronic Displays <ul style="list-style-type: none"> Principles of operation of common types of displays used in modern aircraft, including Cathode Ray Tubes, Light Emitting Diodes and Liquid Crystal Display. 	1	7 Hrs
9.		5.12	Electrostatic Sensitive Devices <ul style="list-style-type: none"> Special handling of components sensitive to electrostatic discharges; Awareness of risks and possible damage, component and personnel anti-static protection devices. 	2	3 Hrs
10.		5.13	Software Management Control <ul style="list-style-type: none"> Awareness of restrictions, airworthiness requirements and possible catastrophic effects of unapproved changes to software programmes. 	1	5 Hrs

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11.	5.14	Electromagnetic Environment <ul style="list-style-type: none"> • Influence of the following phenomena on maintenance practices for electronic system: <ul style="list-style-type: none"> ▪ EMC-Electromagnetic Compatibility ▪ EMI-Electromagnetic Interference ▪ HIRF-High Intensity Radiated Field ▪ Lightning/lightning protection 	2	5 Hrs
12.	5.15	Typical Electronic/Digital Aircraft Systems <ul style="list-style-type: none"> • General arrangement of typical electronic/digital aircraft systems and associated BITE (Built In Test Equipment) testing such as: <ul style="list-style-type: none"> ▪ ACARS-ARINC Communication and Addressing and Reporting System ▪ EICAS-Engine Indication and Crew Alerting System ▪ FBW-Fly by Wire ▪ FMS-Flight Management System ▪ IRS-Inertial reference system ▪ (ECAM-Electronic Centralized Aircraft Monitoring ▪ EFIS-Electronic Flight Instrument System ▪ GPS-Global Positioning System ▪ TCAS-Traffic Collision Avoidance system ▪ Integrated modular Avionics ▪ Cabin System ▪ Information system 	2	15 Hrs
TOTAL				60 Hrs

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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	PERFOR-MED ON	ALLOTTED HOURS
1	--	3-12	Perform the brush inspection of DC generator.	In- House	3 Hrs
2	--	3-13	Test the armature in Growler and through multimeter/test lamp	In- House	4 Hrs
3	--	3-14	Operate the DC motor and Perform the direction reversing method of DC motor.	In- House	3 Hrs
4	--	3-15	Measure the single phase, three phase, and DC Voltage by AMM/Multimeter.	In- House	3 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	4 Hrs
6	--	3-17	Perform the speed control of single phase and three phase Induction AC Motors.	In- House	3 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	4 Hrs
9	--	3-20	Connect the AC generator with voltage regulator and measure the Voltage at varying RPM of prime mover.	In- House	4 Hrs
10	--	3-21	Fabricate the Transformer rectifier unit	In- House	2 Hrs
11	--	3-22	Control the intensity of light by simple circuit.	In- House	2 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
TOTAL					50 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	PERFOR-MED ON	ALLOTED HOURS
1	---	7A-95	Demonstration remove and refit aircraft access panels.	In- House	1 Hrs
2	---	7A-96	Demonstration of the levelling of an aircraft	In- House	1 Hrs
3	---	7A-97	Perform jacking of nose or tail wheel	In- House	2 Hrs
4	---	7A-98	Perform jacking of complete aircraft	In- House	2 Hrs
5	---	7A-99	Perform the use of chocks, sling ,trestle, ladder and other ground handling equipment	In- House	3 Hrs
6	---	7A-100	Parking, mooring, chocking and grounding of aircraft	In- House	2 Hrs
7	---	7A-101	Perform long time parking	In- House	1 Hrs
8	---	7A-102	Perform the towing of aircraft	In- House	2 Hrs
9	---	7A-103	Check the tire pressure and charge the hydraulic fluid in to the tank/reservoir of brakes	In- House	3 Hrs
10	---	7A-104	Connect and use external electrical power in the aircraft	In- House	2 Hrs
11	---	7A-105	Perform the fueling and defueling of aircraft	In- House	3 Hrs
12	---	7A-107	Perform the special inspection schedule	In- House	2 Hrs
13	---	7A-109	Perform the Florescent Penetrant Inspection on sample job Magnetic particle NDT method for flaw detection.	In- House	2 Hrs
14	---	7A-110	Perform the Magnetic particle NDT method for flaw detection.	In- House	3 Hrs
15	---	7A-111	Perform the eddy current NDT method for flaw detection.	In- House	4 Hrs
TOTAL					33 Hrs

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MODULE 05. (DIGITAL TECHNIQUES ELECTRONIC INSTRUMENT SYSTEM)- PRACTICAL
LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFOR-MED ON	ALLOTED HOURS
1	---	05-2	Numbering systems - Conversion Practice	In- House	3 Hrs
2	---	05-2	Numbering systems - Addition, Subtraction, Multiplication& Division.	In- House	4 Hrs
3	---	05-2	Familiarization & application of Analog to Digital and Digital to Analog converters	In- House	3 Hrs
4	---	05-3	Perform the method of protection of aircraft avionics from lightning strikes /HIRF	In- House	4 Hrs
5	---	05-4	Data bus and ARINC Systems.	In- House	5 Hrs
6	---	05-5(a)	Familiarization of ICs used in Logic Circuit: Basic, Universal and Special Logic Gates.	In- House	4 Hrs
7	---	05-6(a)	Basic Computer structure: Computer Hardware & Computer memory and Data storage devices.	In- House	4 Hrs
8	---	05-7	Familiarization of Microprocessor and Microprocessor families.	In- House	5 Hrs
9	---	05-9	Familiarization of Multiplexer and De-multiplexers.	In- House	4 Hrs
10	---	05-10	Familiarization of Fiber Optics cable and components.	In- House	5 Hrs
11	---	05-12	Demonstration of Electrostatic Discharge Devices.	In- House	4 Hrs
12	---	05-15(b)	Familiarization & understanding of operation of Cathode Ray Tubes, Light Emitting Diodes and Liquid Crystal display.	In- House	5 Hrs
TOTAL					50 Hrs

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FOURTH SEMESTER TRAINING SYLLABUS

MECHANICAL B1.1

SEMESTER – IV (THEORY)

