

B.Sc. (AIRCRAFT MAINTENANCE) 2018 Onwards -Three Year Program
(Semester system)

SEMESTER - I

S.No.	Course Code	Course Title	L	T	P	S	C	TCH
Theory								
1	AM2101	English	3	0	0	-	3	3
2	AM2102	Engineering Mathematics	3	0	0	-	3	3
3	AM2103	Aviation Legislation-1	3	0	0	-	3	3
4	AM2104	Maintenance Practices-1	3	0	0	-	3	3
Practical								
5.	AM2121	Electrical Fundamental Laboratory	0	0	3	-	3	3
6.	AM2122	Maintenance Practices Laboratory	0	0	3	-	3	3
Total							18	18

SEMESTER - II

S.No.	Course Code	Course Title	L	T	P	S	C	TCH
Theory								
1.	AM2201	Aviation Legislation-II	3	0	0	-	3	3
2.	AM2202	Electrical Fundamentals	3	0	0	-	3	3
3.	AM2203	Electronic Fundamentals	3	0	0	-	3	3
4.	AM2204	Maintenance Practices-1I	3	0	0	-	3	3
Practical								
5	AM2221	Computer Laboratory	0	0	3	-	3	3
6.	AM2222	Electronic Fundamentals Laboratory	0	0	3	-	3	3
Total							18	18

SEMESTER-III

S.No.	Course Code	Course Title	L	T	P	S	C	TCH
Theory								
1	AM2301	Basic Aerodynamics	3	0	0	-	3	3
2	AM2302	Human Factors	3	0	0	-	3	3
3	AM2303	Materials and Hardware-1	3	0	0	-	3	3
4	AM2304	Piston Aeroplane aerodynamics, structures and systems	3	0	0	-	3	3
Practical								
5	AM2321	Materials and Hardware Laboratory	0	0	3	-	3	3
6	AM2322	Piston Aeroplane aerodynamics, structures and systems Laboratory	0	0	3	-	3	3
Total							18	18

SEMESTER-IV

S.No.	Course Code	Course Title	L	T	P	S	C	TCH
Theory								
1	AM2401	Digital Techniques Electronic Instrument Systems	3	0	0	-	3	3
2	AM2402	Materials and Hardware-1I	3	0	0	-	3	3
3	AM2403	Turbine Aeroplane Aerodynamics, Structures and systems	3	0	0	-	3	3
4	AM2404	Piston Engine	3	0	0	-	3	3
Practical								
5	AM2421	Digital Techniques Laboratory	0	0	3	-	3	3
6	AM2422	Piston Engine Laboratory	0	0	3	-	3	3
Total							18	18

SEMESTER – V

S.No.	Course Code	Course Title	L	T	P	S	C	TCH
Theory								
1	AM2501	Gas Turbine Engines	3	0	0	-	3	3
2	AM2502	Propeller	3	0	0	-	3	3
3	AM2503	Aviation Safety Management System	3	0	0	-	3	3
4	AM2056	Aeroplane Maintenance(Elective-I)	3	0	0	-	3	3
Practical								
5	AM2521	Gas Turbine Laboratory	0	0	3	-	3	3
6	AM2522	Propeller Laboratory	0	0	3	-	3	3
Total							18	18

SEMESTER - VI

S.No	Course Code	Course Title	L	T	P	S	C	TCH
Theory								
1	AM2055	IT for Aviation and soft skills(Elective-II)	3	0	0	-	3	3
2	AM2681	Project	0	0	20	-	20	20
Total							23	23

ELECTIVE-I

S.No.	Course Code	Course Title	L	T	P	S	C	TCH
Theory								
1	AM2051	Total Quality Management	3	0	0	-	3	3
2	AM2052	Aviation Maintenance Management	3	0	0	-	3	3
3	AM2056	Aeroplane maintenance	3	0	0	-	3	3

ELECTIVE-II

1	AM2054	Air Transportation Management	3	0	0	-	3	3
2	AM2055	IT for Aviation and soft skills	3	0	0	-	3	3
3	AM2053	Airport Management	3	0	0	-	3	3
4	AM2057	Soft skill for TechnicalAuthering	3	0	0	-	3	3

SEMESTER - I

COURSE TITLE		ENGLISH		CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM2101		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	To develop verbal and written communication skill.				CO 1
2.	To develop soft skill and understand human behavior.				CO 2
3.	To develop vocabulary to integrate with analytical reasoning in radio communication while sharing information with accuracy.				CO 3
Prerequisites : Nil					
MODULE - 1 : GENERAL ENGLISH(12 L)					
Expository Writing, Persuasive writing, Work shop ♣Information writing Language & Communication skills Aerodrome communication, Triggering actions in aeronautical communication Sharing information in aeronautical communication, Incident reporting in aeronautical communication, Aviation related lexis.					
MODULE - 2 : SPOKEN ENGLISH (12 L)					
Public speaking, Quiz, Group discussions, Presentation.					
MODULE - 3 : AVIATION VOCABULARY AND PHRASEOLOGY (12 L)					
Normal pronunciation, Pronunciation for Aviation (Alphabets, Numerals). Holistic descriptors (6 skills) Pronunciation - Pronunciation, stress, rhythm, and intonation, Structure - Both basic and complex grammatical structures and sentence, patterns, Vocabulary - Vocabulary range and accuracy, Fluency. Comprehension - comprehension of linguistic and cultural subtleties, Interaction - verbal and non-verbal cues and responds.					
MODULE - 4 : TECHNICAL WRITING(12 L)					
Technical format, Getting ideas, Drafting, Analyzing draft, Revising, Editing, Attachments, Annexure, Appendices, Drawings, Tables, Legend, Publishing, Soft ware's, Tech list preparation, Tech log preparation', Logbook completion, Maintenance schedule preparation, Technical Briefing.					
MODULE 5 - Radio Communications (12 L)					
Triggering actions in aeronautical communication, Sharing information aeronautical.					
LAB / MINI PROJECT/FIELD WORK					
Nil					
TEXT BOOKS					
1.	1. Aviation English – Henry Emery & Andy Roberts				
REFERENCE BOOKS					
1.	1. Aviation English Teaching Materials and Resources (Fiona A Robertson, University of Franche – Comte, France, President of the International Civil Aviation English				

	Association, ICAO Aviation Language Symposium, Montreal Sep 2004)
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SEMESTER – I

COURSE TITLE		ENGINEERING MATHEMATICS		CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM2102		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	Able to Understand the concept of matrices and Eigen Values.				CO1
2.	Able to Understand the concept of algebra and features in Differential. Calculus.				CO2
3.	Able to Understand the concept of Trigonometry and Dynamics.				CO2
Prerequisites : Nil					
MODULE - 1 : MATRICES(12 L)					
Characteristic equations – Properties of Eigen values – Eigen values and Eigen vectors–Cayley Hamilton theorem (without proof) – Verification and inverse by Cayley Hamilton theorem. Diagonalisation of a matrix – Orthogonal matrices - Matrix forms of quadratic and canonical form– Reduction to canonical form of the given quadratic by orthogonal transformation.					
MODULE - 2 : ALGEBRA(12 L)					
Pair of linear equations in two variables. Solution of pair of linear equations in two variables algebraically- by substitution. by elimination and by cross multiplication. Standard form of a quadratic equation. Solution of the quadratic equations by using quadratic formula. Discriminant and nature of roots.					
MODULE - 3 : CALCULUS(12 L)					
Curvature - Radius of curvature – Centre of curvature – Circle of curvature – Cartesian co-ordinates – Geometrical application of differential calculus.					
MODULE - 4 : TRIGONOMETRY(12 L)					
Trigonometric ratios of an acute angle of a right-angled triangle. Proof and applications of the trigonometric identities. Trigonometric ratios of complementary angles. Problems on heights and distances. Angles of elevation / depression.					
MODULE 5 – DYNAMICS (12 L)					
Statics - Analytical conditions of equilibrium of coplanar forces -Virtual work - Catenary Dynamics - Velocities and acceleration along with radial and transverse direction and along with tangential & normal direction -Motion of a particle.					
LAB / MINI PROJECT/FIELD WORK					
Nil					
TEXT BOOKS					
1.	Grewal B.S., Higher Engineering Mathematics, Delhi, 30 TH Edition, Khanna Publisher, 2004.				
2.	Chandrasekaran A. A Text book of Engineering Mathematics I, Chennai, Dhanam Publications.				
REFERENCE BOOKS					

1.	Venkataraman.M.K., Engineering Mathematics ,Vol- I, Chennai, National Publishing Company.
2.	KandaswamyP, Thilagavathy. K. andGunavathy. K Engineering Mathematics Volume I & II, New Delhi, S.Chand and Company, 2005.

