INDOCOPTERS PRIVATE LIMITED

MAINTENANCE TRAINING ORGANISATION EXPOSITION

APPENDICES

SYLLABUS

(B2)

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APPENDIX A

AVIONICS

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SUBJECT CODES

Example: 1T-10 or 1P-10
1 denotes **Semester**
T denotes **Theory**
10 denotes **Module**
P denotes **Practical**

TRAINING PROGRAM
CURRICULUM - AVIONICS
SEMESTER – I
THEORY

MODULES	THEORY SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 7A	MAINTENANCE PRACTICES-I	1T-7A(I)	80
MODULE 8	BASIC AERODYNAMICS	1T-8	60
MODULE 9A	HUMAN FACTOR	1T-9A	60
MODULE 10	AVIATION LEGISTATION-I	1T-10(I)	100
TOTAL HOURS			300

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MODULE 7A (THEORY)
MAINTENANCE PRACTICES-I

Subject code: 1T-7A (I) **Total Hours Allotted: 80**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
7.1	Safety Precautions - Aircraft and Workshop	Aspects of safe working practices including precautions to take when working with electricity, gases especially oxygen, oils and chemicals. Also, instruction in the remedial action to be taken in the event of a fire or another accident with one or more of these hazards including knowledge on extinguishing agents.	3	20
7.2	Workshop Practices	Care of tools, control of tools, use of workshop materials; Dimensions, allowances and tolerances, standards of workmanship; Calibration of tools and equipment, calibration standards.	3	5
7.3	Tools	Common hand tool types; Common power tool types; Operation and use of precision measuring tools; Lubrication equipment and methods. Operation, function and use of electrical general test equipment;	3	20
7.4	Avionic General Test Equipment	Operation, function and use of avionic general test equipment.	3	5
7.5	Engineering Drawings, Diagrams and Standards	Drawing types and diagrams, their symbols, dimensions, tolerances and projections Identifying title block information Microfilm, microfiche and computerized presentations Specification 100 of the Air Transport Association (ATA) of America Aeronautical and other applicable standards including ISO, AN, MS, NAS and MIL Wiring diagrams and schematic diagrams	2	15
7.6	Fits and Clearances	Drill sizes for bolt holes, classes of fits; Common system of fits and clearances; Schedule of fits and clearances for aircraft and engines; Limits for bow, twist and wear; Standard methods for checking shafts, bearings and other parts.	1	5
7.7	Electrical Wiring Inter-connection System (EWIS)	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

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MODULE 8 (THEORY)
BASIC AERODYNAMICS

Subject code: 1T-8 **Total Hours Allotted: 60**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
8.1	**Physics of the Atmosphere**	International Standard Atmosphere (ISA), Application To Aerodynamics.	2	10
8.2	**Aerodynamics**	Airflow around a body;Boundary layer, laminar and turbulent flow, free stream flow, relative airflow, upwash and downwash, vortices, stagnation; The terms: camber, chord, mean aerodynamic chord, profile (parasite) drag,induced drag, centre of pressure, angle of attack, wash in and wash out, finenessratio, 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	20
8.3	**Theory of flight**	Relationship between lift, weight, thrust and drag; Glide ratio; Steady state flights, performance; Theory of the turn; Influence of load factor: stall, flight envelope andstructural limitations; Lift augmentation	2	15
8.4	**Flight Stability and Dynamics**	Longitudinal stability, lateral stability and directional stability (active and passive).	2	15

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MODULE 9A (THEORY)
HUMAN FACTORS

Subject code: 1T-9A **Total Hours Allotted: 60**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
9.1	General	The need to take human factors into account; Incidents attributable to human factors/human error; 'Murphy's' law.	2	5
9.2	Human Performance and Limitations	Vision; Hearing; Information processing; Attention and perception; Memory; Claustrophobia and physical access.	2	8
9.3	Social Physiology	Responsibility: individual and group; Motivation and de-motivation;	1	5
9.4	Factors Affecting Performance	Peer pressure; 'Culture' issues; Team working; Management, supervision and leadership	2	9
9.5	Physical Environ-ment	Noise and fumes; Illumination; Climate and temperature; Motion and vibration; Working environment.	1	5
9.6	Tasks	Physical work; Repetitive tasks; Visual inspection; Complex systems.	1	3
9.7	Communication	Within and between teams; Work logging and recording Keeping up to date, currency; Dissemination of information	2	10
9.8	Human Error	Error models and theories; Types of error in maintenance tasks; Implications of errors (i.e accidents) Avoiding and managing errors.	2	10
9.9	Hazards in the Workplace	Recognising and avoiding hazards Dealing with emergencies.	2	5

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MODULE 10 (THEORY)
AVIATION LEGISLATION-I

Subject code: 1T-10(I) **Total Hours Allotted: 100**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
10.1	**Regulatory Framework**	Role of International Civil Aviation Organisation; 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	55
10.2	**CAR-66 Certifying Staff - Maintenance**	Detailed understanding of CAR-66	2	15
10.3	**CAR-145 — Approved Maintenance Organisations**	Detailed understanding of CAR-145 and CAR M Subpart F	2	30

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SEMESTER - II
CURRICULUM - AVIONICS
TRAINING PROGRAM
THEORY

MODULES	THEORY SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 6	MATERIALS & HARD WARE	2T-6	140
MODULE 7A	MAINTENANCE PRACTICES-II	2T-7A(II)	80
MODULE 10	AVIATION LEGISLATION-II	2T-10(II)	80
MODULE 13	AIRCRAFT AERODYNAMICS STRUCTURE AND SYSTEM-I	2T-13(I)	60
TOTAL HOURS			**360**

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MODULE 6 (THEORY)
MATERIALS AND HARDWARE

Subject code: 2T-6 **Total Hours Allotted: 140**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
6.1	Aircraft Materials-Ferrous	**(a)** Characteristics, properties and identification of common alloy steels used in aircraft; Heat reatment and application of alloy steels	1	10
		(b) Testing of ferrous materials for -- • Hardness, • Tensile strength, • Fatigue strength and Impact resistance.	1	10
6.2	Aircraft Materials – Non-Ferrous	**(a)** Characteristics, properties and identification of common non-ferrous materials used in aircraft; Heat treatment and application of non-ferrous materials	1	10
		(b) Testing of non-ferrous material for – • Hardness, • Tensile strength, • Fatigue strength and Impact resistance.	1	10
6.3.1	Aircraft Materials - Composite and Non- Metallic	Composite and non-metallic other than wood and fabric Characteristics, properties and identification of common composite and non-metallic materials, other than wood, used in aircraft; Sealant and bonding agents.	2	15
6.4(a)	Corrosion	Chemical fundamentals; Formation by, galvanic action process, microbiological, stress; Types of corrosion and their identification; Causes of corrosion; Material types, susceptibility to corrosion.	1	10
6.4(b)	Types of Corrosion	Types of corrosion and their identification; Causes of corrosion; Material types, susceptibility to corrosion	2	15

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6.5.1	**Fasteners, Screw Threads**	Screw nomenclature Thread forms, dimensions and tolerances for standard threads used in aircraft; easuring screw threads	2	5
6.5.2	**Bolts, Studs And Screws**	Bolt types: specification, identification and marking of aircraft bolts, international standards Nuts: self locking, anchor, standard types; Machine screws: aircraft pecifications; Studs: types and uses, insertion and emoval Self tapping screws, dowels	2	10
6.5.3	**Locking Devices**	Tab and spring washers, locking plates, split pins, pal nuts, wire locking, quick release fasteners, keys, circlips, and cotter pins and techniques	2	5
6.5.4	**Aircraft Rivets**	Types of solid and blind rivets: specifications and entification, heat treatment	1	15
6.6	**Pipes And Unions**	(a) Identification of, and types of rigid and flexible pipes and their connectors used in aircraft	2	3
		(b) Standard unions for aircraft hydraulic, fuel, oil, neumatic and air system pipes.	1	2
6.7	**Springs**	Types of springs, materials, characteristics and applications	1	2
6.8	**Bearings**	Purpose of bearings, loads, material, construction Types of bearings and their application	2	3
6.9	**Transmissions**	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	5
6.10	**Control Cables**	Types of cables End fittings, turnbuckles and compensation devices Pulleys and cable system components, Bowden cables Aircraft flexible control systems	1	5
6.11	**Electrical Cables And Connectors**	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	5

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MODULE 7A (THEORY)
MAINTENANCE PRACTICES-II

Subject code: 2T-7A (II) **Total Hours Allotted: 80**

CAR-66 REF	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
7.15	Welding, Brazing, Soldering and Bonding	(a) Soldering methods; inspection of soldered joints.	2	20 2
7.16	Aircraft Weight and Balance	(a) Centre of Gravity/Balance limits calculation: use of relevant documents	2	15
7.17	Aircraft Handling and Storage	Aircraft taxiing/towing and associated safety precautions; Aircraft jacking, chocking, securing and associated safety precautions; Aircraft storage methods; Refuelling/defuelling procedures; De-icing/anti-icing procedures; Electrical, hydraulic and pneumatic ground supplies. Effects of environmental conditions on aircraft handling and operation.	2	10
7.18	Disassembly, Inspection, Repair and Assembly Techniques	(a) Types of defects and visual inspection techniques. Corrosion removal, assessment and reprotection.	3	5
		(c) Non destructive inspection techniques including, penetrant, radiographic, Eddy current, ultrasonic and boroscope methods. Disassembly and re-assembly techniques.	1	4
		(d)Disassembly and re-assembly techniques.	2	5
		(e) Trouble shooting techniques	2	5
7.19	Abnormal Events	(a) Inspections following lightning strikes and HIRF penetration.	2	10
7.20	Maintenance Procedures	Maintenance planning; Modification procedures; Stores procedures; Certification/release procedures; Interface with aircraft operation; Maintenance inspection/Quality Control/Quality Assurance; Additional maintenance procedure Control of limited components	2	9

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MODULE 10 (THEORY)
AVIATION LEGISLATION-II

Subject Code: 2T-10(II) **Total Hours Allotted: 80**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
10.4	**Aircraft Operations**	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	5
10.5	**Aircraft Certification**	(a) General - Certification rules: such as FAA & EACS 23/25/27/29; Type Certification; Supplemental Type Certification CAR-21 Design/Production Organisation Approvals. Aircraft Modifications and repairs approval and certification Permit to fly requirements	1	10
		(b) Documents - Certificate of Airworthiness; Certificate of Registration; Noise Certificate; Weight Schedule; Radio Station Licence and Approval.	2	10
10.6	**CAR-M**	Detail understanding of CAR M provisions related to Continuing Airworthiness Detailed understanding of CAR-M.	2	20
10.7(a)	**Applicable National and International Requirements**	(a) 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	10

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10.7(b)		(b) Continuing airworthiness; 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.	1	5
10.8	**Safety Management System**	State Safety Programme Basic Safety Concepts Hazards & Safety Risks SMS Operation SMS Safety performance Safety Assurance	2	10
10.9	**Fuel Tank Safety**	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

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MODULE 13 (THEORY)
AIRCRAFT AERODYNAMICS, STRUCTURES & SYSTEM-I

Subject code: 2T-13(I) **Total Hours Allotted: 60**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
13.1	Theory of Flight	**(a)** Aeroplane Aerodynamics and Flight Controls Operation and effect of: — 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	1	10
		(b) High Speed Flight Speed of sound, subsonic flight, transonic flight, supersonic flight Mach number, critical Mach number	1	5
		(c) Rotary Wing Aerodynamics Terminology; Operation and effect of cyclic, collective and anti-torque controls	1	5
13.2	Structures — General Concepts	**(a)** Fundamentals of structural systems	1	5
		(b) Zonal and station identification systems; Electrical bonding; Lightning strike protection provision.	2	5
13.6	Equipment and Furnishings (ATA 25)	Electronic emergency equipment requirements; Cabin entertainment equipment.	3	10
13.7	Flight Controls (ATA 27)	**(a)** Primary controls: aileron, elevator, rudder, spoiler; Trim control; Active load control; High lift devices; Lift dump, speed brakes; System operation: manual, hydraulic, pneumatic; Artificial feel, Yaw damper, Mach trim, rudder limiter, gust locks. Stall protection systems	2	12
		(b) System operation: electrical, fly-by-wire.	3	8

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TRAINING PROGRAM
CURRICULUM - AVIONICS
SEMESTER – III
THEORY

MODULES	THEORY SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 3	ELECTRICAL FUNDAMENTALS-I	3T-3(I)	80
MODULE 4	ELECTRONIC FUNDAMENTAL & DIGITAL TECHNIQUE	3T-4	110
MODULE 5	DIGITAL TECHNIQUES AND ELECTRONICS INSTRUMENT SYSTEM-I	3T-5(I)	80
MODULE 13	AEROPLANE AERODYNAMICS STRUCTURE AND SYSTEM-II	3T-13(II)	90
TOTAL HOURS			**360**

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MODULE 3 (THEORY)
ELECTRICAL FUNDAMENTALS-I

Subject Code: 3T-3(I) **Total Hours Allotted: 80**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
3.1	**Electron Theory**	Structure and distribution of electrical charges within: Atoms, Molecules, ions,compounds; Molecular structure of conductors, semiconductors and insulators	1	3
3.2	**Static Electricity and Conduction**	Static electricity and distribution of electrostatic charges: Static electricity and distribution of electrostatic charges, Electrostatic laws of attraction and repulsion Units of Charge,Coulomb's Law Conduction of electricity in Solid, Liquids, Gases And Vacuum	**2**	3
3.3	**Electrical Terminology**	The following terms, their units and factors affecting them: potential difference, electromotive force, voltage, current, resistance, conductance, charge, conventional current flow, electron flow.	**2**	4
3.6	**DC Circuits**	Ohms law: Calculation of Voltage, Current, Resistance & Power in Series, Parallel & Compound resistive circuit Kirchhoff 's Voltage and Current Laws: Calculation of Voltage, Current and Resistance in Series, Parallel and Compound circuit Significance of the internal resistance of a supply	**2**	5
3.7(a)	**Resistor/ Resistance**	Resistance and affecting factors: Specific resistance Resistors Color code:Values and tolerances Preferred Values Wattage ratings Resistors in series, parallel and Series Parallel: Calculation of total resistance using Series, Parallel and Series Parallel combination, Operation and use of potentiometers , rheostats; Operation of Wheatstone Bridge.	**2**	**3**
3.7(b)	**Resistor/ Resistance**	Positive and negative temperature coefficient conductance; Fixed resistors, stability, tolerance and limitations, methods of construction; Variable resistors, thermistors, voltage dependent resistors; Construction of potentiometers and rheostats; Construction of Wheatstone Bridge	**1**	**2**

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3.9	**Capacitor/ Capacitance**	Operation and function of a capacitor Factors affecting capacitance: Area of plates Distance between plates Number of plates Dielectric Dielectric constant Working voltage Voltage rating Capacitor types ,construction and function Capacitor colour 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
3.10	**Magnetism**	(a) Theory of magnetism; Properties of a magnet Action of a magnet suspended in the Earth's magnetic field; Magnetisation and demagnetisation; Magnetic shielding; Various types of magnetic material; Electromagnets construction and principles of operation; Hand clasp rules to determine: magnetic field around current carrying con-ductor.	2	5
		(b) Magneto motive force, field strength, magnetic flux density, permeability, hysteresis loop, retentivity, coercive force reluctance, saturation point, eddy currents; Precautions for care and storage of magnets.	2	3
3.11	**Inductance / Inductor**	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 inductance: The effect the rate of change of primary current and mutual inductance has on induced voltage Factors affecting mutual induction: number of turns in coil physical size of coil permeability of coil position of coils with respect to each other Lenz's Law and polarity determining rules Back EMF Self Induction Saturation point Principle uses of inductors	2	6
3.13	**AC Theory**	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 oltage, current and power Triangular/Square waves Single/3 phase principles.	2	10

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3.14	**Resistive (R), Capacitive (C) and Inductive (L) Circuits**	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 and current calculations; True power, apparent power and reactive power calculations.	2	13
3.15	**Transformers**	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	13
3.16	**Filters**	Operation, application and uses of the following filters: low pass, high pass band pass, band stop.	1	5

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MODULE 4 (THEORY)
ELECTRONICS FUNDAMENTALS

Subject code: 3T-4 **Total Hours Allotted: 110**

CAR-66 .REF	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
4.1	Semi-conductors	Diodes -4.1.1 DDiode symbols DDiode characteristics and properties DDiodes in series and parallel MMain characteristics and use of silicon controlled rectifiers (thyristors), light emitting diode, photo conductive diode, varistor, rectifier diodes Ffunctional testing of diodes	2	15
		(b) Materials, electron configuration, electrical properties; P and N type materials: effects of impurities on conduction, majority and minority characters; PN junction in a semiconductor, development of a potential across a PN junction in unbiased, forward biased and reverse biased conditions; Operation and function of diodes in the following circuits: clippers, clampers, full and half wave rectifiers, bridge rectifiers, voltage doublers and triplers; Detailed operation and characteristics of the following devices: silicon controlled rectifier (thyristor), light emitting diode, Shottky diode, photo conductive diode, varactor diode, varistor, rectifier diodes, Zener diode.	2	10
		Transistors-4.1.2 (a) Transistor symbols; Component description and orientation; Transistor characteristics and properties	2	10
		(b) Construction and operation of PNP and NPN transistors; Base, collector and emitter configurations; Basic appreciation of other transistor types and their uses. Testing of transistors. Application of transistors: classes of amplifier (A, B, C); Simple circuits including: bias, decoupling, feedback and stabilisation; Multistage circuit principles: cascades, push-pull, oscillators, multivibrators, flip-flop circuits	2	10