MODULE	SUBJECT	SUBJECT CODE	ALLOTTED HOURS
MODULE – 04	ELECTRONIC FUNDAMENTALS	AME 401	60
MODULE – 11A	TURBINE AEROPLANE AERODYNAMICS, STRUCTURE & SYSTEM PART-A (AIRFRAME SYSTEM)	AME 402	75
MODULE – 15	GAS TURBINE ENGINE PART-A	AME 403	85
TOTAL			220

SEMESTER – IV (PRACTICAL)

MODULE	SUBJECT	SUBJECT CODE	OTHER THAN ACTUAL WORKING ENVIRONMENT	ACTUAL WORKING ENVIRONMENT
MODULE – 04	ELECTRONIC FUNDAMENTALS	AME 404	28	25
MODULE- 11A	TURBINE AEROPLANE AERODYNAMICS, STRUCTURE & SYSTEM PART-A (AIRFRAME SYSTEM)	AME 405	21	33
MODULE – 15	GAS TURBINE ENGINE PART-A	AME 406	00	80
TOTAL			49	138

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MODULE 4. (ELECTRONIC FUNDAMENTALS) - THEORY

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	---	4.1	Semiconductors		15 Hrs.
		4.1.1	Diodes (a) - 2 2 1 <ul style="list-style-type: none"> • Diode symbols; • Diode characteristics and properties; • Diodes in series and parallel; • Main characteristics and use of silicon-controlled rectifiers (thyristors), lightemitting diode, photo conductive diode, varistor, rectifier diodes; • Functional testing of diodes. 	2	
2.	---	4.1.2	Transistors. <ul style="list-style-type: none"> • Transistor symbols; • Component description and orientation; • Transistor characteristics and properties. 	1	15 Hrs.
3.	---	4.1.3	Integrated Circuits. <ul style="list-style-type: none"> • Description and operation of logic circuits and linear circuits/operational amplifiers. 	1	10 Hrs.
4.	---	4.2	Printed Circuit Boards. <ul style="list-style-type: none"> • Description and use of printed circuit boards. 	1	5 Hrs.
5.		4.3	Servomechanisms. <ul style="list-style-type: none"> • Understanding of the following terms: Open and closed loop systems, feedback, follow up, analogue transducers; • Principles of operation and use of the following synchro system components/features: resolvers, differential, control and torque, transformers, inductance and capacitance transmitters. 	1	15 Hrs.
Total					60 Hrs.

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**MODULE 11A. (TURBINE AEROPLANE AERODYNAMICS,
STRUCTURES AND SYSTEM)-PART-A - THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	---	11.1	Theory of Flight	2	15 Hrs
		11.1.1	Aeroplane Aerodynamics and Flight Controls. <ul style="list-style-type: none"> • Operation and effect of: <ul style="list-style-type: none"> — roll control: ailerons and spoilers; — pitch control: elevators, stabilators, variable incidence stabilisers and canards; — yaw control, rudder limiters; • Control using elevons, ruddervators; • High lift devices, slots, slats, flaps, flaperons; • Drag inducing devices, spoilers, lift dumpers, speed brakes; • Effects of wing fences, saw tooth leading edges; • Boundary layer control using, vortex generators, stall wedges or leading-edge devices; • Operation and effect of trim tabs, balance and antibalance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels; 		
2.	---	11.1.2	High Speed Flight. <ul style="list-style-type: none"> • Speed of sound, subsonic flight, transonic flight, supersonic flight, • Mach number, critical Mach number, compressibility buffet, shock wave, aerodynamic heating, area rule; • Factors affecting airflow in engine intakes of high-speed aircraft; • Effects of sweepback on critical Mach number. 	2	10 Hrs
3.	---	11.2	Airframe Structures — General Concepts. <ul style="list-style-type: none"> • Airworthiness requirements for structural strength; • Structural classification, primary, secondary and tertiary; • Fail safe, safe life, damage tolerance concepts; 	2	15 Hrs

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			<ul style="list-style-type: none"> • Zonal and station identification systems; • Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; • Drains and ventilation provisions; • System installation provisions; • Lightning strike protection provision. • Aircraft bonding 		
			<ul style="list-style-type: none"> • Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning, anti-corrosive protection, wing, empennage and engine attachments; • Structure assembly techniques: riveting, bolting, bonding • Methods of surface protection, such as chromating, anodising, painting; Surface cleaning. • Airframe symmetry: methods of alignment and symmetry checks. 	2	10 Hrs
4.	---	11.3	Airframe Structures — Aeroplanes		
	52/5 3/56	11.3.1	Fuselage (ATA 52/53/56) <ul style="list-style-type: none"> • Construction and pressurisation sealing; Wing, stabiliser, pylon and undercarriage attachments; Seat installation and cargo loading system; • Doors and emergency exits: construction, mechanisms, operation and safety devices; • Windows and windscreen construction and mechanisms. 	2	5 Hrs

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5.	57	11.3.2	Wings (ATA 57) <ul style="list-style-type: none">• Construction;• Fuel storage;• Landing gear, pylon, control surface and high lift/drag attachments.	2	5 Hrs
6.	55	11.3.3	Stabilisers (ATA 55) <ul style="list-style-type: none">• Construction;• Control surface attachment.	2	5 Hrs
7.	55/5 7	11.3.4	Flight Control Surfaces (ATA 55/57) <ul style="list-style-type: none">• Construction and attachment;• Balancing — mass and aerodynamic.	2	5 Hrs
8.	54	11.3.5	Nacelles/Pylons (ATA 54) <ul style="list-style-type: none">• Construction; Firewalls; Engine mounts.	2	5 Hrs
Total					75 Hrs.

