

Civil Aviation Training Institute

Hyderabad – Pakistan

HANDBOOK OF COURSES



LIST OF COURSES

SCHOOL OF AIR TRAFFIC SERVICES AND COMMUNICATION OPERATIONS

Course title	Duration (in weeks)
--------------	------------------------

Air Traffic Services Courses

Basic Air Traffic Control	40
Air Traffic Control Assistant	16
Non-Radar Approach Control	12
Radar Approach / Area Control	12
Non-Radar Area Control	12
OJT Techniques for Air Traffic controller (STP)	04

Communication Operations Courses

Communication Operation Officers	28
Aeronautical Communication Services Supervisor	12
Aeronautical Mobile Service Operation	16
Aeronautical Fixed Services Operator	20
AFTN/AMSS Orientation	02

SCHOOL OF ELECTRONICS ENGINEERING

Course title	Duration (in weeks)
--------------	------------------------

Basic and Refresher Courses

Airport Electronics Engineering	48
Aeronautical Radio Maintenance	48
Solid State Device and Application	07
Single Side Band Maintenance	07
Digital Techniques	04
Digital Techniques and Microprocessor	12
Radar principles	08

Digital Voice Logging System	02
------------------------------	----

Air Navigational Aid Maintenance Courses

I.L.S. Maintenance	08
C.V.O.R (WILCOX, 585-B) Maintenance	04
D.M.E. (WILCOX, 596-B) Maintenance	04
D.V.O.R. (Thomson CSF-512D) Maintenance	04
D.M.E. (Thomson CSF-721) Maintenance	04
Non-Directional Beacon	02

Radar Maintenance Courses

Primary Surveillance Radar Maintenance	08
Secondary Surveillance Radar Maintenance	07
Radar data processing and display maintenance	06

Regional Courses

Advanced Microprocessor technology	06
Test Equipment Selection, Application & Calibration	06
Maintenance of Aviation Security Systems	08

Computer Courses

Microsoft Office 2000	04
Computer Application in Airport management	04

SCHOOL OF AVIATION MANAGEMENT, RESCUE & FIRE FIGHTING SERVICES

Course title	Duration (in weeks)
Senior Airport Management	06
Junior Airport management	06
Management of Small & Feeder Service Airport	04
Aviation Management (STP)	06
Facilitation/Vigilance (for Officers)	04
Facilitation/Vigilance (for Staff)	03
Junior Fire Officer	05

Senior Aerodrome Fire Fighter	05
Aerodrome Fire Fighter	02
Fire Investigation	02
Fire Prevention	03
Breathing Apparatus	02
Marshaller	08
 Instructor Development Program (STP)	 04

SCHOOL OF ELECTROMECHANICAL ENGINEERING

Course title	Duration (in weeks)
Basic Electrical Courses	
Electrical Maintenance Technicians	26
Regional Courses	
Airport Lighting Maintenance (STP)	04
Aerodrome Power Supply Maintenance	04
Cable Fault Analysis and Repair Techniques	04
Mechanical Courses	
Diesel Plant Maintenance Mechanics	26
Diesel Fuel Pumps and Injectors Testing and Calibration	12
Special Purpose Vehicle Maintenance	12
HVAC Courses	
Environment System & Control	06
Air Conditioning / Refrigeration Maintenance Mechanics	26
Air Conditioning & Refrigeration Review Maintenance	08

BASIC AIR TRAFFIC CONTROL COURSE (ICAO NO.052/053/055)

OBJECTIVE:

To provide knowledge, skills and techniques preparing the participants to a standard from where they can take up duties of Air Traffic Controller after successful completion of OJT.

ELIGIBILITY:

- Fluent in English
- Science graduate (Physics, Mathematics) or H.S.C (Physics / Mathematics) with at least 3 years of sound progressive experience in a responsible position in technical/professional field related to Aviation.

DURATION: 40 WEEKS

SUBJECTS:

- Air Law
- Aerodromes and Aerodrome Control
- Air Traffic Services
- Meteorology
- Search and Rescue
- Aeronautical Information Service
- Flight Navigation
- Radio Aids to Air Navigation
- Communication Procedures
- Approach Control/Area Control practices and procedures
- Practical (Simulator Training)
- Aerodrome Control Service
- Approach Control Service
- Area Control Service
- Flight Information/Advisory Service
- FANS (Future Air Navigation System)
- Aerodrome Certification

**AIR TRAFFIC CONTROL ASSISTANTS COURSE
(ICAO NO.051)**

OBJECTIVE:

To provide elementary knowledge, skills and techniques required to perform ATC Assistant duties in various disciplines of Air Traffic Services.

ELIGIBILITY:

- Good Working knowledge of English
- Educational background must be HSC Science (Physics and Mathematics) or equivalent.

DURATION: 16 WEEKS

SUBJECTS:

- Air Law
- ATS Standards
- Search and Rescue
- Aerodromes and Aerodrome Control Service
- ATS Geography
- Aeronautical Information Service
- Air Navigation
- Meteorology
- Altimeter Setting Procedures
- Flight Information Service and Alerting Service
- Radio Aids to Air Navigation
- Communications
- Practical including Aerodrome Control Service

APPROACH CONTROL (NON RADAR) COURSE (ICAO NO.053)

OBJECTIVE:

To provide knowledge, skills and techniques required for Air Traffic Controller in accordance with ICAO standards to prepare participants to take up duties in the field of non radar approach control, after successful completion of OJT.

ELIGIBILITY:

- Possession of Air Traffic Controller license issued by the appropriate authority or
- Have demonstrated to the appropriate authority that he/she meets the authority's requirement for the issue of an Air Traffic Controller license.

DURATION: 12 WEEKS

SUBJECTS:

- Provision of ATS
- ATS Geography
- Meteorology (Revision)
- Approach Control Service
- Altimetry/Emergency Procedures
- Holding, Approach to Land Procedures
- Aeronautical Mobile/Fixed Service
- Practical (Approach Control Service)

**RADAR APPROACH /AREA CONTROL COURSE
(ICAO NO.054/056)**

OBJECTIVE:

To provide knowledge, skill and techniques required for Air Traffic Controller in accordance with ICAO standards to prepare participants to take up duties in the field of radar approach/ area control, after successful completion of OJT.

