Audit Checklist
Approved AME Training Institute
Mechanical (Aeroplane / Helicopter & Power Plant) / Avionics Stream

- **General requirement for all the streams of AME Institutes are given from 1 to 8.**
- **For Mechanical Streams (Aeroplane/Helicopter & Power Plant, the requirements are given from 1 to 9.**
- **For Avionics Stream, the requirements are given from 1 to 8 and 10 to 14.**
- **For OJT, the requirements are given at 15.**

Name of Institute	
Scope of Approval	
Address of the Institute	
Telephone: **Fax :**	
E-mail :	
Web Address:	
Name of Accountable Manager	
Telephone: **Fax :**	
E-mail Id:	
Name of Chief Instructor/Dy. Chief Instructor	
Telephone: **Fax :**	
E-mail Id:	
Name & Designation Of Auditing Officer(s)	
Date of Audit	

Audit Checklist
Approved AME Training Institute
Mechanical (Aeroplane / Helicopter & Power Plant) / Avionics Stream

S No	Item of Inspection	Ref Para (E-VIII)	Observation (Sat/ Unsat/ N/A)
1.	**Scope of Approval:**		
A	Whether the institute is having complete stream wise approval? a) Date of Initial Scope of approval of the Institute in Mechanical/ Avionics Streams/Categories.	1.1(a)/(b)/ (c)	
	b) Approval details since initial approval		
	c) Date of Extension of Scope of approval of the Institute in Mechanical/ Avionics Streams/Categories, if any.		
B	Whether the institute is having approval to impart in-house On Job Training (OJT)	7.3	
2.	**Training Manual:**		
A	Whether the training manual is approved? Check LEP.	5	
B	Whether the contents are as per CAR?	Appendix-VII	
C	Whether the syllabus given in the Training manual is as per the CAR?	Appendix-VI	
3.	**General Requirements :**		
A	Whether the institute has given prior information ***(at least two months)*** to DGCA in respect of the followings: (i) Commencement of new course/ batch (ii) Whether existing approved course has been modified	12.4	
B	Whether the institute is submitting the following reports to concerned Regional/ Sub Regional Airworthiness Offices on regular basis: (i) intake of students in new batches (ii) results of Semester Examinations (iii) results of DGCA Licence Examination	4.5.10	
C	Forwarding of applications to CEO, DGCA of all eligible students for appearing in Paper-I, II & III of AME Licence examination, as applicable	4.5.11 & 4.5.12	
D	Record of proper attendance of each student	4.5.8	
E	Permanent record of all students admitted for a course and their progression through various semesters	4.5.9	
F	Issuance of Course Completion Certificate after successful completion of course including the mandatory OJT in respective stream	4.5.14	
G	Whether each student is in possession of Aircraft Manual (India),	4.5.5	

	Civil Aviation Requirements, other instructions and amendments thereof, issued by DGCA from time to time.		
H	Preparation of lesson plan and class room notes on various subjects being given to all the students	4.5.5	
I	The number of students in a Batch/ Class shall not exceed 30.	4.6.2	
J	In one academic year, induction of only two batches per stream is permitted. Each batch shall not have more than 30 students.	4.6.3	
K	Whether the students admitted in the institute possess the minimum Educational Qualification requirements?	6.1	
L	Whether the students are subjected to medical examination by a doctor having at least MBBS degree, before they are admitted? *(Students shall not have any physical disability or colour blindness, which may interfere in discharging the duties as an AME – Ref: CAR Sec-2 Series 'L' Part-VIII)*	6.2	
M	Whether any student has been admitted who has migrated from other approved Training Institute? If yes, whether formal approval was obtained from DGCA Hqrs?	7.2.2	
N	Whether all the semesters contain both Theoretical and Practical classes in equal proportion?	7.3	
O	When does the course start? *(NOTE: the course shall start in the month of July each year)*	7.5	
P	Whether the list of admitted students (Batch wise) is forwarded to the CEO, latest by 1st week of September for allotment of Computer Number?	7.5	
Q	Whether the number of students in each batch is commensurate with the infrastructure available with the Institute? *(NOTE: In any case, the maximum number of students in a batch shall not exceed 30)*	7.6	
R	Whether in any semester, the practical training is less than 50% of total training or is there any variation in the scope of training? If yes, whether prior approval has been taken from DGCA?	7.7	
S	Whether the institute has upgraded its facility with induction of new batches?	7.8	
T	Is there any material change in the institute? If yes, whether prior written permission has been obtained by the institute from DGCA?	12.3	
U	Whether the syllabus for various semesters of the course is as per the prescribed syllabus?	8.8 & Appendix-VI	
V	Whether Certificate of Approval has been displayed at prominent place? Whether a copy of Certificate of Approval is kept in the Training Manual?	11.1	
W	Whether the Institute has a dedicated website in which the information relating to its approval, admission policy, infrastructure available, chargeable fees, course duration, OJT along with various other terms and conditions is being displayed? This website is required to be kept updated	11.5	

	to provide correct information to the students at all times.		
X	Whether the performance of the students in the DGCA Licence examination is satisfactory? *(Performance of students in DGCA Licence examination in consecutive three sessions shall not be less than 10%)*	12.5	
Y	Satisfactory procedure of monitoring the performance of students during OJT and maintenance of Log Books during this period.	4.5.13	
4.	**PERSONNEL REQUIREMENTS:**		
A	The institute shall appoint an Accountable Manager who has corporate authority for ensuring that all training commitments can be financed and carried out as per the standards stipulated in CAR.	4.3.1	
B	Whether the Accountable Manager was absent for more than 60 days? If yes, whether the institute has nominated a new Accountable Manager.	4.3.1.1	
C	Accountable Manager shall nominate Chief Instructor and Deputy Chief Instructor(s) so that both together cover the entire scope of approval of the institute and shall be approved by DGCA. They shall ensure that the training institute is in compliance with the requirements of this CAR.	4.3.2.2	
D	Whether the Chief Instructor was absent for more than 30 days? If yes, whether the institute has nominated new Chief Instructor and the incumbent is approved by the Regional Director of Airworthiness?	4.3.2.3	
E	In case a Chief Instructor wants to leave the institute, a notice of 45 days has to be given to the institute and a copy should be submitted to the Regional /Sub-Regional Airworthiness office.	4.3.2.4	
F	Whether the Chief Instructor ensures the followings in satisfactory manner? (i) Medical Standards of the students; (ii) Possession of Aircraft Manual, CARs and other instructions and amendments thereof by each student; (iii) Adequacy of reference books in the library (iv) Lesson plan (v) Class room notes (vi) Up-keep of log books by individual students & counter sign by Chief Instructor (vii) Preparation of Question Bank, Sanctity of Examination System (viii) Proper attendance of students (ix) Submission of reports on intakes and results of semester examinations to Regional /Sub-Regional Airworthiness Office (x) Maintaining record of each candidate's result of DGCA Licence exam & submitting the same to Regional /Sub-Regional Airworthiness Office (xi) Monitoring the performance of students during OJT & up-keep of log-books by the students during the OJT (xii) Issuance of Course Completion Certificate (xiii) Security clearance of foreign students before admitting them for course	4.5	
G	The training institute shall appoint sufficient number of instructors (subject wise) to plan and perform knowledge (theoretical) training, practical training, and conduct knowledge examination and practical assessment in accordance with the approval of the institute.	4.3.3	
H	The overall ratio of whole-time instructors to students shall not be less than 1:30 per subject. An instructor may teach more than one subject but not	4.4	

<table>
<tr><td></td><td>more than two subjects. In general, a training school requires at least two instructors for each range of subjects to ensure continuity of program in the event one instructor being absent. When circumstances permit the program can be made more interesting by having additional guest lecturers.</td><td></td><td></td></tr>
<tr><td>I</td><td>Whether the institute has employed the following minimum number of instructors per every 30 students?
<table><tr><td>Airframe</td><td>1</td></tr><tr><td>Power Plant</td><td>1</td></tr><tr><td>Materials, Workshop Practices</td><td>1</td></tr><tr><td>Electrical, Instrument & Radio</td><td>1 each</td></tr><tr><td>Computer</td><td>1</td></tr><tr><td>Drawing</td><td>1</td></tr><tr><td>Workshop Demonstrator</td><td>3</td></tr></table>
Note: The institute should upgrade its faculty ratio of whole-time instructors with the number of students and number of batches inducted to maintain the prescribed ratio of 1:30? Please enclose the list of whole time instructors and guest lecturers, subject wise, along with their qualification, instructional and practical experience.</td><td>4.4</td><td></td></tr>
<tr><td>J</td><td>Whether instructors are approved by Chief Instructor?</td><td>4.3.3</td><td></td></tr>
<tr><td>K</td><td>Whether the instructors assigned to teach Rules & Regulations subject have passed Paper-I of AME Licence examination?</td><td>4.3.3.1</td><td></td></tr>
<tr><td>L</td><td>Whether the instructor assigned to teach Human Factors subject has adequate knowledge to teach the subject?</td><td>Appendix-VI</td><td></td></tr>
<tr><td>M</td><td>Whether the instructors assigned to teach Paper-3 have passed Paper-3 of the relevant category of AME Licence examination or have adequate maintenance experience in the relevant category?</td><td>4.3.3.1</td><td></td></tr>
<tr><td>N</td><td>Whether Workshop Demonstrators are available and are having adequate knowledge?</td><td>4.4</td><td></td></tr>
<tr><td colspan="4">5. Training Records</td></tr>
<tr><td>A</td><td>Students Record: Whether files are maintained for each student containing the following records?
(i) The name, address and photograph of the student;
(ii) The batch and the stream in which the student is admitted;
(iii) The commencement and conclusion dates of the course;
(iv) Copies of certificates of the educational qualification and medical record
(v) Attendance records of the students
(vi) Record of all practical tests/ skill tests
(vii) Computer number of the students allotted by CEO
(viii) Semester wise performance and examination records
(ix) A photocopy of the identity card issued to the students by the institute
(x) The duration and details of experience and OJT since induction
(xi) A copy of Course Completion Certificate issued by the institute
(xii) The security clearance of the student, if applicable</td><td>10.1</td><td></td></tr>
<tr><td>B</td><td>The institute shall keep records of training, examination and assessment of the students for at least five years after Course Completion of a particular student.</td><td>10.1</td><td></td></tr>
</table>