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MODULE 15. GAS TURBINE ENGINE- PART-A, THEORY

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	---	15.1	Fundamentals. <ul style="list-style-type: none"> Potential energy, kinetic energy, Newton's laws of motion, Brayton cycle; The relationship between force, work, power, energy, velocity, acceleration; Constructional arrangement and operation of turbojet, turbofan, turbo shaft, turboprop. 	2	5 Hrs
2.		15.2	Engine Performance. <ul style="list-style-type: none"> Gross thrust, net thrust, choked nozzle thrust, thrust distribution, resultant thrust, thrust horsepower, equivalent shaft horsepower, specific fuel consumption; Engine efficiencies; By-pass ratio and engine pressure ratio; Pressure, temperature and velocity of the gas flow; Engine ratings, static thrust, influence of speed, altitude and hot climate, flat rating, limitations. 	2	8 Hrs
3.		15.3	Inlet <ul style="list-style-type: none"> Compressor inlet ducts Effects of various inlet configurations; Ice protection. 	2	5 Hrs
4.		15.4	Compressors. <ul style="list-style-type: none"> Axial and centrifugal types; Constructional features and operating principles and applications; Fan balancing; Operation: Causes and effects of compressor stall and surge; Methods of air flow control: bleed valves, variable inlet guide vanes, variable stator vanes, rotating stator blades; Compressor ratio. 	2	15 Hrs

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5.	15.5	Combustion Section. <ul style="list-style-type: none"> • Constructional features and principles of operation. 	2	7 Hrs
6.	15.6	Turbine Section. <ul style="list-style-type: none"> • Operation and characteristics of different turbine blade types; • Blade to disk attachment; • Nozzle guide vanes; Causes and effects of turbine blade stress and creep. 	2	10 Hrs
7.	15.7	Exhaust. <ul style="list-style-type: none"> • Constructional features and principles of operation; • Convergent, divergent and variable area nozzles; • Engine noise reduction; Thrust reversers. 	2	10 Hrs
8.	15.8	Bearings and Seals. <ul style="list-style-type: none"> • Constructional features and principles of operation. 	2	5 Hrs
9.	15.9	Lubricants and Fuels. <ul style="list-style-type: none"> • Properties and specifications; • Fuel additives; • Safety precautions. 	2	5 Hrs
10.	15.10	Lubrication Systems. <ul style="list-style-type: none"> • System operation/lay-out and components. 	2	5 Hrs
11.	15.11	Fuel Systems. <ul style="list-style-type: none"> • Operation of engine control and fuel metering systems including electronic engine control (FADEC); • Systems lay-out and components. 	2	10 Hrs
Total				85 Hrs

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MODULE : 4 (ELECTRICAL FUNDAMENTALS)– PRACTICAL
LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFOR-MED ON	ALLOTTED HOURS
1	--	4-01	Identification of Electronics Components.	In House	2 Hrs
2	--	4-02	Identification and function of various types of Diodes.	In House	3 Hrs
3	--	4-03	Familiarization of Integrated Circuits	In House	3 Hrs
4	--	4-04	Familiarization of Logic ICs (TTL, CMOS)	In House	4 Hrs
5	--	4-05	Familiarization of Operational Amplifier and its application	In House	5 Hrs
6	--	4-06	Demonstration of Servo System	Out Source	2 Hrs
7	--	4-07	Demonstration of Synchro System Components	Out Source	3 Hrs
8	--	4-08	Demonstration and use of BITE	Out Source	3 Hrs
9	--	4-09	Demonstration of EICAS	Out Source	3 Hrs
10	--	4-10	Practice the measurement by using basic DC Synchro and Torque synchro system	In House	4 Hrs
11	--	4-11	Study of CRO and to find the Amplitude and Frequency using CRO.	In House	5 Hrs
12	--	4-12	Demonstration of Fly by Wire System	Out Source	3 Hrs
13	--	4-13	Demonstration of IRS	Out Source	3 Hrs
14	--	4-14	Demonstration of ACAS& TCAS	Out Source	4 Hrs
15		4-15	Demonstration of ECAM	Out Source	4 Hrs
Total = 53 Hours				In House = 28 Hrs. Out Source = 25 Hrs.	

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MODULE 11A. TURBINE 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	---	11A-01	Understanding of Aircraft primary controls and its functions.	In House	2 Hrs
2	---	11A-02	Understanding of High Lift Devices & Its functions.	Out Source	4 Hrs
3	---	11A-03	Understanding of Trim Tabs and its functions.	Out Source	3 Hrs
4	---	11A-04	Aircraft Structure Classification.	In House	2 Hrs
5	---	11A-05	Effect of Bending movement and shear force.	In House	2 Hrs
6	---	11A-06	Location of drain and ventilation provision.	Out Source	5 Hrs
7	---	11A-07	Understanding of Lightning Protection.	Out Source	4 Hrs
8	---	11A-08	Understanding of Aircraft Fuselage Structure.	In House	2 Hrs
9	52,53,56	11A-09	Fuselage Structural Components.	In House	4 Hrs
11	52,53,56	11A-10	Inspection, operation of Doors & Emergency Exits.	Out Source	4 Hrs
11	52,53,56	11A-11	Inspection , check of Windows & Wind Screen.	Out Source	5 Hrs
12	57	11A-12	Inspection of Wing , Empennage & Engine Attachment.	Out Source	5 Hrs
13	57	11A-13	Wing Construction & Structural Components.	In House	3 Hrs
14	55	11A-14	Stabilizers, Pylon & Undercarriage attachment	In House	3 Hrs
15	55	11A-15	Familiarization of Stabilizer	In House	3 Hrs
16	54	11A-16	Familiarization of Engine Mounts	Out Source	3 Hrs
Total				In House =21 Out Source =33	54

