

**B-TECH AVIATION TECHNOLOGY SEMESTER –I TEACHING & EXAMINATION SCHEME**

SR NO	CODE	SUBJECTS	TEACHING SCHEME			CREDITS	HOURS	EXAMINATION SCHEME				TOTAL
			L	T	P			THEORY		PRACT		
								CIE	ESE	CIE	ESE	
1	AM0231	Electrical Fundamentals 2	4	0	4	6	8	60	40	60	40	200
2	AM0232	Materials and Hardware	4	0	4	6	8	60	40	60	40	200
3	AM0233	Human Factor	5	1	0	6	6	60	40	00	00	100
4	AM0234	Electronics Fundamentals and Digital Techniques 1	4	0	4	6	8	60	40	60	40	200
5	AM0235	Corrosion and NDT	5	1	00	6	6	60	40	00	00	100
<b>TOTAL</b>			<b>22</b>	<b>2</b>	<b>12</b>	<b>30</b>	<b>36</b>	<b>300</b>	<b>200</b>	<b>180</b>	<b>120</b>	<b>800</b>

Subject: <b>Electrical Fundamentals 2</b>								
Program: B. Sc (Honours) AM				Subject Code: AM0231			Semester : II	
Teaching Scheme				Examination Evaluation Scheme				
Lecture	Tutorial	Practical	Credits	University Theory Examination	University Practical Examination	Continuous Internal Evaluation (CIE)- Theory	Continuous Internal Evaluation (CIE)- Practical	Total
4	0	4	6	16/40	16/40	24/60	24/60	200

### **Course Objectives**

1. To describe the generation of electricity & various DC sources of electricity.
2. To describe the basics working of DC motor & DC generator.
1. To discuss the understanding of various types of AC electrical motors.
2. To discuss the various types of electrical cables & connectors.
3. To discuss about Electromagnetic Environment.

### **Course Outcomes:**

CO 1: State the different types of electrical laws. [BT-1]

CO2: Explain different types of electrical components. [BT-2]

CO 3: Calculate the different types of electrical parameters. [BT-3]

CO 4: Describe the concepts and ideas of AC fundamentals. [BT-2]

CO 5: Explain the working principle & construction of Electrical machines. [BT-2]

CO 6: Design & development of different types of Filters. [BT-6]

**Course Content:**

<p><b>Unit 1</b></p>	<p><b>Generation of Electricity</b> Elementary knowledge on generation of electricity by the following methods, light, heat, friction, pressure, chemical action, magnetism and motion.</p> <p><b>DC Sources of Electricity</b> 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>10 Hrs.</p>
<p><b>Unit 2</b></p>	<p><b>DC Motor/Generator Theory</b> 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.</p> <p><b>AC Generators</b> 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.</p>	<p>10 Hrs.</p>
<p><b>Unit 3</b></p>	<p><b>AC Motors</b> Construction, principles of operation and characteristics of: AC synchronous and induction motors both single and polyphase; Methods of speed control and direction of rotation; Methods of producing a rotating field: capacitor, inductor, shaded or split pole.</p> <p><b>Power</b> Power, work and energy (kinetic and potential); Dissipation of power by a resistor; Power formula; Calculations involving power, work and energy.</p>	<p>20 Hrs.</p>
<p><b>Unit 4</b></p>	<p><b>Aircraft Electrical Cables and Connectors</b> a). 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. . B). Electrical Wiring Interconnection 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</p>	<p>20 Hrs.</p>

	<p>damage tolerance  Wiring protection techniques: Cable looming and loom support, cable clamps, and  Protective Sleeving techniques including heat shrink wrapping, shielding.  EWIS installations,  Inspection, repair, maintenance and cleanliness standards.</p> <p><b>Electromagnetic Environment</b>  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.</p>	
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**Reference Books:**

**Reference Books:**

Electrical Technology- by B.L.Theraja

Aircraft Electrical System- by E.H.J.Pallett

Aircraft Electricity and electronics-by Bent McKinley and also by Eismen/Bent McKinley

**List of Practical:**

- 1 Generation of electricity by light , heat, chemical action, magnetism, and motion
- 2 Construct power sources using primary and secondary cells
- 3 Construct a model to study usage of thermo-cell and photo-cell
- 4 Construct a model to generate DC power using different method of coil arrangements (Series, shunt) to understand their Usage.
- 5 Construct a model of DC motor using different method of coil arrangements (Series, shunt) to understand their Usage.
- 6 Construct a model to generate single/Poly-phase AC power to understand their Usage.
- 7 Construct a model of AC motor using single/ Poly-phase I arrangements to

understand their Usage.