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		4.1.3 Integrated Circuits (b) Description and operation of logic circuits and linear circuits; Introduction to operation and function of an operational amplifier used as: integrator, differentiator, voltage follower, comparator; Operation and amplifier stages connecting methods: resistive capacitive, in-ductive (transformer), inductive resistive (IR), direct; Advantages and disadvantages of positive and negative feedback.	2	20
4.2	**Printed Circuit Boards**	Description and use of printed circuit boards	2	15
4.3(b)	**Servo-mechanisms**	Understanding of the following terms: Open and closed loop, follow up, ser-vomechanism, analogue, transducer, null, damping, feedback, deadband; Construction operation and use of the following synchro system compo-nents: resolvers, differential, control and torque, E and I transformers, in ductance transmitters, capacitance transmitters, synchronous transmitters; Servomechanism defects, reversal of synchro leads, hunting.	2	30

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MODULES 5 (THEORY)

DIGITAL TECHNIQUES AND ELECTRONICS INSTRUMENT SYSTEM-I

Subject code: 3T-5(I) **Total Hours Allotted: 80**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
5.1	Electronics Instrument System	Typical system arrangement and cockpit layout of electronic instrument system	3	15
5.2	Numbering Systems	Numbering systems: binary, octal and hexadecimalDemonstration of conversions between the decimal and binary, octal and hexadecimal systems and vice versa	2	7
5.3	Data Conversion	Analogue Data, Digital Data; Operation and application of analogue to digital, and digital to analogue converters, inputs and outputs, limitations of various types	2	8
5.4	Data Buses	Operation of data buses in aircraft systems, including knowledge of ARINC and other specifications	2	5
5.5	Logic Circuits	(a) Identification of common logic gate symbols, tables and equivalent circuits Applications used for aircraft systems, schematic diagrams.	2	10
		(b) Interpretation of logic diagrams.	2	5
5.7	Micro-processors	Functions performed and overall operation of a microprocessor; Basic operation of each of the following microprocessor elements control and processing unit, clock, register, arithmetic logic unit	2	10
5.8	Integrated Circuits	Operation and use of encoders and decoders Function of encoder types Uses of medium, large and very large scale ntegration.	2	10
5.10	Fibre Optics	Advantages and disadvantages of fibre optic data transmission over electrical wire propagation; Fibre optic data bus; Fibre optic related terms; Terminations; Couplers, control terminals, remote terminals; Application of fibre optics in aircraft systems	2	10

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MODULE-13
AIRCRAFT AERODYNAMICS STRUCTURE AND SYSTEMS-II

Subject code: 3T-13(II) **Total Hours Allotted: 90**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
13.11	Air Conditioning and Cabin Pressurisation (ATA21)	1) Air supply Sources of air supply including engine bleed, APU and ground cart	2	2
		2) Air Conditioning Air conditioning systems; Air cycle and vapour cycle machines; Distribution systems; Flow, temperature and humidity control system.	2	5
		3) Pressurisation Pressurisation systems Control and indication including control and safety valves; Cabin pressure controllers.	3	3
		4) Safety and warning devices Protection and warning devices.	3	2
13.13	Fuel Systems (ATA 28)	System lay-out Fuel tanks; Supply systems; Dumping, venting and draining.	1	3
		Cross-feed and transfer; Indications and warnings; Refuelling and defuelling; Longitudinal balance fuel systems.	3	7
13.14	Hydraulic Power (ATA 29)	System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators;	1	3
		Pressure generation: electrical, mechanical, pneumatic; Emergency pressure generation	3	5
		Filters; Pressure control; Power distribution	1	2
		Indication and warning systems; Interface with other systems	3	5
13.15	Ice and Rain Protection (ATA 30)	Ice formation, classification and detection; Anti-icing systems: electrical, hot air and chemical;	2	3
		De-icing systems: electrical, hot air, pneumatic, chemical;	2	3
		Rain repellent;	1	2
		Probe and drain heating;	3	3
		Wiper Systems	1	2

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13.16	Landing Gear (ATA 32)	Construction, shock absorbing	1	3
		Extension and retraction systems: normal and emergency Indications and warnings	3	3
		Wheels, brakes, antiskid and autobraking	3	3
		Tyres	1	2
		Steering, Air-ground sensing	3	2
13.18	Pneumatic/Vacuum (ATA 36)	System lay-out ,	2	2
		Sources: engine/APU, compressors, reservoirs, ground supply	2	2
		Pressure control	3	2
		Distribution	1	1
		Indications and warnings	3	2
		Interfaces with other systems	3	1

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TRAINING PROGRAM
CURRICULUM - AVIONICS
SEMESTER – IV

THEORY

MODULES	THEORY SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 3	ELECTRICAL FUNDAMENTAL-II	4T-3(II)	70
MODULE 5	DIGITAL TECHNIQUES AND ELECTRONICS INSTRUMENT SYSTEM-II	4T-5(II)	110
MODULE 13	AIRCRAFT AERODYNAMICS, STRUCTURES & SYSTEMS-III	4T-13(III)	90
MODULE 14	PROPULSION	4T-14	60
TOTAL HOURS			**330**

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MODULE 3 (THEORY)
ELECTRICAL FUNDAMENTALS-II

Subject Code: 4T-3(II) **Total Hours Allotted: 70**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
3.4	**Generation of Electricity**	Production of electricity by the following methods: Light, Heat, Friction, Pressure, Chemical Action, Magnetism and Motion	1	5
3.5	**DC Sources of Electricity**	Construction and basic chemical action of: Primary calls 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 Thermo Couples: Construction, Materials and Operation Photo Cells: Introduction and Operation	2	5
3.8	**Power and energy**	Work, Energy (Kinetic and Potential) and Power Dissipation of power by a resistance Power formula Calculation of Power, Work and Energy	2	5
3.12	**DC Motor/ Generator Theory**	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
3.17	**AC Generators**	Rotation of loop in a magnetic field and waveform produced; Operation and construction of revolving armature and revolving field type ACgenerators; Single phase, two phase and three phase alternators; Three phase star and delta connections advantages and uses; Permanent Magnet Generators	2	20
3.18	**AC Motors**	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 pole or split pole.	2	20

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MODULES 5 (THEORY)
DIGITAL TECHNIQUES AND ELECTRONICS INSTRUMENT SYSTEM-II

Subject code: 4T-5 (II) **Total Hours Allotted: 110**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
5.6	Basic Computer Structure	(b) Computer related terminology Operation, layout and interface of the major components in a micro computer including their associated bus systems; Information contained in single and multi address instruction words Memory associated terms Operation of typical memory devices; Operation, advantages and disadvantages of the various data storage systems	2	10
5.9	Multeplexing	Operation, application and identification in logic diagrams of multi-plexers and demultiplexers	2	10
5.11	Electronic Displays	Principles of operation of common types of displays used in modern aircraft, including Cathode Ray Tubes, Light Emitting Diodes and Liquid Crystal Display.	2	10
5.12	Electrostatic Sensitive Devices	Special handling of components sensitive to electrostatic discharges; Awareness of risks and possible damage, component and personnel anti-static protection devices.	2	10
5.13	Software Management Control	Awareness of restrictions, airworthiness requirements and possible catastrophic effects of unapproved changes to software programmes	2	10
5.14	Electromagnetic Environment	Influence of the following phenomena on maintenance practices for electronic system: EMC-Electromagnetic Compatibility EMI-Electromagnetic Interference HIRF-High Intensity Radiated Field Lightning/lightning protection	2	15
5.15	Typical Electronic/Digital Aircraft Systems	General arrangement of typical electronic/digital aircraft systems and associated BITE(Built In Test Equipment) testing such as: For B1 and B2 only: 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 For B1, B2 and B3: ECAM-Electronic Centralised Aircraft Monitoring EFIS-Electronic Flight Instrument System GPS-Global Positioning System TCAS-Traffic Collission Avoidance system Integrated modular Avionica Cabin System Information system	2	30

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MODULE 13 (THEORY)
AIRCRAFT AERODYNAMICS, STRUCTURES-III
AUTOFLIGHT (ATA-22) & INSTRUMENT SYSTEM (ATA-31)

Subject code: 4T-13(III) **Total Hours Allotted: 90**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
13.5	**Electrical Power (ATA 24)**	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	15
13.8	**Instruments (ATA 31)**	Classification; Atmosphere; Terminology; Pressure measuring devices and systems; Pitot static systems, Altimeters; Vertical speed indicators; Airspeed indicators; Mach meters; Altitude reporting/alerting systems; Air data computers; Instrument pneumatic systems; Direct reading pressure and temperature gauges; Temperature indicating systems; Fuel quantity indicating systems; Gyroscopic principles; Artificial horizons; Slip indicators; Directional gyros; Ground Proximity Warning Systems; Compass systems; Flight Data Recording systems; Electronic Flight Instrument Systems; Instrument warning systems including master warning systems and centralised warning panels; Stall warning systems and angle of attack indicating systems; Vibration measurement and indication; Glass cockpit	3	30
13.9	**LIGHTS (ATA33)**	External: navigation, landing, taxiing, ice, Internal: cabin, cockpit, cargo, Emergency.	3	15
13.20	**Integrated Modular Avionics (ATA42)**	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. Core System, Network Components	3	30

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MODULE 14 (THEORY)
PROPULSION

Subject code: 4T-14 **Total Hours Allotted: 60**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
14.1	Turbine Engines	Constructional arrangement and operation of turbojet, turbofan, turbo shaft and turbo propeller engines;	1	25
		Electronic Engine control and fuel metering systems (FADEC).	2	10
14.2	Engine Indicating Systems	Exhaust gas temperature/Interstage turbine temperature systems Engine speed Engine Thrust Indication: Engine Pressure Ratio, engine turbine discharge pressure or jet pipe pressure systems Oil pressure and temperature Fuel pressure, temperature and flow Manifold pressure Engine torque Propeller speed	2	15
14.3	Starting and Ignition Systems	Operation of engine start systems and components; Ignition systems and components; Maintenance safety requirements	2	10

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TRAINING PROGRAM

CURRICULUM - AVIONICS
SEMESTER – V
THEORY

MODULES	THEORY SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 13	AIRCRAFT AERODYNAMICS STRUCTURE & SYSTEMS-IV	5T-13(IV)	90
MODULE 13	AIRCRAFT AERODYNAMICS STRUCTURE & SYSTEMS-V	5T-13(V)	90
MODULE 13	AIRCRAFT AERODYNAMICS STRUCTURE & SYSTEMS-VI	5T-13(VI)	90
TOTAL HOURS			**270**

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MODULE-13
AIRCRAFT AERODYNAMICS STRUCTURE AND SYSTEMS-IV

Subject code: 5T-13(IV) **Total Hours Allotted: 90**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
13.12	Fire Protection (ATA 26)	**(a)** Fire and smoke detection and warning systems; Fire extinguishing systems; System tests	3	30
		(b) Portable fire extinguisher	1	10
13.17	Oxygen (ATA 35)	System lay-out: cockpit, cabin, Sources, storage, charging and distribution, Supply regulation, Indications and warnings.	3	30
13.19	Water/Waste (ATA 38)	Water system lay-out, supply, distribution, servicing and draining, Toilet system lay-out, flushing and servicing.	2	20

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MODULE-13
AIRCRAFT AERODYNAMICS STRUCTURE AND SYSTEM-V

Subject code: 5T-13(V) **Total Hours Allotted: 90**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
13.3	**Autoflight (ATA 22)**	Fundamentals of automatic flight control including working principles and current terminology, Command signal processing, Modes of operation: roll, pitch and yaw channels, Yaw dampers, Stability Augmentation System in helicopters, Automatic trim control, Autopilot navigation aids interface, Autothrottle systems, Automatic Landing Systems: principles and categories, modes of operation, approach, glideslope, land, go-around, system monitors and failure conditions.	3	30
13.10	**On Board Maintenance Systems (ATA 45)**	Central maintenance computers; Data loading system; Electronic library system; Printing; Structure monitoring (damage tolerance monitoring).	3	10
13.21	**Cabin Systems (ATA44)**	The units and components which furnish a means of entertaining the passengers and providing communication within the aircraft (Cabin Intercommunication Data Sys-tem) and between the aircraft cabin and ground stations (Cabin Network Service). Includes voice, data, and music and video transmissions. The Cabin Intercommunication Data System provides an interface between cock-pit/cabin crew and cabin systems. These systems support data exchange of the dif-ferent related LRU's and they are typically operated via Flight Attendant Panels. The Cabin Network Service typically consists on a server, typically interfacing with, among others, the following systems: — Data/Radio Communication, In-Flight Entertainment System The Cabin Network Service may host functions such as: 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.	3	30

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13.22	**Information Systems (ATA46)**	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.	3	20

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MODULE 13 (THEORY)
AIRCRAFT AERODYNAMICS, STRUCTURES & SYSTEM-VI
COMMUNICATION & NAVIGATION (ATA-23/34)

Subject code: 5T-13(VI) **Total Hours Allotted: 90**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
13.4	COMMUNICATION & NAVIGATION (ATA-23/34)	Fundamentals of radio wave propagation, antennas, transmission lines, communication, receiver and transmitter working principles of following systems: — Very High Frequency (VHF) communication, — High Frequency (HF) communication, — Audio, — Emergency Locator Transmitters, — Cockpit Voice Recorder, — Very High Frequency omnidirectional range (VOR), — Automatic Direction Finding (ADF), — Instrument Landing System (ILS), — Microwave Landing System (MLS), — Flight Director Systems, Distance Measuring Equipment (DME), — Very Low Frequency and hyperbolic navigation (VLF/Omega), — Doppler navigation, — Area navigation, RNAV systems, — Flight Management Systems, — Global Positioning System (GPS), Global Navigation Satellite Systems (GNSS), — Inertial Navigation System, — Air Traffic Control transponder, secondary surveillance radar, — Traffic Alert and Collision Avoidance System (TCAS), — Weather avoidance radar, — Radio altimeter, — ARINC communication and reporting.	3	90

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TRAINING PROGRAM
CURRICULUM - AVIONICS
SEMESTER – I
PRACTICAL

MODULES	PRACTICAL SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 8	AERODYNAMICS Note: Visit to CAR 145 AMO for demonstration on helicopter aerodynamics	1P-8	40
MODULE 7A	MAINTENANCE PRACTICES-I	1P-7A(I)	70
MODULE 10	AVIATION LEGISLATION-I	1P-10(I)	20
TOTAL HOURS			**130**

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MODULE 8 (PRACTICAL)
AERODYNAMICS

Subject code: 1P-8 **Total Hours Allotted: 40**

SR NO.	MODULE ref: no-	TASK NAME	AVAILIABLITY OF FACILITY	REFRENCE	HRS
1	8.1	Familiarization of structure of atmosphere with the help of training videos.	AIRFRAME LAB	ICPL/ TC/1P-8.1/01	5
2	8.2	Demonstration of working principle of Aileron, Elevator, rudder	HANGAR / LAB	ICPL/ TC/1P-8.2/01	3
3	8.2	Method of controlling boundary layer	AIRFRAME LAB	ICPL/ TC/1P-8.2/02	3
4	8.2	Visualization of laminar and turbulent airflow with the help of animation video	AIRFRAME LAB	ICPL/ TC/1P-8.2/03	3
5	8.2	Study of airflow separation and stalling	AIRFRAME LAB	ICPL/ TC/1P-8.2/04	3
6	8.3	Forces acting on aeroplane(Trg. Video)	AIRFRAME LAB	ICPL/ TC/1P-8.3/01	3
7	8.3	Familiarization of lift augmentation devices(Flaps, leading edge devices , fixed airflow devices)	HANGAR / LAB	ICPL/ TC/1P-8.3/02	8
8	8.4	Understanding of longitudinal stability(Trg. Video)	AIRFRAME LAB	ICPL/ TC/1P-8.4/01	4
9	8.4	Understanding of lateral stability(Trg. Video)	AIRFRAME LAB	ICPL/ TC/1P-8.4/02	4
10	8.4	Understanding of directional stability(Trg. Video)	AIRFRAME LAB	ICPL/ TC/1P-8.4/03	4