C	Institute Records: Check that the following records are maintained for a period of five years after the completion of course: (i) The records of employment of the instructors, subject wise (ii) Question papers and answer sheets of each student, semester wise (iii) List of the computer numbers allotted to the students, batch wise (iv) List of DGCA approved organizations having tie up with the institute to provide OJT (v) List of organizations having tie up with the institute to provide some elements of practical training as permitted by CAR. (vi) Paper wise performance of the students in DGCA Licence examination	10.2	
6.	**SEMESTER EXAMINATION:**		
A	Whether the students are subjected to an examination after completing each semester?	8.1	
B	Whether the attendance of the students is at least 80% of the training period, before they are subjected to the semester examination?	8.1	
C	Whether the semester examinations are conducted after completion of each semester (every six months)?	8.1	
D	Whether the examination papers are set, invigilated and checked by competent examiners designated by the Chief Instructor?	8.2	
E	Whether the examination papers are combination of quiz-type and essay-type questions?	8.3	
F	Whether the students who are successful in the semester examination, issued with mark-sheet? *(NOTE: To be declared successful in the course, the students must obtain a minimum 70% in each paper of the semester examination- Para 8.6)*	8.4	
G	Whether any student has been promoted to next higher semester, who has failed in the previous semester?	8.7	
H	Whether satisfactory procedure exists with respect to the followings: (i) Security of question bank; (ii) Preservation of examination related documents;	4.5.7	
I	Whether the institute awards a certificate to the students who successfully completed the course including OJT?	8.4	
7.	**Continuance of Approval**		
A	The institute shall carry out an internal audit of their facilities and submit a report to local airworthiness office at least two months before the expiry of the approval. The local airworthiness office shall also conduct an inspection of the facilities of the institute to ensure compliance with this CAR before effecting renewal of the approval.	11.4	
B	Prior written permission shall be obtained from the Director General of Civil Aviation in respect of any material changes in the organization.	12.3	
C	Facilities shall be offered to the representatives of DGCA to inspect the institute or attend any course for the purpose of monitoring the standard of training. A minimum of two months prior information shall be given to the Director General of Civil Aviation whenever new courses are started or existing approved courses are modified. DGCA may require any amendment to the content or duration of course.	12.4	

D	The institutes which consistently show results less than 10% in terms of number of candidates passing in the DGCA licence examination, in consecutive three sessions, shall not be allowed to intake fresh batches of students until the percentage of their candidates passing the DGCA licence examination improves. The results of such training schools shall be made public and placed on DGCA website.	12.5	
8.	**FACILITIES & EQUIPMENT REQUIREMENTS:**		
A	**Institute Premises:**		
A.1	Whether the institute has its own premises or premises taken on long term lease *(preferably 5 years)?* Check Sale/Lease Deed for validity and conditions of Sale/Lease agreement.	4.6.1(a)	
A.2	Whether the institute is established in residential area?	4.6.1(a)	
A.3	Whether the institute is established in areas permitted by local administrative authorities? ***(NOTE: For this purpose, NOC from local administration/ authority/ municipality/ Tehsildar is required. Please enclose documentary evidence.)***	4.6.1(a)	
B	**Class Rooms for Theoretical Classes:**		
B.1	Each classroom shall have Standard Presentation Equipment ensuring that each student can easily see and read the text/diagram/drawing from any position in the classroom.	4.6.1(b)	
B.2	Whether the size of the class room is appropriate to accommodate 30 students at a time? ***(NOTE: As a guideline, area of each class room should be at least 33 sq. mtr.)***	4.6.1(c)	
C	**Training Aids:**		
C.1	Whether sufficient training aids, demonstration equipment and study materials are available to facilitate complete comprehension of the instructions given to the students.	4.6.13	
C.2	Availability of OHP & LCD projector in each Class Room?	4.6.12	
D	**Library:**		
D.1	Availability of recommended textbooks, commensurate with the number of students. ***(One set of books per 10 students should be procured by the institute for issue to the students as course text books)***	4.6.11	
D.2	Whether adequate number of suggested books is available?	4.6.11	
D.3	Whether the library is equipped with photo copier and sufficient number of computers with access to internet facility for students?	4.6.11	
E	**Workshops:**		
E.1	Whether well equipped workshop for training of students in General Engineering and Workshop Practices is available?	4.6.1.(e)	

E.2	In addition to the facilities mentioned above, whether separate areas and facilities are available for demonstrating the following activities: (i) Welding (ii) NDT (iii) Sheet metal work (iv) Electrical work (v) Composite material repairs	4.6.1.(e) & Appendix-II	
E.3	Whether workshop in Mechanical Streams commensurate with the scope of approval is available? In addition, facility to impart practical training covering syllabus of General Engineering and Maintenance Practices (Appendix VI) related to Avionics System should also be available.	4.6.1.(f) Appendix-II and III	
E.4	Whether workshop in Avionics Stream commensurate with the scope of approval is available? In addition, facility to impart practical training covering syllabus of General Engineering and Maintenance Practices (Appendix VI) related to Mechanical System should also be available.	4.6.1.(f) Appendix-II and IV	
E.5	Whether the workshop is well equipped for? 1) Availability of sectioned components as required in the subject syllabus. 2) Availability of components in dismantled condition as required in the subject syllabus. 3) Availability of functional diagrams as required in the subject syllabus. 4) Availability of system models as required in the subject syllabus. 5) Availability of test rigs (locally fabricated) hydraulic, brakes, controls surfaces etc. as required in the subject syllabus. 6) Each workshop shall be equipped with tools / equipment used for general engineering and specific work.	4.6.1.(g) Appendix-II/ III/ IV as applicable	
F	**Training Procedures/ Exercises Requirements:**		
F.1	Training in workshop practice should begin with exercises in the use of hand tools to make a series of simple shapes to specified dimensions from various metals. Each shape should be progressively more complicated with more precise tolerances. From the start, instructors should ensure that students develop the habit of handling basic hand or machine tools in the correct manner, and action should be taken to correct any bad or potentially dangerous practices before they become habitual. At all times, and particularly during the early stages of training, the importance of producing accurate and careful work must be stressed. These exercises can be used to develop the trainees' inspection ability, i.e., the necessary judgment and sense of responsibility required to assess the accuracy of their own work and that of others.	4.7.1.1 (a)	
F.2	The students should have the opportunity to remove and replace major components. Practice in inspection functions during simulated repair or maintenance activities is considered an important training element in this phase.	4.7.1.1 (b)	
G	Ensure that the following exercises have been carried out by each student and duly certified by the instructor in student log book and also records are maintained by the institute:		
G.1	Bench fitting, Cutting and filing: Exercises in cutting metal with hacksaws; filing; drilling; drill grinding; thread cutting with taps and dies; and scraping.	4.7.1.2	
G.2	Measurements: use of steel rule, dividers, calipers, micrometers, vernier,	4.7.1.2	

	combination set, surface plate, and dial test indicator		
G.3	Forging, heat treatment, soldering and welding		
	a) Exercises in Forging and hand simple specimens such as chisels, punches and others exercises in Hardening and tempering carbon steel by using forge b) Exercises in Tin soldering, tin-plating, and use of proper flux Silver soldering and brazing c) Exercises in Welding: oxyacetylene and metallic arc welding of different materials Inspection of welded joints for flaws. Note: - Forging and heat treatment can be out sourced/ or by audio visual demonstration.	4.7.1.3	
G.4	Sheet metal work Sheet aluminium alloy: Exercises in cutting, marking out, drilling, forming, bending, bending allowances, shrinking and flashing. Exercises in Forming sheet metal by pressing and rolling. Exercises in Riveting: types of rivets, riveting with hand tools, rivet spacing, countersinking and dimpling, use of pneumatic riveting hammer, blind riveting, inspection of rivets, removal of rivets, use of oversized rivet and rivet jackets. Exercises in Tube work: use of taper pins and tubular rivets. Exercises in sheet metal patching and repair work. Note: - Heat treatment of aluminum alloy and alloy rivets: use of salt baths and furnaces; annealing and solution treatment can be out sourced/ or by audio visual demonstration.	4.7.1.4	
G.5	Machine shop Exercises in Drilling: using machine drills and drill close tolerance holes in various materials; reaming holes to close tolerances; others Turning exercise in turning steel, aluminum alloy and brass parts; use of lathe for thread cutting; others Grinding: use of grinding wheels for tools sharpening	4.7.1.5	
G.6	Wire and cable work Exercises in Inspection of aircraft cables for defects, Splicing exercises Swaging exercises: attachment of standard end fittings to flying control cables. Demonstration of proof test on flying control cable. Tension adjustment on control cables.	4.7.1.6	
G.7	Tube work Exercises in Tube bending, with or without heat treatment; Tube flaring. Fitting of different kinds of unions used in fuel, oil and hydraulic systems. Inspection and testing of tubes and flexible hoses	4.7.1.7	
H	Airframe / Helicopter familiarization: Ensure that the following has been demonstrated to each student and duly certified by the instructor in student log book and also records are maintained by the institute:	4.7.1.8	
H.1	Airframe / Helicopter structures: Detailed examination of various types of wing and fuselage construction, including primary and secondary structures.	4.7.1.8	