- 8** Measure amount of power dissipated by various resistors; calculation of power
- 9** Using at least two crimping systems, select appropriate cable crimping tools and crimp cables to prepare cable ends or plug / socket terminals.
- 10** Check an aircraft electrical circuit for continuity in conjunction with an electrical wiring diagram.
- 11** Identify cables and cables values by reference to the maintenance manuals.  
Identify a range of electrical component symbols.
- 12** Inspection of electrical cable looms / bundles and cable trunking.  
Select and use appropriate cable stripping tools and solder cables to single
- 13** and  
multipin connectors / tag boards
- 14** Prepare, and install a simple loom, using at least two binding methods
- 15** Identification of various fasteners and locking devices used in aircraft.

Subject: <b>Aircraft Material and Hardware</b> (Corrosion)								
Program: B. Sc (Honours) AM				Subject Code: <b>AM0232</b>			Semester : <b>II</b>	
Teaching Scheme				Examination Evaluation Scheme				
Lecture	Tutorial	Practical	Credits	University Theory Examination	University Practical Examination	Continuous Internal Evaluation (CIE)- Theory	Continuous Internal Evaluation (CIE)- Practical	Total
3	0	2	4	16/40	16/40	24/60	24/60	200

### **Course Objectives:**

1. Study about aircraft materials ferrous & non-ferrous.
2. Study about aircraft materials composite and Non-metallic.
3. Study about different types of different types of fasteners.
4. Identification and types of rigid and flexible pipes.
5. Study about springs & bearings.
6. Study about different types of Gear and their application.
7. Study about different types of cables & connectors.

### **Course Outcomes:**

CO 1: Describe Heat Treatment methods of Ferrous and Non Ferrous materials. [BT- 2]

CO 2: Illustrate different types of Corrosion, factor affecting corrosion and its removal process. [BT-3]

CO 3: Define various type of Gears and their applications. [BT-1]

CO 4: Discuss types of Solid and Blind Rivets, their specification, identification and heat treatment. [BT-2]

CO 5: Describe different types of Bolts, Studs and screw types, their identification, marking and its uses. [BT-2]

CO 6: Explain the identification of, and types of rigid and flexible pipes and their connector used in aircraft. [BT-2]

**COURSE CONTENT: AIR CRAFT MATERIALS & HARDWARE**

<p><b>Unit 1</b></p>	<p><b>Aircraft Materials — Ferrous</b></p> <p>(a) Characteristics, properties and identification of common alloy steels used in aircraft; Heat treatment and application of alloy steels.</p> <p>(b) Testing of ferrous materials for hardness, tensile strength, fatigue strength and Impact resistance.</p> <p><b>Aircraft Material — Non-Ferrous</b></p> <p>(a) Characteristics, properties and identification of common non-ferrous materials used in aircraft; Heat treatment and application of non-ferrous materials;</p> <p>(b) Testing of non-ferrous material for hardness, tensile strength, fatigue strength</p>	<p>15Hrs.</p>
<p><b>Unit 2</b></p>	<p><b>Aircraft Materials - Composite and Non- Metallic</b></p> <p>(a) Characteristics, properties and identification of common composite and non-metallic materials, other than wood, used in aircraft; Sealant and bonding agents.</p> <p>(b) The detection of defects/deterioration in composite and non-metallic material. Repair of composite and non-metallic material.</p> <p><b>Wooden Structure :</b></p> <p>Construction methods of wooden airframe structures; Characteristics, properties and types of wood and glue used in airplanes; 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.</p>	<p>15 Hrs.</p>
<p><b>Unit 3</b></p>	<p><b>Fasteners, Screw threads</b></p> <p>Screw nomenclature; Thread forms, dimensions and tolerances for standard threads used in aircraft; measuring screw threads;</p> <p><b>Bolts, studs and screws</b></p> <p>Bolt types: specification, identification and marking of aircraft bolts, international standards;</p> <p>Nuts: self-locking, anchor, standard types; Machine screws: aircraft specifications;</p> <p>Studs: types and uses, insertion and removal; Self tapping screws, dowels</p>	<p>15Hrs.</p>