SEMESTER – I

COURSE TITLE		AVIATION LEGISLATION -1		CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM2103		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	Able to Understand International Civil Aviation Organisation and relationship between CAR-21, CAR-M, CAR-145, CAR-66, CAR 147.				CO1
2.	Able to Understand CAR 66 licensing requirements.				CO1
3.	Able to Understand aircraft operations and certification rules.				CO2
Prerequisites : Nil					
MODULE -1 Regulatory Framework(12 L)					
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 147The Aircraft Rules (Applicable to Aircraft Maintenance and Release)Aeronautical Information Circulars (Applicable to Aircraft Maintenance and Release)CAR Sections 2.					
MODULE - 2 : CAR-66 Certifying Staff – Maintenance(12 L)					
Detailed understanding of CAR-66.					
MODULE – 3 : CAR-145 – Approved Maintenance Organisations(12 L)					
Detailed understanding of CAR-145 and CAR M Subpart F.					
MODULE – 4 : Aircraft Operations(12 L)					
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).					
MODULE 5 – Aircraft Certification (12 L)					
(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.					
(b) Documents - Certificate of Airworthiness;Certificate of Registration;Noise Certificate;Weight Schedule; Radio Station Licence and Approval.					
LAB / MINI PROJECT/FIELD WORK					
Nil					
TEXT BOOKS					
1.	Aircraft Act 1934 & Aircraft Rule 1937				
2.	Civil Aviation Requirements (CAR)- Section 2				
3.	CAR -M, CAR -21, CAR 66, CAR -145 & CAR 147				

REFERENCE BOOKS	
	Same as Text books

SEMESTER – I

COURSE TITLE		MAINTENANCE PRACTICES-1		CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2104		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	Able to Understand the requirements of safety Precautions on aircraft and in Workshop.				CO1
2.	Able to familiarize tools and procedures to use general Test Equipment.				CO1
3.	Able to Understand aircraft Electrical Wiring Interconnection System.				CO2
Prerequisites : Nil					
MODULE - 1 : Safety Precautions-Aircraft and Workshop(12 L)					
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.					
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.					
MODULE - 2 : Tools(12 L)					
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;					
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.					
MODULE - 3 : Avionic General Test Equipment(12 L)					
Operation, function and use of avionic general test equipment.					
MODULE - 4 : Electrical Wiring Interconnection System (EWIS)-1(12 L)					
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.					
MODULE 5 –Electrical Wiring Interconnection System (EWIS)-2 (12 L)					

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.	
LAB / MINI PROJECT/FIELD WORK	
Nil	
TEXT BOOKS	
1.	EASA Module-07A Maintenance Practices by AIRCRAFT TECH BOOK CO.
REFERENCE BOOKS	
1.	CAP 715 - An Introduction to Aircraft Maintenance Engineering Human Factors for JAR 66 by CA
2.	CAP 718 - Human Factors in Aircraft Maintenance and Inspection by CAA
3.	Civil Aircraft Inspection Procedures (CAP 459)- Part I, Basic by CAIP I
4.	Civil Aircraft Inspection Procedure (CAP 459)- Part II by CAIP II

SEMESTER – I

COURSE TITLE	ELECTRICAL FUNDAMENTAL		CREDITS	3
COURSE CODE		COURSE CATEGORY	L-T-P-S	3-0-3-0
AM 2121	75%		ESE	25% Internal Exam
LEARNING LEVEL	BTL		ASSESSMENT LEVEL	LB
COURSE OUTCOMES				
The students should be able to:				
1. Make Single and Double wiring circuit and Measuring the voltage and specific gravity of electrolyte.				
2. Make remote control circuits and Verify to calculate the resistance.				
3. Verify and calculate voltage and current to ascertain Kirchhoff's law and Find the unknown resistance value along with the effect of capacitor connected in AC and DC power.				
LIST OF EXPERIMENTS				hours
1. Wiring practices of Single and Double wiring methods.				04
2. Measurement of voltage and specific gravity of electrolyte in lead acid battery Using volt meter and hydrometer respectively.				05
3. Wiring the circuit with relay control.				04
4. Verification of total resistance in series, parallel and series parallel circuits by calculation.				04
5. Verification of Kirchhoff's voltage and current law in series, parallel and Series-Parallel circuits.				04
6. Finding the unknown resistance value by Wheatstone bridge tester.				04
7. Finding the effect of capacitor connected in AC and DC power.				05
TOTAL HOURS				30
Sl. No	DETAILS OF EQUIPMENT		Qty. Req.	Experiment No.

1.	Warring board with power terminal, fuse, switch and lamp.	1 Each	1,4,5
2.	Electrical wire.	5 meters	2
3.	Metal strip	2" length and ½ width	1
4.	Lead acid battery, Hydrometer, Volt meter.	1 Each	2
5.	Multi contact relay.	1	1
6.	resistances with different values	3	4
7.	Ammeter.	1	5
8.	Wheatstone bridge tester.	1	6

SEMESTER – I

COURSE TITLE	MAINTENANCE PRACTICES LABORATORY			CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2122	75%			ESE	25% Internal Exam
LEARNING LEVEL	BTL			ASSESSMENT LEVEL	LB
COURSE OUTCOMES					
The students should be able to:					
1. Understand different terms used in riveting and Familiarize with the various types of tools used in riveting and dimpling.					
2. Bend and flare aircraft pipes and Install the clamp in aircraft pipes.					
3. Decide airworthiness condition of bearings and Various methods used for bearing lubrication.					
LIST OF EXPERIMENTS					hours
1. Demonstration on Riveted joints, rivet spacing and pitch.					4
2. Identification of Tools used for riveting and dimpling.					4
3. Bending and belling/ flaring aircraft pipes.					4
4. Installation and clamping of pipes.					4
5. Cleaning and inspection of bearings.					4
6. Lubrication of bearings.					4
TOTAL HOURS					24
Sl. No	DETAILS OF EQUIPMENT			Qty. Req.	Experiment No.
1.	Snap and dolly			1	2
2.	Hand bending tool and flaring tool.			1	3

SEMESTER – II

COURSE TITLE		AVIATION LEGISLATION-2		CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-0-0
AM 2201		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	Able to understand CAR-M Continuing Airworthiness requirements.				CO1
2.	Able apply National and International Requirements while issuing aircraft release certificates.				CO2
3.	Able to understand Safety Management System and Fuel Tank Safety procedures.				CO2
Prerequisites : Nil					
MODULE -1 : CAR-M(12 L)					
Detail understanding of CAR M provisions related to Continuing Airworthiness , Detailed understanding of CAR-M.					
MODULE - 2 : Applicable National and International Requirements (a)(12 L)					
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.					
MODULE – 3 : Applicable National and International Requirements(b)(12 L)					
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.					
MODULE – 4 : Safety Management System(12 L)					
State Safety Programme, Basic Safety Concepts, Hazards & Safety Risks, SMS Operation, SMS Safety performance, Safety Assurance.					
MODULE –5 : Fuel Tank Safety (12 L)					
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).					
LAB / MINI PROJECT/FIELD WORK					
Nil					
TEXT BOOKS					
1.	Aircraft Act 1934 & Aircraft Rule 1937				
2.	Civil Aviation Requirements (CAR)- Section 2				
3.	CAR -M, CAR –21, CAR 66, CAR -145 & CAR 147				
REFERENCE BOOKS					
Same as Text books					

SEMESTER – II

COURSE TITLE		ELECTRICAL FUNDAMENTALS		CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2202		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	To understand concept on Electron theory, static electricity and conduction, electrical terminology and power.				CO1
2.	To understand concept on generation of electricity, DC sources of electricity, magnetism and DC motor/generator theory.				CO1
3.	To understand concept on DC Circuits, Resistance, Capacitance, Inductance, AC Theory as well as Transformers,				CO2
Prerequisites : Nil					
MODULE - 1 :Electron Theory, Static Electricity and Conduction, Electrical Terminology and Power (12 L)					
<p>Electron Theory Structure and distribution of electrical charges within: atoms, molecules, ions, compounds; Molecular structure of conductors, semiconductors and insulators.</p> <p>Static Electricity and Conduction Static electricity and distribution of electrostatic charges; Electrostatic laws of attraction and repulsion; Units of charge, Coulomb's Law; Conduction of electricity in solids, liquids, gases and a vacuum.</p> <p>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.</p> <p>Power Power, work and energy (kinetic and potential); Dissipation of power by a resistor; Power formula.</p>					
MODULE - 2 :Generation of Electricity, DC Sources of Electricity, Magnetism and DC Motor/Generator Theory(12 L)					
<p>Generation of Electricity Production of electricity by the following methods: light, heat, friction, pressure, chemical action, magnetism and motion.</p> <p>DC Sources of Electricity Construction and basic chemical action of: primary cells, secondary cells, lead acid cells, nickel cadmium cells, other alkaline cells; Cells connected in series and parallel; Internal resistance and its effect on a battery; Construction, materials and operation of thermocouples; Operation of photo-cells.</p> <p>Magnetism 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</p>					

magnetic material; Electromagnets construction and principles of operation; Hand clasp rules to determine: magnetic field around current carrying conductor. 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.