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MODULE 15. (GAS TURBINE ENGINE PART-A)- PRACTICAL
LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFOR-MED ON	ALLOTTED HOURS
1	---	15-01	Familiarization of Constructional details, location and parts of turbo Jet Engine	Out Source	4 Hrs
2	---	15-01	Familiarization of Constructional details, location and parts of Turbo Prop engine.	Out Source	4 Hrs
3	---	15-01	Familiarization of Constructional details, location and parts of Turbo Shaft engines.	Out Source	4 Hrs
4	---	15-01	Familiarization of Constructional details, location and parts of Turbo Fan engines.	Out Source	4 Hrs
5	---	15-01	Identification of Engine Stations and Engine Flanges.	Out Source	4 Hrs
6	---	15-02	Demonstration of Engine Thrust power and torque.	Out Source	4 Hrs
7	---	15-02	Familiarization of Engine operating limitations and factor affecting them; design features of engines	Out Source	2 Hrs
8	---	15-02	Familiarization of Sub sonic and supersonic inlet ducts	Out Source	2 Hrs
9	---	15-03	Familiarization of Anti Icing System on Inlet Ducts and Air Intakes.	Out Source	4 Hrs
10	---	15-04	Familiarization of Centrifugal Flow Compressors- Constructional Details and Various configurations.	Out Source	3 Hrs
11	---	15-04	Familiarization of Axial Flow Compressors- Constructional Details and Various Configurations. Single spool, twin spool and triple spool	Out Source	4 Hrs
12		15-04	Familiarization of Low Pressure, Intermediate and High Pressure and their designation as N1,N2 and N3	Out Source	4 Hrs
13	---	15-04	Familiarization of attachment of Rotor Blades and Stator Vanes and their retention; Blades and Vanes profiles.	Out Source	3 Hrs
14	---	15-04	Familiarization of Static and Dynamic Balancing Compressor Discs.	Out Source	2 Hrs

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15	---	15-05	Familiarization of Can Multiple type combustion chambers-constructural details and materials.	Out Source	3 Hrs	
16	---	15-05	Familiarization of Can annular type combustion chambers-constructural details & material	Out Source	3 Hrs	
17	---	15-06	Familiarization of Shafting system between turbine assembly and compressor Assembly.	Out Source	4 Hrs	
18	---	15-07	Familiarization of Noise suppressors-corrugated perimeter and multiple tube type	Out Source	4 Hrs	
19	---	15-08	Familiarisation of types of Engine Bearings.	Out Source	4 Hrs	
20	---	15-09	Familiarisation of Lubricants and handling precautions.	Out Source	4 Hrs	
21	---	15-10	Familiarization of lubricating system components, their layouts and routing of wet sump and dry sump systems.	Out Source	4 Hrs	
22	---	15-11	Familiarization of Fuel Control Units-Hydro Mechanical, Pneumatic and Electronic.	Out Source	2 Hrs	
23	---	15-11	Familiarization of layout of fuel system and its components; location, routing and plumbing	Out Source	4 Hrs	
24	---	15-11	Demonstration of FADEC system	Out Source	4 Hrs	
TOTAL					Out Source = 80 Hrs	80 Hrs

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FIFTH SEMESTER TRAINING SYLLABUS**MECHANICAL B1.1****SEMESTER – V (THEORY)**

MODULE	SUBJECT	SUBJECT CODE	ALLOTTED HOURS
MODULE – 06	MATERIAL & HARDWARE PART-A	AME 501	65
MODULE – 11A	TURBINE AEROPLANE AERDYANAMICS, STRUCTURES & SYSTEMS PART-B (AIRFRAME SYSTEM)	AME 502	115
MODULE – 15	GAS TURBINE ENGINE PART-B	AME 503	85
TOTAL			265

SEMESTER – V (PRACTICAL)

MODULE	SUBJECT	SUBJECT CODE	OTHER THAN ACTUAL WORKING ENVIRONMENT	ACTUAL WORKING ENVIRONMENT
MODULE – 06	MATERIAL & HARDWARE PART-A	AME 504	73	00
MODULE – 11A	TURBINE AEROPLANE AERDYANAMICS, STRUCTURES & SYSTEMS PART-B (AIRFRAME SYSTEM)	AME 505	00	80
MODULE – 15	GAS TURBINE ENGINE PART-B	AME 506	00	60
TOTAL			73	103

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MODULE 6. (MATERIALS AND HARDWARE PART-A)- THEORY

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	---	6.1	Aircraft Materials — Ferrous	2	10 Hrs
			<ul style="list-style-type: none"> Characteristics, properties and identification of common alloy steels used in aircraft; Heat treatment and application of alloy steels; Testing of ferrous materials for hardness, tensile strength, fatigue strength and impact resistance. 	1	5 Hrs
2.	---	6.2	Aircraft Materials — Non-Ferrous	2	10 Hrs
			<ul style="list-style-type: none"> Characteristics, properties and identification of common non-ferrous materials used in aircraft; Heat treatment and application of non-ferrous materials; Testing of non-ferrous material for hardness, tensile strength, fatigue strength and impact resistance. 	1	5 Hrs
3.	---	6.3	Aircraft Materials - Composite and Non- Metallic	2	8 Hrs
		6.3.1	Composite and non-metallic other than wood and fabric		
			<ul style="list-style-type: none"> Characteristics, properties and identification of common composite and non-metallic materials, other than wood, used in aircraft; Sealant and bonding agents. The detection of defects/deterioration in composite and non-metallic material. Repair of composite and non-metallic material. 	2	
4.	---	6.3.2	Wooden structures	2	5 Hrs
			<ul style="list-style-type: none"> Construction methods of wooden airframe structures; Characteristics, properties and types of wood and glue used in aeroplanes; 		

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			<ul style="list-style-type: none"> • Preservation and maintenance of wooden structure; • Types of defects in wood material and wooden structures; • The detection of defects in wooden structure; • Repair of wooden structure. 		
5.	---	6.3.3	Fabric covering <ul style="list-style-type: none"> • Characteristics, properties and types of fabrics used in aeroplanes; • Inspections methods for fabric; • Types of defects in fabric; • Repair of fabric covering. 	2	5 Hrs
6.	---	6.4	Corrosion <ul style="list-style-type: none"> • Chemical fundamentals; • Formation by, galvanic action process, microbiological, stress; 	1	10 Hrs
			<ul style="list-style-type: none"> • Types of corrosion and their identification; • Causes of corrosion; • Material types, susceptibility to corrosion. 	3	5 Hrs
Total					65 Hrs

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**MODULE 11A. (TURBINE AEROPLANE AERODYNAMICS,
STRUCTURES AND SYSTEM)-PART-B - THEORY**