<b>Unit 4</b>	<p><b>Locking devices</b>  Tab and spring washers, locking plates, split pins, palnuts, wire locking, quick release fasteners, keys, circlips, and cotter pins and techniques.</p> <p><b>Aircraft rivets</b>  Types of solid and blind rivets: specifications and identification, heat treatment.</p> <p><b>Riveting</b>  Riveted joints, rivet spacing and pitch; Tools used for riveting and dimpling;  Inspection of riveted joints.</p>	15 Hrs.
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**Text Book & Reference Books:**

Aircraft handbook FAA ( AC 65-15 A )

Civil Aircraft Inspection Procedures (CAIP 459-Part I, Basic)

Airframe & Powerplant Mechanics (General Handbook EA-AC 65-9A) FAA

Aircraft Materials & Processes by Titterton

Machine Drawing by AC Parkinson

Advanced Composites (EA-358) by Cindy Foreman Electricity,CAIP 562



## **LIST OF PRACTICALS**

- 1 Testing of Non -Ferrous materials for hardness, tensile , Fatigue strength
- 2 Testing of ferrous materials for hardness, tensile , Fatigue strength
- 3 Identification of the characteristics and properties of common composite and non-metallic materials other than wood, used in aircraft
- 4 Detection of defects/deterioration in composite and nonmetallic material.
- 5 Identification of the characteristics and properties of common types of wood and glue used in aircraft.
- 6 Identification and detection of defects in wood material and wooden structures.
- 7 Simple repair of composite and non-metallic materials and structures
- 8 Inspection and Repair of wooden structures.
- 9 Identification of the characteristics and properties of common fabrics and adhesives used in wooden structure aircraft
- 10 Identification of defects and Repair of fabric covering.
- 11 Use of basic tools and equipment for: cutting, forming and joining commonly used materials.
- 12 Identification of Aircraft metallic materials
- 13 Identification of aircraft non-materials used on aircraft
- 14 Identification of various rivets and use of any one riveting technique
- 15 Identification of various fasteners and locking devices used in aircraft.

Subject: Human Factors								
Program: B. Sc (Honours) AM				Subject Code:AM0233			Semester: II	
Teaching Scheme				Examination Evaluation Scheme				
Lecture	Tutorial	Practical	Credits	University Theory Examination	University Practical Examination	Continuous Internal Evaluation (CIE)- Theory	Continuous Internal Evaluation (CIE)- Practical	Total
5	1	0	6	16/40	0	24/60	0	100

### Course Objectives

1. Study about human performance and limitations
2. Study about various factors with social psychology.
3. Factors affecting the performance of human.
4. Study about physical environment.
5. Study about human error.
6. Study about hazards in the workplace

### **Course outcomes:**

CO 1: Describe various Human performance and limitations. [BT-2]

CO 2: Analyze various factors related with Social Psychology. [BT-4]

CO 3: Justify factors affecting the performance in work place or area. [BT-5]

CO 4: Explain human error models and theories. [BT-2]

CO 5: Define 'Murphy's' law. [BT-1]

CO 6: List Human Error in the Maintenance Environment. [BT-1]

**Course Content:**

<b>Unit 1</b>	<p><b>General</b> The need to take human factors into account; Incidents attributable to human factors/human error; ‘Murphy’s’ law.</p> <p><b>Human Performance and Limitations</b> Vision; Hearing; Information processing; Attention and perception; Memory; Claustrophobia and physical access.</p> <p><b>Social Psychology</b> Responsibility: individual and group; Motivation and de-motivation; Peer pressure; ‘Culture’ issues; Team working; Management, supervision and leadership</p> <p><b>Factors Affecting Performance</b> Fitness/health; Stress: domestic and work related; Time pressure and deadlines; Workload: overload and under-load; Sleep and fatigue, shiftwork; Alcohol, medication, drug abuse.</p>
<b>Unit 2</b>	<p><b>Physical Environment</b> Noise and fumes; Illumination; Climate and temperature; Motion and vibration; Working environment.</p> <p><b>Tasks</b> Physical work; Repetitive tasks; Visual inspection; Complex systems.</p> <p><b>Communication</b> Within and between teams; Work logging and recording; Keeping up to date, currency; Dissemination of information.</p>
<b>Unit 3</b>	<p><b>Human Error</b> Error models and theories; Types of error in maintenance tasks; Implications of errors (i.e. accidents); Avoiding and managing errors.</p> <p><b>Hazards in the Workplace</b> Recognising and avoiding hazards; Dealing with emergencies.</p> <p><b>Human Factors in Aircraft Maintenance and Inspection</b> Human Factors — Aircraft Maintenance and Inspection; Contemporary Maintenance Problems; the SHEL Model; the Reason Model; Human Error</p>