	Use of forged, extruded, cast and sheet material. Main joints: methods of riveting, spot welding, and adhesive bonding. Doors and cut-outs, positions of inspection panels, removal of fairings, and methods of gaining access to all parts of structure. Landing gear: examination of system Flight Control Systems: examination of control system; checking of control surface movements and cable tensions; interconnections of autopilot to control systems; examination (by visiting airline, if necessary) of power-operated control systems.		
I	Ground handling of Aeroplane / Helicopter: Pre-flight inspection with aeroplane /helicopter on apron. Starting and running of engines; observation of instrument readings; function check(s) of electrical components and radios; stopping of engines Top Overhaul Exercise of Piston Engines.	4.7.1.9	
J	Compass swinging demonstration and automatic direction finder (ADF) loop swinging Use of ground equipment for moving, lifting or servicing aircraft	4.7.1.10	
K	Installation and testing of equipment: Removal replacement, in situ inspection, and function testing Testing for Pitot, Static leaks. Errors and electrical faults of electrical equipment, instruments, Autopilots, communication and navigation equipment as appropriate.	4.7.1.11	
9.	**Aircraft Requirement: Mechanical Stream (Aeroplane / Helicopter & Power Plant)**		
A	Availability of at least one pressurized aeroplane, fuselage with landing gear and most of the primary instruments and systems functioning.	4.6.4	
B	In case of non availability of aeroplane as mentioned above, alternately, availability of at least one light aeroplane (all metal/ composite) complete with engine in running condition, instruments, landing gear etc. functioning along with detailed mockups of all aircraft systems, preferably replicas of actual aircraft systems. *(The aeroplane is not required to have C of A, but all systems should be in running condition for imparting practical training)*	4.6.4	
C	Availability of at least one helicopter with landing gear and most of the primary instruments and systems functioning.	4.6.5	
D	In case of non availability of helicopter as mentioned above, alternately, availability of at least one light helicopter with engine in running condition with rotors off, instruments, landing gear etc. functioning and detailed mockups of all helicopter systems, For ex. – functioning of swash plate; - collective pitch; - cyclic mixing unit; Preferably replicas of actual helicopter systems are also acceptable. *(The helicopter is not required to have C of A, but all systems should be in running condition for imparting practical training)*	4.6.5	
E	Availability of Hangar/ Adequate Covered Area to park the aircraft/ helicopter for demonstration and for performing practical exercises.	4.6.1 (d)	
F.1	Dismantling of aircraft:	4.7.1.12	

	Exercises in removal of control surfaces, landing gear, wings/rotor blades, tail plane/tail rotor blades and fin, and seats. Note: - Removal and installation of Engine should be once in six months and demonstrated to all students at-least once. Inspection: inspection of condition of fuselage alignment checks, freedom from distortion, and symmetry Checking of wings and other airframe components for condition, and freedom from distortion Reassembly of aircraft/helicopter: replace wings/rotor blades, empennage, control surfaces, and engine; check rigging angles of wings and tail plane; adjust flying controls and check control surface movements; replace landing gear and check alignment track		
F.2	Wheels and tyres: Complete wheel assemblies: dismantling, inspection (including crack detection of wheels) and reassembly Inner tubes: puncture repairs Outer covers: inspection, identification of defects, and spot vulcanizing Brake units: inspection and salvage of brake pads and discs Inspection and testing of anti-skid devices	4.7.1.13	
F.3	Control surfaces: Inspection and repair: Exercises in repairs to metal-skinned ailerons, elevators and/or rotor blades. Hinges and actuating mechanisms: inspection, and renewal of ball races. Correction of mass balance after repair of controls surfaces/rotor blades. Adjustment of balance tabs, and servo-tabs on aircraft (to correct for hinge moments and flying faults).	4.7.1.14	
F.4	Familiarization with maintenance schedule Performance of sequence of major periodic inspection by the students, including signing of check sheets for each job done and recording of and, if possible, rectification of all defects. Functional checks after replacement of components, including ground testing of hydraulic system with retraction of landing gear and function testing of electrical system; ground running of engines; weighing of the aircraft and calculation of centre of gravity.	4.7.1.15	
F.5	Hydraulic systems: Demonstration of hydraulic system rig. Removal and installation of typical components such as hydraulic pumps, regulators, selectors, control valves, accumulators and actuators Removal and examination of control and actuating devices from powered flying control systems. Removal, examination and recharging of selection of landing gear shock struts, nose-wheel steering mechanisms, anti-shimmy devices and other landing gear components.	4.7.2.1	
F.6	Pneumatic systems: Demonstration of pneumatic system rig, examination of typical components such as compressors, regulators, selectors and actuators. Dismantling, reassembly and testing of representative selection of pneumatic components: selectors, thrust reversal rams, and others.	4.7.2.2	
F.7	Environmental control systems: Demonstration of pressurization system models or rigs. Removal and examination of selected components such as cabin superchargers, mass flow controllers, cabin pressure controllers, discharge valves and safety valves. Demonstration and partial dismantling of cabin heating, cooling and	4.7.2.3	

	humidifying devices. Dismantling, reassembly and testing of selected components. Familiarization with the servicing and inspection of various types of pressure and mass flow control devices; heat exchangers, combustion heaters and electrical heaters; cold air units (air cycle machines), vapour cycle coolers, cabin temperature sensing and regulating devices; humidifying and dehumidifying equipment; crew and passenger emergency oxygen equipment.		
F.8	Fire Control systems: Inspection, weighing and recharging of fire extinguisher bottles. Demonstration of fire detection and extinguishing system principles by using simulators, individual components, and operation. Practice in controlling aircraft and shop fires. Familiarization with different types of alarm systems, extinguishers and their uses.	4.7.2.4	
F.9	De-icing systems: Demonstration of rigs and individual de-icing system components. Dismantling, reassembly and testing of air control devices for mechanical de-icing systems; repairs to inflatable leading-edge overshoes/boots. Hot air systems: overhaul procedures for combustion heaters, and hot air control valves. Repair schemes for air-to-air heat exchangers, and mixing valves. Repair schemes for electrically heated overshoe, and spray-mats.	4.7.2.5	
F.10	Miscellaneous systems: Demonstrations and inspection of vacuum systems, water/methanol, drinking and washing water systems. Inspection and tests, as necessary, of fuel system components: cocks, line booster pumps, filters, and refueling valves. Tests and repairs, as necessary, of safety equipment: inspection of dinghies, life jackets, survival kits, safety belts etc.	4.7.2.6	
F.11	Heavy Maintenance Check: Preparation for Heavy Maintenance Check: documentation (task/job cards), logbooks, defect records, modification instructions; emptying and inserting fuel tanks, draining oil and other systems; selection and display of equipment; tools required. Selected major operations: internal inspection of internal tanks; detailed examination of cabin structure followed by pressurization and leak rate test; change of main landing gear. Adherence of aircraft maintenance manual and a typical airline major check schedule for each job. Conclusion of Heavy Maintenance Check: replacement of components, function tests, restoration of internal and external finish, weighing and calculation of centre of gravity, preparation for flight test, and completion of documentation. Release to Service.	4.7.3.1	
F.12	Aircraft repair: Selection of repair scheme: damage to be studied and related to approved repair scheme as shown on manufacturers' drawing or structural repair manual (SRM). Selection of material to be checked for compliance with specification, Embodiment of repairs according to prepared drawings or SRM, Testing to destruction of selected repair specimens to demonstrate strength of repair.	4.7.3.2	

	Experience in workshop processes as applicable to repair and reconditioning of aircraft parts (e.g. enlargement or reduction of dimensions to accept oversized or undersized parts; chemical or electro-chemical treatments for the protection of metals; metal depositing processes; special methods of heat treatment; special methods of welding; advanced metal processing techniques, surface texture measurement). Acceptance tests and final inspection. Completion of documentation.		
F.13	Tools: The recommended facilities, tools and equipment required to accomplish the maintenance skills as described in Para 4.6 are given in appendix "II" Institutes desirous to seek approval in any of the Mechanical stream shall have the following facilities for ENGINE (Piston & Turbine) Shop to accomplish the maintenance skills	4.8	
G	**Maintenance practices for Engine and Propeller**	**4.8.1**	
G.1	Familiarization: - Practical explanation of the mechanical arrangement of the engines available for work and practice (e.g. 2-stroke and 4-stroke spark ignition engines); air cooled and water-cooled piston engines; piston aero Engines Of Various Types; Turbojet, Turbo Shaft, Turbofan And Turboprop aero engines; others	4.8.1.3	
G.2	Initial inspection: - Examination of complete engine and propeller for identification to manufacturers' service publications - Confirmation of external accessories and features - Recognition of visible defects - Ground run of engines (if possible) and recording of performance - Ensured availability of manuals, workshop tools and equipment - Identification of safety precautions to be observed	4.8.1.4	
G.3	Dismantling: - Removal of accessories as appropriate (i.e. starters, generators and electrical equipment, pressure transmitters, transducers, thermocouples, magnetos, carburetors and spark plugs) - Dismantling of core engine to a specified level according to manufacturers' service publications. - Complete dismantling of smaller engines; removal of all accessories, manifolds, cylinders, pistons, connecting rods, crankshaft and bearings; cleaning and laying out of these components for inspection. - Partial dismantling of larger engines; removal of accessories, reduction gear, cylinders, and pistons (without disturbing crankshaft or crankcase. - Partial dismantling of gas turbines: removal of accessories, jet pipe assembly, and combustion chambers (without disturbing turbine / compressor assembly).	4.8.1.5	
G.4	Inspection of dismantled engine: - Visual inspection in accordance to manufacturer's service publications. - Dimensional checks in accordance with procedures given in manufacturers' manuals for deterioration in accordance to manufacturer's service publications on blades, vanes, shafts, bearings, and connecting rods for wear, ovality, twist and distortion. - Checking of cylinder valves, pistons and piston rings as directed in overhaul manual: checking of fits and clearances; practice on repair schemes, as applicable.	4.8.1.6	