ELIGIBILITY:

- Possession of Non-Radar Approach and Area Control Rating with minimum 3 years experience

DURATION: 12 WEEKS

SUBJECTS:

- Surveillance Radar (Technical)
- Surveillance Radar (Operations)
- Practical (Simulator Training)

NON-RADAR AREA CONTROL COURSE (ICAO NO.055)

OBJECTIVE:

To provide knowledge skills and techniques required for Air Traffic Controller in accordance with ICAO standards to prepare participants to take up duties in the field of non radar area control, after successful completion of OJT.

ELIGIBILITY:

- Possession of Air Traffic Controller license issued by the appropriate authority or
- Have demonstrated to the appropriate authority that he/she meets the Authority's requirement for the issue of an Air Traffic Controller license.

DURATION: 12 WEEKS

SUBJECTS:

- FIR / Division of Airspace
- ATS Geography
- Flight Data Processing
- Provision of ATS
- Separation Standards
- Altimeter Setting Procedures
- Minimum Useable Levels
- Air Traffic Advisory Service
- Aeronautical Mobile Service
- Communication Failure Procedures
- Meteorology (Revision)
- Coordination Procedures
- Practical (Area Control Service)

ON-THE-JOB TRAINING TECHNIQUES FOR AIR TRAFFIC CONTROLLERS COURSE (STP)

OBJECTIVE:

To provide knowledge, skills and techniques to plan and conduct on the job training, evaluate trainee's progress and analyze training record.

ELIGIBILITY:

- In service Air Traffic Controller with minimum 3 years service holding valid rating of the concerned unit.

DURATION: 04 WEEKS

SUBJECTS:

- Plan OJT
- Conduct OJT
- Evaluate trainees progress
- Analyze complete training record.

COMMUNICATION OPERATION OFFICERS COURSE (ICAO NO.178)

OBJECTIVE:

To provide skill, knowledge and techniques to prepare the participants for junior level supervision duties in an international Communication Centre, of the AFTN and / or Aeronautical mobile station in the MWARA/RADAR section.

ELIGIBILITY:

- University Graduate preferably in Science subjects.
- Good working knowledge of English.

DURATION: 28 WEEKS

SUBJECTS:

- AIS, Operational Supervision
- Letter, Report Writing Manpower Planning Human Relation
- AFTN – AMSS Theory of Flight Navigation, ATS Geography
- Communication Procedures for Aeronautical Fixed, Mobile, Broadcasting and Radio Navigation Services
- Fundamentals of Computer Hardware and Programming
- Elementary knowledge of ATS, Met, Air Law, Radio Nav. Aids
- Tele Typing and Telephony

AERONAUTICAL COMMUNICATION SERVICE SUPERVISORS COURSE (ICAO NO.176)

OBJECTIVE:

To provide skill, knowledge and techniques to prepare the participants to a standard where they will be able to take up duties of first level supervisor in Aeronautical telecommunication service centre.

ELIGIBILITY:

- Educational background must be H.S.C Science or equivalent.
- Good working knowledge of English

DURATION: 12 WEEKS

SUBJECTS:

- Telecommunication Network Planning
- Aeronautical Fixed Service
- Aeronautical Mobile Service
- Aeronautical Radio Navigation Service
- Aeronautical Broadcasting Service
- Introduction to Computers
- Operational Supervision
- AIS, Human Relation, Frequency management, Manpower Planning
- Practical
- Meteorological Instruments

AERONAUTICAL MOBILE SERVICE OPERATORS COURSE (ICAO NO.171)

OBJECTIVE:

To provide skill, knowledge and technique to prepare the participants in practices and procedures of radio telephone to a standard from where they can perform the duties of Aeronautical mobile service operator.

ELIGIBILITY:

- Good working knowledge of English

DURATION: 16 WEEKS

SUBJECTS:

- Air law.
- ATS-AIS-SAR.
- Teletype Procedures
- Theory of Flight
- Rules of the Air
- Communication Procedures (Mobile Service)
- Flight Navigation
- Radio Navigation Aids

AERONAUTICAL FIXED SERVICE OPERATORS COURSE (ICAO NO.172)

OBJECTIVE:

To provide skill, knowledge and techniques to ACS personnel to a standard from where they will be able to apply aeronautical fixed service practices and procedures in handling of AFTN messages.

ELIGIBILITY:

- Good working knowledge of English

DURATION: 20 WEEKS

SUBJECTS:

- Air Law
- ATS
- Meteorology
- AIS
- Aeronautical Telecommunications
- Telephony Operation
- Teletyping
- Telegraphy Operation
- Practical Communication

AUTOMATIC FIXED TELECOMMUNICATION NETWORK/AUTOMATIC MESSAGE SWITCHING SYSTEM (AFTN/AMSS) ORIENTATION (ICAO NO.172)

OBJECTIVE:

To impart fundamental knowledge of AMSS and Com-Ops procedures and to provide hands on practice to the course participants for operation of AFTN/AMSS terminal.

ELIGIBILITY:

- Must be working as Communication Supervisor (or equivalent position) in Civil Aviation Authority /Organization
- Good working knowledge of English

DURATION: 3 WEEKS

SUBJECTS:

- Computer awareness
- AMSS (General)
- AMSS (Ferranti)
- AFTN message format
- Computer operation
- AMSS remote terminal operation

AIRPORT ELECTRONICS ENGINEERING COURSE (ICAO NO.163)

OBJECTIVE:

To provide the participants knowledge and skills to guide and supervise installation, operation and maintenance of Aeronautical Electronic equipment.

ELIGIBILITY:

- Electronics Engineering graduates or senior technicians having qualified Aeronautical Radio Maintenance or equivalent and possess 5 years working on electronics systems and equipments.