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.	21	11.4	Air Conditioning and Cabin Pressurisation (ATA 21)		
2.	21	11.4.1	Air supply <ul style="list-style-type: none"> Sources of air supply including engine bleed, APU and ground cart; 	2	5 Hrs
3.	21	11.4.2	Air Conditioning <ul style="list-style-type: none"> Air conditioning systems; Air cycle and vapour cycle machines Distribution systems; Flow, temperature and humidity control system. 	3	5 Hrs
4.		11.4.3	Pressurisation <ul style="list-style-type: none"> Pressurisation systems; Control and indication including control and safety valves; Cabin pressure controllers. 	3	5 Hrs
5.		11.4.4	Safety and warning devices. <ul style="list-style-type: none"> Protection and warning devices. 	3	5 Hrs
6.	28	11.10	Fuel Systems (ATA 28) <ul style="list-style-type: none"> System lay-out; Fuel tanks; Supply systems; Dumping, venting and draining; Cross-feed and transfer; Indications and warnings; Refuelling and defuelling; Longitudinal balance fuel systems. 	3	10 Hrs

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7.	29	11.11	Hydraulic Power (ATA 29) <ul style="list-style-type: none"> • System lay-out; • Hydraulic fluids; • Hydraulic reservoirs and accumulators; • Pressure generation: electric, mechanical, pneumatic; Emergency pressure generation; • Filters; • Pressure Control; Power distribution; • Indication and warning systems; Interface with other systems. 	3	15 Hrs
8.	30	11.12	Ice and Rain Protection (ATA 30) <ul style="list-style-type: none"> • Ice formation, classification and detection; • Anti-icing systems: electrical, hot air and chemical; • De-icing systems: electrical, hot air, pneumatic and chemical; • Rain repellent; • Probe and drain heating. • Wiper systems 	3	10 Hrs
9.	32	11.13	Landing Gear (ATA 32) <ul style="list-style-type: none"> • Construction, shock absorbing; • Extension and retraction systems: normal and emergency; • Indications and warning; • Wheels, brakes, antiskid and autobraking; • Tyres; • Steering. • Air-ground sensing 	3	15 Hrs

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10.	35	11.15	Oxygen (ATA 35) <ul style="list-style-type: none"> • System lay-out: cockpit, cabin; • Sources, storage, charging and distribution; • Supply regulation; • Indications and warnings; 	3	10 Hrs
11.	36	11.16	Pneumatic/Vacuum (ATA 36) <ul style="list-style-type: none"> • System lay-out; • Sources: engine/APU, compressors, reservoirs, ground supply; • Pressure control; • Distribution; • Indications and warnings; • Interfaces with other systems. 	3	12 Hrs
12.	38	11.17	Water/Waste (ATA 38) <ul style="list-style-type: none"> • Water system lay-out, supply, distribution, servicing and draining; • Toilet system lay-out, flushing and servicing; • Corrosion aspects. 	3	8 Hrs
13.	44	11.20	Cabin Systems (ATA44) <ul style="list-style-type: none"> • The units and components which furnish a means of entertaining the passengers and providing communication within the aircraft (Cabin Intercommunication Data System) and between the aircraft cabin and ground stations (Cabin Network Service). Includes voice, data, music and video transmissions. • The Cabin Intercommunication Data System provides an interface between cockpit/cabin crew and cabin systems. These systems support data exchange of the different related LRU's and they are typically operated via Flight Attendant Panels. 	2	10 Hrs

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			<ul style="list-style-type: none"> • The Cabin Network Service typically consists on a server, typically interfacing with, among others, the following systems: <ul style="list-style-type: none"> — Data/Radio Communication, In-Flight Entertainment System. • The Cabin Network Service may host functions such as: <ul style="list-style-type: none"> — Access to pre-departure/departure reports, E-mail/intranet/Internet access, — Passenger database; • Cabin Core System; • In-flight Entertainment System; • External Communication System; • Cabin Mass Memory System; • Cabin Monitoring System; • Miscellaneous Cabin System. 		
14.	46	11.21	Information Systems (ATA46) <ul style="list-style-type: none"> • The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. Includes units that are dedicated to the information storage and retrieval function. • such as the electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display. • Typical examples include Air Traffic and Information Management Systems and Network Server Systems. • Aircraft General Information System; • Flight Deck Information System; • Maintenance Information System; • Passenger Cabin Information System; • Miscellaneous Information System. 	2	5 Hrs
Total					115 Hrs

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MODULE 15. (GAS TURBINE ENGINE)-PART-B - THEORY

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.		15.12	Air Systems. <ul style="list-style-type: none"> • Operation of engine air distribution and anti-ice control systems, including internal cooling, sealing and external air services. 	2	8 Hrs
2.		15.13	Starting and Ignition Systems. <ul style="list-style-type: none"> • Operation of engine start systems and components; • Ignition systems and components; • Maintenance safety requirements. 	2	10 Hrs
3.		15.14	Engine Indication Systems. <ul style="list-style-type: none"> • Exhaust Gas Temperature/Interstage Turbine Temperature; • Engine Thrust Indication: Engine Pressure Ratio, engine turbine discharge pressure or jet pipe pressure systems; • Oil pressure and temperature; • Fuel pressure and flow; • Engine speed; • Vibration measurement and indication; • Torque; • Power. 	2	15 Hrs
4.		15.15	Power Augmentation Systems. <ul style="list-style-type: none"> • Operation and applications; • Water injection, water methanol; • After burner systems. 	1	8 Hrs
6.		15.16	Turbo-prop Engines. <ul style="list-style-type: none"> • Gas coupled/free turbine and gear coupled turbines; • Reduction gears; Integrated engine and propeller controls; • Overspeed safety devices. 	2	5 Hrs
7.		15.17	Turbo-shaft engines. <ul style="list-style-type: none"> • Arrangements, drive systems, reduction gearing, couplings, control systems. 	2	5 Hrs

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8.	15.18	Auxiliary Power Units (APUs) <ul style="list-style-type: none"> Purpose, operation, protective systems. 	2	7 Hrs
9.	15.19	Power plant Installation. <ul style="list-style-type: none"> 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. 	2	7 Hrs
10.	15.20	Fire Protection Systems. <ul style="list-style-type: none"> Operation of detection and extinguishing systems. 	2	7 Hrs
11.	15.21	Engine Monitoring and Ground Operation. <ul style="list-style-type: none"> Procedures for starting and ground run-up; Interpretation of engine power output and parameters; Trend (including oil analysis, vibration and boroscope) monitoring; Inspection of engine and components to criteria, tolerances and data specified by engine manufacturer; Compressor washing/cleaning; Foreign Object Damage. 	3	8 Hrs
12.	15.22	Engine Storage and Preservation. <ul style="list-style-type: none"> Preservation and depreservation for the engine and accessories/ systems. 	2	5 Hrs
Total			85 Hrs.	