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.

MODULE – 3 :DC Circuits, Resistance/Resistor, Capacitance/Capacitor and Inductance/Inductor (12 L)

DC Circuits

Ohms Law, Kirchoff's Voltage and Current Laws; Calculations using the above laws to find resistance, voltage and current; Significance of the internal resistance of a supply

Resistance/Resistor

Resistance and affecting factors; Specific resistance; Resistor colour code, values and tolerances, preferred values, wattage ratings Resistors in series and parallel; Calculation of total resistance using series, parallel and series parallel combinations; Operation and use of potentiometers and rheostats; Operation of Wheatstone Bridge .

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;

Capacitance/Capacitor

Operation and function of a capacitor;

Factors affecting capacitance area of plates, distance between plates, number of plates, dielectric and dielectric constant, working voltage, voltage rating;

Capacitor types, construction and function;

Capacitor colour coding;

Calculations of capacitance and voltage in series and parallel circuits;

Exponential charge and discharge of a capacitor, time constants;

Testing of capacitors.

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 induction; The effect

the rate of change of primary current and mutual inductance has on induced voltage; Factors affecting mutual inductance: number of turns in coil, physical size of 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;

MODULE – 4 :AC Theory, Resistive (R), Capacitive (C) and Inductive (L) Circuits and Filters(12 L)

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.

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.

Filters

Operation, application and uses of the following filters: low pass, high pass, band pass, band stop.

MODULE -5: Transformers, AC Generators and AC Motors(12 L)

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.

AC Generators

Rotation of loop in a magnetic field and waveform produced; Operation and construction of revolving armature and revolving field type AC generators; Single phase, two phase and three phase alternators; Three phase star and delta connections advantages and uses; Permanent Magnet Generators.

AC Motors

Construction, principles of operation and characteristics of: AC synchronous and induction motors both single and poly phase; Methods of speed control and direction of rotation; Methods of producing a rotating field: capacitor, inductor, shaded or split pole.

LAB / MINI PROJECT/FIELD WORK

Nil

TEXT BOOKS

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| 1. | EASA Module-03 Electrical Fundamental by AIRCRAFT TECH BOOK CO. |
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REFERENCE BOOKS

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| 1. | Electrical Technology by B.L.Theraja |
| 2. | Aircraft Electrical System by E.H.J.Pallett |
| 3. | Electrical & Electronics Technology by Edward Hughes |
| 4. | Aviation Maint Technician Hand Book-General -9A by FAA |
| 5. | Aircraft Electricity & Electronics by Thomas K Eismin |

SEMESTER – II

COURSE TITLE		ELECTRONIC FUNDAMENTALS		CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2203		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	To understand concept on Semiconductors—Diodes and Transistors.				CO1
2.	To understand concept on Integrated Circuits and Printed Circuit Boards.				CO2
3.	To understand concept on Servomechanisms.				CO2
Prerequisites : Nil					
MODULE -1 : Semiconductors—Diodes(12 L)					
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.					
MODULE - 2 : Transistors(12 L)					
Transistor symbols;Component description and orientation;Transistor characteristics and properties.					
MODULE - 3 : Integrated Circuits(12 L)					
Description and operation of logic circuits and linear circuits/operational amplifiers.					
MODULE - 4 : Printed Circuit Boards (12 L)					
Description and use of printed circuit boards.					
MODULE -5 :Servomechanisms (12 L)					
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.					
LAB / MINI PROJECT/FIELD WORK					
Nil					
TEXT BOOKS					
1.	EASA Module- 04 Electrical Fundamental Aviation Maintenance Technician Certification Series by AIRCRAFT TECH BOOK CO				
REFERENCE BOOKS					
1.	Basic Electronics by Bernard Grob				
2.	Civil Aircraft Inspection Procedure (CAP 459)- Part II byCAIP II				
3.	Civil Avionics Systems by Ian Moir and Allan Seabridge				

4.	Aviation Electronics by John M Ferrara
5.	Aircraft Electrical & Electronic Systems by Mike Tooley& David Wyatt
6.	Principles of electronics by V K Mehta
7.	Electrical Technology volume IV by B L Theraja

SEMESTER – II

COURSE TITLE		MAINTENANCE PRACTICES-2		CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2204		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	To understand Control Cables, Material handling , Welding, Brazing, Soldering and Bonding proce dures.				CO1
2.	To understand concept on Aircraft Weight and balance, Aircraft handling and maintenance techniques.				CO2
3.	To understand concept on Abnormal events and Maintenance proce dures.				CO2
Prerequisites : Nil					
MODULE -1 : Control Cables and Material handling (Composite and non-metallic) (12 L)					
Control Cables Swaging of end fittings; Inspection and testing of control cables; Bowden cables; aircraft flexible control systems.					
Material handling (Composite and non-metallic) Bonding practices; Environmental conditions, Inspection methods					
MODULE - 2 : Welding, Brazing, Soldering and Bonding(12 L)					
Soldering methods; inspection of soldered joints. Welding and brazing methods; Inspection of welded and brazed joints; Bonding methods and inspection of bonde d joints.					
MODULE – 3 : Aircraft Weight and Balance and Aircraft Handling and Storage(12 L)					
Aircraft Weight and Balance Centre of Gravity/Balance limits calculation: use of relevant documents; Preparation of aircraft for weighing; Aircraft weighing;					
Aircraft Handling and Storage Aircraft taxiing/towing and associated safety precautions;Aircraft jacking, chocking, securing and associated safety precautions;Aircraft storage methods;Refuelling/defuelling proce dures; De-icing/anti-icing proce dures;Electrical, hydraulic and pneumatic ground supplies. Effects of environmental conditions on aircraft handling and operation .					
MODULE – 4 : Disassembly, Inspection, Repair and Assembly Techniques(12 L)					
Types of defects and visual inspection techniques.Corrosion removal, assessment and re protection.General repair methods, Structural Repair Manual; Ageing, fatigue and corrosion					

control programmes; Non destructive inspection techniques including, penetrant, radiographic, eddy current, ultrasonic and boroscope methods. Disassembly and re-assembly techniques. Trouble shooting techniques

MODULE -5 :Abnormal Events and Maintenance Procedures (12 L)

Abnormal Events

Inspections following lightning strikes and HIRF penetration.
 Inspections following abnormal events such as heavy landings and flight through turbulence.

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

LAB / MINI PROJECT/FIELD WORK

Nil

TEXT BOOKS

- | | |
|----|---|
| 1. | EASA Module-07A Maintenance Practices by AIRCRAFT TECH BOOK CO. |
|----|---|

REFERENCE BOOKS

- | | |
|----|---|
| 1. | CAP 715 - An Introduction to Aircraft Maintenance Engineering Human Factors for JAR 66 by CAA |
| 2. | CAP 718 - Human Factors in Aircraft Maintenance and Inspection by CAA |
| 3. | Civil Aircraft Inspection Procedures (CAP 459)- Part I, Basic by CAIP I |
| 4. | Civil Aircraft Inspection Procedure (CAP 459)- Part II by CAIP II |

SEMESTER – II

COURSE TITLE	COMPUTER LABORATORY		CREDITS	3
COURSE CODE		COURSE CATEGORY	L-T-P-S	3-0-3-0
AM 2221	75%		ESE	25% Internal Exam
LEARNING LEVEL	BTL		ASSESSMENT LEVEL	LB
COURSE OUTCOMES				
1. The student will be familiar with basic computer operation and use of MS office suit. 2. The student will be able to write a simple program with C language operators. 3. The student will be drawing 2D engineering drawings with the help of AutoCAD software and also Usage of Internet and Access to DGCA website.				