DURATION: 48 WEEKS (32 weeks basic plus 4 optional modules, each of 4 weeks duration)

SUBJECTS:

- Solid State Electronics
- Single Side Band system
- Principles of Communication & Radio Waves propagation
- Oscillators
- Principles of Navigational Aids
- Transmitter and Receiver Concepts
- Radio Electronics practical

OPTIONAL MODULES:

- Computer Technology
- Long Range VHF Communication
- Digital electronics
- A.F./R.F Amplifier
- Modulation and De-Modulation Techniques
- Power Supplies
- Transmission line and Antennae
- Test and Measuring Equipment
- Radio Equipment Practical
- Primary & Secondary Radars
- AFTN Messages Switching systems

AERONAUTICAL RADIO MAINTENANCE COURSE (IACO No. 161)

OBJECTIVE:

To provide concepts of Electrical Technology and thorough study of Radio Communication and Navigational Aid equipment commonly used in Civil Aviation to enable Radio Technicians to carry out routine, preventive maintenance and first line corrective maintenance under supervision of qualified Electronics Engineer.

ELIGIBILITY:

- H.S.C. Science or equivalent having aptitude in Electronics.
- Good command to write and speak English language.

DURATION: 48 WEEKS

SUBJECTS:

- Technical Mathematics
- Transmission lines and Antennae
- Test and Measuring Equipment
- A. C. Principles
- Electron Tubes
- Workshop Practice
- Communication Store, procedures
- ICAO Functions and responsibilities
- Digital Electronics
- Power Supplies and Oscillators
- Transmitter and Receiver Circuits
- Principles of Navigational Aids
- Physics
- Principles of Communication & Propagation of Radio Waves
- D.C. Principles
- Technical Drawing
- Communication Operation Procedures
- Administration
- Solid State Device
- A.F./R.F Amplifier
- Modulation and Demodulation Techniques
- Single Side Band Operation

SOLID STATE DEVICES AND APPLICATION COURSE (ICAO NO.162)

OBJECTIVE:

To provide knowledge of characteristics and function of solid state devices and their applications in maintenance and up-keep of electronic equipments.

ELIGIBILITY:

- H.S.C Science having aptitude to understand electronics concepts.
- Good command to write and speak English language.

DURATION: 7 WEEKS

SUBJECTS:

- PN Junction
- Unijunction Transistors
- Thyristors
- Voltage regulators
- Transistor Oscillators
- ICS and their Applications
- Junction Transistor and applications
- Field Effect Transistors
- Coupled amplifiers
- Power Amplifiers
- Multivibrators

SINGLE SIDE BAND MAINTENANCE COURSE (ICAO NO.163)

OBJECTIVE:

To provide knowledge of the Single Side Band Communication Principles used for transmission and reception of radio signals so as the trainee is able to maintain and upkeep ISB and DSB techniques based systems.

ELIGIBILITY:

- Applicants must have successfully completed communication equipment maintenance course from any recognized institute or
- Electronics professional with minimum two years practical experience in maintenance work.
- Good command to write and speak English language.

DURATION: 7 WEEKS

SUBJECTS:

- Introduction of SSB Communication
- Amplitude Modulation
- Elements of SSB Operation
- Types of SSB Operation
- Analysis of SSB Signals
- Distortion in Transmitters
- Linear Power amplifiers
- Filters for SSB Operation
- SSB Receivers and Converters
- SSB Communication Systems
- Measurements

**DIGITAL TECHNIQUES COURSE
(ICAO NO.169)**

OBJECTIVE:

To provide knowledge and techniques applied in the advanced electronics digital circuits by providing theoretical and practical training.

ELIGIBILITY:

- Must have completed a course or training in communication maintenance or electronics/electrical engineering.
- Possess adequate knowledge of Semiconductors and Transistors.
- Practical experience in maintenance of electronics equipments.
- Good command to write and speak English language.

DURATION: 4 WEEKS

SUBJECTS:

- Introduction to Digital Techniques
- Boolean Algebra
- Minimization of Switching Networks
- Combinational Logic Circuits
- Flip-Flops.
- Sequential Logic Circuits, Counters and Registers
- Digital Integrated Circuit
- Applications

DIGITAL TECHNIQUES AND MICROPROCESSOR COURSE (ICAO NO.169)

OBJECTIVE:

To provide knowledge of fabrication, design and development of digital devices, circuits and microprocessor based systems.

ELIGIBILITY:

- Completed a course or training in Communication Maintenance or Electronics / Electrical Engineering.
- Possess adequate knowledge of Semiconductors and Transistors
- Practical experience in maintenance of electronics equipment
- Good command to write and speak English language.

DURATION: 12 WEEKS

SUBJECTS:

- Introduction and Orientation
- Number system and codes
- Logic circuits
- Flip-flops
- Digital electronics
- Boolean algebra
- Combinational Logic Circuits
- Sequential Logic Circuits, Counters and Registers
- Digital circuits Applications
- Introduction to Microprocessor
- Microprocessor Architecture
- Application of Microprocessor
- Assembly Language Programming

**RADAR PRINCIPLES COURSE
(IACO No. 165)**

OBJECTIVE:

To provide knowledge of basic principles of operation of primary and secondary radar systems including processing and representation of radar data.

ELIGIBILITY:

- Graduate Electronics Engineers and Electronics Technicians with Five years practical experience in aviation electronics.
- Thorough knowledge of electronics covering solid state devices, digital techniques and microprocessors.
- Good command to write and speak English language.

DURATION: 8 WEEKS

SUBJECTS:

- Electronic components and microwave devices used in radar
- Primary radar
- Secondary radar
- Processing, transmission and display of radar data
- Automated radar in air traffic control systems

DIGITAL VOICE LOGGING SYSTEM (DVLS) OPERATION AND MAINTENANCE COURSE

OBJECTIVE:

To enable trainees

- to understand working principle of Digital Voice Logging System (DVLS) installed at various locations of CAA;
- to operate DVLS Model “**DC Voice Master**” to its optimum performance;
- to evaluate the performance of system by analyzing different aural and visual indications and software checks;
- to diagnose the causes of any abnormal behavior of the system and rectify the same by replacing modules/units or by modifying software parameters in a minimum time; and
- to create archives and store data for longer period.

ELIGIBILITY:

- Electronic Engineering Personnel (PG-04 to PG-06) having successfully completed the course in “**Digital Techniques and Microprocessors**”.
- Good practical experience in the maintenance of electronics equipment.
- Have a good command of English language, both written and spoken.
- Basic computer literacy is mandatory.