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MODULE 06. MATERIAL & HARDWARE PART-A – PRACTICAL
LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFORMED ON	ALLOTTED HOURS
1.	---	06-01	Identification of Ferrous Metals	In House	5 Hrs
2.	---	06-02	Testing of ferrous Metal.	In House	10 Hrs
3.	---	06-03	Identification of Non-Ferrous Metals	In House	5 Hrs
4.	---	06-04	Familiarization of sealant & bonding agents	In House	5 Hrs
5.	---	06-05	Testing of Non-ferrous Metal.	In House	10 Hrs
6.	---	06-06	Identification of Composite.	In House	8 Hrs
7.	---	06-07	Identification of Wood, Fabrics, Dopes used in Aircraft.	In House	8 Hrs
8.	---	06-08	Identification of Corrosion on Ferrous & Non-ferrous Metals	In House	7 Hrs
9.	---	06-09	Demonstrate Heat treatment procedure.	In House	10 Hrs
10.	---	06-10	Identification of defects in wood material and wooden structures;	In House	5 Hrs
Total					73 Hrs

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MODULE 11A. (TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEM)-PART-B
LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFORMED ON	ALLOTTED HOURS
1	21	11A-17	Air conditioning system, layout and Components	Out Source	4 Hrs
2	21	11A-18	Cabin Pressurization system, lay out and Components	Out Source	5 Hrs
3	28	11A-19	Familiarization of Fuel system, layout and components	Out Source	3 Hrs
4	29	11A-20	Understanding the principles of Hydraulics and terms associated with it	Out Source	4 Hrs
5	29	11A-21	Familiarization of different Hydraulic fluids and quality control checks	Out Source	2 Hrs
6	29	11A-22	Hydraulic systems, its various components, layout and operational checks	Out Source	4 Hrs
7	30	11A-23	Icing, De-Icing and Anti-Icing System of Aircraft.	Out Source	4 Hrs
8	30	11A-24	Functional test of windscreen wiper system.	Out Source	4 Hrs
9	32	11A-25	Familiarization of different types of landing gears	Out Source	4 Hrs
10	32	11A-26	Functional test of typical extension/retraction System(landing gear)	Out Source	3 Hrs
11	32	11A-27	Wheel Brake removal and installation	Out Source	4 Hrs
12	32	11A-28	Wheel removal and installation	Out Source	4 Hrs
13	32	11A-29	Familiarization of landing gear safety devices and functional checks	Out Source	4 Hrs
14	35	11A-30	Familiarization of aircraft oxygen system, components, layout, routing and plumbing	Out Source	3 Hrs
15	35	11A-31	Aircraft oxygen storage, charging, distribution, supply regulation and indication	Out Source	4 Hrs
16	36	11A-32	Aircraft pneumatic system layout and its components	Out Source	3 Hrs

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17	36	11A-33	Familiarization of aircraft pneumatic/vacuum system pressure control, distribution and indication/ warnings.	Out Source	2 Hrs
18	38	11A-34	Familiarization of potable water supply and waste water management.	Out Source	2 Hrs
19	38	11A-35	Toilet system layout, flushing and Servicing	Out Source	2 Hrs
20	44	11A-36	Cabin System: Cabin Network Service, Cabin Core System: Inflight Entertainment System; External Communication System, Cabin Mass Memory, Monitoring and Miscellaneous Cabin System.	Out Source	7 Hrs
21	44	11A-37	aircraft information system: Aircraft general information; Flight Deck information; Maintenance information, Passenger Cabin Information and Miscellaneous information.	Out Source	7 Hrs
Out Source = 80 Hrs					80 Hrs
TOTAL					

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MODULE : 15 (GAS TURBINE ENGINE PART-B) – PRACTICAL
LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFOR-MED ON	ALLOTTED HOURS
1	--	15-12	Familiarization of Engine air distribution operation and anti-ice control system.	Out Source	2 Hrs
2	--	15-13	Familiarization of various types of aero engine starters and their circuitry system	Out Source	2 Hrs
3	--	15-13	Familiarization of various types of ignition systems and igniter plugs- location and routing of the components	Out Source	2 Hrs
4	--	15-14	Demonstration of Engine operating parameters indicating instruments for gas temperature, engine RPM engine power, fuel pressure and fuel flow.	Out Source	3 Hrs
5	--	15-15	Demonstration of Thrust augmentation system	Out Source	4 Hrs
6	--	15-15	Familiarization of augmentation of power by water methanol injection	Out Source	2 Hrs
7	--	15-16	Familiarization of Turbo prop engines-gas coupled turbines and their Controls.	Out Source	2 Hrs
8	--	15-16	Familiarization of turbo prop engine with free turbine and their controls.	Out Source	2 Hrs
9	--	15-16	Familiarization of reduction gear assemblies and their associated parts	Out Source	2 Hrs
10	--	15-17	Familiarization of Turbo shaft engines-gas coupled turbines and their controls.	Out Source	2 Hrs
11	--	15-17	Familiarization of turbo shaft engine with free turbine and their controls	Out Source	2 Hrs
13		15-18	Familiarization of Auxiliary Power units-location and interfacing with aircraft electrical power system and engine power system	Out Source	4 Hrs
14	--	15-19	Familiarization of Power plant installation configurations	Out Source	2 Hrs