LIST OF EXPERIMENTS	Hours
1. Prepare and Print Your Resume in MS Word software	4
2. Prepare a four grade columns Mark Sheet with chart in Microsoft Excel.	4
3. Prepare a Presentation on Airplane Controls in Power Point.	4
4. (a) By internet, access “dgca.nic.in” website, download the CAR Section 2 – Service ‘R’ and save in Desktop.	4
(b) Access DGCA PARIKSHA website and download the Candidates User Manual.	4
5. C programming Introduction and Hello world program.	4
6. Basic math and operators in C language.	4
7. If and Switch Statement in C language.	4
8. C++ programming Introduction and Hello world program.	4
9. Add two numbers in C++ programming language.	4
10. Basics of AutoCAD and its Commands.	4
11. Create a 2D diagram with given dimensions in AutoCAD	4
TOTAL HOURS	44

Sl. No	DETAILS OF EQUIPMENT	Qty. Req.	Experiment No.
1.	Monitor	20	all
2.	CPU	20	all
3.	Keyboard	20	all
4.	Mouse	20	all

5.	Printer	1	1
6.	Speaker	1	1

SEMESTER – II

COURSE TITLE	ELECTRONIC FUNDAMENTALS LABORATORY		CREDITS	3
COURSE CODE		COURSE CATEGORY	L-T-P-S	3-0-3-0
AM 2222	75%		ESE	25% Internal Exam
LEARNING LEVEL	BTL		ASSESSMENT LEVEL	LB
COURSE OUTCOMES				
<p>The students should be able to:</p> <ol style="list-style-type: none"> Understand the characteristics and testing of PN diodes along with construction and operations of full wave bridge rectifier. Understand the characteristics of Zener diode and Testing of transistors. Construct and verification of the operation of IC based voltage regulator and Assembling and checking the operation of Amplifier using transistors. 				
LIST OF EXPERIMENTS				hours
1. Verification of characteristics of PN diodes.				4
2. Finding the serviceability of Diode with multi-meter.				4
3. Construction and operations of half wave and Center tap full wave rectifiers.				4
4. Construction and operations of Full wave Bridge rectifier.				4
5. Verification of Zener diode characteristics.				4
6. Finding the serviceability of junction transistors.				4
7. Construction and verification of the operation of IC based Voltage Regulator (IC 7805).				4
8. Assembly and checking the operation of Amplifier using transistors.				4

TOTAL HOURS			32
DETAILS OF EQUIPMENT			
Sl. No	DETAILS OF EQUIPMENT	Qty. Req.	Experiment No.
1.	Analog Multimeter	1	1,2,3,4,5,6 .7,8
2.	Digital Multimeter	1	1,2,3,4,5,6 .7,8
3.	Different diodes	1	1,2,5,
4.	Transistors (NPN, PNP type)	1	6
5.	Voltage regulator IC 7805	1	7
6.	Trainer kits for rectifiers.	1	1,3,4,5,

SEMESTER – III

COURSE TITLE		BASIC AERODYNAMICS		CREDITS	3
COURSE CODE			COURSE CATEGORY	L-T-P-S	3-0-3-0
AM 2301		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	Able to understand International Standard Atmosphere (ISA).				CO1
2.	Able to understand the concept of aerodynamic theories and their applications.				CO1
3.	Able to understand Theory of Flight and Flight Stability and Dynamics.				CO2
Prerequisites : Nil					
MODULE -1 : Physics of the Atmosphere (12 L)					
International Standard Atmosphere (ISA), application to aerodynamics.					
MODULE -2 : Aerodynamics-1 (12 L)					
Airflow around a body; Boundary layer, laminar and turbulent flow, free stream flow, relative airflow, up wash and downwash, vortices, stagnation; The terms: camber, chord, mean aerodynamic chord, profile (parasite) drag, induced drag, centre of pressure, angle of attack, wash in and wash out, fineness ratio, wing shape and aspect ratio; Thrust, Weight, Aerodynamic Resultant.					
MODULE -3 : Aerodynamics-2(12 L)					
Generation of Lift and Drag: Angle of Attack, Lift coefficient, Drag coefficient, polar curve, stall; Aerofoil contamination including ice, snow, frost.					
MODULE -4 : Theory of Flight (12 L)					
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.					
MODULE -5 : Flight Stability and Dynamics (12 L)					
Longitudinal, lateral and directional stability (active and passive).					
LAB / MINI PROJECT/FIELD WORK					
Nil					
TEXT BOOKS					
1.	EASA Module-06 Hardware And Materials by AIRCRAFT TECH BOOK CO.				

REFERENCE BOOKS	
1.	A & P Technician Air Frame Text Book by Jeppesen
2.	Aerodynamics by Clancey
3.	Mechanics of Flight by AC Kermod

SEMESTER – III

COURSE TITLE		HUMAN FACTORS		CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2302		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	To understand the concept on Human Performance and Limitations				CO1
2.	To understand Social Psychology and Factors Affecting Performance as well as Physical Environment and Tasks.				CO2
3.	To understand the concept on communication, Human Error and Hazards in the Workplace.				CO2
Prerequisites : Nil					
MODULE -1 : General and Human Performance and Limitations (12 L)					
General The need to take human factors into account; Incidents attributable to human factors/human error; Murphy's' law.					
Human Performance and Limitations Vision; Hearing; Information processing; Attention and perception; Memory; Claustrophobia and physical access.					
MODULE - 2 : Social Psychology and Factors Affecting Performance (12 L)					
Social Psychology Responsibility: individual and group; Motivation and de-motivation; Peer pressure; 'Culture' issues; Team working; Management, supervision and leadership.					
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.					
MODULE - 3 : Physical Environment and Tasks (12 L)					
Physical Environment Noise and fumes; Illumination; Climate and temperature; Motion and vibration; Working environment.					
Tasks Physical work; Repetitive tasks; Visual inspection; Complex systems.					
MODULE - 4 : Communication (12 L)					
Within and between teams; Work logging and recording; Keeping up to date, currency;					

Dissemination of information.	
MODULE –5 :Human Error and Hazards in the Workplace (12 L)	
Human Error Error models and theories; Types of error in maintenance tasks; Implications of errors (i.e accidents) Avoiding and managing errors.	
Hazards in the Workplace Recognising and avoiding hazards; Dealing with emergencies.	
LAB / MINI PROJECT/FIELD WORK	
Nil	
TEXT BOOKS	
1.	EASA Module-09 Human Factors by AIRCRAFT TECH BOOK CO.
REFERENCE BOOKS	
1.	CAP 718 - Human Factors in Aircraft Maintenance and Inspection by CAA
2.	Human Factors Training Manual by ICAO Doc 9683
3.	Human Factors Guidelines for Safety Audits Manual by ICAO Doc 9806
4.	Human Factor Guidelines for A/c Maintenance Manual by ICAO Doc 9824
5.	Human Factor Guide for Aircraft Maintenance (FAA) by William Shepard

SEMESTER – III

COURSE TITLE		MATERIALS AND HARDWARE-1		CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2303		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	To understand the characteristics and properties of Ferrous and Non-Ferrous alloys.				CO1
2.	To understand the characteristics and properties of Composite, Non- Metallic materials and Wooden structures.				CO2
3.	To understand Corrosion, types of corrosion, their identification and fasteners				CO2
Prerequisites : Nil					
MODULE -1 : Aircraft Materials — Ferrous and Non-Ferrous(12 L)					
<p>Aircraft Materials — Ferrous Characteristics, properties and identification of common alloy steels used in aircraft; Heat treatment and application of alloy steels; Testing of ferrous materials for hardness, tensile strength, fatigue strength and impact resistance.</p> <p>Aircraft Materials — Non-Ferrous Characteristics, properties and identification of common non-ferrous materials used in aircraft; Heat treatment and application of non-ferrous materials; Testing of non-ferrous material for hardness, tensile strength, fatigue strength and impact resistance.</p>					
MODULE - 2 : Aircraft Materials - Composite and Non- Metallic(12 L)					
Characteristics, properties and identification of common composite and nonmetallic materials, other than wood, used in aircraft; Sealant and bonding agents. The detection of defects/deterioration in composite and non-metallic material. Repair of composite and non-metallic material.					
MODULE – 3 : Wooden structures (12 L)					
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.					
MODULE – 4 : Corrosion, Types of corrosion and their identification. (12 L)					