DURATION: 12 WEEKS

SUBJECTS:

- Introduction and Orientation
- Number system and codes
- Logic circuits
- Flip-flops
- Digital electronics
- Boolean algebra
- Combinational Logic Circuits
- Sequential Logic Circuits, Counters and Registers
- Digital circuits Applications
- Introduction to Microprocessor
- Microprocessor Architecture
- Application of Microprocessor
- Assembly Language Programming

I.L.S MAINTENANCE COURSE (ICAO NO.164)

OBJECTIVE:

To provide knowledge and skills to operate and maintain Instruments Landing System within the prescribed tolerances.

ELIGIBILITY:

- Successful completion of basic course in electronics (ARM or AEE level)
- Successful completion of Transistor and Solid State Applications Course with minimum 5 years practical experience in Aviation Electronics involving Solid State and Digital Devices.
- Good command to write and speak English language.

DURATION: 8 WEEKS

SUBJECTS:

- Introduction and Orientation
- I.L.S. Principles
- Localizer Equipment
- Glide Slope Equipment preventive maintenance procedures
- Flight Inspection
- Trouble Shooting Techniques

**C.V.O.R (WILCOX,585-B) MAINTENANCE COURSE
(ICAO NO.164)**

OBJECTIVE:

To provide knowledge and skills to operate and maintain a conventional VOR Navigation System within the prescribed tolerances.

ELIGIBILITY:

- Successful completion of basic course in electronics (ARM or AEE level) or
- Successful completion of Transistor and Solid State Applications Course with minimum 5 years practical experience in Aviation Electronics involving Solid State Devices.
- Good command to write and speak English language.

DURATION: 4 WEEKS

SUBJECTS:

- Orientation
- Introduction to CVOR Wilcox 585-B
- Wilcox, 585-B VOR Sub Systems
- Monitor System
- Trouble Shooting Techniques
- Ground Check, Flight Check and Error Analysis
- Preventive Maintenance Procedures

**D.M.E (WILCOX, 596-B) MAINTENANCE COURSE
(ICAO NO.164)**

OBJECTIVE:

To provide knowledge and skills to operate and maintain a Distance Measuring Equipment System within the prescribed tolerances.

ELIGIBILITY:

- Successful completion of basic course in electronics (ARM or AEE level) or
- Successful completion of Transistor and Solid State Applications Course with minimum 5 years practical experience in Aviation Electronics involving Solid State and Digital Devices.
- Good command to write and speak English language.

DURATION: 4 WEEKS

SUBJECTS:

- Orientation
- Introduction to D.M.E Wilcox-596-B
- DME Transponder
- DME Monitor System
- Control and Transfer system
- Power Supply and adjustment procedures
- Tuning and adjustment procedures
- Troubleshooting Techniques
- Preventive Maintenance Procedures

**D.V.O.R. (THOMSON CSF 512-D) MAINTENANCE COURSE
(ICAO NO.164)**

OBJECTIVE:

To provide knowledge and skills to operate and maintain a Doppler VOR Navigation System within the prescribed tolerances.

ELIGIBILITY:

- Successful completion of basic course in electronics (ARM or AEE level) or
- Successful completion of Transistor and Solid State Applications Course with minimum 5 years practical experience in Aviation Electronics in handling Solid State and Digital Devices.
- Good command to write and speak English language.

DURATION: 4 WEEKS

SUBJECTS:

- Orientation
- Introduction to DVOR Thomson CSF-512D
- CSF Thomson 512-D Sub-System
- Monitor System
- Ground Check, Flight Check and Error Analysis
- Tuning and adjustment Procedures
- Trouble Shooting Techniques
- Preventive Maintenance Procedures

**D.M.E. (THOMSON CSF721) MAINTENANCE COURSE
(ICAO NO.164)**

OBJECTIVE:

To provide knowledge and skills to operate and maintain a Distance Measuring Equipment System within the prescribed tolerances.

ELIGIBILITY:

- Successful completion of basic course in electronics (ARM or AEE level) or
- Successful completion of Transistor and Solid State Applications Course with minimum 5 years practical experience in Aviation Electronics involving Solid State & Digital Devices.
- Good command to write and speak English language.

DURATION: 4 WEEKS

SUBJECTS:

- Orientation
- Introduction to DME CSF Thomson 721
- DME Transponder
- DME Monitor
- Control and Transfer System
- Power Supply
- Tuning and Adjustments procedures
- Trouble Shooting Techniques

NON DIRECTIONAL BEACON MAINTENANCE COURSE

OBJECTIVE:

To provide knowledge and skill to maintain, upkeep and operate NDB equipment within prescribed tolerances.

ELIGIBILITY:

- Successful completion of ARM course or equivalent.
- Knowledge of solid state and digital electronics with minimum experience of 2 years on Communication system.
- Good command to write and speak English language.

DURATION: 2 WEEKS

SUBJECTS:

- Introduction and orientation
- Principles of NDB operation
- NDB operating procedures
- Preventive and corrective maintenance procedures

PRIMARY SURVEILLANCE RADAR OPERATION AND MAINTENANCE COURSE

OBJECTIVE:

To provide sufficient theoretical and practical knowledge to Radar Engineers so that they could be able

- To operate the primary radar TA-10K within prescribed tolerances;
- To identify front panel indications, controls, alarms, indications and meter readings and analyze operating performance of the system;
- To identify/ isolate specific problems in case of system un-serviceability;
- To replace defective unit and restore operation of PSR within minimum breakdown time; and
- To implement recommended preventive maintenance procedure.

ELIGIBILITY:

- Must be B.E (Electronics) and have completed Airport Electronics Engineering course; or
- A Technical Officer of PG-8/PG-7 having a maintenance experience of at least 3/5 years on Nav-aids/Telecommunication equipment

DURATION: 8 WEEKS

SUBJECTS:

- Introduction to radar system
- Primary radar equipment TA-10K
- Primary radar operating procedures
- Preventive maintenance procedures

SECONDARY SURVEILLANCE RADAR OPERATION AND MAINTENANCE COURSE

OBJECTIVE:

To provide sufficient theoretical and practical knowledge to Electronics Engineers/Technical officers that they could be able

- To operate and maintain smoothly monopulse Secondary Surveillance Radar RSM-870 with specified tolerances;
- To identify/ isolate specific problems in case of system un-serviceability;
- To replace defective unit and restore operation of SSR within minimum breakdown time; and
- To implement recommended preventive maintenance procedure.