	- Non-destructive crack detection: electromagnetic, dye-penetrate, etc. on crankshafts and camshafts. - Checking for cracks and distortion on exhaust manifolds, jet pipes, and combustion chamber flame tubes. - Inspection of gas turbine and turbo-supercharger compressor and turbine assemblies; inspection of blades for deposits, damage and distortion.		
G.5	Repair and reconditioning of engine parts: - Repairs by machining and grinding; checks for fits and clearances; fitting of oversized and undersized parts. - Castings: checks and rectification and cracks, porosity and corrosion. - Rigid and flexible pipes and hoses: testing and reconditioning. - Inspection and repair of gears, accessory drives, and torque mature components. - Welding repairs to nickel alloy components. (e.g. jet pipes)	4.8.1.7	
G.6	Reassembly: - Rebuilding of totally or partially dismantled engines (with particular attention to be paid to cleanliness, correct torquing and safety, correctness of working clearances, and accuracy of valve and ignition timing).	4.8.1.8	
G.7	Engine test bed running and fault finding: - Installation of engine on test bed, checking of instrumentation, control runs, and fuel supplies. - Fan testing of piston engines; calibration of test fan for test site, and engine type. - Full “after overhaul” test programme as specified in the manufacturer’s approved test schedule, using a method appropriate to the type of engine: initial test, strip inspection, reassembly and final test. - Interpretation of engine performance based on test results. - Experience in starting, running and ground testing of aero engines. - Inspection of power plant installed in aircraft. - Fault finding and rectification.	4.8.1.9	
G.8	Aircraft installation: - Preparation of powerplant for installation in aircraft: functional checks on controls and interconnections. - Flow tests of fuel system. - Checks on pyrometer and on fire warning system. - Checks on engine bearers and alignment, Slinging and installation of power plant. - Ground running tests after installation.	4.8.1.10	
G.9	Storage and transit of engines: - Protection against corrosion. - Engine stands, crating, lifting and tie-down points, Storage bags/covers and use of desiccant. - Preparation of engines for running after long-term storage.	4.8.1.11	
G.10	Propeller maintenance tasks: - Practice in removal and replacement of propellers on engine propeller shaft. - Dismantling and inspection of typical variable pitch propeller. - Checking of blades and blade root bearings for damage and permissible repairs. - Reassembly, resetting of blade angles, Blade torque loadings, static	4.8.1.12	

	balance of propeller, and inspection.		
H	**Engine Components Testing**		
H.1	Components : Ignition - Dismantling, reassembly and testing of various kinds of magnetos and distributors. - Renewal of cables in an ignition harness. - Continuity and insulation tests. - Cleaning and testing of spark plugs. - Inspection and testing of igniter equipment and turbine engines. - Safety precautions associated with ignition equipment.	4.8.2.1	
H.2	Components: Fuel and control: - Float and injection carburetors: partial dismantling and inspection; reassembly and flow tests; others. - Propeller control devices, governors and feathering pumps: partial dismantling, reassembly and bench tests. - Fuel pumps, oil pumps, oil coolers, gearboxes, flow, pressure and other tests as specified in manufacturer's manuals. - Gas turbine fuel system components: pumps, pressure and flow control units, metering devices, automatic valves, and burners; partial dismantling to view and understand mechanism; reassembly testing; others.	4.8.2.2	
I	**Documentation and Control Practices**		
I.1	Heavy maintenance check or overhaul of engine/propeller: - Preparation for Heavy Maintenance Check: documentation (task/job cards), logbooks, defect records, modification instructions; draining oil and other systems; selection and display of equipment; tools required. - Selected major operations (e.g. turbine blade inspection either by dismantling or by optical probe techniques) - Adherence to the aircraft maintenance manual and to a typical airline check or overhaul schedule for each job. - Conclusion of Heavy Maintenance Check or overhaul: replacement of components, function test, restoration of internal and external finish, preparation for engine run, and completion of documentation.	4.8.3.1	
I.2	Engine/propeller repair: - Selection of repair scheme : damage to be studied and related to approved repair scheme as show on manufacturers' drawings or repair manual, Selection of material to be checked for compliance with specification. - Embodiment of repairs according to prepared drawings or repair manual. - Testing to destruction of selected repair specimens to demonstrate strength of repair - Experience in workshop processes as applicable to repair and reconditioning of aircraft parts (e.g. enlargement or reduction of dimensions to accept oversized or undersized parts; chemical or electrochemical treatments for the protection of metals; metal depositing process; special methods of heat treatment; special methods of welding; advanced metal processing techniques; surface texture measurement). - Acceptance tests and final inspection engine run; Completion of documentation.	4.8.3.2	
I.3	The recommended facilities, tools and equipment required to accomplish the maintenance skills as described in Para 4.8 are given in appendix "III"	4.9	
10.	**Aircraft Requirement : Avionics Stream**		

A	Availability of one pressurized aeroplane or IFR certified helicopter adequately fitted with avionics, complete with engine running, landing gear and most of the primary instruments and systems functioning.	4.6.7	
B	In case non-availability of aeroplane/ helicopter as mentioned above then alternately Availability of detailed mockups of all the aircraft avionics systems For ex. –actual working of autopilot and interfacing of the associated instruments/ system, - Simulation of instruments reading etc.	4.6.7	
C	Institutes desirous to seek approval in Avionics stream shall have the following facilities for Avionics (Electrical, Instrument, Radio) Shop to accomplish the maintenance skills	4.10	
11.	**Maintenance Skills for Electrical**		
A	Lead acid batteries: - Checking of battery condition, adjustment of specific gravity of electrolyte, battery charging practice; capacity, discharge and insulation test; others - Overhaul procedures, including leak test of cells and cell replacement, Safety precautions	4.10.1	
B	Nickel cadmium batteries: - Checking of battery condition: determining state of charge, cell balancing, charging, etc. - Checking of electrolyte level and insulation tests. - Safety precautions. - Cell replacement. - Deep cycling of nickel cadmium units.	4.10.2	
C	Wire and cable work: - Making up of wire lengths and specimen cable looms: soldering and crimping ends, identification of cables, using routing charts, and fitting plugs and sockets. - Cable tracing practice: continuity and insulation checks on cable runs. - Practice in aircraft wiring as carried out during modification or repair work: full tests of circuit.	4.10.3	
D	Bonding, continuity and insulation testing: - Bonding checks: use of bonding tester. - Continuity and insulation tests on aircraft circuit; use of Megger testers. - Mill volt drop checks at cable joints and terminal ends.	4.10.4	
E	Generators and electric motors: - Dismantling, examination and reassembly - Demonstration of generator test	4.10.5	
F	Voltage regulators, cut-outs and relays: - Partial dismantling, followed by examination and reassembly, of carbon pile and other types of voltage regulators - Dismantling, examination and reassembly of accumulator cut-	4.10.6	

	outs,reverse current relays, solenoids and relays from various circuits, and thermal circuit breakers		
G	Generators and alternators: - Strip inspection: undercutting of commutators, checks for brush wear, brush spring loading and brush bedding - Testing of generator elements: armature testing, continuity tests on field coils, armature shaft alignment, and wear of ball races and housings - Reassembly and insulation test of generator - Testing of generators and alternators on test rig - Voltage regulators: overhaul procedure, correction of basic setting and adjustments making - Adjustment and rig testing of cut-outs and relays - Current balancing adjustments of DC power circuits on simulator of multi-engine aircraft electrical system - Electromagnetic relays: inspection and polishing of contacts, setting and adjustment, and mill volt drop tests on test rig - Constant speed drivers (CSD): removal from alternator and testing - Integrated drive generator (IDG): dismantling, inspection, and overhaul	4.10.7	
H	Electric motors: - Starters motors for piston and turbine aero engines: dismantling, examination for condition and wear, check for brush gear and commutator, check of clutches and geared drives; - Dismantling, inspection, reassembly and test of motors for fuel line pumps, hydraulics, propeller feathering, and windscreen wipers - Linear and rotary actuators; dismantling, reassembly, and bench Testing	4.10.8	
I	Inverters and converters: - Rotary inverters and converters: dismantling and check for brushes and commutators, cleaning and testing of armature, and reassembly and adjustment - Testing: checking for inputs and output voltages; adjustment of frequency control - Static inverters and converters: inspection, adjustment and testing of output voltage and frequency	4.10.9	
J	Equipment: - Magnetos: overhaul and test procedure for high and low tension systems - Spark/igniter plug testing, ignition lead testing and inspection, and booster coil testing - Engine high-energy ignition units: overhaul and test procedure - Safety precautions	4.10.10	
K	Electrical circuit equipment - Examination and partial overhaul of a wide range of miscellaneous electrical components such as transducers, magnetic amplifiers, rectifiers, transformers, Wheatstone bridge and other balancing devices, and sensing elements	4.10.11	

	- Adherence of all testing in accordance with manufacturers' instructions - Dismantling (as appropriate), examination and reassembly of electrical components, including converters, inverters, switchgears, heating units, and actuators		
12.	**Maintenance Skills for Instruments**	**4.11**	
A	Pressure indication: - Mechanically-operated gauges (e.g. Bourdontube gauges): partial dismantling, examination, strip inspection, reassembly and calibration with ideal weight tester - Pressure transducers, electrically-operated transmitters, ratio metres, etc.: strip inspection, reassembly and calibration - Electrically-operated gauges: strip inspection, reassembly and Calibration	4.11.1	
B	Flight instruments: - Calibration checks of flight instruments - Pitot heads and static vents: maintenance checks - Altimeters: dismantling, inspection, reassembly and calibration checks - Air speed indicators (ASI): dismantling, inspection reassembly and calibration checks - Machmeters: dismantling, inspection, reassembly and calibration checks - Rate-of-climb indicators: dismantling, inspection, reassembly and calibration checks.	4.11.2	
C	Gyroscopic instruments: - Air-driven gyroscopic instruments: partial dismantling, examination and reassembly - Electrically-driven gyroscopic instruments: partial dismantling, examination and reassembly - Artificial horizon: dismantling, inspection and reassembly - Directional gyro: dismantling, inspection and reassembly - Turn and bank indicator: dismantling, inspection and reassembly - Calibration checks on gyroscope test turntable	4.11.3	
D	Engine speed indication (ESI): - ESI generators (DC and AC types): partial dismantling, inspection and reassembly - ESI gauges: partial dismantling, inspection and reassembly - Engine speed synchronizing gear: examination and demonstration and principles - Generators and gauges: dismantling, inspection, reassembly and calibration checks	4.11.4	
E	Thermometers and temperature indication: - Engine temperature thermocouples: demonstration of cylinder head, jet-pipe temperature and other types - Radiometer temperature gauges: partial dismantling, examination and reassembly of transmitter and indicator units. - Dismantling, reassembly and testing of temperature, and measuring instruments of various kinds	4.11.5	