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15	--	15-20	Identification of various engine connect and disconnect point on firewall	Out Source	2 Hrs
16	--	15-20	Familiarization of Fire detection system-location , routing and layout of	Out Source	2 Hrs
17	--	15-21	Demonstration of Starting and Ground runner	Out Source	5 Hrs
18	--	15-21	Familiarization of Trend Analysis by condition monitoring including Soap, Boroscope Examination and Vibration analysis	Out Source	3 Hrs
19	--	15-21	Familiarization of Cold section and hot section Inspection	Out Source	2 Hrs
20	--	15-21	Demonstration of ground operational checks-dry motoring, wet motoring, idle rpm, max rpm and power assurance checks	Out Source	6 Hrs
21	--	15-21	Demonstration of Cleaning and Washing of Compressors	Out Source	5 Hrs
22		15-22	Understanding of preservation and depreservation of engine and accessory system	Out Source	4 Hrs
TOTAL					60 Hrs

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MODULE	SUBJECT	SUBJECT CODE	ALLOTTED HOURS
MODULE – 06	MATERIAL & HARDWARE PART-B	AME 601	75
MODULE – 11A	TURBINE AEROPLANE AERODYNAMICS, STRUCTURES & SYSTEM PART-C (AVIONICS SYSTEM)	AME 602	100
MODULE – 17A	PROPELLER	AME 603	50
TOTAL			225

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MODULE	SUBJECT	SUBJECT CODE	OTHER THAN ACTUAL WORKING ENVIRONMENT	ACTUAL WORKING ENVIRONMENT
MODULE – 06	MATERIAL & HARDWARE PART-B	AME 604	84	00
MODULE – 11A	TURBINE AEROPLANE AERODYNAMICS, STRUCTURES & SYSTEM PART-C (AVIONICS SYSTEM)	AME 605	15	42
MODULE – 17A	PROPELLER	AME 606	00	40
TOTAL			99	82

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

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
	---	6.5	Fasteners	2	5 Hrs
		6.5.1	Screw threads <ul style="list-style-type: none"> • Screw nomenclature; • Thread forms, dimensions and tolerances for standard threads used in aircraft; • Measuring screw threads; 		
7.	---	6.5.2	Bolts, studs and screws <ul style="list-style-type: none"> • Bolt types: specification, identification and marking of aircraft bolts, international standards; • Nuts: self-locking, anchor, standard types; • Machine screws: aircraft specifications; • Studs: types and uses, insertion and removal; • Self-tapping screws, dowels. 	2	10 Hrs
8.	---	6.5.3	Locking devices <ul style="list-style-type: none"> • Tab and spring washers, locking plates, split pins, palnuts, wire locking, quick release fasteners, keys, circlips, cotter pins. 	2	7 Hrs
9.	---	6.5.4	Aircraft rivets <ul style="list-style-type: none"> • Types of solid and blind rivets: specifications and identification, heat treatment. 	2	7 Hrs
10.	---	6.6	Pipes and Unions <ul style="list-style-type: none"> • Identification of, and types of rigid and flexible pipes and their connectors used in aircraft; 	2	5 Hrs
			<ul style="list-style-type: none"> • Standard unions for aircraft hydraulic, fuel, oil, pneumatic and air system pipes. 	2	2 Hrs
11.	---	6.7	Springs <ul style="list-style-type: none"> • Types of springs, materials, characteristics and applications. 	2	5 Hrs
12.	---	6.8	Bearings <ul style="list-style-type: none"> • Purpose of bearings, loads, material, construction; 	2	6 Hrs

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			<ul style="list-style-type: none"> Types of bearings and their application. 		
13.	---	6.9	Transmissions <ul style="list-style-type: none"> Gear types and their application; Gear ratios, reduction and multiplication gear systems, driven and driving gears, idler gears, mesh patterns; Belts and pulleys, chains and sprockets. 	2	10 Hrs
14.	---	6.10	Control Cables <ul style="list-style-type: none"> Types of cables; End fittings, turnbuckles and compensation devices; Pulleys and cable system components; Bowden cables; Aircraft flexible control systems. 	2	8 Hrs
15.	---	6.11	Electrical Cables and Connectors <ul style="list-style-type: none"> Cable types, construction and characteristics; High tension and co-axial cables; Crimping; Connector types, pins, plugs, sockets, insulators, current and voltage rating, Coupling, identification codes. 	2	10 Hrs
TOTAL					75 Hrs

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MODULE 11A. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS PART- C THEORY

INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
1.		11.5	Instruments/Avionic Systems.		
2.	31	11.5.1	Instrument Systems (ATA 31) <ul style="list-style-type: none"> • Pitot static: altimeter, air speed indicator, vertical speed indicator; • Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator; • Compasses: direct reading, remote reading; • Angle of attack indication, stall warning systems; • Glass Cockpit • Other aircraft system indication. 	2	20 Hrs.
3.	22,23,34	11.5.2	Avionic Systems. <ul style="list-style-type: none"> • Fundamentals of system lay-outs and operation of; • Auto Flight (ATA 22); • Communications (ATA 23); • Navigation Systems (ATA 34). 	1	15 Hrs.
4.	24	11.6	Electrical Power (ATA 24) <ul style="list-style-type: none"> • Batteries Installation and Operation; • DC power generation; • AC power generation; • Emergency power generation; • Voltage regulation; • Power distribution; • Inverters, transformers, rectifiers; • Circuit protection. • External/Ground power; 	3	20 Hrs.

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INDEX NO.	ATA	TASK NUMBER	DESCRIPTION	LEVEL	ALLOTTED HOURS
5.	25	11.7	Equipment and Furnishings (ATA 25) <ul style="list-style-type: none"> • (a)Emergency equipment requirements; Seats, harnesses and belts. • (b) Cabin lay-out; Equipment lay-out; Cabin Furnishing Installation; • Cabin entertainment equipment; • Galley installation; Cargo handling and retentionequipment; Airstairs. 	2 1	10 Hrs.
6.	26	11.8	Fire Protection (ATA 26) <ul style="list-style-type: none"> • (a) Fire and smoke detection and warning systems; Fire extinguishing systems; System tests. • (b) Portable fire extinguisher 	3 1	10 Hrs.
7.	27	11.9	Flight Controls (ATA 27) <ul style="list-style-type: none"> • Primary controls: aileron, elevator, rudder, spoiler; • Trim control; • Active load control; • High lift devices; • Lift dump, speed brakes; • System operation: manual, hydraulic, pneumatic, electrical, fly-by-wire; • Artificial feel, Yaw damper, Mach trim, rudder limiter, gust locks systems; • Balancing and rigging; • Stall protection/warning system 	3	10 Hrs.
8.	33	11.14	Lights (ATA 33) <ul style="list-style-type: none"> • External: navigation, anti-collision, landing, taxiing, ice; • Internal: cabin, cockpit, cargo; • Emergency. 	3	5 Hrs.