ELIGIBILITY:

- Must be B.E (Electronics) and have completed Airport Electronics Engineering course; or
- A Technical Officer of PG-8/PG-7 having a maintenance experience of at least 3/5 years on Nav-aids/Telecommunication equipment

DURATION: 7 WEEKS

SUBJECTS:

- Explanation of Radar System
- SSR equipment theory
- SSR operating procedure
- Associated equipment
- Preventive maintenance procedures

RADAR DATA PROCESSING AND DISPLAY SYSTEM OPERATION AND MAINTENANCE COURSE

OBJECTIVE:

To provide sufficient theoretical and practical knowledge to Electronics Engineers/Technical officers that they could be able

- To operate Radar Data Processing and Display system (Thomson_CSF Models AIRCAT-200 and AIRCAT-500); within prescribed tolerances;
- To identify front panel indications, controls, alarms and operating status;
- To identify and analyze operating performance, malfunctioning and faults;
- To identify system faults and replace defective unit/module; and
- To carry out preventive maintenance as recommended by the manufacturer.

ELIGIBILITY:

- Must be B.E (Electronics) and have completed Airport Electronics Engineering course; or
- A Technical Officer of PG-8/PG-7 having a maintenance experience of at least 3/5 years on Nav-aids/Telecommunication equipment

DURATION: 6 WEEKS

SUBJECTS:

- Basic Radar Principles
- Radar Display System
- Display Equipments: Architecture & Description
- Preventive Maintenance
- Installation, Testing & Calibration (Practical)
- System Operation and Operational Fault Diagnosis (Practical)

**ADVANCED MICROPROCESSOR TECHNOLOGY COURSE
(ICAO NO.169)**

OBJECTIVE:

To provide knowledge of design, fabrication and development of microprocessor and peripherals, to enable the trainee to diagnose malfunctioning and repair microprocessor bases systems.

ELIGIBILITY:

- Trainee should be an Electronics Engineer or technician.
- Good command to write and speak English language

DURATION: 6 WEEKS

SUBJECTS:

- Architecture and Fabrication of Microprocessor
- Software Development for Microprocessors
- Repair Techniques
- Microprocessor Instruction Sets

TEST EQUIPMENT SELECTION, APPLICATION AND CALIBRATION COURSE

OBJECTIVE:

To provide knowledge skill and techniques to be able to apply and calibrate the test equipment in the maintenance of the electronic equipment at airports.

ELIGIBILITY:

- Electronics engineering graduate or a senior technician with recent field experience.
- Good command to speak and write English language.

DURATION: 6 WEEKS

SUBJECTS:

- Operation of Oscilloscope
- Calibration of oscilloscope
- Operation of Signal generator
- Calibration of Signal generator
- Operation of Frequency
- Calibration of Frequency
- Operation of Radio communication test set
- Calibration of Radio communication test set
- Operation of Thruline watt meter
- Calibration of Thruline watt meter
- Operation of Vector volt meter
- Calibration of Vector volt meter
- Operation of Logic Analyzer

MAINTENANCE OF AVIATION SECURITY SYSTEM COURSE (ICAO NO.169)

OBJECTIVE:

To enable the technical personnel to maintain, upkeep and repair aviation security equipment.

ELIGIBILITY:

- Electronic engineer or senior technician with recent working experience on electronic equipment.
- Good command to write and speak English language.

DURATION: 8 WEEKS

SUBJECTS:

- Metal Detectors
- Hand-held Body search equipment
- Body Screening equipment
- Baggage X-Ray and Display
- Close Circuit TV Surveillance equipment
- TV Surveillance Cameras

MICROSOFT OFFICE 2000

OBJECTIVE:

To provide training to the individuals in office related computer application packages which will help them to organize and automate office work.

ELIGIBILITY:

- Preferably having basic concepts and knowledge of computers.

DURATION: 4 WEEKS

SUBJECTS:

- MS Windows 2000
- MS Word 2000
- MS Excel 2000
- MS Power Point 2000
- Introduction to Internet and E-mail

COMPUTER APPLICATION IN AIRPORT MANAGEMENT (STP)

OBJECTIVE:

To impart sufficient knowledge and hands on practice on the computer to the participants in utilizing commercially available computer programmes which would assist in managing the airport functions.

ELIGIBILITY:

- Trainee must have at least 3 years practical experience in Aviation preferably as an Airport Manager, Air Traffic Controller or any officer from Communication Operations, Finance and Administration.

DURATION: 4 WEEKS

SUBJECTS:

- Application of Word Processing (Word-97) for Airport Management
- Application of Spread sheet (Excel-97) For Airport Management
- Application of Data base (Access-97) For Airport Management

SENIOR AIRPORT MANAGEMENT COURSE

OBJECTIVE:

To provide knowledge and techniques required to manage and operate large or medium airports.

ELIGIBILITY:

- Senior CAA aviation managers with 10 years experience or
- University graduate with at least 6 years aviation experience.
- Trainee must be fluent on English language
- Trainees should preferably have successfully completed Jr. APM Course.

DURATION: 6 WEEKS

SUBJECTS:

- Management
- Airport Planning Process
- Airport Environment
- Airport Technical Management
- National Control of Air Transport
- Finance
- Emergency Planning & RFFS
- CAA Service Regulations
- Computer Theory & Practical

JUNIOR AIRPORT MANAGEMENT COURSE

OBJECTIVE:

To provide knowledge and techniques required to manage and operate small airports.

ELIGIBILITY:

- Educational back ground must be equivalent to graduation / nominated by the organization.
- At least 3 years of sound, progressive experience in a responsible position in a technical/professional field related to aviation.
- Trainee officer must be fluent in English.

DURATION: 6 WEEKS

SUBJECTS:

- Airport Planning
- Environment
- ICAO & International Agencies
- Theories of Management
- Airport Technical Management
- Airport Maintenance Practices
- Introduction to Computer system
- Navigational Aids
- Supply Procedures
- CAA Rules & Service Regulations
- Finance System in CAA
- Emergency Planning
- Rescue & Fire Fighting Services

MANAGEMENT OF SMALL & FEEDER SERVICE AIRPORT

OBJECTIVE:

To provide knowledge and techniques required to manage and operate small and feeder service airport.