<b>Unit 4</b>	<p><b>Human Error in Aircraft Maintenance and Inspection (an organizational perspective)</b>  Human Factors Issues Affecting Aircraft Maintenance and Dirty Dozen;  Information Exchange and Communication; Training; Aircraft Maintenance  Technician Facilities and Work Environment</p> <p><b>Teams and Organizational Issues in Aircraft Maintenance</b>  Team Work; Job Design; Reward Systems; Selection and Staffing; Training</p> <p><b>Automation and Advanced Technology System</b>  Automation and Computerization; Advanced Job Aid Tools</p> <p><b>Error Prevention, Considerations and Strategies</b></p>
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**Text & Reference Books:**

CAP 715 - An Introduction to Aircraft Maintenance Engineering Human Factors for JAR 66, Civil Aviation Authority, UK.

CAP 718 - Human Factors in Aircraft Maintenance and Inspection, Civil Aviation Authority, UK.

FAA-H-8083-30 - Aircraft Maintenance Technician Handbook - General, US Department of Transportation, Federal Aviation Administration ICAO Doc 9806

**Tutorial : Human Factors**

- 1 Application of Human Factors in development of Aircraft Maintenance Programme and Inspection Schedule
- 2 Application of Human Factors in Aircraft Maintenance Planning and Execution
- 3 Application of Human Factors in Aircraft Maintenance
- 4 Detail study of Murphy's' law.
- 5 To study Shel Model
- 6 Study of Dirty Dozen
- 7 Stress Management in Aircraft Maintenance environment
- 8 To study human behavior in performing aircraft inspection in adverse weather conditions.
- 9 Develop procedure and environment for aircraft inspection for error prevention, considerations and strategies.
- 10 Study of social impact on aircraft maintenance engineer.

Subject: <b>Electronic Fundamentals and Digital Techniques 1</b>								
Program: B. Sc (Honours) AM				Subject Code: <b>AM0234</b>			Semester: <b>II</b>	
<b>Teaching Scheme</b>				<b>Examination Evaluation Scheme</b>				
<b>Lecture</b>	<b>Tutorial</b>	<b>Practical</b>	<b>Credits</b>	<b>University Theory Examination</b>	<b>University Practical Examination</b>	<b>Continuous Internal Evaluation (CIE)- Theory</b>	<b>Continuous Internal Evaluation (CIE)- Practical</b>	<b>Total</b>
4	0	4	6	16/40	16/40	24/60	24/60	200

### **Course Objectives**

1. Study about Semiconductor devices.
2. Study about Transistors & Integrated Circuit.
3. Study about PCB & servomechanism.
4. Study about microprocessor & Fiber optic.

### **Course outcomes:**

CO 1: Explain different types of electronic components. [BT-2]

CO 2: Calculate the values of various components for different parameters. [BT-3]

CO 3: Integration of various components with ICs for implementation in practical circuits. [BT-6]

CO 4: Analyze circuits for valuation of their corresponding outputs. [BT-4]

CO 5: Define basic components according to their use and application. [BT-1]

CO 6: Describe basic function of microprocessor. [BT-2]