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MODULE 7A (PRACTICAL)
MAINTENANCE PRACTICES-I

Subject code: 1P-7A (I) **Total Hours Allotted: 70**

Sl No.	Syll Ref No.	Task Description	Availibility of Facility	Task Reference	HRS
1	7.2	To make a right angle job	Fitting shop	ICPL/TC/1P/7.2/01	4
2	7.2	To make a champers cut job	Fitting shop	ICPL/TC/1P/7.2/02	4
3	7.2	To make a T fitting job	Fitting shop	ICPL/TC/1P/7.2/03	4
4	7.2	To make T fitting with drill	Fitting shop	ICPL/TC/1P/7.2/04	4
5	7.2	To make a U shape fitting job	Fitting shop	ICPL/TC/1P/7.2/05	4
6	7.3	To make a reading on varnier caliper(mm)	Fitting shop	ICPL/TC/1P/7.3/01	4
7	7.3	To make a reading on varnier caliper(inch)	Fitting shop	ICPL/TC/1P/7.3/02	4
8	7.3	To make a reading on micrometer(mm)	Fitting shop	ICPL/TC/1P/7.3/03	4
9	7.3	To make a reading on micrometer(inch)	Fitting shop	ICPL/TC/1P/7.3/04	4
10	7.3	Use of dividers and caliper fitting shop	Fitting shop	ICPL/TC/1P/7.3/05	4
11	7.3	To make a reading on DTI	Fitting shop	ICPL/TC/1P/7.3/06	5
12	7.3	To make a various job on lathe machine	Machine shop	ICPL/TC/1P/7.3/07	10
13	7.3	Use of grinding of a single point cutting tool	Machine shop	ICPL/TC/1P/7.3/08	8
14	7.3	Use of vertical milling machine	Machine shop	ICPL/TC/1P/7.3/09	7

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MODULE 10 (PRACTICAL)
AVIATION LEGISLATION–I

Subject code: 1P-10(I) **Total Hours Allotted: 20**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	Availibility of Facility	HOURS
10.1	**Regulatory Framework**	Familiarization with CAR-21	Library	2
10.1	**Regulatory Framework**	Familiarization with CAR-145	AMO HANGAR	6
10.1	**Regulatory Framework**	Familiarization with CAR-147	Library	2
10.2	**CAR 66 – Certifying staff / maintenance**	Familiarization with CAR 66	Library	4
10.3	**Approved Maintenance Organisations**	Familiarization with CAR-145 & CAR M Subpart F	AMO HANGAR	6

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TRAINING PROGRAM
CURRICULUM - AVIONICS
SEMESTER – II
PRACTICAL

MODULE 6	MATERIAL & HARDWARE	2P-6	100
MODULE 7A	MAINTENANCE PRACTICES-II	2P-7A(II)	60
MODULE 10	FAMILIARIZATION WITH DOCUMENTS REQUIRED AS PER AVIATION LEGISLATION -II	2P-10(II)	10
MODULE 13	AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEM-I	2P-13(I)	40
TOTAL HOURS			**210**

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MODULE 6 (PRACTICAL)
MATERIAL & HARDWARE

Subject code: 2P-6 **Total Hours Allotted: 100**

Syll. ref: no-	TASK NAME	FACILITY AVAILABLE	REFRENCE	HRS
6.1	Identification of aircraft ferrous material	Airframe shop	ICPL/TC/3P/6.1/01	5
6.1	Testing of Ferrous Metal	Airframe shop	ICPL/TC/3P/6.1/02	5
6.1	Heat Treatment & Surface Hardening of Ferrous Metals	Field Visit	ICPL/TC/3P/6.1/03	5
6.2	Identification of aircraft non ferrous material	Airframe shop	ICPL/TC/3P/6.2/01	5
6.2	Heat Treatment & Surface Hardening of non-Ferrous Metals	Field Visit	ICPL/TC/3P/6.2/02	5
6.3.1	Familiarization of composite material	Airframe shop	ICPL/TC/3P/6.3/03	5
6.3.1	Identification of Wood, Fabrics, Dopes used in Aircraft.	AMO HANGAR	ICPL/TC/3P/6.3.1/01	5
6.3.3	Inspection of various aircraft fabric	AMO HANGAR	ICPL/TC/3P/6.3/04	5
6.4	Familiarization of different types of corrosion and its causes.	Airframe shop	ICPL/TC/3P/6.4/05	5
6.4(a)	Identification of Corrosion on Ferrous & Non-ferrous Metals	Airframe shop	ICPL/TC/3P/6.4/06	5
6.5.1	Familiarization different types of screws	Airframe shop	ICPL/TC/4P/6.5/06	3
6.5.2	Familiarization different types of nut and bolts	Airframe shop	ICPL/TC/4P/6.5/07	4
6.5.3	Familiarization of different types of locking devices	Airframe shop	ICPL/TC/4P/6.5.3/01	3
6.5.3	Safety Wire Lock	Airframe shop	ICPL/TC/4P/6.5.3/01	5
6.5.4	Riveting Practice (Hand & Power)	Airframe shop	ICPL/TC/4P/6.5.4/01	10
6.7	Familiarization of different types of springs	Airframe shop	ICPL/TC/4P/6.7/09	5
6.8	Familiarization of bearings used in aircraft and engine.	Airframe shop/Hangar	ICPL/TC/4P/6.8/01	5
6.9	Familiarization of different types of gears and their application	Airframe shop/Hangar	ICPL/TC/4P/6.9/10	5
6.10	Identification of different type of control cables and their assemblies.	Airframe shop	ICPL/TC/4P/6.10/01	5
6.11	Identification of different type of aircraft electrical cables and connectors.	Airframe shop	ICPL/TC/4P/6.11/01	5

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MODULE 7A (PRACTICAL)
MAINTENANCE PRACTICES (PART-II)

Subject code: 2P-7A (II) **Total Hours Allotted: 60**

Sl No.	Syll. Ref.	Task Description	Facility Availablity at	Task Refrence	Hours
1	7.15	To make a lap joint	Welding shop	ICPL/TC/3P/7.15/01	5
2	7.15	To make a Double lap joint	Welding shop	ICPL/TC/3P/7.15/02	5
3	7.15	To make a lap joint by Brazing	Welding shop	ICPL/TC/3P/7.15/03	5
4	7.16	Familiarization of aircraft weighing	AMO Hangar	MET 08-00-00-603	6
5	7.17	Familiarization of aircraft taxing and towing	AMO Hangar	MET 09-00-00-201	6
6	7.17	Familiarization of aircraft jacking procedure.	AMO Hangar	MET 07-00-00-201	6
7	7.17	Familiarization of refueling and defueling of aircraft	AMO Hangar	ICPL/TC/3P/7.17/01	6
8	7.18	Familiarization about Nondestructive techniques and boroscope methods	AMO Hangar	ICPL/TC/3P/7.18/01	6
9	7.18	Familiarization about corrosion removal and protection methods	AMO Hangar	ICPL/TC/3P/7.18/02	6
10	7.19	Familiarization about inspections following lighting strikes and heavy landings and flight through turbulence.	AMO Hangar	ICPL/TC/3P/7.19/01	6
11	7.20	Maintenance planning and Store procedure	Lab	ICPL/TC/3P/7.20/01	3

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MODULE 10 (PRACTICAL)
AVIATION LEGISLATION–II

Subject code: 2P-10 (II) **Total Hours Allotted: 10**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	Availibility of Facility	HOURS
10.4	**Commercial Air Transportation**	Familiarization with: Performa for issuance of air operator certificate CAR Section-2, Series 0, Part VI, VII, XIII, XIV CAR Section-2, Series B, Part II CAR Section-2, Series X, Part Ill, IV and VIII Familiarization with ocuments carried on boards andtheir Performa Series X, Part-VII Demonstration for fixation of nationality and registration marking on any structure with exact dimension as per CAR	**AMO HANGAR**	**1**
10.5	**Aircraft Certification**	Familiarization with: Performa of certificate of airworthiness Performa of certificate of registration Performa for Issuance of noise certificate Performa of weight schedule Performa for issuance of radio station license and approval Performa for type certification Performa for supplemental type certification Performa for CAR 21 design / production organization approval etc.	**AMO HANGAR**	**1**
10.6	**CAR-M**	Familiarization with detailed understanding of CAR-M	**Library**	**1**
10.5(b)	**Documents**	Familiarization with document: Certificate of design and performance of aircraft components / item of equipments Knowledge of standardized journey log book Different log books, their formats and manner of completing the same Forms of certification of first aid kit and physician kit and form to be completed when any medicines are used by MBBS doctor Contents of the operation manual	**AMO HANGAR**	**1**
10.5(b)	**CA-forms**	Familiarization of: CA-182 A form - Approval of Indian organization CA-182 B form - Renewal of Indian organization CA-182 C form - Approval of foreign organization CA-182 D form - Renewal of Approval of foreign organization	**Library**	**1**

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CAR 66 REF	MAIN TOPIC	SUB-TOPIC	Availibility of Facility	HOURS
10.7	**MEL, CCL and ECL**	Use and format Minimum Equipment List (deficiency list) Cockpit Check List and Emergency Check List	**AMO HANGAR**	**2**
10.6	**Defects and Reporting**	Use and format Classification of major defect (Appendix I of Section-2, Series C, Part I) Defect report (Appendix II of Section-2, Series C, Part I) Information on difficulties and defect to be reported by the operator, by the manufacturer (Appendix III of Section-2, Series C, Part I) Aircraft fuel and oil register Familiarization of CAR 145: Approved Maintenance Organization	**AMO HANGAR**	**1**
10.5	**Aircraft Documentation**	Use and format Certificate of maintenance Test report Certificate of manufacturer Maintenance check Maintenance program Inspection schedule Maintenance manual Maintenance documentation Structural repair manual Illustrated part catalogue Test flight report Defect recording, reporting, investigation, analysis and rectification report	**AMO HANGAR**	**1**
10.5	**Familiarization**	Application form for issuance of C of R information furnished into it and certificate of registration. Information required to be furnished for a issuance / revalidation of type certificate Format of flight anual Knowledge of special flight permit and how to get it issued and certificate of flight safety Format of application form required for issuance of 'permit to fly' Performa detailing particulars for verification by applicant for manufacture, purchase, registration and operation of micro-light A/C / hot air balloons Format of application for grant of NOC to operate schedule/ non-schedule air services Form of import of A/C / helicopter by companies / private persons Weight schedule and load and trim sheet History cards Simulated airline check: familiarization with maintenance schedule Performance of sequence of major periodic inspection by the tudents, including signing of check sheets for each job done and recording of and, if possible, rectification of all defects.	**AMO HANGAR**	**1**

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MODULE 13 (PRACTICAL)

AIRCRAFT AERODYNAMICS, STRUCTURES & SYSTEM-I

Subject code: 2P-13(I) **Total Hours Allotted: 40**

Syll Ref No.	Task Description	Availability of Facility	ATA	Task reference	HOURS
13.1	Familiarize with Inspection of components of helicopter control system	AMO HANGAR		ICPL/TC/13P-13.1/1.1	3
13.1	Familiarize with Rigging of cyclic and collective system	AMO HANGAR		ICPL/TC/13P-13.1/1.2	3
13.1	Flight control surfaces and components	AMO HANGAR	ATA 27	ICPL/TC/13P-13.1/1.3	4
13.2	Identification of aircraft structural reference line and zone number.	AMO HANGAR	ATA 53	ICPL/TC/13P-13.2/2.1	2
13.2	Familiarization of aircraft structure and constructions	AMO HANGAR	ATA 51	ICPL/TC/13P-13.2/2.2	3
13.2	Identification of common structural defects.	LAB	ATA 51	ICPL/TC/13P-13.2/2.3	4
13.2	Electrical bonding procedure	HANGAR		ICPL/TC/13P-13.2/2.4	6
13.2	Bonding jumpers and static dischargers.	AMO HANGAR	ATA 23	ICPL/TC/13P-13.2/2.5	3
13.2	Removal - installation of Pitch Channel Trim Actuator.	AMO HANGAR	ATA 22	ICPL/TC/13P-13.2/2.6	6
13.2	Familiarisation of Airframe structures: fuselage Construction and types.	AMO HANGAR		ICPL/TC/13P-13.2/2.7	4
13.7	Identification of Aircraft Wiring.	AMO HANGAR		ICPL/TC/13P-13.7/7.1	2

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TRAINING PROGRAM
CURRICULUM - AVIONICS
SEMESTER – III
PRACTICAL

MODULES	PRACTICAL SUBJECT	SUBJECT CODE	HOURS ALLOTTED
MODULE 3	ELECTRICAL FUNDAMENTAL-I	3P-3(I)	50
MODULE 4	ELECTRONIC FUNDAMENTAL	3P-4	80
MODULE 5	DIGITAL TECHNIQUE-I	3P-5(I)	40
MODULE 13	AIRCRAFT AERODYNAMICS STRUCTURE AND SYSTEM-II	3P-13(II)	60
TOTAL HOURS			**230**

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MODULE 3 (PRACTICAL)
ELECTRICAL FUNDAMENTALS-I

Subject code: 3P-3 (I) **Total Hours Allotted: 50**

CAR-66 Ref.	Task Description	Availibility of Facility	Task Reference	Hours
3.1	Safety precautions while working with electrical equipment in electrical work shop and on board aircraft.	LAB /HANGER	ICPL/TC/3P-3.1/17	3
3.2	Analog multimeter	L AB	ICPL/TC/3P-3.2/01	2
3.2	Digital multimeter	L AB	ICPL/TC/3P-3.2/05	2
3.3	Study of Capacitor	L AB	ICPL/TC/3P-3.3/02	2
3.5	Electrical circuit control devices.	L AB	ICPL/TC/3P-3.5/04	2
3.6	Insertion an Kirchoff's current law and Kirchoff's voltage law.	L AB	ICPL/TC/3P-3.6/10	4
3.6	Ohm's law	L AB	ICPL/TC/3P-3.6/13	2
3.6	Electrical circuit protection devices	L AB	ICPL/TC/3P-3.6/14	2
3.7	Study Of resistance	L AB	ICPL/TC/3P-3.7/16	3
3.7	measurement of resistance&voltage	L AB	ICPL/TC/3P-3.7/17	3
3.7	Verify the law for series and parallel connection	L AB	ICPL/TC/3P-3.7/18	4
3.7	Wheatstone bridge	L AB	ICPL/TC/3P-3.7/20	3
3.7	measure the internal resistance of a given primary cell using potentiometer	L AB	ICPL/TC/3P-3.7/21	3
3.8	Measure the induced emf of a separately excited DC generator as a function of field current.	L AB	ICPL/TC/3P-3.8/06	4
3.8	GCU	L AB	ICPL/TC/3P-3.8/07	2
3.8	Insulation of armature with growler.	LAB	ICPL/TC/3P-3.8/08	2
3.9	Procedure for-Visual inspection, measuring battery voltage,electrolyte specific gravity, connecting cell/batteries in series and parallel and its effect on voltage and current.	LAB	ICPL/TC/3P-3.9/01	5

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3.11	Function and operation of relay	LAB	ICPL/TC/3P-3.11/15	2

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MODULE 4 (PRACTICAL)
ELECTRONICS FUNDAMENTALS

Subject code: 2P-4 **Total Hours Allotted: 80**

CAR-66 Ref. No.	Task description	Availability of Facility	Task Reference	Hours
4.1	To identify the different electronic components and equipment.	L AB	ICPL/TC/4P-4.1/01	5
4.1	Identification of semiconductor diode characteristics.	L AB	ICPL/TC/4P-4.1/02	6
4.1	Identification of BJT common emitter characteristics	L AB	ICPL/TC/4P-4.1/03	4
4.1	Identification of JFET characteristics.	L AB	ICPL/TC/4P-4.1/04	3
4.1	Clipper and Clamper circuits.	L AB	ICPL/TC/4P-4.1/05	4
4.1	Half wave rectifier	L AB	ICPL/TC/4P-4.1/06	4
4.1	Full wave rectifier	L AB	ICPL/TC/4P-4.1/07	4
4.1	Application of Operational amplification as inverting amplifier	L AB	ICPL/TC/4P-4.1/09	3
4.1	Application of Operational amplification as Non-Inverting amplifier.	L AB	ICPL/TC/4P-4.1/10	3
4.1	To design and simulate a Differentiator circuit and observe output with different input waveforms	L AB	ICPL/TC/4P-4.1/11	3
4.1	Testing of transistors and Zener diodes	L AB	ICPL/TC/4P-4.1/12	6
4.1.2(a)	Functional testing of Transistors in common base, common collector &common emitter configuration.	L AB	ICPL/TC/4P-4.1.2/01	5
4.1.2(a)	Fabrication of simple transistor circuit on PCB.	L AB	ICPL/TC/4P-4.1.2/02	4
4.1.2(a)	Functional testing of transistor biasing circuits	L AB	ICPL/TC/4P-4.1.2/03	3
4.1.2(a)	Multistage Transistor Amplifier circuit - fabrication and testing.	L AB	ICPL/TC/4P-4.1.2/04	4
4.1.2(a)	Functioning of Field Effect Transistor (FET) & Silicon Controlled Rectifier (SCR) connected in a circuit.	L AB	ICPL/TC/4P-4.1.2/05	3
4.1.2(a)	Fabrication of Audio Amplifier & classification.	L AB	ICPL/TC/4P-4.1.2/06	4
4.1.2(a)	Feedback Amplifiers fabrication and functional testing.	L AB	ICPL/TC/4P-4.1.2/07	3

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4.1.2(b)	Study of Flip flops	L AB	ICPL/TC/4P-4.1.2/08	5
4.1.3(a)	Study of digital Integrated Circuits and IC trainer kit and verification of truth table.	L AB	ICPL/TC/4P-4.1.3/01	4