ELIGIBILITY:

- CAA officers with minimum 3 years practical experience.
- Trainee must be fluent in English.

DURATION: 4 WEEKS

SUBJECTS:

- Organization & Admin. of small airports
- International Civil Aviation Organization
- Airport Services & Facilities.
- Fire & Rescue Services
- Aviation Security Services
- Apron Activities
- Aerodrome Maintenance
- Finance System in CAA
- Airport Bye-Laws, Regulations & Property & Lease Management.
- Introduction to Computer

AVIATION MANAGEMENT COURSE (STP)

OBJECTIVE:

To equip the middle level managers with skill, knowledge and attitude that will enable them to manage people, work, training, office and finance.

ELIGIBILITY:

- CAA officers having at least 10 years experience in Aviation/Airport management or
- University graduates with at least 6 years experience in Aviation/Airport management.
- Trainees must be fluent in English Language.

DURATION: 6 WEEKS

SUBJECTS:

- Management concept & application
- ICAO & CAA
- Manage Office
- Manage People
- Manage work
- Manage Finance
- Manage Training

FACILITATION/VIGILANCE OFFICERS COURSE

OBJECTIVE:

To develop the professional skill and knowledge of facilitation/vigilance officers enabling them to provide facilities and assure the protection of passengers, crew, ground personnel, public and facilities at an airport.

ELIGIBILITY:

- Trainee must have at least 5 years experience related to airport operation or
- University graduates with at least 3 years experience in airport operations.
- Trainee must be fluent in English.

DURATION: 4 WEEKS

SUBJECTS:

- Functions of airport
- Airport Vigilance
- Facilitation standards
- Aviation Explosives
- Aims of ICAO in the field of Facilitation
- Preparation of Airport Security Programme
- First Aid
- Management Concept
- CAA Service Regulations

FACILITATION/VIGILANCE STAFF COURSE

OBJECTIVE:

To develop the professional skill and knowledge of facilitation/vigilance staff enabling them to provide facilities and assure the protection of passengers, crew, ground personnel, public and facilities at an airport.

ELIGIBILITY:

- Educational back ground should preferably be HSC.
- Trainee must have working knowledge of English.

DURATION: 3 WEEKS

SUBJECTS:

- Function of Airport
- Complexity of Airport Operation
- FAL Standard
- Airport Vigilance
- Aviation Explosive
- Preparation of Airport Security Programme
- Aims of ICAO in the field of Facilitation
- Elementary Fire Fighting Techniques
- First aid
- CAA Service Regulations

JUNIOR FIRE OFFICER COURSE (ICAO NO.113)

OBJECTIVE:

To develop the participant's skill that will enable him to perform the duties of fire officer at an aerodrome.

ELIGIBILITY:

- Trainee must be capable of withstanding the rigorous and arduous duties of fire ground leader, as well as acting as fire fighter during practical exercises.
- Trainees shall be able to speak, see, hear and execute the physical duties of fire ground leader without assistance or aid.
- Trainee should have done the aerodrome fire fighter course and / or Sr. AFF Course.
- Trainee should preferably hold a vehicle driving license.

DURATION: 5 WEEKS

SUBJECTS:

- Fire Causes, Sources, Classes, transfer & extinguishing method.
- Fire Officer Ship
- Types, rating, operation, test & inspection of portable Fire Extinguishers
- Airport Fire & Rescue Services
- Test & Inspection of RFF equipment
- Casualty handling
- RFF action during emergencies
- Instructional Techniques
- Administration
- Technical
- Fire Ground Control

SENIOR AERODROME FIRE FIGHTER COURSE (ICAO NO.112)

OBJECTIVE:

The course will provide skills in practical and technical field of fire supervisor to a standard from where they will be capable of taking control of RFF Crew at an aerodrome.

ELIGIBILITY:

- Trainee must be capable of withstanding the rigorous and arduous duties of fire ground leader, as well as, acting as fire fighter during practical exercises.
- Trainee shall be able to speak, see, hear and execute the physical duties of fire ground leader without assistance or aid.
- Trainee should have qualified the Aerodrome Fire Fighter Course, and have three years field experience.
- Preference may be given to those personnel who are holding Heavy Driving License.

DURATION: 5 WEEKS

SUBJECTS:

- Principles of Combustion
- Hose, types, carries, care & maintenance
- RFF Services drill
- Portable fire extinguisher
- Standard operational message
- CAA Fire Standard Records

AERODROME FIRE FIGHTER (ICAO NO.111)

OBJECTIVE:

To develop the skills in theoretical and practical fire fighting to a standard from where the participant can proceed to an operational RFF unit and commence field training.

ELIGIBILITY:

- Trainee's educational background should be of a suitable standard so that his intellectual capability will enable him to comprehend the instructional lessons during the course. He should have (reading, writing and speaking) command of English language.
- Trainee will be medically and physically examined prior to the course by a recognized physician to ensure that he is suitable for the arduous tasks proposed for the course.
- Trainees must be able to speak, see, hear and execute the physical duties of a fire fighter with clarity, without assistance or aids.

DURATION: 12 WEEKS

SUBJECTS:

- Fire Chemistry
- Fire Hoses
- Portable Fire Extinguisher
- Extinguishing agent
- Water Supplies System
- Words of Command & Signal
- Pumps & Primers
- Fireman ship
- Fire Ground Skills
- Aircraft Fire Fighting
- Communication & Radio Procedure
- Fire Vehicles
- Topography

FIRE INVESTIGATION COURSE (ICAO NO.119)

OBJECTIVE:

To provide knowledge, skill and technique to find the causes of fire and prepare a report.

ELIGIBILITY:

- Fifteen years experience of Airport Fire Services with at least 3 years working experience in the capacity of Supervisor, Incharge Fire Station or equivalent.
- Educational Qualification - At least Matriculation.

DURATION: 2 WEEKS

SUBJECTS:

- Fire Investigation
- Site Investigation
- Ignition Sources
- Causes of Fire
- Interviewing and Reporting Procedure
- Criminal Damage
- Building construction (Type & Method of Construction)
- Hot Fire Practice (Fire Investigation Report)
- Evidence
- Forensic Science Service

FIRE PREVENTION COURSE (ICAO NO.119)

OBJECTIVE:

To provide knowledge skill and techniques to enable the participants to identify potential fire hazard areas and suggest remedial measures.