**Course Content:**

Unit 1	<p><b>Semiconductors</b> 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. 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, Schottky diode, photo conductive diode, varactor diode, varistor, rectifier diodes, Zener diode.</p>	<b>15 Hrs</b>
Unit 2	<p><b>Transistors</b> Transistor symbols; Component description and orientation; Transistor characteristics and properties. Construction and operation of PNP and NPN transistors; Base, collector and emitter configurations; Testing of transistors. Basic appreciation of other transistor types and their uses. Application of transistors: classes of amplifier (A, B, C); Simple circuits including: bias, decoupling, feedback and stabilization; Multistage circuit principles: cascades, push-pull, oscillators, multi-vibrators, flip-flop circuits. <b>Integrated Circuits:</b> Description and operation of logic circuits and linear circuits/operational amplifiers. Description and operation of logic circuits and linear circuits; Introduction to operation and function of an operational amplifier used as: differentiator, voltage follower, comparator; Operation and amplifier stages connecting methods: resistive capacitive, inductive (transformer), inductive resistive (IR), direct; Advantages and disadvantages of positive and negative feedback Operation and use of encoders and decoders. , functions of encoders type. Uses of medium, large and very large scale integration. differentiator, voltage follower, comparator; Operation and amplifier stages</p>	<b>15 Hrs.</b>
Unit 3	<p><b>Printed Circuit Boards</b> Description and use of printed circuit boards. <b>Servomechanisms</b> Understanding of the following terms: Open and closed loop systems, feedback, follow up, analogue transducers; Principles of operation and use of the</p>	<b>15 Hrs.</b>

	<p>following synchro system components/features: resolvers, differential, control and torque, transformers, inductance and capacitance transmitters. Understanding of the following terms: Open and closed loop, follow up, servomechanism, analogue, transducer, null, damping, feedback, dead band; Construction operation and use of the following synchro system components: resolvers, differential, control and torque, E and I transformers, inductance transmitters, Servomechanism defects, reversal of synchro leads, hunting.</p>	
Unit 4	<p><b>Numbering Systems</b> Numbering systems: binary, octal and hexadecimal; Demonstration of conversions between the decimal and binary, octal and hexadecimal systems and vice versa. <b>Data Conversion</b> Analogue Data, Digital Data; Operation and application of analogue to digital, and digital to analogue converters, inputs and outputs, limitations of various types. <b>Data Buses:</b> Operation of data buses in aircraft systems, including knowledge of ARINC and other specifications. <b>Logic Circuits</b> (a) Identification of common logic gate symbols, tables and equivalent circuits; Applications used for aircraft systems, schematic diagrams. (b) Interpretation of logic diagrams. <b>Microprocessors:</b> 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. <b>Fiber optic :</b> Advantages and disadvantages of fiber optic data transmission over electrical wire. propagation; Fiber optic data bus; Fiber optic related terms; Terminations; Couplers, control terminals, remote terminals; Application of fiber optics in aircraft systems.</p>	<b>15 Hrs.</b>

### **Text & Reference Books**

Basic Electronics-Bernard Grob

Digital Fundamentals by Malvino and Leech

Principles of Electronics by V K Mehta

### **List of Practical :**

- 1 Identification of basic electronic components ( diodes, transistors),digital Multimeter, Function Generator and Oscilloscope  
Practical on I-V Characteristics of (a) p-n junction Diode, and (b) Zener
- 2 diode.

- 3 Study of Clipping and Clamping circuits  
Conversion of A C Voltage using (a) Half wave rectifier and (b) Full wave  
4 rectifier  
(FWR).
- 5 Uses of basic electronic components ( diodes, transistors),digital Multimeter,  
Function Generator and Oscilloscope  
Construct a model to study fixed Bias and Voltage divider bias configuration  
6 for CE  
transistor.
- 7 Construct a model to study Single Stage CE amplifier of given gain.
- 8 Construct a model to study correlation between different numbering systems.
- 9 Construct a model to study digital to analogue converters.
- 10 Construct a model to study typical data buses used in aircraft system.
- 11 Functions performed and overall operation of a microprocessor.
- 12 Demonstrate fiber optic data transmission over electrical wire propagation.
- 13 Construct a Universal Gates and test.
- 14 Construct a flip flop circuit using elementary gates.
- 15 Construct a seven segment display driver.



Subject: Corrosion and NDT Techniques								
Program: B. Sc (Honours) AM				Subject Code:AM0235			Semester: II	
Teaching Scheme				Examination Evaluation Scheme				
Lecture	Tutorial	Practical	Credits	University Theory Examination	University Practical Examination	Continuous Internal Evaluation (CIE)- Theory	Continuous Internal Evaluation (CIE)- Practical	Total
5	1	0	6	16/40	00	24/60	00	100

### **Course Objectives**

1. Study about corrosion theory.
2. Importance of NDT.
3. Effect of corrosion on metals.
4. Factors in corrosion control.
5. Corrosion removal techniques.
6. Corrosion damage & rework.