Corrosion	
Chemical fundamentals;Formation by, galvanic action process, microbiological, stress;	
Types of corrosion and their identification;	
Causes of corrosion;Material types, susceptibility to corrosion.	
MODULE -5 : Fasteners (Screw threads) (12 L)	
Screw nomenclature; Thread forms, dimensions and tolerances for standard threads used in aircraft; Measuring screw threads;	
LAB / MINI PROJECT/FIELD WORK	
Nil	
TEXT BOOKS	
1.	EASA Module-06 Hardware And Materials by AIRCRAFT TECH BOOK CO.
REFERENCE BOOKS	
1.	Civil Aircraft Inspection Procedures (CAP 459)- Part I, Basic by CAIP I
2.	Advanced Composites by Cindy Foreman
3.	A & P Mechanics by Dale Crane
4.	Aviation Maint Technician Hand Book-General -9A by FAA
5.	Aviation Maint Technician Hand Book-Airframe -15A by FAA
6.	Aviation Maint. Technician Handbook-General by FAA H 8083-30
7.	Aviation Maint. Technician Handbook-Airframe (Vol-II) by FAA H- 8083-31
8.	Shop Theory by J. A Enderson&Tatro

SEMESTER – III

COURSE TITLE	PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS			CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2304	75%			ESE	25% Internal Exam
LEARNING LEVEL	BTL			ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	To understand the concept on Theory of Flight and its applications.				CO1
2.	To understand the concept on fuselage, wing construction, Fire Protection and Fuel Systems.				CO1
3.	To understand the concept on Ice and Rain Protection as well as Construction of Landing Gear				CO2
Prerequisites : Nil					
MODULE -1 :Theory of Flight (12 L)					
<p>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, rudder vators; High lift devices, slots, slats, flaps, flaperons; Drag inducing devices, spoilers, lift dumpers, speed brakes; Effects of wing fences, saw tooth leading edges; Boundary layer control using, vortex generators, stall wedges or leading edge devices; Operation and effect of trim tabs, balance and anti balance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels.</p>					
MODULE - 2 : Airframe Structures — General Concepts, Airframe Structures — Aeroplanes Fuselage, Wings, Stabilisers and Flight Control Surfaces. (12 L)					
<p>Airframe Structures — General Concepts 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. Aircraft bonding, Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning, anti-corrosive protection, wing, empennage and engine attachments; Structure assembly techniques: riveting, bolting, bonding; Methods of surface protection, such as chromating, anodising, painting; Surface cleaning;</p>					

Airframe symmetry: methods of alignment and symmetry checks.	
Airframe Structures — Aeroplanes	
Fuselage	
Construction and pressurisation; sealing; Wing, tail-plane pylon and undercarriage attachments; Seat installation; Doors and emergency exits: construction and operation; Window and windscreen attachment.	
Wings	
Construction; Fuel storage; Landing gear, pylon, control surface and high lift/drag attachments.	
Stabilisers	
Construction; Control surface attachment.	
Flight Control Surfaces	
Construction and attachment; Balancing — mass and aerodynamic.	
MODULE – 3 : Fire Protection and Fuel Systems (12 L)	
Fire Protection	
Fire extinguishing systems; Fire and smoke detection and warning systems; System tests. Portable fire extinguisher.	
Fuel Systems	
System lay-out; Fuel tanks; Supply systems; Cross-feed and transfer; Indications and warnings; Refuelling and defuelling.	
MODULE – 4 : Ice and Rain Protection (12 L)	
Ice formation, classification and detection; De-icing systems: electrical, hot air, pneumatic and chemical; Probe and drain heating; Wiper systems.	
MODULE – 5 : Landing Gear (12 L)	
Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, brakes, antiskid and auto braking; Tyres; Steering. Air-ground sensing	
LAB / MINI PROJECT/FIELD WORK	
Nil	
TEXT BOOKS	
1.	EASA Module-11A for Level-B1.1 Turbine Aero plane Structures and systems by AIRCRAFT TECH BOOK CO.
REFERENCE BOOKS	
1.	Mechanics of Flight by AC Kermode
2.	Civil Aircraft Inspection Procedure (CAP 459)- Part II by CAIP II
3.	Aerodynamics by Clancey
4.	Airframe Structures, Vol-I by Dale Crane
5.	Aviation Maint Technician Hand Book-General -9A by FAA
6.	Aviation Maint Technician Hand Book-Airframe -15A by FAA

SEMESTER – III

COURSE TITLE	MATERIALS AND HARDWARE LABORATORY		CREDITS	3
COURSE CODE		COURSE CATEGORY	L-T-P-S	3-0-3-0
AM 2321	75%		ESE	25% Internal Exam
LEARNING LEVEL	BTL		ASSESSMENT LEVEL	LB
COURSE OUTCOMES				
The students should be able to:				
1. Identify various types fasteners and their uses.				
2. Identify different types of standard threads, aircraft bolts, its specifications and markings.				
3. Understand hardness testing of ferrous metals and impact resistance				
LIST OF EXPERIMENTS				hours
1. Identification, Types, and purpose of fasteners.				4
2. Identification of different types of standard threads used in aircraft.				4
3. Identification of different types of Aircraft Bolts, its Specifications and Markings.				4
4. Identification of different types of Nuts.				4
5. Ferrous material hardness test.				6
6. Ferrous material impact resistance test.				4
7. Studs: Types and removal of stud.				4
TOTAL HOURS				28
Sl. No	DETAILS OF EQUIPMENT		Qty. Req.	Experiment No.
1.	Brinnel hardness tester.		1	5
2.	Rockwell tester.		1	5
3.	Impact resistance tester.		1	6

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SEMESTER – III

COURSE TITLE	PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS LABORATORY		CREDITS	3
COURSE CODE		COURSE CATEGORY	L-T-P-S	3-0-3-0
AM 2322	75%		ESE	25% Internal Exam
LEARNING LEVEL	BTL		ASSESSMENT LEVEL	LB
COURSE OUTCOMES				
The students should be able to:				
1. Familiarization with Primary and secondary flight controls.				
2. Adjust the cable tension of Primary and secondary flight control and Understand the procedure of Wheel and Tyre removal and fitment.				
3. Understand the concept of inspection of outer cover of tyre.				
LIST OF EXPERIMENTS				hours
1. Familiarization of layout of Aircraft Primary flight control-Aileron, elevator, rudder.				4
2. Familiarization of layout of Aircraft Secondary flight control.				4
3. Checking the Cable tension and adjusting the control stops of Aileron, elevator, rudder control.				4
4. Wheel removal and fitment.				4
5. Tyre removal and fitment.				5
6. Removal and fitment of control surface (Aileron, elevator and rudder).				5
7. Carrying out inspection of outer cover of tyre.				4
TOTAL HOURS				30
Sl. No	DETAILS OF EQUIPMENT		Qty. Req.	Experiment No.
1.	Tensiometer		1	3

2.	Torque wrench (dial type)	1	4,8
3.	Tyre building jig.	1	5
4.	Surface plate.	1	8
5.	Magnifying glass (10X)	1	7

SEMESTER – IV

COURSE TITLE		DIGITAL TECHNIQUES ELECTRONIC INSTRUMENT SYSTEMS		CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2401		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	To understand the concept of Numbering Systems, Basic Computer Structure, Fibre Optics and Electronic Displays.				CO1
2.	To understand the concept of Electrostatic Sensitive Devices and Electromagnetic Environment.				CO1
3.	To understand the concept of Typical Electronic/Digital Aircraft Systems.				CO2
Prerequisites : Nil					
MODULE -1 :Numbering Systems(12 L)					
Numbering systems: binary, octal and hexadecimal; Demonstration of conversions between the decimal and binary, octal and hexadecimal systems and vice versa. Logic Circuits - Identification of common logic gate symbols, tables and equivalent circuits.					
MODULE - 2 : Basic Computer Structure, Fibre Optics and Electronic Displays (12 L)					
Basic Computer Structure Computer terminology (including bit, byte, software, hardware, CPU, IC, and various memory devices such as RAM, ROM, PROM).					
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.					
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.					
MODULE - 3 :Electrostatic Sensitive Devices and Electromagnetic Environment (12 L)					
Electrostatic Sensitive Devices Special handling of components sensitive to electrostatic discharges; Awareness of risks and possible damage, component and personnel anti-static protection devices.					
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.	
MODULE – 4 :Typical Electronic/Digital Aircraft Systems-1 (12 L)	
General arrangement of typical electronic/digital aircraft systems and associated BITE(Built In Test Equipment) testing such as:ACARS-ARINC Communication and Addressing and Reporting System, EICAS-Engine Indication and Crew Alerting System, FBW-Fly by Wire, FMS-Flight Management System and IRS-Inertial reference system.	
MODULE –5 : Typical Electronic/Digital Aircraft Systems-2(12 L)	
ECAM-Electronic Centralised Aircraft Monitoring, EFIS-Electronic Flight Instrument System, GPS-Global Positioning System, TCAS-Traffic Collision Avoidance system, Integrated modular Avionic, Cabin System and Information system.	
LAB / MINI PROJECT/FIELD WORK	
Nil	
TEXT BOOKS	
1.	EASA Module-05Electronic Instrument System by AIRCRAFT TECH BOOK CO.
REFERENCE BOOKS	
1.	Modern Aviation Electronics by Albert D Helfrick
2.	Basic Electronics by Bernard Grob
3.	Civil Aircraft Inspection Procedure (CAP 459)- Part II byCAIP II
4.	Aircraft Instruments by E.H.J. Pallett
5.	Aircraft Instruments and Integrated System by E.H.J. Pallett
6.	Digital Principle And Applications by Malvino and Leech
7.	Introduction to Microprocessor by Mathur
8.	Aircraft Digital Electronic and Computer System by Mike Tooley
9.	Aircraft Electrical & Electronic Systems by Mike Tooley& David Wyatt