ELIGIBILITY:

- Trainee should have successfully completed 12 weeks Fire Fighter Course from CATI / recognized institute
- Trainee should possess practical experience of 5 years in supervisory capacity in the field of RFF.
- At least Intermediate or equivalent education.

DURATION: 3 WEEKS

SUBJECTS:

- Building Construction
- Construction of Stairways and Ramps
- Large Fuel installation
- Auto Fire Extinguishing System
- Plan Drawing
- Three E's of Fire
- Means of Escape
- Types of Fire Hazard
- Fire Detection and Alarm System
- Emergency Lighting
- Inspection Techniques & Procedures
- Portable Fire Extinguisher

BREATHING APPARATUS COURSE

OBJECTIVE:

To provide knowledge, skills and techniques to the participants in donning and operational use of SCBA (Self Contained Breathing Apparatus).

ELIGIBILITY:

- Trainee must have at least one year experience as Fire Fighter.
- Trainee must be physically fit and below 40 years of age.
- Trainee may preferably be without beard.
- Trainee must be able to comprehend English language.

DURATION: 2 WEEKS

SUBJECTS:

- Safety parts of Breathing Apparatus
- Elementary Physiology
- Types of Breathing Apparatus
- Donning of Breathing Apparatus
- Special Situations
- Training and Emergency Procedures
- Working in Smoke
- Inspection, Care and Testing of Breathing Apparatus
- Search and Rescue Procedures
- Personal Safety of Wearer
- Recharging Breathing Apparatus Cylinder
- Working Duration

MARSHALLER

OBJECTIVE:

To provide theory and practical training in marshalling techniques to a standard from where the participants can proceed to an operational unit for commencement of field training.

ELIGIBILITY:

- Trainee's educational background should be of a suitable standard; this intellectual capability will enable him to comprehend the instructional lessons during the course.
- Trainee shall be medically and physically examined prior to the course so that he will be suitable for the tasks proposed for the course (to be tested for colour/night vision: vision not impaired to affect depth perception).
- Trainee shall be able to speak, see, hear and execute the physical duties of a Marshaller with clarity without assistance or aid.
- Working knowledge of English language is desirable.

DURATION: 8 WEEKS

SUBJECTS:

- Aerodromes
- Radio Telephony Communication
- Marshalling Techniques (Practical / Theory)
- Aprons (Types & Layout)
- Aircraft Characteristics and Types
- Visual Parking & Docking Guidance System

INSTRUCTOR DEVELOPMENT PROGRAMME (STP)

OBJECTIVE:

To provide knowledge skill and techniques to the participants enabling them to:

- Conduct training using the general principles of learning and motivation.
- Modify objectives and tests as appropriate.
- Distinguish between the two principal instructional methods and make use of them as appropriate in the teaching environment.
- Plan, prepare and present lessons.
- Select, prepare and use teaching aids appropriate to a unit of instruction

ELIGIBILITY:

- Officers with minimum 5 years experience.
- Proficiency in both written and spoken English.

DURATION: 4 WEEKS

SUBJECTS:

- Introduction
- Instructor's Role & Responsibility
- Principle of Learning & Instruction
- How to organize a Course
- Preparation of Facilities & Equipment
- Overview of course Development & Objective
- Tests
- Effective Training techniques
- Manage Individualized Instructions
- Conducting Group Instructions
- Presenting Materials/Discussions
- Assessment of Performance
- Feed Back & Schedule Adjustment

**ELECTRICAL MAINTENANCE TECHNICIANS COURSE
(ICAO NO.104)**

OBJECTIVE:

To develop knowledge of the working principles of electrical Airways Equipment, visual Landing Aids and Airport Lighting.

ELIGIBILITY:

- Matric Science or equivalent
- Aptitude in electrical field.
- Working knowledge of English language

DURATION: 26 WEEKS

SUBJECTS:

- Safety
- Basic Mathematics
- Fundamental Concepts of Electricity and Magnetism
- Batteries
- D.C. Principles
- A. C Principles
- Instruments
- Transformers, Generators, Motors
- Controls
- Electronics
- Metal Work
- Physics of Light
- Protection Devices
- Solar Power
- Power Generation on Aerodrome
- Air Field Lighting
- Visual Landing Aids

AIRPORT LIGHTING MAINTENANCE COURSE (STP)

OBJECTIVE:

To develop basic skills required to maintain Aerodrome Lighting System.

ELIGIBILITY:

- In service CAA technician with at least one year of maintenance experience in APL or closely related field. In addition the trainee should have.
- Satisfactorily completed S.S.C with (Physics and Math) or equivalent Education.
- Passed the basic Electrical Maintenance Technician Course (from CATI) or Equivalent for trainees from the region.
- Good written and oral command of English.

DURATION: 04 WEEKS

SUBJECTS:

- Series Aerodrome Lighting Systems
- Runway and Taxiway light fittings
- Centre line lighting
- Aerodrome Beacons
- Apron Lighting
- Maintenance Techniques
- Annex 14 and ICAO Aerodrome Design manual requirements
- Approach lighting
- PAPI
- Hazard Beacons, Obstruction lighting
- Constant Current Regulators

AERODROME POWER SUPPLY MAINTENANCE COURSE (ICAO NO.104)

OBJECTIVE:

To develop knowledge and skills required to maintain essential aerodrome power supplies.

ELIGIBILITY:

- H.S.C (Science with Mathematics).
- Should have passed aerodrome electrical or line maintenance course.

DURATION: 04 WEEKS

SUBJECTS:

- Standby power
- Primary power
- No-break power
- Phase failure detection
- Changeover functions
- Alerting and monitoring
- Engine protection devices
- Generator test procedures
- Control Panel functions
- Preventive maintenance

**CABLE FAULT ANALYSIS AND REPAIR TECHNIQUES COURSE
(ICAO NO.109)**

OBJECTIVE:

To develop knowledge and skill to locate faults in underground cable for effective repair and maintenance.