	- Tests on various kinds of temperature sensing units (e.g. fire and overheating detectors, cabin air-duct stats, and inching controls for cooler shutters) - Use of portable test kits for checking gas turbine powerplant thermocouple installations		
F	Fuel contents indication: - Float-operated design contents gauges : examination and demonstration of operation dismantling, inspection, reassembly and test - Capacitance type contents gauges: examination and demonstration of operation reassembly and test. - Flow meters: dismantling, inspection, reassembly and test.	4.11.6	
G	Compass systems: - Magnetic compasses: friction and damping tests, practice compass swing, and compensation. - Remote compass: examination and demonstration. - Tests of compass swinging site. - Swing of compass in available aircraft: compensation practice. - Remote compass: partial dismantling, inspection, reassembly and test.	4.11.7	
H	Miscellaneous instruments: - Examination and demonstration of other types of instruments (flow meters, navigation and landing aid presentations).	4.11.8	
I	Autopilots - Examination and demonstration of autopilot mock-up and components	4.12.1	
J	Flight control systems - Autopilots (electrical or electronic): dismantling, examination of components, reassembly, and installation in aircraft or on simulator by following manufacturer's test programme; practice with portable test kit. - Autopilots (pneumatic or hydraulic actuation): dismantling of component parts, reassembly, installation in aircraft or simulator, and function tests. - Examination and testing of elements of flight director systems, automatic flare and automatic landing systems, as required.	4.12.2	
13.	**Maintenance Skills for Radio**		
A	Radio workshop: Fundamental techniques - Safety precautions associated with radio equipment hazards: high voltages, radio frequency (RF) emissions and microwave emissions, electrostatic discharge, etc. - Wiring and cabling: demonstration and practice in wiring and soldering radio circuits. - Multimeters, Megger and bonding testers: demonstrations and practice. - Identification and inspection of antenna: external wire aerials, blade, rod and rail aerials, D/F loops, and suppressed aerials; viewing on aircraft, and inspection for physical condition.	4.13.1	

	- Aerial masts, static dischargers, etc.: inspection and servicing. - Chassis: sheet metalwork using drawings. - Simple receiver assembly kit: study of circuit, demonstration of assembly, operation and testing. - Measurements and experiments with circuit demonstration units simulating the following system elements; • TRF receiver • Intermediate frequency amplifier • Frequency converter • Superheterodyne alignment • Buffer-doubler amplifier • RF amplifier • Modulation • Transmission lines • Reactance tube modulators • Interference (filtering and shielding) - Troubleshooting practice		
B	Demonstration of test procedures on airborne equipment: - Identification: identity and location of principal types of airborne communication and navigation equipment: racking systems, power supplies, antennae and other interconnections. - Demonstrations of bench tests on sample equipment, including use of screened rooms.	4.13.2	
C	Wiring, cabling and soldering techniques: - Wiring: practice in stripping insulation; splicing; wiring to lugs; terminals and tube sockets; and dismantling, soldering and reassembly of connectors. - Cables: lacing of wires to form a cable, termination and soldering of cable ends, and serving of coaxial cables. - Soldering: practice with different sizes of soldering irons, different grades of solder, fluxes and types of connectors. - Microminiature precision soldering techniques. - Handling of electrostatic sensitive devices.	4.13.3	
D	Instrumentation: - Multimeter: practice in measuring and calculating series and parallel resistance; voltage and current measurements on various circuits; others. - Megger: continuity and insulation tests on aircraft cable assemblies structure; practice with circuit boards; others. - Simple valve voltmeter. - Frequency metres, absorption and beterodyne: practice in frequency measurement. - “Q” metres: practice in measuring L, R, C and Q - Signal generators: demonstration of cathode ray oscilloscope; demonstration of use of examine wave-forms, wave envelopes, and DC measurements.	4.13.4	
E	Antennae: - External wire aerials: splicing, tensioning and making connections - Static dischargers: inspection servicing and renewal procedures - Fiberglass and resin laminate aerial masts: maintenance and	4.13.5	

	repair of dielectric covers. - DF loops: inspection, routine maintenance, ground calibration, and preparation of correction chart. - Reflectors and directors: care and maintenance.		
14.	**Repair, Maintenance and Function Testing Of Aircraft Systems/Component: Avionics**		
	Airborne and test equipment practice: - Use of representative airborne radio and radar equipment and practice in servicing, installation and overhaul according to procedures laid down in the manufacturers' approved manuals. - Removal and replacement of equipment from aircraft racks, checks on power supplies, and remote controls. - Routine maintenance inspections of equipment in situ. - Operational checks. - Bench tests, measurement of performance characteristics, tuning adjusting, fault finding, aligning and repairing. - Understanding and use of remote specialist communications, navigation and radio test equipment for both ramp and workshop. - Understanding and use of system built-in test equipment (BITE), including comprehension of output data. - Power supplies, installation and wiring, signal tracing and use of cathode ray oscilloscope (CRO). - Audio amplifier, installation and wiring, fault tracing and rectification.	4.14.1	
15.	**On-Job-Practical Training:**		
A	**Institutes not having pressurized Aeroplane / Helicopter, complete with engines running**		
A.1	Whether the OJT arrangement is documented in the Training Manual?	4.6.8 & 4.6.9	
A.2	Whether proper arrangement exists for OJT with approved Aircraft Maintenance Organizations (AMO) for practical demonstration of maintenance of complete aircraft/ engines/ relevant systems?	4.6.8 & 4.6.9	
A.3	Whether the practical training experience is as per the requirements given in Appendix-V of the CAR?	4.6.8 & 4.6.9 and Appendix-V	
B	**Institutes having its own aeroplane complete with engine in running condition**		
B.1	Whether the OJT arrangement is documented in the Training Manual?	4.6.8	
B.2	Whether AMM is available for the particular type of aircraft for carrying out inspection schedules?	4.6.9.1	
B.3	Whether it is practicable to carry out maintenance schedules as per AMM by the students?	4.6.9.1	
B.4	Whether trained person (s) is available to ground run and demonstrate the systems of the aeroplane to the students. *(NOTE: Such persons may not be licenced AMEs or factory trained, but should be fully aware of the ground run-up, maintenance and repair*	4.6.9.1	

	procedures to be followed on the aeroplane)		
B.5	Whether the practical training experience as mention in B.1/2/3 is as per the requirements given in Appendix-V of the CAR?	4.6.9.1	

NOTE: Abbreviation used in the Observation Column:

1. Sat : Satisfactory 2. Unsat : Unsatisfactory 3. N/A : Not Applicable

Following observations have been made during the audit:

SNo	CAR Para No	Observation

_____

Signature of Officer
Name:
Designation:
Date:

_____

Signature of Officer
Name:
Designation:
Date:

Appendix-II

PRACTICAL MAINTANCE SKILLS: AIRFRAME --- FACILITIES, TOOLS AND EQUIPMENT
METALWORK AND SHEET METAL WORK WITH HAND TOOLS

S/N	Items	Observation (Sat/ Unsat/ N/Av)
1.	For basic skills training, the training workshop should be equipped with sturdy benches mounted with vices at approximately 2-m intervals, one vice per student. Other items required include: a) powered grinding wheel for tool sharpening b) powered drilling machine c) large surface table for precision marking–off d) Compressor air supply suitable for use with pneumatic hand tools e) Powered hacksaw for cutting stock material f) Sheet metal guillotine g) Chalkboard / whiteboard for workshop instruction and work schedule	
2.	For airframe/helicopter skills training, the workshop should ideally include the following: a) A complete pressurized aircraft of all-metal construction with retractable landing gear, complete with engines in running order, and suitable for practicing repair and inspection duties b) Hydraulic lifting jacks, trestles, fuselage cradles, lifting slings, cables and steering bars, dihedral and incidence boards, and work and tools suitable for aircraft types provided c) Desk for manuals and notices d) Display board for inspection worksheets e) Ground electrical power trolley f) Apron–type fire extinguisher trolley g) Hangar access equipment such as benches, trestles, ladders, chocks. h) Mobile lifting equipment, i.e. small crane or overhead gantry i) Spray guns for aircraft paint and dope j) Oil and fuel replenishing browsers k) Cable swaging machine l) Mobile hydraulic test trolley m) Landing gear oleo cylinders and retraction jacks, and wheel and brake units n) Hydraulic pumps (both fixed and variables delivery) o) Flying control surface hydraulic actuators p) Flap / slat drive motors gearboxes and screw jacks q) Airflow control valves and actuators. r) Air cycle machines (cold air units) s) Flying control pulley, lever assemblies, tensioners and spring tab units t)Seat and safety equipment	