SEMESTER – IV

COURSE TITLE		MATERIALS AND HARDWARE-2		CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2402		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	To understand Bolts, studs and screws and Locking devices.				CO1
2.	To understand Aircraft rivets, Pipes, Unions, Springs and Bearings.				CO2
3.	To understand Transmissions and Control Cables.				CO2
Prerequisites : Nil					
MODULE -1 :Bolts, studs and screws and Locking devices (12 L)					
<p>Bolts, studs and screws Bolt types: specification, identification and marking of aircraft bolts, international standards; Nuts: self locking, anchor, standard types; Machine screws: aircraft specifications; Studs: types and uses, insertion and removal; Self tapping screws, dowels.</p> <p>Locking devices Tab and spring washers, locking plates, split pins, palnuts, wire locking, quick release fasteners, keys, circlips, cotter pins.</p>					
MODULE - 2 : Aircraft rivets and Pipes and Unions(12 L)					
<p>Aircraft rivets Types of solid and blind rivets: specifications and identification, heat treatment.</p> <p>Pipes and Unions Identification of, and types of rigid and flexible pipes and their connectors used in aircraft; Standard unions for aircraft hydraulic, fuel, oil, pneumatic and air system pipes.</p>					
MODULE – 3 : Springs and Bearings (12 L)					
<p>Springs Types of springs, materials, characteristics and applications.</p> <p>Bearings Purpose of bearings, loads, material, construction; Types of bearings and their application.</p>					

MODULE – 4 :Transmissions(12 L)	
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 .	
MODULE –5 : Control Cables (12 L)	
Types of cables; End fittings, turnbuckles and compensation devices; Pulleys and cable system components; Bowden cables; Aircraft flexible control systems.	
LAB / MINI PROJECT/FIELD WORK	
Nil	
TEXT BOOKS	
1.	EASA Module-06 Hardware And Materials by AIRCRAFT TECH BOOK CO.
REFERENCE BOOKS	
1.	Civil Aircraft Inspection Procedures (CAP 459)- Part I, Basic by CAIP I
2.	Advanced Composites by Cindy Foreman
3.	A & P Mechanics by Dale Crane
4.	Aviation Maint Technician Hand Book-General -9A by FAA
5.	Aviation Maint Technician Hand Book-Airframe -15A by FAA
6.	Aviation Maint. Technician Handbook-General by FAA H 8083-30
7.	Aviation Maint. Technician Handbook-Airframe (Vol-II) by FAA H- 8083-31
8.	Shop Theory by J. A Enderson&Tatro

SEMESTER – IV

COURSE TITLE	TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS			CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2403	75%			ESE	25% Internal Exam
LEARNING LEVEL	BTL			ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	To acquire basic knowledge about Theory of Flight and Airframe Structures — Aeroplanes				CO1
2.	To acquire basic knowledge about Air Conditioning and Cabin Pressurisation.				CO1
3.	To acquire basic knowledge about Equipment and Furnishings, Fire Protection and Flight Controls.				CO2
Prerequisites : Nil					
MODULE -1 :Theory of Flight(12 L)					
<p>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, flaperons; Drag inducing devices, spoilers, lift dumpers, speed brakes; Effects of wing fences, saw tooth leading edges; Boundary layer control using, vortex generators, stall wedges or leading edge devices; Operation and effect of trim tabs, balance and anti balance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels;</p> <p>High Speed Flight Speed of sound, subsonic flight, transonic flight, supersonic flight, Mach number, critical Mach number, compressibility buffet, shock wave, aerodynamic heating, area rule; Factors affecting airflow in engine intakes of high speed aircraft; Effects of sweepback on critical Mach number.</p>					
MODULE - 2 : Airframe Structures — Aeroplanes(12 L)					
<p>Fuselage Construction and pressurisation sealing; Wing, stabiliser, pylon and undercarriage attachments; Seat installation and cargo loading system; Doors and emergency exits: construction, mechanisms, operation and safety devices; Windows and windscreen construction and mechanisms.</p>					

<p>Wings Construction; Fuel storage; Landing gear, pylon, control surface and high lift/drag attachments.</p> <p>Stabilisers Construction; Control surface attachment.</p> <p>Flight Control Surfaces Construction and attachment; Balancing — mass and aerodynamic.</p> <p>Nacelles/Pylons Construction; Firewalls; Engine mounts.</p>	
<p>MODULE – 3 : Air Conditioning and Cabin Pressurisation(12 L)</p>	
<p>Air supply Sources of air supply including engine bleed, APU and ground cart;</p> <p>Air Conditioning Air conditioning systems; Air cycle and vapour cycle machines Distribution systems; Flow, temperature and humidity control system.</p> <p>Pressurisation Pressurisation systems; Control and indication including control and safety valves; Cabin pressure controllers.</p>	
<p>MODULE – 4 : Equipment and Furnishings and Fire Protection (12 L)</p>	
<p>Equipment and Furnishings Emergency equipment requirements; Seats, harnesses and belts. Cabin lay-out; Equipment lay-out; Cabin Furnishing Installation; Cabin entertainment equipment; Galley installation; Cargo handling and retention equipment; Air stairs</p> <p>Fire Protection Fire and smoke detection and warning systems; Fire extinguishing systems; System tests. Portable fire extinguisher</p>	
<p>MODULE –5 : Flight Controls (12 L)</p>	
<p>Primary controls: aileron, elevator, rudder, spoiler; Trim control; Active load control; High lift devices; Lift dump, speed brakes; System operation: manual, hydraulic, pneumatic, electrical, fly-by-wire; Artificial feel, Yaw damper, Mach trim, rudder limiter, gust locks systems; Balancing and rigging; Stall protection/warning system.</p>	
<p>LAB / MINI PROJECT/FIELD WORK</p>	
<p>Nil</p>	
<p>TEXT BOOKS</p>	
1.	EASA Module-11A for Level-B1.1 Turbine Aero plane Structures and systems by AIRCRAFT TECH BOOK CO.
<p>REFERENCE BOOKS</p>	
1.	Mechanics of Flight by AC Kermode
2.	Civil Aircraft Inspection Procedure (CAP 459)- Part II by CAIP II
3.	Aerodynamics by Clancey
4.	Airframe Structures, Vol-I by Dale Crane
5.	Aviation Maint Technician Hand Book-General -9A by FAA
6.	Aviation Maint Technician Hand Book-Airframe -15A by FAA

SEMESTER – IV

COURSE TITLE		PISTON ENGINE		CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2404		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	To understand fundamentals and performance of piston engine.				CO1
2.	To understand engine construction and engine fuel systems (carburetors).				CO2
3.	To understand fuel injection systems and electronic engine control.				CO2
Prerequisites : Nil					
MODULE -1 :Fundamentals(12 L)					
Mechanical, thermal and volumetric efficiencies;Operating principles — 2 stroke, 4 stroke, Otto and Diesel;Piston displacement and compression ratio;Engine configuration and firing order.					
MODULE - 2 : Engine Performance (12 L)					
Power calculation and measurement;Factors affecting engine power;Mixtures/leaning, pre - ignition.					
MODULE – 3 : Engine Construction (12 L)					
Crank case, crank shaft, cam shafts, sumps;Accessory gearbox;Cylinder and piston assemblies;Connecting rods, inlet and exhaust manifolds;Valve mechanisms;Propeller reduction gearboxes.					
MODULE – 4 :Engine Fuel Systems (Carburetors) (12 L)					
Engine Fuel Systems (Carburetors)					
Types, construction and principles of operation;Icing and heating.					
MODULE –5 : Fuel injection systems and Electronic engine control (12 L)					
Fuel injection systems					
Types, construction and principles of operation.					
Electronic engine control					
Operation of engine control and fuel metering systems ,including electronic engine control (FADEC);Systems lay-out and components.					
LAB / MINI PROJECT/FIELD WORK					
Nil					
TEXT BOOKS					