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9.	42	11.19	Integrated Modular Avionics (ATA42) <ul style="list-style-type: none">• Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others: Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc.	2	10 Hrs.
Total					100 Hrs.

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MODULE 17A. PROPELLER THEORY

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

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5.	---	17.5	Propeller Ice Protection. <ul style="list-style-type: none">• Fluid and electrical de-icing equipment.	2	5 Hrs.
6.	---	17.6	Propeller Maintenance. <ul style="list-style-type: none">• Static and dynamic balancing;• Blade tracking;• Assessment of blade damage, erosion, corrosion, impact damage, delamination;• Propeller treatment/repair schemes;• Propeller engine running.	3	10 Hrs.
7.	---	17.7	Propeller Storage and Preservation. <ul style="list-style-type: none">• Propeller preservation and depreservation	2	5 Hrs.
Total					50 Hrs.

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MODULE 06. (MATERIAL & HARDWARE PART-B) PRACTICALS
LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFOR-MED ON	ALLOTTED HOURS
1	---	06-11	Familiarization and Identification of Different type of bolts; Studs and Screws	In House	10 Hrs
2	---	06-12	Use of Torque Wrenches.	In House	7 Hrs
3	---	06-13	Use of Locking Devices.	In House	7 Hrs
4	---	06-14	Exercises on Wire Locking Techniques	In House	6 Hrs
5	---	06-15	Identification of Aircraft rivets.	In House	2 Hrs
6	---	06-16	Riveting Practice (Hand & Power)	In House	8 Hrs
7	---	06-17	Identification of Pipes, connectors and unions.	In House	2 Hrs
8	---	06-18	Identification of Spring.	In House	2 Hrs
9	---	06-19	Lubrication of bearings used in aircraft and engine.	In House	10 Hrs
10	---	06-20	Cleaning, Inspection and Lubrication of bearings.	In House	8 Hrs
11	---	06-21	Identification of different type of gears.	In House	2 Hrs
12	---	06-22	Identification of different type of control cables and their assemblies.	In House	5 Hrs
13	---	06-23	Identification of different type of aircraft electrical cables and connectors.	In House	5 Hrs
14	---	06-24	Crimping of Aircraft electrical cable terminal ends.	In House	10 Hrs
Total					84 Hrs

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MODULE 11A. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS (AVIONICS SYSTEM)

PART-C – PRACTICAL

LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFOR-MED ON	ALLOTED HOURS
1	25	11A-38	Demostration of Emergency equipment used in aircraft	Out Source	3 Hrs
2	26	11A-39	Demostration of Fire and Smoke detection systems ,System Layout and components	Out Source	3 Hrs
3	26	11A-40	Fire Extinguishing system of turbine engine	Out Source	2 Hrs
4	26	11A-41	Portable Fire Extinguishers	Out Source	2 Hrs
5	27	11A-42	Construction of Flight Control Surfaces and Balancing methods	Out Source	4 Hrs
6	31	11A-43	Familiarization of Pitot static system and its components	Out Source	2 Hrs
7	31	11A-44	Familiarization of Altimeter and its components	In House	4 Hrs
8	31	11A-45	Familiarization of Air speed and Vertical Speed Indicator and its components	In House	4 Hrs
9	31	11A-46	Familiarization of MACH meter and its components	In House	3 Hrs
10	31	11A-47	Familiarization of Gyroscope and its components	Out Source	3 Hrs
11	31	11A-48	Familiarization of Artificial Horizons, Directional Gyro, Turn and Slip Indicator and turn coordinator.	Out Source	3 Hrs
12	22,23,34	11A-49	Demonstration of Auto Pilot, Communication and Navigation system, layout and components.	Out Source	5 Hrs

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13	24	11A-50	Circuit protection devices on Aircraft	Out Source	4 Hrs
14	24	11A-51	Familiarization of various types of Voltage Regulators	In House	4 Hrs
15	24	11A-52	Demonstration and Identification of DC Generator & Parts	Out Source	3 Hrs
16	24	11A-53	Demonstration and Identification of AC Generator & parts	Out Source	3 Hrs
17	33	11A-54	Aircraft internal and external lighting systems	Out Source	2 Hrs
18	42	11A-55	Integrated modular avionics system and component	Out Source	3 Hrs
In House = 15 Hrs Out Source = 42 Hrs					57 Hrs
Total					

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MODULE : 17A (PROPELLER) PRACTICALS

LIST OF PRACTICALS CARRIED OUT AT INHOUSE/OUTSOURCE

INDEX NO.	ATA	TASK NUMBER	BASIC PRACTICAL TASKS	PERFOR-MED ON	ALLOTTED HOURS
1		17A-01	Propeller, its types and terms associated with propeller	Out Source	2 Hrs
2		17A-02	Familiarization of different types of forces acting on propeller	Out Source	2 Hrs
3		17A-03	Familiarization of propeller vibrations and resonance	Out Source	2 Hrs
4		17A-04	Familiarization of Materials used for manufacturing of propeller blades and their constructional features	Out Source	2 Hrs
5		17A-05	Familiarization of different parts of propeller	Out Source	2 Hrs
6		17A-06	Familiarization of various pitch change mechanisms of propeller	Out Source	2 Hrs
7		17A-07	Familiarization of propeller governor and its operation	Out Source	4 Hrs
8		17A-08	Familiarization of Anti icing and de icing of propeller-system components	Out Source	4 Hrs
9		17A-09	Demonstration of procedure of blade tracking, checking and adjustment	Out Source	6 Hrs
10		17A-10	Familiarization of procedure of static and dynamic balancing of propeller	Out Source	4 Hrs
11		17A-11	Procedure of removal and installation of propeller	Out Source	6 Hrs
12		17A-12	Familiarization of preservation and de-preservation of installed and uninstalled propeller	Out Source	4 Hrs
Total					40 Hrs

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