3.	**Personal tool kit.** Students should have their own tools and a toolbox. This may be issued on a shop basis, i.e. a kit issued in the basic metalwork shop and be retained by the shop when the students progress to the next phase, or students may be issued, and retain on a permanent basis, a personal basic kit which is their own property until completion of their training. Some schools may require students to purchase their own tools their kit becoming more complete as their training advance. The following items are suggested for basic metalwork. **a) Measuring and marking-off tools** -30-cm steel rule graduated in fractions of inches and millimeters -Outside and inside calipers -Try square -Set of feeler gauges -15-cm dividers -Scriber **b) Fitter's tools** -Round-nose and side-cutter pliers -15-cm long screwdriver -Hacksaw -Selection of files of different sections, lengths and cuts -Hand drill and a set of small diameter drills -Set of center and pin punches -Ball-pen and cross pane hammers -20-cm flat chisel and a set of small chisels (including flat , cross cut and round nose) - plastic or hide- faced hammer -sheet metal snips -various sizes and types of screw drivers -set of double ended , open ended and ring spanners of appropriate range in sizes and appropriate type (American, BSF, Unified , or Metric) to suit available airframes -set of sockets wrenches with handles and accessories to suit available airframes	

METALWORK WITH MACHINE TOOLS

S/N	Items	Observation (Sat/ Unsat/ N/Av)
	Workshop equipment: It is not important for AMEs to acquire a high degree of skill as machine tool craftsman but they should understand the principles of turning, screw cutting etc. For this reason, it is generally sufficient to have one or two center lathes while a capstan or turret lathe is not essential. A small machine shop can be incorporated in the basic metal workshop or can be housed separately, according to the premises available. It is suggested that machine tools provided should generally be the simple, robust types suitable for training and might include the following. : a) Sensitive drill machines b) Surface grinding machine c) Buffing machine d) Center lathe e) Horizontal milling machine *Trainees will not normally need any specific personal tool kit. Other items may be included to suit local needs.*	

AIRFRAME/ HELICOPTER FAMILIARISATION WORKSHOP

S/N	Items	Observation (Sat/ Unsat/ N/Av)
1.	Shop equipment in the airframe workshop is determined according to the requirements of the technicians undergoing training. In general, it is desirable that the licensed AME students should have the opportunity to remove and replace major components. Practice in inspection functions during simulated repair or maintenance activities is considered an important training element in this phase. The requirements for the training of licensed AME are as follows: a) Ideally, a complete aircraft of all metal construction with retractable landing gear, complete with engine in running order. b) Alternately an all metal fuselage, wings and control surfaces of stressed skin type suitable for practicing repairs and inspection duties. c) Hydraulic lifting jacks, trestles, fuselage cradles, lifting slings, cables and steering bars, dihedral and incidence boards and tools suitable for aircraft types provided. d) Desks for manuals and notices. e) Display boards for inspection worksheets. f) Ground electrical power trolley. g) Apron type fire extinguisher trolley. h) Hangar access equipment such as benches, trestles, ladders, chocks etc. i) Mobile lifting equipment i.e., small crane or overhaul gantry. j) Spray gun for aircraft paint and dope. k) Oil and fuel replenishing bowsers.	

	l) Cable swaging machine. m) Mobile hydraulic test trolley. n) Test boards designed to represent sections of typical aircraft cables, air and fluid systems. These should be complete with rigging instructions so that student's errors are known upon completion of training.	

SPECIALIST ACTIVITIES: WOOD AND FABRIC, WELDING, AND COMPOSITES

Equipment in the training areas for these specialist activities depends on the training requirements

S/N	Items	Observation (Sat/ Unsat/ N/Av)
1.	The purpose of a short course on welding is to impart enough knowledge of welding techniques to enable students to assess the airworthiness of welded joints and structures. It is not intended to produce skilled welders. The welding shop must be chosen and equipped to comply with the safety regulations for oxyacetylene and other types of welding. Metal–screened working bays with metal work benches should be built according to the number of work stations required Welding equipment might include the following: a) Set of oxyacetylene welding equipment b) Electric or arc welder c) Electric TIG or MIG welder d) Eye face shield, goggles, leather gloves and aprons e) Electrodes, welding rods and welding fluxes f) Electric resistance welder for spot welding (may be stored in sheet metal shop)	

FIBERGLASS AND REINFORCED PLASTIC WORKSHOP

S/N	Items	Observation (Sat/ Unsat/ N/Av)
1.	As far as space, a dust free, humidity controlled atmosphere, lighting and doors are concerned the workshop should follow the general pattern of the fabric shop. Fire proof storage facilities for highly inflammable and corrosive resins and activators are also required. The correct type of extinguishers must be available. The following tools should be provided for the fiberglass and reinforced plastic workshop a) Laying up tables b) brushes and spatulas c) Scissors and cutters d) Sanders e) Measuring Cup f) Heat lamp g) Pots and trays	

Appendix-III

FOR ENGINE SKILL TRAINING, THE WORKSHOP SHOULD IDEALLY THE FOLLOWING:

S/N	Items	Observation (Sat/ Unsat/ N/Av)
1.	Sectioned engines (piston or turbine, according to the needs of the com	
2.	Solvent washing plant for cleaning parts	
3.	Mobile lifting gantry for hoisting engines and heavy equipment.	
4.	Engine slings and work stands for each type of engine in the shop	
5.	Manufacturer's tool kits for each type of engine (including extractors, assembly jigs, etc.) used for the complete dismantling of engines.	
6.	Electromagnetic (magnetic particle) crack detection equipment.	
7.	Medium-sized surface table with vee-blocks detection Equipment.	
8.	Propeller assembly bench with tools for measuring blade torque.	
9.	Propeller manufacturer's tool kit for each type of propeller used.	
10.	Example of contemporary propeller controllers.	
11.	Example of various types of magnetos.	
12.	Example of various high-energy and other types of gas turbine igniter.	
13.	Example of various types of carburetor and petrol Injection equipment	
14.	Example of turbocharger.	

ENGINE FAMILIARIZATION WORKSHOP

S/N	Items	Observation (Sat/ Unsat/ N/Av)
1.	The supply or provision of engines in the airframe workshop is determined according to the requirements of the technicians undergoing training (e.g. piston or turbine engines). In general it is desirable that licensed Aircraft Maintenance (Technician/Engineer/Mechanic) (AME) students should have the opportunity to remove and replace major components. Practice in inspection functions during simulated repair or maintenance activities is considered an important training element in this phase. The requirements for the training of licensed AMEs are as follows; a) A complete piston engine and a turbine engine. b) Engine test bed or airframe on which the engine can be operated. c) Mobile lifting equipment (i.e., a small crane or over-head gantry lifting slings) and tools suitable for engine types provided. d) Desk for manuals and notices. e) Display board for inspection work sheets. f) Access and storage equipment such as benches, trestles, shelves, etc. g) Oil and fuel replenishing bowsers. h) Test board designed to represent sections of typical aircraft/engine cable, air and fluid system. These should be complete with rigging instructions so that student errors are detected immediately.	

Appendix-IV

Avionics Workshop: Electrical

S/N	Items	Observation (Sat/ Unsat/ N/Av)
1.	Availability of following Shop Equipment: (a) Demonstration mockups representing typical aircraft circuits; (b) Adequate benches, racks, shelves and storage bins (c) Electrical power points; (d) Piped compressed air to operate powered hand tools; (e) Factory safety precautions with fire warnings and extinguishing provisions; (f) Benches with smooth topped and have sufficient vices and power points (for soldering irons) to suit the class size planned.	
2.	Workshop test units for testing electrical machines (universal types are available for testing a wide variety of generators and motors)	
3.	Appropriate special tools and test meters (necessary because of the considerable range and variety of electrical equipment on the modern aircraft)	
4.	Battery charging plant, preferably housed in a separate, well ventilated charging room. For lead acid batteries, the charging plant should be of the series type suitable for charging several batteries at different rates. *For charging lead acid and nickel cadmium batteries, a separate and totally isolated charging rooms and equipments will be required for each type. For nickel cadmium batteries, a constant current charger and battery analyzer must be specified*	
5.	**Personal tool kit**: Students should have their own tools and tool box. The following items are required for basic electrical work: a) one electric 5-mm point temperature controlled soldering iron (soldering copper) b) one wire stripper for removing insulation c) a selection of small screw drivers (including a Phillips) d) one adjustable hook wrench (18 to 50 mm) e) one set of Allen Keys	
6.	The exercises with components should be designed to develop skills in dismantling, inspection, decision making and assembly. The following types of components should be available and used as appropriate according to the potential need of the trainees:	
	a) Lengths of the aircraft cabling with typical plugs , sockets , bulk head sealing bungs, grommets etc., for practicing wire work and making up looms	
	b) A selection of switches, fuses, thermal circuit breakers, wire connecting devices, junction boxes and other electrical system elements	
	c) Specimens of airborne batteries (both lead acid and nickel cadmium): sectioned, serviceable and chargeable.	
	d) DC generators and AC alternators (constant speed drives)	

	e) Voltage regulators, generator control units (GCU) and other types of current limiting devices (i e., vibrator types and variable resistance types)	
	f) Various types of DC and AC motors, including engine starters, continuously rated motors, rotary and linear actuators.	
	g) Static and rotary inverters and specimens of other types of current conversion devices, such as transformer current rectifier units (TRUs)	
	h) Specimens of various types of airborne electrical instruments, including instruments embodying principles of the voltmeter, ammeter, ohmmeter, Wheatstone bridge, thermocouple, ratio meter, servos and synchros etc.	
	i) Specimens of aircraft electrical heating devices, such as pitot heads, thermal deicing shoes etc.	
	j) Specimens of aircraft lighting appliances, such as cabin fluorescent lamps, landing lamps, navigation lights etc.	