ELIGIBILITY:

- H.S.C (Science with mathematics).
- Should have passed electrical course.
- Minimum 3 years practical experience in Aerodrome Electrical or Line maintenance.

DURATION: 04 WEEKS

SUBJECTS:

- Construction of underground cables
- Theory of fault location
- Fault location test equipment
- Practical fault location
- Practical cable repairs
- Maintenance/upkeep of aerodrome cable records and plans

DIESEL PLANT MAINTENANCE MECHANICS COURSE (ICAO NO.109)

OBJECTIVE:

To provide knowledge and skill to maintain and repair diesel power plants including fuel injection and electrical system in generators.

ELIGIBILITY:

- Matric Science or equivalent.
- Working knowledge of English language.

DURATION: 26 WEEKS

SUBJECTS:

- Introduction to Mathematics
- Operation principles
- Fuel injectors and Ignition System
- Exhaust System
- Lubricating System
- Troubleshooting
- Basic types of Engines
- Combustion Chamber type
- Details of Engine Parts
- Filters
- Starting and Control System
- Tune up
- Diesel Electric power Plants

**DIESEL FUEL PUMPS AND INJECTORS TESTING AND CALIBRATION
COURSE
(ICAO NO.109)**

OBJECTIVE:

A successful graduate of this course will possess knowledge and skills to calibrate Bosch CVA in-line (Jerk type) and distributors type Fuel Injection pumps and operate other related equipment e.g. Injector, Nozzle cleaning & reconditioning, Spray pattern, Smoke testing, Nipple making equipment.

ELIGIBILITY:

- 3 years Diploma of Associate Engineer from any recognized Technical Institute in Mechanical or Automotive Technology or
- Diesel Mechanics course from CATC with 3 years experience or
- Basic Course for Diesel Mechanics from CATC
- Special Vehicle Maintenance Course from CATC.
- Working knowledge of English language.
- Can work with dexterity with both hands

DURATION: 12 WEEKS

SUBJECTS:

- Diesel engine fuel Injection system
- Fuel injectors
- Detroit Diesel unit Injector System
- Fuel Injection Pump Generators
- Spray pattern
- Nipple making equipment
- Combustion Chambers
- In-line (Jerk) Fuel Injection Pumps testing & Calibration
- Cummins PTG fuel system and Injectors
- Nozzle cleaning & reconditioning
- Smoke testing

SPECIAL PURPOSE VEHICLE MAINTENANCE COURSE (ICAO NO.109)

OBJECTIVE:

A successful graduate of this course will possess adequate knowledge and skills required for general maintenance of Rescue and Fire Fighting Vehicle, Runway Sweepers and related equipment.

ELIGIBILITY:

- Diesel Vehicle Maintenance supervisors course from CATC or
- Diesel Mechanics from CATC or
- 3 years diploma of Associate Engineers from any recognized technical Institute, in Mechanical or Automotive technology.
- Diesel Vehicle Maintenance Supervisors course from CATI or any other recognized institute or
- 26 weeks Basic course in Diesel Mechanics from CATI, or
- 3 years Diploma of Associate Engineers from any recognized Technical Institute, in Mechanical or Automotive Technology.

DURATION: 12 WEEKS

SUBJECTS:

- Diesel engine Construction & Operation
- Diesel Engine testing & troubleshooting
- Fuel Injection system testing & Calibration
- Specification for Rescue and Fire fighting vehicles
- Rapid Intervention Vehicle
- Major Fire Crash Tender
- Preventive maintenance procedures
- Hydraulic and Pneumatics
- Airfields Runway Sweeper
- Runway Rubber Remover
- Clerical Record duties and inventory control

ENVIRONMENTAL SYSTEM & CONTROL COURSE (ICAO NO.101)

OBJECTIVE:

To develop knowledge & skill to operate, maintain Air-Conditioning & Refrigeration system and to monitor Air-conditioning performance.

ELIGIBILITY:

- 3 years Diploma of Associate Engineers (Mech./Refrigeration & Air-conditioning) from any recognized polytechnic institute or from CATI Hyderabad.
- Air-conditioning / Refrigeration Maintenance Mechanics Course from any recognized training institute.

DURATION: 06 WEEKS

SUBJECTS:

- Air handling Equipment
- Environmental Control in Air-conditioning system
- Air balancing
- Cooling load calculation theory & Duct designing methods
- Control Air handler, Chiller & Heating coils
- Automatic control devices & Microprocessor control
- Hot Water / Steam Boilers
- Trouble shooting & preventive maintenance
- Ventilation Pollution
- Energy Conservation in air-conditioning and Refrigeration Chilling system

**AIRCONDITIONING/REFRIGERATION MAINTENANCE MECHANICS
COURSE.
(ICAO NO.105)**

OBJECTIVE:

To develop basic knowledge of the principles of Refrigeration and Air-conditioning system and enable the trainee to diagnose, trouble shoot, rectify fault by following system maintenance procedures.

ELIGIBILITY:

- Matric Science or equivalent
- Aptitude in Air-conditioning/Refrigeration
- Working knowledge of English language

DURATION: 26 WEEKS

SUBJECTS:

- Introduction to Mathematics
- Physics relating to Air-conditioning/Refrigeration
- Water Treatment and Testing
- General Safety
- Metal Work
- Electrical Theory
- Fundamental air-conditioning
- Gauges

AIRCONDITIONING & REFRIGERATION REVIEW MAINTENANCE COURSE (ICAO NO.105)

OBJECTIVE:

To develop basic knowledge & skills, to operate, maintain and repair Air-conditioning & Refrigeration System.

ELIGIBILITY:

- Matric science or equivalent and have one of the following technical background.
- One year Refrigeration and Air-conditioning Certificate course from any recognized Technical Institute & have minimum 2 years practical experience.
- Employed in CAA as technician or supervisor & working in Air-conditioning System Maintenance.

DURATION: 08 WEEKS

SUBJECTS:

- Units Measurements & Measuring Instruments
- Safety precaution Air-conditioning Refrigeration Equipments
- Basic Refrigeration cycles and leak Testing / Evaluation Dehydration / Charging Procedures
- Reciprocating/Centrifugal Water Chillers
- Air handling Equipments & Air balancing Techniques
- Air-conditioning Plant performance monitoring
- Preventive maintenance