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MODULE 5 (PRACTICAL)
DIGITAL TECHNIQUES-I

Subject code: 2P-5(I) **Total Hours Allotted: 40**

CAR-66 REF NO.	TASK NAME	Availibilty of Facility	REFERENCE	HOURS
5.1	Engine Indicating Display System.	L AB	ICPL/TC/5P-5.1/02	2
5.1	Explain/demonstrate how to inspect aircraft areas for HIRF protection.	AMO Hangar	ICPL/TC/5P-5.1/03	3
5.2	ASSEMBLE one application of Analog to Digital and Digital to Analog CONVERTERS	L AB	ICPL/TC/5P-5.2/03	2
5.5	Verify the operation of Logic gates.	L AB	ICPL/TC/5P-5.5/04	3
5.5(a)	REALISATION of ICs used in Logic Circuit: Basic, Universal and Special LOGIC GATE IN TRAINER KIT	LAB	ICPL/TC/5P-5.5/05	2
5.6(b)	Familiarization of Basic Computer structure: Computer Hardware &COMPUTER MEMORY DATA STORAGE DEVICES	L AB	ICPL/TC/5P-5.6/04	3
5.7	IDENTIFICATION OF DIFFERENT TYPES of Microprocessor SYSTEMS and Microprocessor families.	L AB	ICPL/TC/5P-5.7/04	2
5.8	Operation of shift register	L AB	ICPL/TC/5P-5.8/11	2
5.8	IC testing	LAB	ICPL/TC/5P-5.8/06	5
5.8	Familirization of Operation and use of encoder and decoder	LAB	ICPL/TC/5P-5.8/07	5
5.9	Design Multiplexer and De-multiplexer and verify their truth tables	LAB	ICPL/TC/5P-5.9/05	4
5.10	Familirization of fibre optics	LAB	ICPL/TC/5P-5.10/01	3
5.10	Familirization of application of fibre optics	LAB	ICPL/TC/5P-5.10/02	2
5.10	Familirization of fibre optics data bus	LAB	ICPL/TC/5P-5.10/03	2

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MODULE 13 (PRACTICAL)

AIRCRAFT AERODYNAMICS STRUCTURE & SYSTEMS-II

Subject code: 3P-13(II) **Total Hours Allotted: 60**

Syll Ref	Task Description	Facility	ATA	Task Reference	Hours
13.11	Familiarization with the operation of air conditioning and heating system.	HANGAR	ATA 21	ICPL/TC/13P-13.11/11.1	7
13.12	Check cabin fire extinguisher content.	AMO Hangar	ATA 26	ICPL/TC/13P-13.12/12.1	5
13.12	Test operation of fire / smoke detection and warning system.	AMO Hangar	ATA 26	ICPL/TC/13P-13.12/12.2	6
13.13	Familiarization with aircraft fuel system and components.	AMO Hangar	ATA 28	ICPL/TC/13P-13.13/13.1	8
13.16	Familiarisation of Landing gear	AMO Hangar	ATA 32	ICPL/TC/13P-13.16/16.1	5
13.16	Familiarization with Wheels and Tyres	AMO Hangar	ATA 32	ICPL/TC/13P-13.16/16.2	5
13.16	Brake Unit Inspection	AMO Hangar	ATA 32	ICPL/TC/13P-13.16/16.3	5
13.16	Landing gear and shock struts.	AMO Hangar	ATA 32	ICPL/TC/13P-13.16/16.4	8
13.16	Landing gear and shock struts.	AMO Hangar	ATA 32	ICPL/TC/13P-13.16/16.5	5
13.17	Portable Helicopter Oxygen System	AMO Hangar		ICPL/TC/13P-13.17/16.6	6

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TRAINING PROGRAM
CURRICULUM - AVIONICS
SEMESTER – IV
PRACTICAL

MODULES	PRACTICAL SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 3	ELECTRICAL FUNDAMENTAL-II	4P-3(II)	50
MODULE 5	DIGITAL TECHNIQUES AND ELECTRONICS INSTRUMENT SYSTEM (PART-II)	4P-5(II)	90
MODULE 13	AIRCRAFT AERODYNAMICS, STRUCTURES & SYSTEM-III	4P-13(III)	60
MODULE 14	PROPULSION	4P-14	40
TOTAL HOURS			**240**

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MODULE 3 (PRACTICAL)
ELECTRICAL FUNDAMENTAL-II

Subject code: 4P-3(II) **Total Hours Allotted: 50**

Syll. ref: no-	TASK NAME	AVAILABILITY OF FACILITY	TASK REFERENCE	HRS
3.12	Dismantling of direct current motor pats and imparting knowledge of different part and their purpose	LAB	ICPL/TC/3P/3.12/14	5
3.12	Changing Direction of Rotation of Motor	LAB	ICPL/TC/3P/3.12/15	5
3.12	Dismantling of direct current generator pats and imparting knowledge of different part and their purpose	LAB	ICPL/TC/3P/3.12/16	5
3.12	Dismantling of direct current motor pats and imparting knowledge of different part and their purpose	LAB	ICPL/TC/3P/3.12/23	5
3.13	Showing different terms alternating current theory such as wave form, frequency cycle	LAB	ICPL/TC/3P/3.13/17	5
3.14	Effect on Alternating Current in resistive capacitive & inductive loads.	LAB	ICPL/TC/3P/3.14/18	5
3.15	Familiarization of different types of Transformers & their parts	LAB	ICPL/TC/3P/3.15/19	5
3.16	Filters and their applications.	LAB	ICPL/TC/3P/3.16/20	6
3.17	Familiarization of AC Motors & their parts	LAB	ICPL/TC/3P/3.17/21	4
3.17	Speed control of ac motor	LAB	ICPL/TC/3P/3.17/22	5

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MODULE 5 (PRACTICAL)

DIGITAL TECHNIQUES AND ELECTRONICS INSTRUMENT SYSTEM-II

Subject Code: 4P-5(II) **Total Hours Allotted: 90**

Syll Ref No.	Task Description	Availability of Facility	Task reference	HOURS
5.6(b)	Familiarization of Basic Computer structure: Computer Hardware &COMPUTER MEMORY DATA STORAGE DEVICES	L AB	ICPL/TC/5P-5.6/04	6
5.9	Design Multiplexer and De-multiplexer and verify their truth tables	LAB	ICPL/TC/5P-5.9/05	5
5.11	Familiarization of Displays used in modern aircrafts	AMO Hangar	ICPL/TC/5P-5.11/01	6
5.12	IDENTIFICATION of Electrostatic Discharge Devices	LAB/Hangar	ICPL/TC/5P-5.12/01	10
5.12	Safety precaution while working with ESDS components.	L AB	ICPL/TC/5P-5.12/01	7
5.13	Familirization with Software management system	LAB	ICPL/TC/5P-5.13/01	6
5.14	Engine torque meter system display	AMO Hangar	ICPL/TC/5P-5.14/09	6
5.15	Familiarization with IFE system of Aircraft.	AMO Hangar	ICPL/TC/5P-5.15/01	8
5.15	VEMD system	AMO Hangar	ICPL/TC/5P-5.15/02	6
5.15	Functional test of engine display system	AMO Hangar	ICPL/TC/5P-5.15/03	6
5.15(a)	Familiarization of EICAS	AMO Hangar	ICPL/TC/5P-5.15/04	6
5.15(a)	Familiarization of FMS	AMO Hangar	ICPL/TC/5P-5.15/05	6
5.15(a)	Familiarization of IRS	AMO Hangar	ICPL/TC/5P-5.15/06	6
5.15(a)	Familiarization of ECAM	AMO Hangar	ICPL/TC/5P-5.15/07	6

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MODULE 13 (PRACTICAL)

AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS-III

Subject code: 4P-13(III) **Total Hours Allotted: 60**

CAR-66 REF No.	TASK DESCRIPTION	AVAILIBILITY OF FACILITY	ATA	TASK REFERENCE	HOURS
13.5	Safety precaution in battery storage compartment	L AB	ATA-24	ICPL/TC/13P-13.5/5.1	1
13.5	Ni-Cd Battery Maintenance practices	L AB	ATA-24	ICPL/TC/13P-13.5/5.2	1
13.5	Ni-Cd Cell constructions	L AB	ATA-24	ICPL/TC/13P-13.5/5.3	1
13.5	Perform installation test on power generation system	AMO Hangar	ATA-24	ICPL/TC/13P-13.5/5.4	2
13.5	Battery charging methods	LAB/HANGER	ATA-24	ICPL/TC/13P-13.5/5.5	1
13.5	Insertion and extraction of electrical wire in connectors/plugs.	LAB/HANGER		ICPL/TC/13P-13.5/5.6	1
13.5	Ground power supply system	AMO Hangar	ATA-24	ICPL/TC/13P-13.5/5.7	2
13.5	Dc power system and balance check	HANGAR	ATA-24	ICPL/TC/13P-13.5/5.8	2
13.5	Removal-installation of dc power system.	AMO Hangar	ATA 24	ICPL/TC/13P-13.5/5.9	2
13.5	nsulation of armature with growler.	LAB		ICPL/TC/13P-13.5/5.10	2
13.5	Identification with motor and their parts.	L AB		ICPL/TC/13P-13.5/5.11	3
13.5	Electrical circuit protection devices	LAB	ATA 24	ICPL/TC/13P-13.5/5.12	3
13.5	Function and operation of relay	LAB	ATA 24	ICPL/TC/13P-13.5/5.13	1

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13.5	Safety precautions while working with electrical equipment in electrical work shop and on board aircraft.	LAB /HANGER	ATA 24	ICPL/TC/13P-13.5/5.14	3
13.5	Electrical circuit protection devices	LAB	ATA 24	ICPL/TC/13P-13.5/5.15	2
13.5	Measure the induced emf of a separately excited DC generator as a function of field current.	L AB	ATA 24	ICPL/TC/13P-13.5/5.16	2
13.5	GCU	L AB		ICPL/TC/13P-13.5/5.17	2
13.5	Lead acid battery inspection	L AB		ICPL/TC/13P-13.5/5.18	3
13.5	Continuity and balancing of armature	L AB		ICPL/TC/13P-13.5/5.19	2
13.8	Compass Swinging Procedure	HANGAR/LAB	ATA 34	ICPL/TC/13P-13.8/8.1	2
13.8	Familiarization with Magnetic Compass	HANGAR/LAB	ATA 34	ICPL/TC/13P-13.8/8.2	2
13.8	Operational check of Gyroscopic Instruments.	AMO HANGAR	ATA 31	ICPL/TC/13P-13.8/8.3	2
13.8	Familiarization with Pre-installation check and handling of Gyroscopic Instruments.	AMO HANGAR	ATA 31	ICPL/TC/13P-13.8/8.4	2
13.8	Pitot static system leak test (in-situ) to ensure the system including connected instrument functioning correctly.	AMO HANGAR		ICPL/TC/13P-13.8/8.5	2
13.8	Tacho Generator principle	LAB		ICPL/TC/13P-13.8/8.6	2
13.8	Testing of an altimeter with the help of 'U' Manometer	LAB		ICPL/TC/13P-13.8/8.7	2
13.8	Internal mechanism of Altimeter	LAB		ICPL/TC/13P-13.8/8.8	2
13.8	Internal mechanism of Airspeed Indicator.	LAB		ICPL/TC/13P-13.8/8.9	2

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13.8	Internal mechanism of a Vertical Speed Indicator	LAB		ICPL/TC/13P-13.8/8.10	1
13.8	Internal Mechanism of Turn & Slip Indicator	LAB		ICPL/TC/13P-13.8/8.11	1
13.8	Familiarization with the procedure of self-test and self-calibration of radio altimeter.	AMO HANGAR	ATA-34	ICPL/TC/13P-13.8/8.12	1
13.8	Ramp test and maintenance of radio altimeter.	AMO HANGAR	ATA-34	ICPL/TC/13P-13.8/8.13	1
13.9	To familiarize with aircraft light, external lights- Navigation lights, anti-collision lights, landing and taxing lights, wing inspection lights, Internal lights.	AMO HANGAR	ATA-33	ICPL/TC/13P-13.9/9.1	2

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MODULE 14 (PRACTICAL)
PROPULSION

Subject Code: 4P-14 **Total Hours Allotted: 40**

Syll Ref No	Task Description	Availibility of Facility	ATA	Task Reference	Hours
14.3	Identify the components used in ignition system on the engine. Give their purpose and location.	AMO Hangar	ATA 74	**ICPL/TC/14 P-14.3/01**	5
14.2	Identify and locate the different switches in the cockpit relating to ignition system of jet engine	AMO Hangar	ATA 74	**ICPL/TC/14 P-14.2/02**	5
14.3	Familiarizes and construction of igniter plugs. Give the number and location of these igniter plugs on engine.	AMO Hangar	ATA 74	**ICPL/TC/14 P-14.3/03**	5
14.3	to identify different types of electrical power supply to ignition system	AMO Hangar	ATA 74	**ICPL/TC/14 P-14.3/04**	5
14.3	Ignition system checked/ tested on aircraft and engine	AMO Hangar	ATA 74	**ICPL/TC/14 P-14.3/05**	5
14.3	How are igniters plugs inspected/ serviced? What precautions are necessary while handling the igniter plugs on ignition system? How are the igniter plugs disposed if unserviceable?	AMO Hangar	ATA 74	**ICPL/TC/14 P-14.3/06**	5
14.3	Which portion of ignition system, wiring is radio shielded, why and how?	AMO Hangar		**ICPL/TC/14 P-14.3/07**	5
14.2	Identification with different engine indicating instruments **(AS 350)** Oil Temperature Indicator Thermocouple	AMO Hangar	ATA 31	**ICPL/TC/14 P-14.2/08**	5

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TRAINING PROGRAM
CURRICULUM - AVIONICS
SEMESTER – V
PRACTICAL

MODULES	PRACTICAL SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 13	AIRCRAFT AERODYNAMICS, STRUCTURES & SYSTEM-IV	5P-13(IV)	90
MODULE 13	AIRCRAFT AERODYNAMICS, STRUCTURES & SYSTEM-V	5P-13(V)	90
MODULE 13	AIRCRAFT AERODYNAMICS, STRUCTURES & SYSTEM-VI	5P-13(VI)	90
TOTAL HOURS			**270**

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MODULE 13 (PRACTICAL)

Aircraft Aerodynamics Structure & System-IV

Subject Code: 5P-13(IV) **Total Hours Allotted: 90**

MODULE REF. NO.	TASK NAME	AVAILIABLITY OF FACILITYD	REFERENCE	HOURS
13.12	Precaution observed while handeling fire bottles with highly toxic extinguishing agent	Hangar	ICPL/TC/13P-13.12/12.1	5
13.12	Check cabin fire extinguisher content.	AMO Hangar	ICPL/TC/13P-13.12/12.2	5
13.12	Familirization with portable fir extinguiser	Hangar	ICPL/TC/13P-13.12/12.3	6
13.12	Familirization with Fire Detection system	AMO Hangar	ICPL/TC/13P-13.12/12.4	10
13.12	Test operation of fire / smoke detection and warning system.	AMO Hangar	ICPL/TC/13P-13.12/12.5	10
13.12	Familiriziation with Engine Fire Detector	AMO Hangar	ICPL/TC/13P-13.12/12.6	5
13.12	Tracing of equipment in continuous loop fire detection system	AMO Hangar	ICPL/TC/13P-13.12/12.7	10
13.17	Cleaning of aircraft oxygen system	AMO Hangar	ICPL/TC/13P-13.17/17.1	6
13.17	Identification of Oxygen System Components Layout	AMO Hangar	ICPL/TC/13P-13.17/17.2	10
13.17	Portable Helicopter Oxygen System	AMO Hangar	ICPL/TC/13P-13.17/17.3	6
13.17	Identification with oxygen bottle pressure check and regulator function	AMO Hangar	ICPL/TC/13P-13.17/17.4	5
13.17	Familirization of oxygen charging system	AMO Hangar	ICPL/TC/13P-13.17/17.5	4
13.19	Draining and filling of water in water tank	AMO Hangar	ICPL/TC/13P-13.19/19.1	
13.19	Familirization with Vacuum Waste System-Leak Test	AMO Hangar	ICPL/TC/13P-13.19/19.2	5

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MODULE 13 (PRACTICAL)