Avionics Workshop: Instrument

S/N	Items	Observation (Sat/ Unsat/ N/Av)
1.	The shop should be a "clean area" i.e., it should be protected from dust, workshop fumes and industrial contaminants. Ideally, a separate building or room with filtered ventilation is desirable and in a very humid climates air-conditioning is essential. Benches should be topped with smooth hard wood or covered with a Formica top. If air conditioning is not installed, it may be necessary to provide sealed cabinets with silica gel (for air drying) for storage of some of the test equipments and instrument specimens.	
2.	The instrument shop should be equipped with demonstration mock-ups representing typical aircraft circuits. If made realistically, these can be of value for practicing adjustments and troubleshooting as well as for demonstration. Benches should be smooth topped and have sufficient vices and power points (for soldering irons) to suit the class size planned. The following major equipment items should also be available: (a) Dead weight tester for pressure gauges. (b) Altimeter test chamber with sub standard instrument. (c) Mock-up air speed indicator (ASI) system for leak test practice. (d) Gyroscopic instrument test table. (e) Mock up for compass swinging practice (i.e., an old aircraft or a specially made trolley which can be used on an outdoor site selected as compass base	

	(f) Bridge Megger for insulation testing of electrical items.	
3.	The personal basic tool kits of students should be supplemented by the following items a) one set of watch makers screw drivers b) one set of miniature spanners c) one set of Allen keys (appropriate sized) d) one set of Bristol spline keys e) one electric temperature controlled soldering iron with fine point (similar to that issued in electrical shop)	
4.	The exercises with components should be designed to develop skill in dismantling, inspection, decision making and assembly. The following types of components should be available and used as appropriate according to the potential need of the trainees: a) Boost or manifold pressure gauge b) Hydraulic pressure gauge c) Engine oil pressure gauge (Bourdon tube type) d) Engine oil pressure gauge (electrical type) e) ASI f) Pitot static head g) Altimeter (simple and sensitive type) h) Rate of climb indicator i) Turn and slip indicator (air driven and electrical type) j) Directional gyroscope (air driven and electrical type) k) Artificial horizon (air driven and electrical type) l) Engine speed indicator (DC and AC types) m) Oil thermometer (physical and electrical type) n) Cylinder head or jet pipe thermo couple o) Fuel content gauge (float operated and capacitance type) p) Magnetic compass q) Simple type autopilot	

Avionics Workshop: Autopilot, Navigation & Radio

S/N	Items	Observation (Sat/ Unsat/ N/Av)
1.	The shop should be a “clean area” i.e., it should be protected from dust, workshop fumes and industrial contaminants. The shop could be combined with the instrument shop. Ideally, a separate building or room with filtered ventilation is desirable and in a very humid climates air-conditioning is essential. Benches should be topped with smooth hard wood or covered with a Formica top. If air conditioning is not installed, it may be necessary to provide sealed cabinets with silica gel (for air drying) for storage of some of the test equipments and instrument specimens.	

2.	The following test equipments items should also be available: a)Variable stabilized power supply unit b)Signal generator (high grade) c)Signal generator for bench d)Signal generator(UHF/ VHF) e) Audio frequency oscillators f) Spectrum analyzer g) Cathode ray oscilloscope h) Frequency meters i) Moving coil , volt-ohm-milliammeter and multi meters j) Variac k) Digital analyzer ----N/A l) IC/ Microprocessors m) Digital voltmeter/ ohmmeter/ammeter n) Logic probe o) RLC bridge p) Voltage standing wave meters q) Absorption and thermocouple watt meter---N/A	
3.	The work shop should be equipped with demonstration mock-ups representing typical aircraft circuits. The following equipment may be of value for practicing adjustments and troubleshooting as well as for demonstration. a) High frequency transmitter receiver (HF) b) Very High frequency transmitter receiver (VHF) c) automatic direction finder system d) Very High frequency omni directional radio range / instrument landing system (VOR/ILS) system (including glide scope and marker receivers) e) Distance measuring equipment system f) Air traffic control transponder system (including altitude reporting mode) g) Radio altimeter h) Weather radar i) DVOR j) Navigation indicators capable of presenting combined navigation information, typically a radio magnetic indicator (RMI) and horizontal situation indicator (HSI) wired for both compass and various radio navigation inputs. k) Instrument systems with electronic amplifiers (e.g. capacitance type fuel content gauges, cabin temperature controllers, and automatic pilots)	
4.	The radio section of the work shop needs a screened room or “cage” to prevent undue radiation from equipment undergoing testing and to provide an interference free region for fine measurement. Although it is desirable to have this room adjoining radio work shop, they should not be close to the sources of interference, such as an electric overhaul shop or spark plug testing equipment. As a further safeguard against interference all power supplies to the radio work shop should be filtered and outgoing interference should be suppressed by adequate	

	screening of aerial cables and artificial aerials. Alternatively, if a screened room is un-available, for certain types of equipments, it is possible to use a field simulator specified by the manufacturer. (A metal box in which the respective antenna is placed to eliminate unwanted radiations and interference). The following power supply will be required: a) AC main supply for lighting, heating, air conditioning, mains rectifiers, test instruments, soldering irons etc., (This will be at the standard voltage of the locality and the supply should be wired throughout in screened conduit) b) 30-volt DC supply, surge free and of adequate capacity for the size of the workshop. (A ring main supply from lead acid or alkaline cells, ripple free and filtered is suitable or a main rectifier /regulator can be used) c) 15-volt DC supply, also surge free d) 115–volt, 400 cycles, single phase, AC supply (This should be frequency monitored and can be taken from a static inverter) e) 115–volt, 400 cycles, three phase AC supply, frequency monitored and wired to the working benches by screened cable f) 26-volt, 400 cycles, single phase, AC supply taken from 115-volt AC supply through a transformer or from the 26-volt AC output from the static inverter g) Compressed air and vacuum supplies	
5.	The personal basic tool kits of students should be same as specified for instrument workshop but may be supplemented to suit local needs.	
6.	The exercises with components and system demonstration rigs should be designed with a view to developing skills in inspection fault finding and decision making.	

Appendix-V

Applied on the Job Practical Training: Experience (OJT)

1. Introduction :

- Experience of this course takes the form of a series of supervised abilities by applying the knowledge, skill and attitude learned so far. The exercises should consist of simulated (or real , if fully supervised) maintenance tasks based on actual sample maintenance programme extracts as well as on compliance with regulations , operator or approved maintenance organisation (AMO) procedures and amendments. If this phase of the training can be on the job at an operator or AMO, then this part of the curriculum should be omitted at the training school. Instead it can be given at the organisation where the trainees can receive the required practical trainee under the guidance and supervision of an Aircraft Maintenance Engineer (AME) instructor. In the later case ,however it will expedite the trainee's training if , in addition to "real" maintenance exercises , hypothetical situations are set up as practical exercises when time allows

- The simulated or assumed operating conditions for each exercise must be clearly specified by the instructor. The exercises should be made as realistic as possible .Past maintenance records etc. can be used (e.g. case studies) and answers arrived at by the trainees should be compared to what actually took place. A group discussions after each exercise will be beneficial in eliminating possible misconceptions

- The OJT should be divided into Line and Base modules

TRAINING OBJECTIVES

Conditions:

- The trainee will be provided with appropriate hangar or workshop facilities; tools (both hand and machine); materials; an aircraft or components as applicable; aircraft maintenance manuals; AMO tasks or job cards and procedure documents.

- Performance : The trainee will practice removal , replacement , dismantling , inspection , decision making regarding repair or replacement, re assembly and function testing of fault finding equipment , using both engineering drawings as well as manufacturers' maintenance , overhaul and repair tests(real or simulated)

- Standard of accomplishment: During this experience phase of training, the standard is a function of the variety of exercises completed and the time spent in work shop training. The trainee / students may work individually or in team on the exercises so that they have "ownership "of the standard. If necessary, they should practice and repeat increasingly complex exercises to develop greater skills within their respective area of competence. Finally, they should function test the units or systems either on a test bed or on the aircraft it self

APPLIED PRACTICAL LINE MAINTENANCE OPERATION: AIRFRAMR/ENGINE / AVIONICS

• The required materials and publications include the following : a) Extract from the approved maintenance programme b) Appropriate aircraft ,engine or part there of c) Aircraft maintenance manual (AMM) d) Operators' minimum equipment list (MEL) e) Operators maintenance control manual f) AMO tasks or job cards g) Operator's technical log h) Associated technical tools or test equipment	• Operating conditions defined by the instructor should include not to be limited to the following: a) Simulated aircraft departure time b) Simulated aircraft maintenance state and age c) Availability of spare parts d) Availability of role play flight crew for questioning e) Statement if a defect is found, trainee must make decision to repair, replace or defer f) Recording of work in accordance with AMO and operator manuals and with DGCA regulations g) Simulated conditions of the maintenance facility
• Exercises should be designed to give trainees practices in the following a) Manual and diagnostic skills b) Compilation of necessary additional work or job cards c) Understanding of flight crew entries in the technical logs d) Verbal briefing and de-briefing of flight crew e) Correct use of manuals such as the AMM or MEL f) Making of accurate and complete entries in the technical logs, work or job cards.	

Note: Proposed manual has been submitted for approval on 15/09/2009.