### **Course outcomes:**

1. Have a basic knowledge of surface NDE techniques which enables to carry out various inspection in accordance with the established procedures.
2. Calibrate the instrument and inspect for in-service damage in the components.
3. Differentiate various defect types and select the appropriate NDT methods for better evaluation.
4. Communicate their conclusions clearly to specialist and non-specialist audiences.
5. Document the testing and evaluation of the results for further analysis.

**Course Content:**

<p><b>Unit 1</b></p>	<p>Type of Corrosion, Corrosion Theory; General Development: Development of Corrosion, Factors influencing corrosion Forms of Corrosion, Corrosion and Mechanical Factors, Common Corrosive Agents Metallic Mercury Corrosion on Aluminium Alloys, Micro Organisms.</p> <p>Importance of NDT in quality assurance; Different types of non-destructive techniques to obtain information regarding size, location and orientation of damage or cracks. Visual inspection techniques coin tapping technique for composite structures and adhesive bonds.</p> <p>Ultrasonic testing (UT Level 1, 2), Radiography Inspection (RT Level 1, 2), Magnetic particle testing (MT Level 1, 2), Microwave testing, Pulse echo technique, pitch-catch technique, through transmission technique, A-scan, B-Scan, C-scan. Acoustic emission: Sources of acoustic emission in composites, peak amplitude, rise time during events, ring-down counts duration of events. X-ray radiography: Absorption spectra, short wave length, X-ray for detection of voids. Die penetration technique</p>	<p><b>15 Hrs.</b></p>
<p><b>Unit 2</b></p>	<p>Liquid/Dye penetrant test (PT level 1, 2), Visual testing (VT-level 1, 2), Eddy current testing (ET level 1, 2), Guided wave testing.</p> <p>TKY joints ultrasonic inspection, Basics of NDT, Metallurgy for non-metallurgists.</p> <p>Effects of Corrosion on Metals, Corrosion Prone Areas and Preventative Maintenance Battery Compartments and battery vent openings, Lavatories, Buffets and Galleys, Bilge Areas, Wheel wells and landing gear, External skin areas, Water entrapment areas, Engine Frontal Areas and cooling air vents, Electronic package compartments.</p>	<p><b>15 Hrs.</b></p>
<p><b>Unit 3</b></p>	<p>Factors in corrosion control, preventative maintenance, frequency of inspection, recommended depth of inspection, non-destructive inspection (NDI),</p> <p>Corrosion removal techniques, Standard methods, Preparations for rework, Paint removal, special techniques, fairing or blending reworked areas, chemical testing, chemical spot analysis of magnetic metals, surface treatment testing, chemical spot testing of non-magnetic metals, post identification cleaning and refinishing, mechanical corrosion removal by blasting.</p> <p>Corrosion Damage and Rework Limits On Aluminium and Aluminium Alloys, Treatment, Processing Of Aluminium Surfaces, Repair, Corrosion Removal Corrosion damage and rework limits on Magnesium and Alloy treatment, Processing of Aluminium surfaces, repair, corrosion removal</p>	<p><b>15 Hrs.</b></p>
<p><b>Unit 4</b></p>	<p>Corrosion damage and rework limits on Ferrous .Limits on Ferrous &amp; Alloy Treatment, Processing of Aluminium Surfaces, Repair, Corrosion Removal; Corrosion damages on composite material.</p> <p>Mercury spills/corrosion damage. Corrosion protection for agricultural aircraft.</p>	<p><b>15 Hrs.</b></p>

## **Reference Books:**

AC-43-4A

AC-43-1B

Non-Destructive Test and Evaluation of Materials, Prasad J and C.G  
Krishnadas Nair

## **List of Practical :**

- 1** Identify different types of corrosion, factors contribute to corrosion, areas prone for corrosion, corrosive agents avoidance of corrosion
- 2** Detection of corrosion, defects and recording
- 3** Various Corrosion preventive technique - practice
- 4** Surface cleaning, rework and protection technique of ferrous and non-ferrous (Magnesium and Aluminum alloys) metallic surface
- 5** Accidental spillage of corrosive agents, cleaning and restoration
- 6** Ultrasonic Thickness testing
- 7** Liquid Penetrant testing
- 8** Eddy current
- 9** Magnetic Particle
- 10** Visual Inspection
- 11** Radiography testing
- 12** Guided wave testing