Aircraft Aerodynamics, System & Structure –V

Subject code: 5P-13(V) **Total Hours Allotted: 90**

CAR-66 REF NO.	TASK DESCRIPTION	AVAILIBILITY OF FACILITY	ATA	TASK REFERENCE	HRS
13.3	Familiarization with removal installation of principle part LRU- Auto Flight	AMO HANGAR	ATA-22	ICPL/TC/13P-13.03/3.1	6
13.3	Auto pilot operational check after engagement	AMO HANGAR	ATA 22	ICPL/TC/13P-13.3/3.2	5
13.10	Amplifier mixer removal installation-UMS-SSC VFDR	AMO Hangar	ATA-45	ICPL/TC/12P/13.10/01	6
13.10	Circuit Breaker Monitoring, Electrical System BITE	AMO Hangar	ATA-42	ICPL/TC/12P/13.10/02	6
13.10	Schedule maintenance data loading task	AMO Hangar	ATA-45	ICPL/TC/12P/13.10/03	6
13.10	Removal/ installation procedure for a LRU	AMO Hangar	ATA-45	ICPL/TC/12P/13.10/04	6
13.10	Removal /Installation of UMS-SSC VFDR	AMO Hangar	ATA-45	ICPL/TC/12P/13.10/05	10
13.10	Pitch unit removal installation UMS-SSC VFDR	AMO Hangar	ATA-45	ICPL/TC/12P/13.10/06	7
13.20	Landing Gear Extension and Retraction (IMA)	AMO Hangar	ATA-42	ICPL/TC/12P/13.20/01	5
13.21	Cabin Interphone System Operation Test	AMO Hangar	ATA-44	ICPL/TC/12P/13.21/01	10
13.21	Flight And Call System-Adjustment/Test	AMO Hangar		ICPL/TC/12P/13.21/02	8
13.21	Flight Interphone system Maintenance practices	AMO Hangar		ICPL/TC/12P/13.21/03	7
13.22	Familiarization with Flight Deck Information System	AMO Hangar	ATA-46	ICPL/TC/12P/13.22/01	8

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MODULE 13 (PRACTICAL)

AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS-VI

COMMUNICATION & NAVIGATION

Subject code: 5P-13(VI) **Total Hours Allotted: 90**

CAR-66 REF No.	TASK DESCRIPTION	AVAILIBILITY OF FACILITY	ATA	TASK REFERENCE	HOURS
13.4	Calibration and Testing on the Ramp of ADF system Loop Swing, Ground Swing, Air swing.	AMO Hangar	ATA-23	ICPL/TC/13P-13.4/4.1	4
13.4	Familiarization with inspection schedule- Daily Inspection (DI)	AMO Hangar		ICPL/TC/13P-13.4/4.2	4
13.4	Removal and installation of HF Communication antenna.	AMO Hangar	ATA-23	ICPL/TC/13P-13.4/4.3	5
13.4	operation check of vhf component	AMO Hangar	ATA-23	ICPL/TC/13P-13.4/4.4	5
13.4	VHF Transceiver mounts removal and installation VHF 1 and VHF2	AMO Hangar	ATA-23	ICPL/TC/13P-13.4/4.5	4
13.4	Control and operation of HF communications System	AMO Hangar	ATA-23	ICPL/TC/13P-13.4/4.6	5
13.4	Functional test of ADF system	AMO Hangar	ATA-23	ICPL/TC/13P-13.4/4.7	4
13.4	Safety precautions with radio equipment's, RF emissions & microwave emissions	AMO Hangar	ATA-23	ICPL/TC/13P-13.4/4.8	4
13.4	Familiarization with RAMP test and Bench test of DME.	AMO Hangar	ATA-34	ICPL/TC/13P-13.4/4.9	5
13.4	Ramp Test of VHF	AMO Hangar	ATA-23	ICPL/TC/13P-13.4/4.10	4
13.4	HF Wire antenna continuity test	AMO Hangar	ATA-23	ICPL/TC/13P-13.4/4.11	4
13.4	VOR ramp test.	AMO Hangar	ATA-34	ICPL/TC/13P-13.4/4.12	5

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13.4	Familiarization with Safety and Functional test of weather radar system	AMO Hangar	ATA-34	ICPL/TC/13P-13.4/4.13	4
13.4	Functional ramp check of Weather Radar	AMO Hangar	ATA-34	ICPL/TC/13P-13.4/4.14	4
13.4	safety precaution while operating weather radar equipment	AMO Hangar	ATA-34	ICPL/TC/13P-13.4/4.15	4
13.4	Familiarization of super heterodyne receiver.	Lab		ICPL/TC/13P-13.4/4.16	5
13.4	Use of VSWR meter	Lab		ICPL/TC/13P-13.4/4.17	5
13.4	To check the signal strength with AM signal generator	Lab		ICPL/TC/13P-13.4/4.18	5
13.4	To check the signal strength with FM signal generator	Lab		ICPL/TC/13P-13.4/4.19	5
13.4	To supply audio radio frequency at different level.	Lab		ICPL/TC/13P-13.4/4.20	5

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INDOCOPTERS PRIVATE LIMITED

MAINTENANCE TRAINING ORGANISATION EXPOSITION

APPENDICES

SYLLABUS

(B1.3)

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APPENDIX B

B1.3

MECHANICAL

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TRAINING PROGRAM
CURRICULUM - MECHANICAL
SEMESTER – I
THEORY

MODULES	THEORY SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 7A	MAINTENANCE PRACTICES-I	1T-7A(I)	110
MODULE 8	BASIC AERODYNAMICS	1T-8	60
MODULE 9A	HUMAN FACTORS	1T-9A	60
MODULE 10	AVIATION LEGISLATION-I	1T-10(I)	100
TOTAL HOURS			**330**

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MODULE 7A (THEORY)

MAINTENANCE PRACTICES-I

Subject code: 1T-7A (I) **Total Hours Allotted: 110**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
7.1	Safety Precautions - Aircraft and Workshop	Aspects of safe working practices including precautions to take when working with electricity, gases especially oxygen, oils and chemicals. Also, instruction in the remedial action to be taken in the event of a fire or another accident with one or more of these hazards including knowledge on extinguishing agents.	3	20
7.2	Workshop Practices	Care of tools, control of tools, use of workshop materials; Dimensions, allowances and tolerances, standards of workmanship; Calibration of tools and equipment, calibration standards.	3	5
7.3	Tools	Common hand tool types; Common power tool types; Operation and use of precision measuring tools; Lubrication equipment and methods. Operation, function and use of electrical general test equipment.	3	20
7.4	Avionic General Test Equipment	Operation, function and use of avionic general test equipment.	2	5
7.5	Engineering Drawings, Diagrams and Standards	Drawing types and diagrams, their symbols, dimensions, tolerances and projections Identifying title block information Microfilm, microfiche and computerized presentations Specification 100 of the Air Transport Association (ATA) of America Aeronautical and other applicable standards including ISO, AN, MS, NAS and MIL Wiring diagrams and schematic diagrams.	2	20
7.6	Fits and Clearances	Drill sizes for bolt holes, classes of fits; Common system of fits and clearances; Schedule of fits and clearances for aircraft and engines; Limits for bow, twist and wear Standard methods for checking shafts, bearings and other parts.	2	10
7.7	Electrical Wiring Inter-	Electrical Wiring Interconnection System (EWIS) Continuity, insulation and bonding techniques and	3	10

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	connection System (EWIS)	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.		
7.15	**Welding, Brazing, Soldering and Bonding**	(a) Soldering methods; inspection of soldered joints. (b) Welding and brazing methods; Inspection of welded and brazed joints; Bonding methods and inspection of bonded joints.	2	10
7.16	**Aircraft Weight and Balance**	(a) Centre of Gravity/Balance limits calculation: use of relevant documents; (b) Preparation of aircraft for weighing; Aircraft weighing.	2	10

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MODULE 8 (THEORY)

BASIC AERODYNAMICS

Subject code: 1T-8 **Total Hours Allotted: 60**

CAR-66 REF	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
8.1	**Physics of the Atmosphere**	International Standard Atmosphere (ISA), Application to Aerodynamics:	2	10
8.2	**Aerodynamics**	Airflow around a body; Boundary layer, laminar and turbulent flow, free stream flow, relative airflow, upwash and downwash, vortices, stagnation; The terms: camber, chord, mean aerodynamic chord, profile (parasite) drag, induced drag, centre 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	20
8.3	**Theory of flight**	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	15
8.4	**Flight Stability and Dynamics**	Longitudinal, lateral and directional stability (active and passive).	2	15

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MODULE 9A (THEORY)

HUMAN FACTORS

Subject code: 1T-9A **Total Hours Allotted: 60**

CAR .REF	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
9.1	**General**	The need to take human factors into account; Incidents attributable to human factors/human error; 'Murphy's' law.	2	5
9.2	**Human Performance and Limitations**	Vision; Hearing; Information processing; Attention and perception; Memory; Claustrophobia and physical access.	2	8
9.3	**Social Physiology**	Responsibility: individual and group; Motivation and de-motivation; Peer pressure; 'Culture' issues; Team working; Management, supervision and leadership.	1	5
9.4	**Factors Affecting Performance**	Fitness/health; Stress: domestic and work related; Time pressure and deadlines; Workload: overload and under load; Sleep and fatigue, shift work; Alcohol, medication, drug abuse. Alcohol, medication, drug abuse.	2	9
9.5	**Physical Environment**	Noise and fumes; Illumination; Climate and temperature; Motion and vibration; Working environment.	1	5
9.6	**Tasks**	Physical work; Repetitive tasks; Visual inspection; Complex systems.	1	3
9.7	**Communication**	Within and between teams; Work logging and recording; Keeping up to date, currency; Dissemination of information.	2	10
9.8	**Human Error**	Error models and theories; Types of error in maintenance tasks; Implications of errors (i.e accidents) Avoiding and managing errors.	2	10
9.9	**Hazards in the Workplace**	Recognizing and avoiding hazards; Dealing with Emergencies.	2	5

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MODULE 10 (THEORY)

AVIATION LEGISLATION-I

Subject code: 1T-10(I) **Total Hours Allotted: 100**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
10.1	**Regulatory Framework**	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	55
10.2	**CAR-66 Certifying Staff – Maintenance**	Detailed understanding of CAR-66.	2	15
10.3	**CAR-145 — Approved Maintenance Organisations**	Detailed understanding of CAR-145 and CAR M Subpart F	2	30

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TRAINING PROGRAM
CURRICULUM – MECHANICAL
SEMESTER - II

MODULES	THEORY SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 6	MATERIALS AND HARDWARE-I	2T-6(I)	90
MODULE 7A	MAINTENANCE PRACTICES –II	2T-7A(II)	110
MODULE 10	AVIATION LEGISLATION –II	2T-10(II)	80
MODULE 6	MATERIALS AND HARDWARE-II	2T-6(II)	60
TOTAL HOURS			**340**

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MODULE 6 (THEORY)

MATERIALS AND HARDWARE -I

Subject code: 2T-6(I) **Total Hours Allotted: 90**

CAR-66 REF	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
6.1	Aircraft Materials-Ferrous	(a) Characteristics, properties and identification of common alloy steels used in aircraft; Heat treatment and application of alloy steels;	2	10
		(b) Testing of ferrous materials for hardness, tensile strength, fatigue strength and Impact resistance.	2	5
6.2	Aircraft Materials –Non-Ferrous	(a) Characteristics, properties and identification of common non-ferrous materials used in aircraft; Heat treatment and application of non-ferrous materials;	2	10
		(b) Testing of non-ferrous material for hardness, tensile strength, fatigue strength and impact resistance	2	10
6.3	Aircraft Materials-Composite and Non-Metallic	(a) Characteristics, properties and identification of common composite and nonmetallic materials, other than wood, used in aircraft; Sealant and bonding agents.	2	10
		(b) The detection of defects/deterioration in composite and non-metallic material. Repair of composite and non-metallic material.	2	10

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6.3.2	**Wooden structures**	Construction methods of wooden airframe structures; Characteristics, properties and types of wood and glue used in aeroplanes; 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.	2	10
6.3.3	**Fabric covering**	Characteristics, properties and types of fabrics used in aeroplanes; Inspections methods for fabric; Types of defects in fabric; Repair of fabric covering.	2	5
6.4	**Corrosion**	(a) Chemical fundamentals; Formation by, galvanic action process, microbiological, stress;	2	5
		(b) Types of corrosion and their identification; Causes of corrosion; Material types, susceptibility to corrosion.	2	15

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MODULE 6 (THEORY)

MATERIALS AND HARDWARE- II

Subject code: 2T-6(II) **Total Hours Allotted: 60**

CAR-66 REF	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
6.5.1	**Fasteners, Screw Threads**	Screw nomenclature Thread forms, dimensions and tolerances for standard threads used in aircraft; easuring screw threads	2	5
6.5.2	**Bolts, Studs And Screws**	Bolt types: specification, identification and marking of aircraft bolts, international standards Nuts: self locking, anchor, standard types; Machine screws: aircraft pecifications; Studs: types and uses, insertion and emoval Self tapping screws, dowels	2	8
6.5.3	**Locking Devices**	Tab and spring washers, locking plates, split pins, pal nuts, wire locking, quick release fasteners, keys, circlips, and cotter pins and techniques	2	5
6.5.4	**Aircraft Rivets**	Types of solid and blind rivets: specifications and entification, heat treatment	2	10
6.6	**Pipes And Unions**	(a) Identification of, and types of rigid and flexible pipes & their connectors used in aircraft	2	5
		(b) Standard unions for aircraft hydraulic, fuel, oil, neumatic and air system pipes.	2	5
6.7	**Springs**	Types of springs, materials, characteristics and applications	2	5
6.8	**Bearings**	Purpose of bearings, loads, material, construction Types of bearings and their application	2	5
6.9	**Transmissions**	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	5
6.10	**Control Cables**	Types of cables End fittings, turnbuckles and compensation devices Pulleys and cable system components Bowden cables Aircraft flexible control systems	2	4
6.11	**Electrical Cables And Connectors**	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	3

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MODULE 7A (THEORY)
MAINTENANCE PRACTICES-II

Subject code: 2T-7A (II) **Total Hours Allotted: 110**

CAR-66 REF	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
7.8	**Riveting**	Riveted joints, rivet spacing and pitch; Tools used for riveting and dimpling; Inspection of riveted joints.	2	8
7.9	**Pipes and Hoses**	Bending and belling/flaring aircraft pipes; Inspection and testing of aircraft pipes and hoses; Installation and clamping of pipes.	2	7
7.10	**Springs**	Inspection and testing of springs.	2	5
7.11	**Bearings**	Testing, cleaning and inspection of bearings; Lubrication requirements of bearings; Defects in bearings and their causes.	2	5
7.12	**Transmissions**	Inspection of gears, backlash; Inspection of belts and pulleys, chains and sprockets; Inspection of screw jacks, lever devices, push-pull rod systems.	2	8
7.13	**Control Cables**	Swaging of end fittings; Inspection and testing of control cables; Bowden cables; aircraft flexible control systems.	2	10
7.14	**Material handling**	Sheet Metal Marking out and calculation of bend allowance Sheet metal working, including bending and forming; Inspection of sheet metal work.	2	5
		Composite and non-metallic Bonding practices; Environmental conditions Inspection methods.	2	5
7.17	**Aircraft Handling and Storage**	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	10

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7.18	**Disassembly, Inspection, Repair and Assembly Techniques**	(a) Types of defects and visual inspection techniques. Corrosion removal, assessment and reproduction.	3	5
		b) General repair methods, Structural Repair Manual; Ageing, fatigue and corrosion control programmers;	2	5
		(c) Non destructive inspection techniques including, penetrate, radiographic, eddy current, ultrasonic and horoscope methods.	2	5
		(d)Disassembly and re-assembly techniques.	2	5
		(e) Trouble shooting techniques	2	5
7.19	**Abnormal Events**	(a) Inspections following lightning strikes and HIRF penetration	2	8
		(b) Inspections following abnormal events such as heavy landings and flight through turbulence.	2	7
7.20	**Maintenance Procedures**	Maintenance planning; Modification procedures; Stores procedures; Certification/release procedures; Interface with aircraft operation; Maintenance Inspection/Quality Control/Quality Assurance; Additional maintenance procedures. Control of life limited components	2	7

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MODULE 10 (THEORY)
AVIATION LEGISLATION-II

Subject Code: 2T-10(II) **Total Hours Allotted: 80**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
10.4	Aircraft Operations	Commercial Air Transport/Commercial Operations Air Operators Certificates; Operators Responsibilities, in particular regarding continuing airworthiness and maintenance; Documents to be carried on board; Aircraft Pleading (Markings)	1	5
10.5	Aircraft Certification	(a) General - 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.	1	10
		(b) Documents - Certificate of Airworthiness; Certificate of Registration; Noise Certificate; Weight Schedule; Radio Station License and Approval.	2	10
10.6	CAR-M	Detail understanding of CAR M provisions related to Continuing Airworthiness Detailed understanding of CAR-M.	2	20
10.7	Applicable National and International Requirements	(a) Maintenance Programmed, 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	10
		(b) Continuing airworthiness; 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.	1	5
10.8	Safety Management System	State Safety Programmed Basic Safety Concepts Hazards & Safety Risks SMS Operation SMS Safety performance Safety Assurance.	1	10

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10.9	**Fuel Tank Safety**	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

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TRAINING PROGRAM
CURRICULUM – MECHANICAL
SEMESTER – III
THEORY

MODULES	THEORY SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 3	ELECTRICAL FUNDAMENTALS-I	3T-3(I)	80
MODULE 4	ELECTRONIC FUNDAMENTAL	3T-4	50
MODULE 5	DIGITAL TECHNIQUES AND ELECTRONICS INSTRUMENT SYSTEM-I	3T-5(I)	60
MODULE 12	HELICOPTER AERODYNAMICS, STRUCTURE & SYSTEM-I	3T-12(I)	90
TOTAL HOURS			**280**