APPLIED PRACTICAL BASE MAINTENANCE OPERATION: AIRFRAME/ ENGINE / AVIONICS

• Operating conditions defined by the instructor should include but not be limited to the following: a. Simulated stage of aircraft check completion b. Simulated aircraft maintenance state and age c. Availability of spare parts and materials d. Availability of role play maintenance personnel for questioning e. Statement if a defect is found, trainee must make decision to repair, replace or defer f. Recording of work in accordance with AMO and operator manuals and with DGCA regulations g. Simulated conditions of the maintenance facility	• Exercises should be designed to give trainees practices in the following: a. Manual and inspection skills b. Assessment of damage, corrosion etc c. Determination of appropriate repair /rectification action d. Compilation of necessary additional work or job cards e. Verbal briefing and de briefing of maintenance personnel f. Correct use of manuals such as AMM or structural repair manuals (SRM) g. Making of accurate and complete entries in the work or job cards

Appendix-VIII

MINIMUM RECOMMENDED TEXT BOOKS
AIRCRAFT MAINTENANCE ENGINEERING TRAINING INSTITUTE

The following books prescribed by Central Examination Organization of DGCA should be available with the institute library:

Paper	Title of Book
Paper I	Aircraft Manual Civil Aviation Requirements (Section 2- Airworthiness)
	Aeronautical Information Circulars (relating to Airworthiness)
	Airworthiness Advisory Circulars
	Aircraft Maintenance Engineers' Notices
Paper II	Civil Aircraft Inspection Procedures (CAP 459-Part I, Basic)
	Airframe & Powerplant Mechanics (General Handbook EA-AC 65-9A)
	Shop Theory by James Anderson Earl E. Tatro
	Training Manual General Section Book 1 thru 7 by Dale Crane.
	Aircraft Materials & Processes by Titterton
	Machine Drawing by AC Parkinsons
	Advanced Composites (EA-358) by Cindy Foreman
	Digital Fundamentals by Malvino and Leech
	Standard Aviation Maintenance Hand book EA-282-0
	Standard Aircraft Handbook (5th Edition) -Larry Reithmaier
PAPER III Airframe (LA)	Airframe and Powerplant Mechanics (AC 65-1 5A)
	Airframe Hand Book Aircraft Materials and Processes- by George F.Titterton.
	Mechanics of Flight By -A.C.Kermode
	Civil Aircraft Inspection Procedure (CAP 459) Part II
	Aircraft Aircraft Maintenance and Repair (6th Edi) -By Kroes, Watkin and Delp Acceptable Methods, Techniques and practices (FAA)-EA-AC 43.13-1 A&2A
	Aircraft Construction Repair and Inspection-by Joe Christ
	Light Aircraft Mai ntenance-byJ . E. Heywoo
	Light Aircraft Inspection-by J.E.Heywood
	Aircraft Electrical Systems-by E. H.J.Pallet
	Aircraft Instruments-by E.H.J.Pallet
	Automatic Flight Controls-by E.H.J. Pallet
	Advanced Composites (EA-358) -by Cindy Foreman
	Airframe and Powerplant Mechanics-(EA-AC 65-9A)-General Hand Book
PAPER III Airframe : (RA)	The helicopter and How to Fly-by John Fay basic helicopter maintenance-by Joseph Schafer (Order No.EA-HF-2) IAP inc.
	Basic Helicopter Hand Book-by FAA EA AC 61-1 3B
	Helicopter Aerodynamics-by R.W.Prouty
	Aircraft Materials and Processes --by George F. Titterton
	Advanced Composites(EA-358)-by Cindy Foreman
	Civil Aircraft Inspection Procedure (CAP 459) Part II Aircraft.
	Rotary Wing Aerodynamics-by W.Z.Stepniewski (Dover Publication Inc)
	Basic Helicopter Aerodynamics-by J.Seddon (BSP Professional Books)
	Aircraft Electrical System-by E.H.J.Pallett
	Aircraft Instruments-by E.H.J.Pallett
	Automatic Flight Control-by E. H.J.Pallett
PAPER III Airframe :	Airframe and Powerplant Mechanics(AC 65-1 5A)
	Airframe Hand Book Civil Aircraft Inspection Procedure (CAP 459) Part II
	Aircraft Advanced Composites (EA-358)-By Cindy Foreman

(HA)	Any Books of Manuals covering all basic systems of Modern Heavy Transport Airplane
	Aircraft Repair Manual (FAA-AC-43.13)- By Larry Reithmaier
	Aerodynamics-By Clancey
	Aircraft Construction Repair and Inspection -By Joe Christy
	Practical Aircraft Electronics System- by Albert Helfrick
	Aircraft Materials and Processes-by George F.Titterton
	Mechanics of Flight-by A.C.Kermode
	M. GUILLON:Hydaulic Servo Systems', McGraw- Hill co., New York
	Aircraft Instruments-by E.H.J.Pallett
PAPER III Power Plant : (PE)	Airframe and Powerplant Mechanics (EA-AC 65-12A) -Power Plant Hand Book
	Power Plant-By Bent and Mckinley
	Civil Aircraft Inspection Procedure (CAP 459) Part II Aircraft
	Aircraft Propeller and Controls-by Frank Delp
	A&P Tecnicians Powerplant Text book- (EA-ITP-P)
	Aircraft Piston Engines-By Herschel Smith
	Airframe and Power Plant mechanics-General Hand Book (EA-AC65-9A)
PAPER III Power Plant : (JE)	IRWINE TREAGER: 'Aircraft Gas Turbine Tecnology McGraw-Hill Book Company. R
	ROLLS ROYCE LIMITED:The Jet Engine' Product Support (Graphics)Limited Derby, England.
	UNITED TECHINOLOGIES P&W OPER/INSR 200(Latest Edition): The Aircraft Gas Turbine Engine and Its Operation 'United Aircraft Corporation.
	Any Books or Manual covering all basic systems of Modern Jet Engine
	JACK V. CASAMASSA and RALPH D.BENT:'Jet Aircraftpower Systems'
	McGrawhill Co.. TRANING NOTES: 'Gas Turbine Engines' Turbomeca, Bordes, France.
	DALE CRANE and NEAR CARLSON : 'Encyclopaedia for Aviation ecnologies' Distributor -The English Book Store, Connaught Circus New Delhi
	M.GUILLON: 'Hydaulic Servo Systems', McGraw-Hill co., New York
	JOHN ANDERSON: 'Introduction to Flight', McGraw-Hill Co., New York
	Civil Aviation Authority: 'Civil Aircraft Inspection Procedure (CAP459) Part-II
	M .J.KROES, T.W.Wild, R.D. Bent and J.L.McKINLEY; 'Aircraft Power Plants' McGraw-Hill co., New York.
	FRANK DELP : 'Aircraft Propellers and Controls' Distributor-The English Book Store Cannought Circus, New Delhi
	E.MANGHAM, A.PEACE : 'Jet Engine Manual', Distributor-The English Book Store,Cannought Circus, New Delhi
PAPER III (ES)	Electrical Technology-by B. L.Theraja
	Aircraft Electrical System-by E . H .J . Pallett
	Basic Electronics-Bemard Grob
	Digital Computer Fundamentals-by Malvino Micro Electronics Aircraft System- by E.H.J.Pallett
	Basic Electricity-by Dale Crane
	Aviation Electronics Vol.I(Every Pilot Guide to Aviation Electronics-by John M.Ferrara -Air and Space Company)
	Principles of Servo mechanism-by A Typers & R.B.Miles
	Aircraft Electricity and electronics-by Bent Mekinley and also by Eismin/ Bent Mekinley (M.C.Graw Hill Publication)
	Civil Aircraft Inspection Procedure-Part II
	Integrated Electronics-Millman and Halkias
PAPER III (IS)	Aircraft Instruments-by E.H.J.Pallett
	Automatic Flight Control-by E.H.J.Pallett
	Digital Principles and Applications-by Malvino and Leech
	Basic Electronic -by Bemard Grob
	Aircraft Instruments-by C.A.Williams
	Integrated Electronic-Millman and Halkias

	Aircraft Engineers hand Book No. 4 instruments - by R.W.Sloley and W.H.Coulthard
	Civil Aircraft Inspection Procedure-Part II
	Electrical Technology-by B. L.Theraja
	The Mechanism of Inertial Position and Heading Indication by Winston Merkey John Hovorka
	Principles of Servomechanism-by A Typers and R.B.Miles
	Aircraft Oxygen System (AMP Technical Publications)- by Robert Scheppler and Dale Crane
PAPER III (RN)	Aircraft Radio System-by J.Powell
	Electronic Communication System by George Kennedy
	Integrated Electronics-Millman and Halkias
	Digital Fundamentals-By Malvino and Leech
	Avionics System-by Donald & Middleton
	Manual of Avionics -by Brian Kendal
	Microelectronics in Aircraft Systems- by E.H.J.Pallett
	Communication Engineering-by Anner
	Basic Radio Vol.1 to 4-by M.Trepper
	Aviation electronics- by Keith W.Bose
	Aircraft-Electricity and Electronics (5th Edition)-by Thomas K.Eismin
	Communication Principles Vol.I-Ashok Raj.

Audit Checklist
Approved AME Training Institute
Mechanical (Aeroplane / Helicopter & Power Plant) / Avionics Stream

Requirements for Instructors

[CAR Series E Part-VIII Para 4.2.2]

S No	Name of Instructor	Qualification	Experience		Subject allotted for Teaching	
			Practical	Industrial	Sub. 1	Sub. 2

Minimum Qualification & Experience Requirements

	Qualification	Experience
Chief Instructor	Basic Licence in a category related to the scope of the approval. An AME licence is desirable; **OR** Degree in Engineering or equivalent qualification in the field of Aeronautical/ Mechanical/ Electrical/ Electronics/ Instruments engineering and has passed Paper-1 of AME licence examination.	For Basic licence holders, **five years** practical experience in aviation industry out of which a minimum **two years** in the field of instruction. For Engineering graduates, **two years** practical experience in aviation industry out of which a minimum **one year** in the field of instruction.
Instructors	Degree in Engineering in Aeronautical/ Mechanical/ Electrical/ Electronics/ Instruments engineering **OR** Diploma in any of the above discipline; **OR** Bachelor of Science with Physics, Chemistry and Mathematics/ Bachelor of Science (Electronics); **OR** Basic licence in any category.	One year practical/ instructional experience in aviation industry for holders of Engineering degree or BAMEL and Three years practical/ instructional experience in aviation industry for others.

Note:

1. Experienced persons already functioning as Chief Instructor/ Dy. Chief Instructor may continue to exercise the privileges of their approval.
2. Chief Instructor and Deputy Chief Instructor (s) should together cover the entire scope of approval.