1.	Aviation Maint.Technician Handbook-Powerplant (Vol-II) by FAA H- 8083-32
REFERENCE BOOKS	
1.	Aviation Maintenance Technician Series (Power Plant) by Dale Crane
2.	Aviation Maint Technician Hand Book-Power Plant -12Aby FAA
3.	Aviation Maintenance Technician Hand book by FAA
4.	Aircraft A & P Technician Power Plant by Jeppesen
5.	Aircraft Power Plants by Kroes& Wild

SEMESTER - IV

COURSE TITLE	DIGITAL TECHNIQUES LABORATORY		CREDITS	3
COURSE CODE		COURSE CATEGORY	L-T-P-S	3-0-3-0
AM 2421	75%		ESE	25% Internal Exam
LEARNING LEVEL	BTL		ASSESSMENT LEVEL	LB
COURSE OUTCOMES				
The students should be able to:				
1. Learn the functions of digital gates like AND, OR, NOT and Ex-OR.				
2. Learn the process of multiplexing and demultiplexing and their advantages.				
3. Understand the Conversion of Analog signals into Digital signals and vice versa and Understanding the landing gear lock and open system in aircraft.				
LIST OF EXPERIMENTS				hours
1. Verification of logic gates with truth table of AND, OR, NOT, NOR, NAND, EXOR gates.				4
2. Construct and verify the operation of Multiplexer				4
3. Construct and verify the operation of Demultiplexer.				4
4. Demonstration of Analog to Digital Convertor.				4
5. Demonstration of Digital to Analog Convertor.				4
6. Construction of Aircraft Landing Gear Indication and Warning System by logic circuit.				4
7. Decimal to BCD conversion.				4

8. Perform addition and subtraction of two 8 bit numbers using 8085 Microprocessor trainer kit.	4	
9. Handling of ESDS components and use of Wrist strap	4	
TOTAL HOURS	36	

S1. No	DETAILS OF EQUIPMENT	Qty. Req.	Experiment No.
1.	Digital IC Trainer Kit (Breadboard with +5, +12, -12, 0)	8	1,2,3,6,7
2.	8085 Microprocessor Kit	1	8
3.	Wrist strap	1	9
4.	Analog to Digital Convertor.	1	4
5.	Digital to Analog Convertor.	1	5
6.	TTL ICs (AND, NOR, NOT, OR, EX-OR, NAND GATES)	10 EACH	1,2,3,6,7

SEMESTER – IV

COURSE TITLE	PISTON ENGINE LABORATORY		CREDITS	3
COURSE CODE		COURSE CATEGORY	L-T-P-S	3-0-3-0
AM 2422	75%		ESE	25% Internal Exam
LEARNING LEVEL	BTL		ASSESSMENT LEVEL	LB
COURSE OUTCOMES				
<p>The students should be able to:</p> <ol style="list-style-type: none"> 1. Understand the sequence of activities in removal and installation of cylinder and piston pin. 2. Understand Compressor testing on spring. 3. Understand the sequence of activities in removal and installation of valve operating Mechanism and the method of engine components cleaning. 				
LIST OF EXPERIMENTS				hours
1. Removal and installation of cylinder (Lycoming Engine).				4
2. Removal and installation of piston pin.				4
3. Compressor test on spring.				4
4. Removal and installation of valve operating mechanism.				4
5. Cleaning procedure of engine components.				4
TOTAL HOURS				20
S1.	DETAILS OF EQUIPMENT		Qty. Req.	Experiment

No			No.
1.	Engine Stand	1	1,2
2.	Special tool for removal of piston pin.	1	2
3.	Cleaning rig.	1	5
4.	Valve spring compression tester	1	3

SEMESTER – V

COURSE TITLE		GAS TURBINE ENGINE		CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2501		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	Able to understand fundamentals, engine performance, inlet, compressors, combustion section, turbine section and exhaust.				CO1
2.	Able to understand lubrication systems and fuel systems.				CO1
3.	Able to understand starting and ignition systems.				CO2
Prerequisites : Nil					
MODULE - 1 : Fundamentals and Engine Performance (12 L)					
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.					
Engine Performance Gross thrust, net thrust, choked nozzle thrust, thrust distribution, resultant thrust, thrust horsepower, equivalent shaft horsepower, specific fuel consumption; Engine efficiencies; Bypass 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.					
MODULE - 2 : Inlet, Compressors, Combustion Section, Turbine Section and Exhaust (12 L)					
Inlet Compressor inlet ducts - Effects of various inlet configurations; Ice protection.					
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.	
Combustion Section	
Constructional features and principles of operation.	
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.	
Exhaust	
Constructional features and principles of operation; Convergent, divergent and variable area nozzles; Engine noise reduction; Thrust reversers.	
MODULE – 3 : Lubrication Systems (12 L)	
System operation/lay-out and components.	
MODULE – 4 :Fuel Systems (12 L)	
Operation of engine control and fuel metering systems including electronic engine control (FADEC); Systems lay-out and components.	
MODULE –5 : Starting and Ignition Systems (12 L)	
Operation of engine start systems and components; Ignition systems and components; Maintenance safety requirements.	
LAB / MINI PROJECT/FIELD WORK	
Nil	
TEXT BOOKS	
1.	EASA Module-15 Gas Turbine Engine by AIRCRAFT TECH BOOK CO.
REFERENCE BOOKS	
1.	Civil Aircraft Inspection Procedure (CAP 459)- Part II by CAIP II
2.	Aviation Maint Technician Hand Book-Power Plant -12A by FAA
3.	Aviation Maint. Technician Handbook-Powerplant (Vol-II) by FAA H- 8083-32
4.	Aircraft Gas Turbine Technology by IrwineTreager
5.	Aircraft A & P Technician Power Plant by Jeppesen
6.	Aircraft Power Plants by Kroes& Wild

SEMESTER – V

COURSE TITLE		PROPELLER		CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2502		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	Able to understand propeller fundamentals.				CO1
2.	Able to understand propeller construction.				CO1
3.	Able to understand propeller pitch control.				CO2
Prerequisites : Nil					
MODULE -1 :Fundamentals-1 (12 L)					
Blade element theory; High/low blade angle, reverse angle, angle of attack, rotational speed; Propeller slip;					
MODULE - 2 : Fundamentals-2 (12 L)					
Aerodynamic, centrifugal, and thrust forces; Torque; Relative airflow on blade angle of attack; Vibration and resonance.					
MODULE – 3 : Propeller Construction-1 (12 L)					
Construction methods and materials used in wooden, composite and metal propellers; Blade station, blade face, blade shank, blade back and hub assembly;					
MODULE – 4 :Propeller Construction-2 (12 L)					
Fixed pitch, controllable pitch, constant speed propeller; Propeller/spinner installation.					
MODULE –5 : Propeller Pitch Control (12 L)					
Speed control and pitch change methods, mechanical and electrical/electronic; Feathering and reverse pitch; Over speed protection.					
LAB / MINI PROJECT/FIELD WORK					

Nil	
TEXT BOOKS	
1.	EASA Module-17 A Propeller by AIRCRAFT TECH BOOK CO.
REFERENCE BOOKS	
1.	Civil Aircraft Inspection Procedure (CAP 459)- Part II by CAIP II
2.	Aviation Maintenance Technician Series (Power Plant) by Dale Crane
3.	Aviation Maint Technician Hand Book-Power Plant -12A by FAA
4.	Aviation Maint. Technician Handbook-Powerplant (Vol-II) by FAA H- 8083-32
5.	Aircraft Propeller and Controls by Frank Delp
6.	Aircraft A & P Technician Power Plant by Jeppesen
7.	Aircraft Power Plants by Kroes& Wild