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MODULE 3 (THEORY)
ELECTRICAL FUNDAMENTALS-I

Subject Code: 3T-3(I) **Total Hours Allotted: 80**

CAR .REF	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
3.1	**Electron Theory**	Structure and distribution of electrical charges within: Atoms, Molecules, ions, compounds; Molecular structure of conductors, semiconductors and insulators.	1	3
3.2	**Static Electricity and Conduction**	Static electricity and distribution of electrostatic charges: Static electricity and distribution of electrostatic charges, Electrostatic laws of attraction and repulsion Units of Charge, Coulomb's Law Conduction of electricity in Solid, Liquids, Gases And Vacuum.	2	3
3.3	**Electrical Terminology**	The following terms, their units and factors affecting them: potential difference, electromotive force, voltage, current, resistance, conductance, charge, conventional current flow, electron flow.	2	4
3.6	**DC Circuits**	Ohms law: Calculation of Voltage, Current, Resistance & Power in Series, Parallel & Compound resistive circuit Kirchhoff's Voltage and Current Laws: Calculation of Voltage, Current and Resistance in Series, Parallel and Compound circuit Significance of the internal resistance of a supply.	2	5
3.7	**Resistor/ Resistance**	Resistance and affecting factors: Specific resistance Resistors Color code: Values and tolerances Preferred Values Wattage ratings Resistors in series, parallel and Series Parallel: Calculation of total resistance using Series, Parallel and Series Parallel combination, Operation and use of opotentiometers rheostats; Operation of Wheatstone Bridge.	2	3
		Positive and negative temperature coefficient conductance; Fixed resistors, stability, tolerance and limitations, methods of construction; Variable resistors, thermostats, voltage dependent resistors; Construction of potentiometers and rheostats; Construction of Wheatstone Bridge.	1	2

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3.9	**Capacitor/ Capacitance**	Operation and function of a capacitor Factors affecting capacitance: Area of plates Distance between plates Number of plates 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
3.10	**Magnetism**	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	5
		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	3
3.11	**Inductance / Inductor**	Faraday's Law Action of inducing a voltage in a conductor moving in a magnetic field Induction principle Effects of the following on the magnitude of an induced voltage: magnetic field strength rate of change of flux number of conductor turns Mutual inductance: The effect the rate of change of primary current and mutual inductance has on induced voltage Factors affecting mutual induction: number of turns in coil physical size of coil permeability of coil position of coils with respect to each other Lenz's Law and polarity determining rules Back EMF Self Induction Saturation point Principle uses of inductors.	2	6
3.13	**AC Theory**	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

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3.14	**Resistive (R), Capacitive (C) Inductive (L) Circuits**	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 and current calculations;True power, apparent power and reactive power calculations.	2	13
3.15	**Transformers**	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	13
3.16	**Filters**	Operation, application and uses of the following filters: low pass, high pass band pass, band stop.	1	5

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MODULE 4 (THEORY)

ELECTRONICS FUNDAMENTAL

Subject code: 3T-4 **Total Hours Allotted: 50**

CAR-66 REF	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
4.1	Semi-conductors	**4.1.1 Diodes** Diode symbols; Diode characteristics and properties; Diodes in series and parallel; Main characteristics and use of silicon controlled rectifiers (thyristors), light emitting diode, photo conductive diode, varistor, rectifier diodes; Functional testing of diodes.	2	15
		Transistors-4.1.2 Transistor symbols; Component description and orientation; Transistor characteristics and properties.	1	5
		Integrated Circuits-4.1.3 Description and operation of logic circuits and linear circuits/operational amplifiers.	1	5
4.2	Printed Circuit Boards	Description and use of printed circuit boards	1	5
4.3	Servo-mechanisms	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	20

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MODULES 5 (THEORY)

DIGITAL TECHNIQUES AND ELECTRONICS INSTRUMENT SYSTEM-I

Subject code: 3T-5(I) **Total Hours Allotted: 60**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
5.1	**Electronics Instrument System**	Typical system arrangement and cockpit layout of electronic instrument system	2	15
5.2	**Numbering Systems**	Numbering systems: binary, octal and hexadecimalDemonstration of conversions between the decimal and binary, octal and hexadecimal systems and vice versa	1	5
5.3	**Data Conversion**	Analogue Data, Digital Data; Operation and application of analogue to digital, and digital to analogue converters, inputs and outputs, limitations of various types	1	5
5.4	**Data Buses**	Operation of data buses in aircraft systems, including knowledge of ARINC and other specifications	2	8
5.5	**Logic Circuits**	(a) Identification of common logic gate symbols, tables and equivalent circuits Applications used for aircraft systems, schematic diagrams.	2	15
		(b) Interpretation of logic diagrams.	1	6
5.10	**Fibre Optics**	Advantages and disadvantages of fibre optic data transmission over electrical wire propagation; Fibre optic data bus; Fibre optic related terms; Terminations; Couplers, control terminals, remote terminals; Application of fibre optics in aircraft systems	1	6

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MODULE 12 (THEORY)

HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS-I

Subject code: 3T-12(I) **Total Hours Allotted: 90**

CAR-66 .REF	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
12.1	**Theory of Flight — Rotary Wing Aerodynamics**	Terminology; Effects of gyroscopic precession; Torque reaction and directional control; Dissymmetry of lift, Blade tip stall; Translating tendency and its correction; Coriolis effect and compensation; Vortex ring state, power settling, overpitching; Auto-rotation; Ground effect.	2	40
12.2	**Flight Control Systems**	Cyclic control; Collective control; Swashplate; Yaw control: Anti-Torque Control, Tail rotor, bleed air; Main Rotor Head: Design and Operation features; Blade Dampers: Function and construction; Rotor Blades: Main and tail rotor blade construction and attachment; Trim control, fixed and adjustable stabilisers; System operation: manual, hydraulic, electrical and flyby-wire; Artificial feel; Balancing and Rigging.	3	50

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TRAINING PROGRAM

CURRICULUM – MECHANICAL
SEMESTER – IV

MODULES	THEORY SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 3	ELECTRICAL FUNDAMENTAL-II	4T-3(II)	70
Module 5	DIGITAL TECHNIQUES AND ELECTRONICS INSTRUMENT SYSTEM-II	4T-5(II)	30
MODULE 12	HELICOPTER AERODYNAMICS ,SYSTEMS AND STRUCTURE – II	4T-12(II)	80
MODULE 12	HELICOPTER AERODYNAMICS ,SYSTEMS AND STRUCTURE –III	4T-12(III)	90
MODULE 15	GAS TURBINE ENGINE-I	4T-15(I)	90
TOTAL HOURS			**360**

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MODULE 3 (THEORY)
ELECTRICAL FUNDAMENTAL-II

Subject code: 4T-3(II) **Total Hours Allotted: 70**

CAR-66 REF	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
3.4	**Generation of Electricity**	Production of electricity by the following methods: Light, Heat, Friction, Pressure, Chemical Action, Magnetism and Motion.	1	4
3.5	**DC Sources of Electricity**	Construction and basic chemical action of: Primary calls 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 Thermo Couples: Construction, Materials and Operation Photo Cells: Introduction and Operation.	2	5
3.8	**Power and energy**	Work, Energy (Kinetic and Potential) and Power Dissipation of power by a resistance Power formula Calculation of Power, Work and Energy.	2	6
3.12	**DC Motor/ Generator Theory**	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
13.17	**AC Generators**	Rotation of loop in a magnetic field and waveform produced;Operation and construction of revolving armature and revolving field type ACgenerators; Single phase, two phase and three phase alternators; Three phase star and delta connections advantages and uses; Permanent Magnet Generators	2	20
3.18	**AC Motors**	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 pole or split pole.	2	20

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MODULES 5 (THEORY)

DIGITAL TECHNIQUES AND ELECTRONICS INSTRUMENT SYSTEM-II

Subject code: 4T-5(II) **Total Hours Allotted: 30**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOUR
5.6	**Basic Computer Structure**	(b) Computer related terminology Operation, layout and interface of the major components in a micro computer including their associated bus systems; Information contained in single and multi address instruction words Memory associated terms Operation of typical memory devices; Operation, advantages and disadvantages of the various data storage systems	2	5
5.9	**Multeplexing**	Operation, application and identification in logic diagrams of multi-plexers and demultiplexers	2	3
5.11	**Electronic Displays**	Principles of operation of common types of displays used in modern aircraft, including Cathode Ray Tubes, Light Emitting Diodes and Liquid Crystal Display.	2	4
5.12	**Electrostatic Sensitive Devices**	Special handling of components sensitive to electrostatic discharges; Awareness of risks and possible damage, component and personnel anti-static protection devices.	2	5
5.13	**Software Management Control**	Awareness of restrictions, airworthiness requirements and possible catastrophic effects of unapproved changes to software programmes	2	4
5.14	**Electromagnetic Environment**	Influence of the following phenomena on maintenance practices for electronic system: EMC-Electromagnetic Compatibility EMI-Electromagnetic Interference HIRF-High Intensity Radiated Field Lightning/lightning protection	2	4
5.15	**Typical Electronic/Digital Aircraft Systems**	General arrangement of typical electronic/digital aircraft systems and associated BITE(Built In Test Equipment) testing such as: For B1 and B2 only: 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 For B1, B2 and B3: ECAM-Electronic Centralised Aircraft Monitoring EFIS-Electronic Flight Instrument System GPS-Global Positioning System TCAS-Traffic Collission Avoidance system Integrated modular Avionica Cabin S5ystem Informatio system	2	5

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MODULE 12 (THEORY)

HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS-II

Subject code: 4T-12(II) **Total Hours Allotted: 80**

CAR-66 .REF	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
12.3	**Blade Tracking and Vibration Analysis**	Rotor alignment; Main and tail rotor tracking; Static and dynamic balancing; Vibration types, vibration reduction methods; Ground resonance.	3	15
12.4	**Transmissions**	Gear boxes, main and tail rotors; Clutches, free wheel units and rotor brake. Tail rotor drive shafts, flexible couplings, bearings, vibration dampers and bearing hangers	3	15
12.5	**Airframe Structures**	(a) Airworthiness requirements for structural strength; Structural classification, primary, secondary and tertiary; Fail safe, safe life, damage tolerance concepts; 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.	3	25
12.5	**Airframe Structures**	(b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning and anti-corrosive protection. Pylon, stabiliser and undercarriage attachments; Seat installation; Doors: construction, mechanisms, operation and safety devices; Windows and windscreen construction; Fuel storage; Firewalls; Engine mounts; 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	25

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MODULE 12 (THEORY)

HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS -III

Subject code: 4T-12 (III) **Total Hours Allotted: 90**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
12.6.1	Air Conditioning (ATA 21)	Sources of air supply including engine bleed and ground cart	3	8
12.6.2	Air Conditioning	Air conditioning systems; Distribution systems; Flow and temperature control systems; Protection and warning devices.	3	12
12.9	Equipment and Furnishings (ATA 25)	(a) Emergency equipment requirements; Seats, harnesses and belts; Lifting systems	2	3
		(b) Emergency flotation systems; Cabin lay-out, cargo retention; Equipment lay-out; Cabin Furnishing Installation	1	2
12.11	Fuel Systems (ATA 28)	System lay-out; Fuel tanks; Supply systems; Dumping, venting and draining; Cross-feed and transfer; Indications and warnings; Refuelling and Defuelling.	3	10
12.12	Hydraulic Power (ATA 29)	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	20
12.13	Ice and Rain Protection (ATA 30)	Ice formation, classification and detection; Anti-icing and de-icing systems: electrical, hot air and chemical; Rain repellant and removal; Probe and drain heating. Wiper system	3	10
12.14	Landing Gear (ATA 32)	Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, tyres, brakes; Steering; Air-ground sensing Skids, floats.	3	20
12.16	Pneumatic/Vacuum (ATA 36)	System lay-out; Sources: engine, compressors, reservoirs, ground supply.; Pressure control; Distribution; Indications and warnings; Interfaces with other systems	3	5

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MODULE 15 (THEORY)
GAS TURBINE ENGINE-I

Subject code: 4T-15(I) **Total Hours Allotted: 90**

CAR .REF.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
15.1	**Fundamentals**	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
15.2	**Engine Performance**	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	12
15.3	**Inlet**	Compressor inlet ducts Effects of various inlet configurations Ice protection	2	8
15.4	**Compressors**	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
15.5	**Combustion Section**	Constructional features and principles of operation	2	7
15.6	**Turbine Section**	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	13
15.7	**Exhaust**	Constructional features and principles of operation Convergent, divergent and variable area nozzles Engine noise reduction Thrust reversers	2	7
15.8	**Bearings and Seals**	Constructional features and principles of operation	2	3
15.9	**Lubricants and Fuels**	Properties and specifications Fuel additives	2	3

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		Safety precautions		
15.10	**Lubrication Systems**	System operation/lay-out and components Lubrication Systems; Basic requirements; Location and function of oil pumps; filters; Coolers; Oil Jets Scavenge systems; vent systems; Fuel control and metering system including starting control; acceleration; over-speed governing, power limiting, temperature limiting; shut down control; fuel control units; limiting devices; fault location and rectification in components of fuel controls systems and control adjustment. Engine Air/Bleed systems; Anti ice Control system, air turbine starters; pressure regulating and shutoff valves.	2	7
15.11	**Fuel Systems**	Operation of engine control and fuel metering systems including electronic engine control (FADEC) Systems lay-out and components	2	10

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TRAINING PROGRAM
CURRICULUM – MECHANICAL
SEMESTER – V

MODULES	THEORY SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 12	HELICOPTER AERODYNAMICS, SYSTEM-IV	5T-12(IV)	90
MODULE 12	HELICOPTER AERODYNAMICS SYSTEM-V	5T-12(V)	90
MODULE 15	GAS TURBINE ENGINE-II	5T-15(II)	100
TOTAL HOURS			**280**

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MODULE 12 (THEORY)

Helicopter Aerodynamics Structure and System-IV

Subject code: 5T-12(IV) **Total Hours Allotted: 90**

CAR-66 .REF.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
12.7.1	**Instrument Systems (ATA 31)**	Pitot static: altimeter, air speed indicator, vertical speed indicator Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turns and slip indicator, turn coordinator Compasses: direct reading, remote reading Vibration indicating systems — HUMS Glass Cockpit Other aircraft system indication.	2	25
12.8	**Electrical Power (ATA 24)**	Batteries Installation and Operation; DC power generation, AC power generation; Emergency power generation; Voltage regulation, Circuit protection. Power distribution; Inverters, transformers, rectifiers; External/Ground power	3	20
12.10	**Fire Protection (ATA 26)**	Fire and smoke detection and warning systems; Fire extinguishing systems; System tests.	3	8
12.15	**Lights (ATA 33)**	External: navigation, landing, taxiing, ice; Internal: cabin, cockpit, cargo; Emergency	3	7
12.17	**Integrated Modular Avionics (ATA42)**	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. Core System; Network Components.	2	30

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MODULE 12 (THEORY)

HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS-V

Subject code: 5T-12(V) **Total Hours Allotted: 90**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
12.7.2	**Avionic Systems**	Fundamentals of system layouts and operation of: Auto Flight (ATA 22); Communications (ATA 23); Navigation Systems (ATA 34)	1	15
12.18	**On Board Maintenance Systems (ATA45)**	Central maintenance computers; Data loading system; Electronic library system; Printing; Structure monitoring (damage tolerance monitoring).	2	25
12.19	**Information Systems (ATA46)**	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.	2	25
12.19	**Information Systems (ATA46)**	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	25

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MODULE 15 (THEORY)
GAS TURBINE ENGINE -II

Subject code: 5T-15(II) **Total Hours Allotted: 100**

CAR-66 .REF	MAIN TOPIC	SUB-TOPIC	LEVEL	HOURS
15.12	**Air Systems**	Operation of engine air distribution and anti-ice control systems, including internal cooling, sealing and external air services	2	10
15.13	**Starting and Ignition Systems**	Operation of engine start systems and components; Ignition systems and components; Maintenance safety requirements..	2	10
15.14	**Engine Indication Systems**	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	20
15.15	**Power Augmentation Systems**	Operation and applications; Water injection, water methanol; Afterburner systems.	1	5
15.16	**Turbo-prop Engines**	Gas coupled/free turbine and gear coupled turbines; Reduction gears; Integrated engine and propeller controls; Overspeed safety devices.	2	7
15.17	**Turbo-shaft engines**	Arrangements, drive systems, reduction gearing, couplings, control systems	2	8
15.18	**Auxiliary Power Units (APUs)**	Purpose, operation, protective systems	2	5
15.19	**Power plant Installation**	Configuration of firewalls, cowlings, acoustic panels, engine mounts, anti-vibration mounts, hoses, pipes, feeders, connectors, wiring looms, control cables and rods, lifting points and drains	2	10
15.20	**Fire Protection Systems**	Operation of detection and extinguishing systems	2	10
15.21	**Engine Monitoring and Ground Operation**	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	2	10
15.22	**Engine Storage and Preservation**	Preservation and depreservation for the engine and accessories/ systems	2	5

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TRAINING PROGRAM
CURRICULUM – MECHANICAL
SEMESTER – I
PRACTICAL

MODULES	PRACTICAL SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 8	AERODYNAMICS Note: Visit to CAR 145 AMO for demonstration on helicopter aerodynamics	1P-8	40
MODULE 10	AVIATION LEGISLATION –I	1P-10(I)	20
MODULE 7A	MAINTENANCE PRACTICES-I	1P-7A(I)	90
TOTAL HOURS			**150**

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MODULE 8 (PRACTICAL)
AERODYNAMICS

Subject code: 1P-8 **Total Hours Allotted: 40**

CAR 66 REF No.	TASK NAME	AVAILIABLITY OF FACILITY	REFRENCE	HRS
8.1	Familiarization of structure of atmosphere with the help of training videos.	AIRFRAME LAB	ICPL/ TC/1P-8.1/01	5
8.2	Demonstration of working principle of Aileron, Elevator, rudder	AMO HANGAR / LAB	ICPL/ TC/1P-8.2/01	3
8.2	Method of controlling boundary layer	AIRFRAME LAB	ICPL/ TC/1P-8.2/02	3
8.2	Visualization of laminar and turbulent airflow with the help of animation video	AIRFRAME LAB	ICPL/ TC/1P-8.2/03	3
8.2	Study of airflow separation and stalling	AIRFRAME LAB	ICPL/ TC/1P-8.2/04	3
8.3	Forces acting on aeroplane(Trg. Video)	AIRFRAME LAB	ICPL/ TC/1P-8.3/01	3
8.3	Familiarization of lift augmentation devices(Flaps, leading edge devices , fixed airflow devices)	AMO HANGAR / LAB	ICPL/ TC/1P-8.3/02	8
8.4	Understanding of longitudinal stability(Trg. Video)	AIRFRAME LAB	ICPL/ TC/1P-8.4/01	4
8.4	Understanding of lateral stability(Trg. Video)	AIRFRAME LAB	ICPL/ TC/1P-8.4/02	4
8.4	Understanding of directional stability(Trg. Video)	AIRFRAME LAB	ICPL/ TC/1P-8.4/03	4

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MODULE 7A (PRACTICAL)
MAINTENANCE PRACTICES-I

Subject code: 1P-7A (I) **Total Hours Allotted: 90**

CAR 66 REF No.	Task Description	Availibility of Facility	Task Reference	HRS
7.2	To make a right angle job	Fitting shop	ICPL/TC/1P/7.2/01	4
7.2	To make a champers cut job	Fitting shop	ICPL/TC/1P/7.2/02	4
7.2	To make a T fitting job	Fitting shop	ICPL/TC/1P/7.2/03	4
7.2	To make T fitting with drill	Fitting shop	ICPL/TC/1P/7.2/04	4
7.2	To make a U shape fitting job	Fitting shop	ICPL/TC/1P/7.2/05	4
7.3	To make a reading on varnier caliper(mm)	Fitting shop	ICPL/TC/1P/7.3/01	5
7.3	To make a reading on varnier caliper(inch)	Fitting shop	ICPL/TC/1P/7.3/02	5
7.3	To make a reading on micrometer(mm)	Fitting shop	ICPL/TC/1P/7.3/03	5
7.3	To make a reading on micrometer(inch)	Fitting shop	ICPL/TC/1P/7.3/04	5
7.3	Use of dividers and caliper fitting shop	Fitting shop	ICPL/TC/1P/7.3/05	5
7.3	To make a reading on DTI	Fitting shop	ICPL/TC/1P/7.3/06	5
7.3	To make a various job on lathe machine	Machine shop	ICPL/TC/1P/7.3/07	10
7.3	Use of grinding of a single point cutting tool	Machine shop	ICPL/TC/1P/7.3/08	5
7.3	Use of vertical milling machine	Machine shop	ICPL/TC/1P/7.3/09	5
7.15	To make a lap joint	Welding shop	ICPL/TC/3P/7.15/01	5
7.15	To make a Double lap joint	Welding shop	ICPL/TC/3P/7.15/02	5
7.15	To make a lap joint by Brazing	Welding shop	ICPL/TC/3P/7.15/03	5
7.16	Familiarization of aircraft weighing	AMO HANGAR	AMM 08-00-00 (AS350B3)	5

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MODULE 10 (PRACTICAL)
AVIATION LEGISLATION–I

Subject code: 1P-10(I) **Total Hours Allotted: 20**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	Availibility of Facility	HOURS
10.1	Regulatory Framework	Familiarization with CAR-21	Library	2
10.1	Regulatory Framework	Familiarization with CAR-145	AMO HANGAR	6
10.1	Regulatory Framework	Familiarization with CAR-147	Library	2
10.2	CAR 66 – Certifying staff / maintenance	Familiarization with CAR 66	Library	4
10.3	Approved Maintenance Organisations	Familiarization with CAR-145 & CAR M Subpart F	AMO HANGAR	6

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TRAINING PROGRAM
CURRICULUM - MECHANICAL
SEMESTER - II
PRACTICAL

MODULES	THEORY SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 6	MATERIALS AND HARDWARE- I	2P-6(I)	60
MODULE 6	MATERIALS AND HARDWARE - II	2P-6(II)	40
MODULE 7A	MAINTENANCE PRACTICES –II	2P-7A(II)	80
MODULE 10	AVIATION LEGISLATION –II	2P-10(II)	10
TOTAL HOURS			**190**

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MODULE 6 (PRACTICAL)

MATERIAL AND HARDWARE-I

Subject code: 2P-6 (I) **Total Hours Allotted: 60**

CAR 66 REF No.	TASK NAME	FACILITY AVAILABLE	REFRENCE	HRS
6.1	Identification of aircraft ferrous material	Airframe shop	ICPL/TC/3P/6.1/01	5
6.1	Testing of Ferrous Metal	Airframe shop	ICPL/TC/3P/6.1/02	5
6.1	Heat Treatment & Surface Hardening of Ferrous Metals	Field Visit	ICPL/TC/3P/6.1/03	5
6.2	Identification of aircraft non ferrous material	Airframe shop	ICPL/TC/3P/6.2/01	5
6.2	Testing of Non Ferrous Metal	Airframe shop	ICPL/TC/3P/6.2/02	5
6.2	Heat Treatment & Surface Hardening of non-Ferrous Metals	Field Visit	ICPL/TC/3P/6.2/03	5
6.3.1	Familiarization of composite material	Airframe shop	ICPL/TC/3P/6.3/01	5
6.3.1	Identification of Wood, Fabrics, Dopes used in Aircraft.	AMO Hangar	ICPL/TC/3P/6.3/02	5
6.3.3	Inspection of various aircraft fabric	AMO Hangar	ICPL/TC/3P/6.3/03	5
6.4	Familiarization of different types of corrosion and its causes.	Airframe shop	ICPL/TC/3P/6.4/01	6
6.4(a)	Formation of corrosion by Galvanic action process	Airframe shop	ICPL/TC/3P/6.4(a)/01	4
6.4(b)	Suceptibility of Metal to corrosion	Airframe shop	ICPL/TC/3P/6.4(b)/01	5

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MODULE 6 (PRACTICAL)

MATERIAL AND HARDWARE-II

Subject code: 2P-6 (II) **Total Hours Allotted: 40**

CAR 66 REF No.	TASK NAME	FACILITY AVAILABLE	REFRENCE	HRS
6.5.1	Familiarization different types of screws	Airframe shop	ICPL/TC/4P/6.5/06	3
6.5.2	Familiarization different types of nut and bolts	Airframe shop	ICPL/TC/4P/6.5/07	4
6.5.3	Familiarization of different types of locking devices	Airframe shop	ICPL/TC/4P/6.5/08	4
6.5.3	Safety Wire Lock	Airframe shop	ICPL/TC/4P/6.5/01	4
6.5.4	Riveting Practice (Hand & Power)	Airframe shop	ICPL/TC/4P/6.5/02	5
6.7	Familiarization of different types of springs	Airframe shop	ICPL/TC/4P/6.7/09	3
6.8	Familiarization of bearings used in aircraft and engine.	Airframe shop	ICPL/TC/4P/6.8/03	5
6.9	Familiarization of different types of gears and their application	Airframe shop	ICPL/TC/4P/6.9/10	5
6.10	Identification of different type of control cables and their assemblies.	Airframe shop	ICPL/TC/4P/6.10/04	5
6.11	Identification of different type of aircraft electrical cables and connectors.	Airframe shop	ICPL/TC/4P/6.11/05	2

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MODULE 7A (PRACTICAL)

MAINTENANCE PRACTICES-II

Subject code: 2P-7A (II) **Total Hours Allotted: 80**

CAR 66 ref no.	Task name	Availability of facility	task reference	Hrs
7.9	Tube bending procedure without heat treatment	Airframe shop	ICPL/TC/2P/7.9/01	5
7.9	To make tube flaring	Airframe shop	ICPL/TC/2P/7.9/02	10
7.9	Inspection tubes and flexible hoses	Airframe shop	ICPL/TC/2P/7.9/03	5
7.9	Testing of flexible hoses	Airframe shop	ICPL/TC/2P/7.9/04	8
7.11	Testing ,cleaning and inspection of bearing	Airframe shop	ICPL/TC/2P/7.11/01	7
7.13	Inspection and testing of control cables	Airframe shop	ICPL/TC/2P/7.13/01	8
7.13	Cables swaging of end fitting	Airframe shop	ICPL/TC/2P/7.13/02	7
7.14	To make square box using G.I sheet	Airframe shop	ICPL/TC/2P/7.14/01	10
7.17	Familiarization of aircraft taxing and towing	AMO Hangar	MET 09-00-00-201	5
7.17	Familiarization of aircraft jacking procedure.	AMO Hangar	MET 07-00-00-201	5
7.18	Familiarization with the Non-destructive testing method of dye penetrant	AMO Hangar	ICPL/TC/3P/7.18/01	10

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MODULE 10 (PRACTICAL)
AVIATION LEGISLATION-II

Subject code: 2P-10(II) **Total Hours Allotted: 10**

CAR 66 REF No.	MAIN TOPIC	SUB-TOPIC	Availibility of Facility	HOURS
10.4	**Commercial Air Transportation**	Familiarization with: Performa for issuance of air operator certificate CAR Section-2, Series 0, Part VI, VII, XIII, XIV CAR Section-2, Series B, Part II CAR Section-2, Series X, Part Ill, IV and VIII Familiarization with ocuments carried on boards andtheir Performa Series X, Part-VII Demonstration for fixation of nationality and registration marking on any structure with exact dimension as per CAR	AMO HANGAR	1
10.5	**Aircraft Certification**	Familiarization with: Performa of certificate of airworthiness Performa of certificate of registration Performa for Issuance of noise certificate Performa of weight schedule Performa for issuance of radio station license and approval Performa for type certification Performa for supplemental type certification Performa for CAR 21 design / production organization approval etc.	AMO HANGAR	2
10.6	**CAR-M**	Familiarization with detailed understanding of CAR-M	Library	1
10.5(b)	**Documents**	Familiarization with document: Certificate of design and performance of aircraft components / item of equipments Knowledge of standardized journey log book Different log books, their formats and manner of completing the same Forms of certification of first aid kit and physician kit and form to be completed when any medicines are used by MBBS doctor Contents of the operation manual	AMO HANGAR	2
10.7	**MEL, CCL and ECL**	Use and format Minimum Equipment List (deficiency list) Cockpit Check List and Emergency Check List	AMO HANGAR	1
10.6	**Defects and Reporting**	Use and format Classification of major defect (Appendix I of Section-2, Series C, Part I) Defect report (Appendix II of Section-2, Series C, Part I) Information on difficulties and defect to be reported by the operator, by the manufacturer (Appendix III of Section-2, Series C, Part I) Aircraft fuel and oil register Familiarization of CAR 145: Approved Maintenance Organization	AMO HANGAR	1
10.5	**Aircraft Documentation**	Use and format Certificate of maintenance Test report Certificate of manufacturer Maintenance check Maintenance program	AMO HANGAR	1

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		Inspection schedule Maintenance manual Maintenance documentation Structural repair manual Illustrated part catalogue Test flight report Defect recording, reporting, investigation, analysis and rectification report		
10.5	**Familiarization ON repairs approval and certification**	Application form for issuance of C of R information furnished into it and certificate of registration. Information required to be furnished for a issuance / revalidation of type certificate Format of flight anual Knowledge of special flight permit and how to get it issued and certificate of flight safety Format of application form required for issuance of 'permit to fly' Performa detailing particulars for verification by applicant for manufacture, purchase, registration and operation of micro-light A/C / hot air balloons Format of application for grant of NOC to operate schedule/ non-schedule air services Form of import of A/C / helicopter by companies / private persons Weight schedule and load and trim sheet History cards Simulated airline check: familiarization with maintenance schedule Performance of sequence of major periodic inspection by the tudents, including signing of check sheets for each job done and recording of and, if possible, rectification of all defects.	AMO HANGAR	1

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TRAINING PROGRAM
CURRICULUM – MECHANICAL
SEMESTER – III
PRACTICAL

MODULES	THEORY SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 3	ELECTRICAL FUNDAMENTALS-I	3P-3(I)	40
MODULE 4	ELECTRONIC FUNDAMENTAL	3P-4	40
MODULE 5	DIGITAL TECHNIQUES AND ELECTRONICS INSTRUMENT SYSTEM-I	3P-5(I)	40
MODULE 12	HELICOPTER AERODYNAMICS, STRUCTURE & SYSTEM-I	3P-12(I)	90
TOTAL HOURS			**210**

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MODULE 3 (PRACTICAL)

ELECTRICAL FUNDAMENTALS-I

Subject code: 3P-3(I) **Total Hours Allotted: 40**

CAR 66 REF No.	Task Description	Availibility of Facility	Task Reference	Hours
3.1	Safety precautions while working with electrical equipment in electrical work shop and on board aircraft.	LAB/ AMO HANGER	ICPL/TC/3P-3.1/01	2
3.2	Analog multimeter	L AB	ICPL/TC/3P-3.2/01	1
3.2	Digital multimeter	L AB	ICPL/TC/3P-3.2/02	1
3.3	Study of Capacitor	L AB	ICPL/TC/3P-3.3/01	2
3.5	Electrical circuit control devices.	L AB	ICPL/TC/3P-3.5/01	2
3.6	Insertion an Kirchoff's current law and Kirchoff's voltage law.	L AB	ICPL/TC/3P-3.6/01	2
3.6	Ohm's law	L AB	ICPL/TC/3P-3.6/02	2
3.6	Electrical circuit protection devices	L AB	ICPL/TC/3P-3.6/03	2
3.7	Study Of resistance	L AB	ICPL/TC/3P-3.7/01	3
3.7	measurement of resistance&voltage	L AB	ICPL/TC/3P-3.7/02	2
3.7	Verify the law for series and parallel connection	L AB	ICPL/TC/3P-3.7/03	2
3.7	Wheatstone bridge	L AB	ICPL/TC/3P-3.7/04	3
3.7	measure the internal resistance of a given primary cell using potentiometer	L AB	ICPL/TC/3P-3.7/05	3
3.8	Measure the induced emf of a separately excited DC generator as a function of field current.	L AB	ICPL/TC/3P-3.8/01	2
3.8	GCU	L AB	ICPL/TC/3P-3.8/02	2
3.8	Insulation of armature with growler.	LAB	ICPL/TC/3P-3.8/03	2
3.9	Procedure for-Visual inspection, measuring battery voltage, electrolyte specific gravity, connecting cell/batteries in series and parallel and its effect on voltage and current.	LAB	ICPL/TC/3P-3.9/01	5
3.11	Function and operation of relay	LAB	ICPL/TC/3P-3.11/1	2

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MODULE 4 (PRACTICAL)
ELECTRONICS FUNDAMENTALS

Subject code: 3P-4 **Total Hours Allotted: 40**

CAR 66 REF No.	Task Description	Availability of Facility	Task Reference	Hours
4.1	To identify the different electronic components and equipment.	L AB	ICPL/TC/4P-4.1/01	5
4.1	Identification of semiconductor diode characteristics.	L AB	ICPL/TC/4P-4.1/02	6
4.1	Identification of BJT common emitter characteristics	L AB	ICPL/TC/4P-4.1/03	4
4.1	Identification of JFET characteristics.	L AB	ICPL/TC/4P-4.1/04	3
4.1	Clipper and Clamper circuits.	L AB	ICPL/TC/4P-4.1/05	4
4.1	Half wave rectifier	L AB	ICPL/TC/4P-4.1/06	3
4.1	Full wave rectifier	L AB	ICPL/TC/4P-4.1/07	3
4.1	Application of Operational amplification as inverting amplifier	L AB	ICPL/TC/4P-4.1/08	3
4.1	Application of Operational amplification as Non-Inverting amplifier.	L AB	ICPL/TC/4P-4.1/09	3
4.1	To design and simulate a Differentiator circuit and observe output with different input waveforms	L AB	ICPL/TC/4P-4.1/10	3
4.1	Testing of transistors and Zenerdiodes	L AB	ICPL/TC/4P-4.1/11	3

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MODULE 5 (PRACTICAL)