SEMESTER – V

COURSE TITLE		AVIATION SAFETY MANAGEMENT SYSTEM		CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2503		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	To understand the concept of introduction and aviation safety program.				CO1
2.	To understand the Training program and Fuel Safety Training.				CO1
3.	To understand the concept of State Safety Program.				CO2
Prerequisites : Nil					
MODULE -1 : INTRODUCTION (12 L)					
Aviation safety – Applicability, Definitions, Safety policies, and objectives, safety risks managements, Hazards identification, Safety assurance,					
MODULE - 2 : AVIATION SAFETY PROGRAMME (12 L)					
Safety Management system organization arrangement and safety accountability and responsibility , coordination of emergency planning , safety promotion.					
MODULE – 3 : Training program (12 L)					
Safety training, Safety communication, Documentation					
MODULE – 4 :Fuel Safety Training (1,2 L)					
Effectivity, Affected organizations, Persons affected organization who should receive training, General requirements of the training courses. Guidelines for preparing the content of phase 2 courses.					
MODULE -5 : State Safety Program (SSP) (12 L)					
Responsibility of ministry of civil aviation, Responsibility of DGCA, Accident					

investigation, State acceptable level of safety, implementation of SSP. Voluntarily reporting system	
LAB / MINI PROJECT/FIELD WORK	
Nil	
TEXT BOOKS	
1.	CAR Section 1 Series C Part 1, State Safety Programme By DGCA
REFERENCE BOOKS	
	Same as Text book

SEMESTER – V

COURSE TITLE		AEROPLANE MAINTENANCE		CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2056		75%		ESE	25% Internal Exam
LEARNING LEVEL		BTL		ASSESSMENT MODEL	TE
S.No	COURSE OUTCOMES				CO
1.	To acquire basic knowledge about Fuel System and Hydraulic Power				CO2
2.	To acquire basic knowledge about ice and rain protection as well as construction and operation landing gear				CO2
3.	To acquire basic knowledge about System lay-out of oxygen and pneumatic/vacuum				CO2
Prerequisites : Nil					
MODULE -1 :Fuel Systems (12 L)					
System lay-out; Fuel tanks; Supply systems; Dumping, venting and draining; Cross-feed and transfer; Indications and warnings; Refuelling and defuelling; Longitudinal balance fuel systems.					
MODULE - 2 : Hydraulic Power (12 L)					
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.					
MODULE – 3 : Ice and Rain Protection (12 L)					
Ice formation, classification and detection; Anti-icing systems: electrical, hot air and chemical; De-icing systems: electrical, hot air, pneumatic and chemical; Rain repellent; Probe and drain heating. Wiper systems					
MODULE – 4 : Landing Gear (12 L)					

Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, brakes, antiskid and auto braking; Tyres; Steering. Air-ground sensing

MODULE -5 :Oxygen and Pneumatic/Vacuum (12 L)

Oxygen

System lay-out: cockpit, cabin; Sources, storage, charging and distribution; Supply regulation; Indications and warnings;

Pneumatic/Vacuum

System lay-out; Sources: engine /APU, compressors, reservoirs, ground supply; Pressure control; Distribution; Indications and warnings; Interfaces with other systems.

LAB / MINI PROJECT/FIELD WORK

Nil

TEXT BOOKS

1. EASA Module-11A for Level-B1.1 Turbine Aero plane Structures and systems by AIRCRAFT TECH BOOK CO.

REFERENCE BOOKS

1. Mechanics of Flight by AC Kermode
2. Civil Aircraft Inspection Procedure (CAP 459)- Part II by CAIP II
3. Aerodynamics by Clancey
4. Airframe Structures, Vol-I by Dale Crane
5. Aviation Maint Technician Hand Book-General -9A by FAA
6. Aviation Maint Technician Hand Book-Airframe -15A by FAA

SEMESTER – V

COURSE TITLE	GAS TURBINE ENGINE LABORATORY		CREDITS	3
COURSE CODE		COURSE CATEGORY	L-T-P-S	3-0-3-0
AM 2521	75%		ESE	25% Internal Exam
LEARNING LEVEL	BTL		ASSESSMENT LEVEL	LB

COURSE OUTCOMES

The students should be able to:

1. Ensure airworthiness condition on axial flow and centrifugal flow compressor.
2. Ensure serviceability of combustion chamber and turbine blade.
3. Understand the procedure of Removal, cleaning and fitment of oil filter and the procedure of Disassembly and assembly of fuel cooled oil cooler.

LIST OF EXPERIMENTS	hours
1. Inspection on axial flow compressor.	4
2. Inspection on centrifugal flow compressor.	5
3. Inspection on combustion chamber.	4
4. Inspection on turbine blade.	4
5. Removal and fitment of turbine rotor blade.	4
6. Removal, cleaning and fitment of oil filter.	5
7. Disassembly and assembly of fuel cooled oil cooler.	4
TOTAL HOURS	30

Sl. No	DETAILS OF EQUIPMENT	Qty. Req.	Experiment No.
1.	Flame proof torch	1	1,2,3,4
2.	Magnifying glass (X10)	1	1,2,3
3.	Ardrox - 996	1	3,4
4.	Feeler gauge	1	5

SEMESTER - V

COURSE TITLE	PROPELLER LABORATORY		CREDITS	3
COURSE CODE	COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2522	75%		ESE	25% Internal Exam
LEARNING LEVEL	BTL		ASSESSMENT LEVEL	LB

COURSE OUTCOMES

The students should be able to:

1. Ensure airworthiness of propeller blades.
2. Understand Propeller track check procedure.
3. Understand the procedure of vertical and horizontal balancing of Propeller.

LIST OF EXPERIMENTS	hours
1. Inspection on propeller blades.	5
2. Propeller track check.	5
3. Propeller balancing check (vertical).	5
4. Propeller balancing check (Horizontal).	5
TOTAL HOURS	20

Sl. No	DETAILS OF EQUIPMENT	Qty. Req.	Experiment No.
1.	Propeller balance stand	1	1,2,3,4

SEMESTER – VI

COURSE TITLE	IT FOR AVIATION AND SOFT SKILLS			CREDITS	3
COURSE CODE		COURSE CATEGORY		L-T-P-S	3-0-3-0
AM 2055	75%			ESE	25% Internal Exam
LEARNING LEVEL	BTL			ASSESSMENT MODEL	TE

S.No	COURSE OUTCOMES	co
1.	Able to understand use of Information technology for optimal aircraft maintenance, repair, overhaul and MRO business.	CO1
2.	Able to understand financial, materials, manpower management and office management,	CO1
3.	Able to understand the requirements of Interview preparation and group discussion.	CO1
Prerequisites : Nil		
MODULE -1 :General (12 L)		
Information technology for optimal aircraft maintenance, repair and overhaul (MRO).A global perspective of the industry and its relationship with dynamic information technology knowledge in niche field of Aircraft Maintenance best practices. Aviation MRO with the necessary principles, approaches and tools to respond effectively and efficiently to the constant development of new technologies, both in general and within the aviation MRO profession.		
MODULE - 2 : MRO Business (12 L)		
The aviation MRO business and information technology - The era of bespoke systems - The vacuum and the minnows - The active vendors - The legacy solutions - Best-of-breed solutions - Integrated ERP solutions - The technologies - Airworthiness and information technology - The business view - The ideal solution.		
MODULE - 3 : Management of finance, materials, manpower (12 L)		
The paradigm - Life cycle of a commercial aircraft - Airframe maintenance life cycle - Aircraft engine maintenance life cycle - Aircraft components maintenance life cycle - Ground support equipment/fleet (GSE/F) - maintenance life cycle - Manage materials and logistics - Manage finance - Manage human resources - Manage facilities - Manage continuous improvements (Analysis and Surveillance System) -Manage environment - Manage information technology - Manage external relationships - Manufacture of aircraft of Aircraft parts; organization structures.		
MODULE - 4 :Office management, Resume writing & presentation skills (12 L)		
Types of correspondence; Filing system; MIS; Letters- Formal/informal; Structure of business letters; Result oriented resume; Importance of presentation skills; visual aids and voice & picture integration; Body language and voice modulation.		
MODULE -5 : Interview preparation and group discussion (12 L)		
Preparation and attending interview; Employer expectation; General etiquette; Dressing sense; postures and gestures; Guidelines for group discussion; Evaluation.		
LAB / MINI PROJECT/FIELD WORK		
Nil		
TEXT BOOKS		
1.	Sahay. A "Leveraging information technology for optimal aircraft maintenance, repair and overhaul (MRO). Woodhead Publishing Limited	