DIGITAL TECHNIQUES AND ELECTRONICS INSTRUMENT SYSTEM-I

Subject code: 3P-5(I) **Total Hours Allotted: 40**

CAR-66 Ref.	Task Description	Availibility of Facility	Task Reference	Hours
5.1	Engine Indicating Display System.	L AB	ICPL/TC/5P-5.1/02	7
5.1	Explain/demonstrate how to inspect aircraft areas for HIRF protection.	AMO Hangar	ICPL/TC/5P-5.1/03	7
5.5	Verify the operation of Logic gates.	L AB	ICPL/TC/5P-5.5/04	8
5.8	Operation of shift register	L AB	ICPL/TC/5P-5.8/11	8
5.8	IC testing	LAB	ICPL/TC/5P-5.8/06	10

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MODULE 12 (PRACTICAL)

HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS-I

Subject code: 3P-12(I) **Total Hours Allotted: 90**

CAR 66 REF No.	TASK NAME	TASK PERFORM	ATA	REFRENCE:	HRS
12.2	Check controls for assembly and locking.	AMO Hangar	ATA-51	AMM67-10-00 (ASS350 B3)	10
12.2	Familiarization with inspection of components of helicopter control system.	AMO Hangar	ATA-67	AMM67-10-00 (ASS350 B3)	10
12.2	Familiarization with lubrication of components of helicopter control system.	AMO Hangar	ATA-62	AMM62-11-00 (ASS350 B3)	10
12.2	Familiarization with rotors assemblies.	AMO Hangar	ATA-63	AMM63-00-00 (ASS350 B3)	15
12.2	Familiarization with inspection of rotor blades and record defects and remedial action.	AMO Hangar	ATA-62	AMM62-11-00 (ASS350 B3)	15
12.2	Familiarization with inspection and maintenance of components of tail rotor system	AMO Hangar	ATA-65	AMM65-11-00 (ASS350 B3) AMM65-21-00 (ASS350 B3)	15
12.2	Familiarization with rigging of cyclic and collective system.	AMO Hangar	ATA-67	AMM67-10-00 (ASS350 B3)	15

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TRAINING PROGRAM
CURRICULUM – MECHANICAL
SEMESTER – IV
PRACTICAL

MODULES	THEORY SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 3	ELECTRICAL FUNDAMENTAL-II	4P-3(II)	40
Module 5	DIGITAL TECHNIQUES AND ELECTRONICS INSTRUMENT SYSTEM-II	4P-5(II)	10
MODULE 12	HELICOPTER AERODYNAMICS ,SYSTEMS AND STRUCTURE – II	4P-12(II)	50
MODULE 12	HELICOPTER AERODYNAMICS ,SYSTEMS AND STRUCTURE –III	4P-12(III)	60
MODULE 15	GAS TURBINE ENGINE-I	4P-15(I)	60
TOTAL HOURS			**220**

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ELECTRICAL FUNDAMENTAL-II

Subject code: 4P-3(II) **Total Hours Allotted: 40**

CAR 66 REF No.	TASK NAME	AVAILABILITY OF FACILITY	TASK REFERENCE	HRS
3.12	Dismantling of direct current motor parts and imparting knowledge of different part and their purpose	LAB	ICPL/TC/3P/3.12 /14	6
3.12	Changing Direction of Rotation of Motor	LAB	ICPL/TC/3P/3.12 /15	3
3.12	Dismantling of direct current generator pats and imparting knowledge of different part and their purpose	LAB	ICPL/TC/3P/3.12 /16	6
3.12	Dismantling of direct current motor parts and imparting knowledge of different part and their purpose	LAB	ICPL/TC/3P/3.12 /23	6
3.13	Showing different terms alternating current theory such as wave form, frequency cycle	LAB	ICPL/TC/3P/3.13 /17	4
3.14	Effect on Alternating Current in resistive capacitive & inductive loads.	LAB	ICPL/TC/3P/3.14 /18	3
3.15	Familiarization of different types of Transformers & their parts	LAB	ICPL/TC/3P/3.15 /19	3
3.16	Filters and their applications.	LAB	ICPL/TC/3P/3.16 /20	3
3.17	Familiarization of AC Motors & their parts	LAB	ICPL/TC/3P/3.17 /21	3
3.17	Speed control of ac motor	LAB	ICPL/TC/3P/3.17 /22	3

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MODULE 5 (PRACTICAL)

DIGITAL TECHNIQUES AND ELECTRONICS INSTRUMENT SYSTEM-II

Subject code: 4P-5(II) **Total Hours Allotted: 10**

CAR-66 Ref.	Task Description	Availibility of Facility	Task Reference	Hours
5.9	Design Multiplexer and De-multiplexer and verify their truth tables	LAB	ICPL/TC/5P-5.9/01	2
5.12	Safety precaution while working with ESDS components.	L AB	ICPL/TC/5P-5.12/01	2
5.14	Engine torque meter system display	AMO Hangar	ICPL/TC/5P-5.14/01	1
5.15	VEMD system	AMO Hangar	ICPL/TC/5P-5.15/01	1
5.15	Functional test of engine display system	AMO Hangar	ICPL/TC/5P-5.15/02	2
5.15	Familiarization with IFE system of Aircraft.	AMO Hangar	ICPL/TC/5P-5.15/03	2

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MODULE 12 (PRACTICAL)

HELICOPTER AERODYNAMICS SYSTEMS-II

Subject code: 4P-12(II) **Total Hours Allotted: 50**

CAR 66 ref no.	Task name	Availability of facility	ATA	Refrence	Hrs
12.3	Familiarization with blade tracking	AMO Hangar	ATA-62	AMM 62-00-00 (AS350 B3)	7
12.4	Familiarization with inspection and maintenance of main rotor gear box	AMO Hangar	ATA-63	AMM 63-00-00 (AS350 B3)	7
12.4	Familiarization with Inspection of tail rotor drive shafts and lubrication of bearing	AMO Hangar	ATA-65	AMM 65-11-00 (AS350 B3)	7
12.4	Familiarization with check magnetic cheap detector	AMO Hangar	ATA-60	AMM 60-00-00,6-2 (AS350 B3)	3
12.5	Familiarization of helicopter structure construction and fuselage types	AMO Hangar	ATA-53	ICPL/TC/2P/12.5/01	5
12.5	Familiarization and identify aircraft reference line, station, and zone number	AMO Hangar	ATA-06	AMM 06-00-00 (AS350 B3)	5
12.5	Familiarization and inspection of passenger seat .	AMO Hangar	ATA-25	AMM 25-22-00 (AS350 B3)	3
12.5	Inspect passenger door	AMO Hangar	ATA-52	AMM 52-12-00,6-1 (AS350 B3)	5
12.5	Familiarization with procedure of helicopter symmetry check	AMO Hangar	ATA-20	ICPL/TC/2P/12.5/02	8

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MODULE 12 (PRACTICAL)
HELICOPTER AERODYNAMICS, SYSTEMS-III

Subject code: 4P-12(III) **Total Hours Allotted: 60**

CAR 66 ref no.	Task name	Availability of facility	ATA	Refrence	Hrs
12.6	Familiarization with the operation of air conditioning and heating system.	AMO HANGAR	ATA-21	AMM 21-00-00 (AS350 B3)	5
12.9	Familiarization with emergency exit.	AMO HANGAR	ATA-52	AMM 52-00-00 (AS350 B3)	3
12.9	Familiarization with emergency flotation system and its operation	AMO HANGAR	ATA-32	AMM 32-14-00 (AS350 B3)	5
12.11	Familiarization with aircraft fuel system and components	AMO HANGAR	ATA-28	AMM 28-00-00 (AS350 B3)	5
12.11	Familiarization with fueling and defueling procedure.	AMO HANGAR	ATA-28	ICPL/TC/4P/12.11/01	5
12.12	Familiarization with inspection of helicopter hydraulic system	AMO HANGAR	ATA-29	AMM 29-10-00 (AS350 B3)	5
12.12.	Familiarization with check filters clog indicator in hydraulic system.	AMO HANGAR	ATA-29	AMM 29-00-00 (AS350 B3)	5
12.12	Servicing of hydraulic reservoir	AMO HANGAR	ATA-29	AMM 29-00-00,3-4 (AS350 B3)	3
12.13	Familiarization with anti-icing and de-icing	AMO HANGAR	ATA-30	AMM 30-00-00 (AS350 B3)	3
12.13	Familiarization with operation of wiper system	AMO HANGAR	ATA-30	AMM 30-00-00 (AS350 B3)	5
12.14	Familiarization of main landing gear / landing skid and different types of shock strut	AMO HANGAR	ATA-32	AMM 32-00-00 (AS350 B3)	4
12.14	Familiarization with inspection of wheel and brake removal installation	AMO HANGAR	ATA-32	AMM 32-00-00 (AW109)	4
12.16	Familiarization with inspection of pneumatic system leak check	Hangar	ATA-36	ICPL/TC/4P/12.16/01	5
12.16	Windshield Wiper System - Operational Test	Hangar	ATA-30	AMM 30-00-00 (AS350 B3)	3

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MODULE 15 (PRACTICAL)

GAS TURBINE ENGINE-I

Subject code: 4P-15(I) **Total Hours Allotted: 60**

MODULE ref: no-	TASK NAME	Availability of facility	ATA	Refrence	Hrs
15.1	Identify the engine types and familiarization of engine module.	AMO HANGAR	ATA-72	ICPL/TC/2P/15.1/01	4
15.1	Familiarization of construction arrangement of turbo shaft engine	LAB	ATA-72	ICPL/TC/2P/15.1/02	4
15.3	Familiarization with compressor inlet duct and its types	AMO HANGAR	ATA-72	ICPL/TC/2P/15.3/01	4
15.4	Familiarization and Identify the compressor section and types of compressor.	AMO HANGAR	ATA-72	ICPL/TC/2P/15.4/01	4
15.4	Familiarization with inspection of bypass system (bleed valve)	AMO HANGAR	ATA-75	EMM 75-00-00-870-801-A01	4
15.5	Familiarization / Identification of combustion system and method of cooling.	HANGAR / LAB	ATA-72	ICPL/TC/2P/15.5/01	4
15.6	Familiarization with check of turbine section and blades types.	HANGAR / L AB	ATA-81	ICPL/TC/2P/15.6/01	4
15.7.	Familiarization and identification of exhaust system and method of noise reduction	HANGAR/LAB	ATA-78	ICPL/TC/2P/15.7/01	4
15.8	Familiarization with inspection of bearing and its types	HANGAR	ATA-72	ICPL/TC/2P/15.8/01	4
15.10	Lubricating system Components, their layouts & rating of wet sump and dry sump system	LAB	ATA-79	ICPL/TC/2P/15.10/01	4
15.10	Familiarization of engine lubrication system and its inspection(minor)	AMO HANGAR	ATA-79	AMM 79-00-00 (AS350 B3)	4

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15.10	Familiarization with inspect and clean, test and install of oil filter.	AMO HANGAR	ATA-79	EMM 79-21-00	4
15.10	Familiarization with study of working principals of oil pump (vane type , GE-rotor type and gear type)	AMO HANGAR	ATA-79	EMM 79-24-00	4
15.11	Familiarization and check the fuel system – fuel pump, fuel filter, fuel nozzles, P and D valve, fuel control unit.	AMO HANGAR	ATA-73	EMM 73-00-00	4
15.11	Familiarization of aerial engine control rigging	AMO HANGAR	ATA-76	AMM 76-00-00 (AS350 B3)	4

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TRAINING PROGRAM
CURRICULUM – MECHANICAL
SEMESTER – V
PRACTICAL

MODULES	THEORY SUBJECTS	SUBJECT CODE	HOURS ALLOTTED
MODULE 12	HELICOPTER AERODYNAMICS SYSTEM-IV	5P-12(IV)	90
MODULE 12	HELICOPTER AERODYNAMICS SYSTEM-V	5P-12(V)	90
MODULE 15	GAS TURBINE ENGINE-II	5P-15(II)	110
TOTAL HOURS			**290**

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MODULE 12 (PRACTICAL)

HELICOPTER AERODYNAMICS, SYSTEMS-IV

Subject code: 5P-12(IV) **Total Hours Allotted: 90**

CAR 66 REF No.-	TASK NAME	Availability of facility	ATA	REFRENCE	HRS
12.10	Test operation of fire / smoke detection and warning system.	AMO HANGAR	ATA-26	AMM 26-11-00 (AS350 B3)	20
12.10	Familiarization with Check cabin fire extinguisher content.	AMO HANGAR	ATA-26	AMM 26-21-00,6-1 (AS350 B3)	20
12.17	Circuit Breaker Monitoring, Electrical System BITE	AMO HANGAR	ATA-42	ICPL/TC/12P/12.17/01	20
12.17	Landing Gear Extension and Retraction	AMO HANGAR	ATA-42	ICPL/TC/12P/12.17/02	30

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MODULE 12 (PRACTICAL)

HELICOPTER AERODYNAMICS, SYSTEM AND STRUCTURE -V

Subject code: 5P-12(V) **Total Hours Allotted: 90**

CAR 66 REF No.	TASK NAME	AVAILIABLITY OF FACILITY	ATA	REFRENCE	HRS
12.18	Central maintenance computers	AMO HANGAR	ATA-45	ICPL/TC/12P/12.18/01	8
12.18	Roll unit removal installation UMS-SSC VFDR	AMO HANGAR	ATA-45	ICPL/TC/12P/12.18/02	7
12.19	Cabin Interphone System Operation Test	AMO HANGAR	ATA-46	ICPL/TC/12P/12.19/01	8
12.19	Flight And Call System-Adjustment/Test	AMO HANGAR	-	ICPL/TC/12P/12.19/02	7
12.18	Flight Interphone system Maintenance practices	AMO HANGAR	-	ICPL/TC/12P/12.18/03	8
12.18	Ground Testing of R/T	AMO HANGAR	-	ICPL/TC/12P/12.18/04	7
12.18	Amplifier mixer removal installation-UMS-SSC VFDR	AMO HANGAR	ATA-45	ICPL/TC/12P/12.18/05	8
12.19	Familiarization with Flight Deck Information System	AMO HANGAR	ATA-46	ICPL/TC/12P/12.19/03	7
12.18	Schedule maintenance data loading task	AMO HANGAR	ATA-45	ICPL/TC/12P/12.18/06	8
12.18	Removal/ installation procedure for a LRU	AMO HANGAR	ATA-45	ICPL/TC/12P/12.18/07	7
12.18	Removal /Installation of UMS-SSC VFDR	AMO HANGAR	ATA-45	ICPL/TC/12P/12.18/08	8
12.18	Pitch unit removal installation UMS-SSC VFDR	AMO HANGAR	ATA-45	ICPL/TC/12P/12.18/09	7

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MODULE 15 (PRACTICAL)
GAS TURBINE ENGINE-II

Subject code: 5P-15(II) **Total Hours Allotted: 110**

MODULE REF: NO-	TASK NAME	AVAILIABLITY OF FACILITY	ATA	REFRENCE	HRS
15.12	Familiarization of various component of anti-icing system and source of heat.	AMO HANGAR	ATA-30	AMM 30-31-00 (AS350 B3)	5
15.13	Description and operation of ignition system.	AMO HANGAR	ATA-74	EMM 74-00-00-870-801-A01	5
15.13	Removal and installation of igniter plug and inspection	AMO HANGAR	ATA-74	EMM 72-43-00-900-805-A01	10
15.13	Familiarization with removal & installation of starter generator.	AMO HANGAR	ATA-80	AMM 80-00-00,4-1,4.2(AS350 B3)	10
15.14	Familiarization with operation checks of engine indicating system	AMO HANGAR	ATA-77	ICPL/TC/4P/15.14/01	10
15.17	Familiarization with visual inspection of AERIAL turbo shaft engine.	HANGAR / LAB	ATA-72	ICPL/TC/4P/15.17/01	10
15.17	Familiarization with inspection transmission shaft of engine	AMO HANGAR	ATA-72	EMM 72-61-00-200-801-A01	10
15.17	Familiarization with engine and airframe interface.	HANGAR / L AB	ATA-71	ICPL/TC/4P/15.17/03	5
15.18	Familiarization of APU and identification and purpose.	HANGAR / L AB	ATA-49	ICPL/TC/4P/15.18/01	10
15.19	Familiarization with inspection of engine mounting	AMO HANGAR	ATA-71	EMM 71-02-12-280-801-A01	3
15.19	Familiarization of engine removal & installation	AMO HANGAR	ATA-71`	AMM 71-11-00 ,4-1,4.2 (AS350 B3)	10
15.20	Check and operation test engine fire detection system.	AMO HANGAR	ATA-26	AMM 26 -11-00(AS 350 B3)	4
15.20	Operation check of engine fire extinguishing.	AMO HANGAR	ATA-26	AMM 26 -21-00 (AS350 B3)	3
15.21	Familiarization of content of borescope kit.	AMO HANGAR	ATA-71	EMM 72-00-43-200-802-A01	5
15.21	Familiarization with compressor washing /cleaning	AMO HANGAR	ATA-72	EMM 71-01-00-940-801-A01	5

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15.22	Familiarization of engine storage / preservation.	AMO HANGAR	ATA-71	EMM 71-05-01-550-801-A01	5

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