

ANS

TRAINING CENTER

COMMUNICATION, NAVIGATION & SURVEILLANCE

CONTENT

COMMUNICATION, NAVIGATION & SURVEILLANCE PROGRAMMES

• Saudi Academy of Civil Aviation	05
• Communication, Navigation & Surveillance	05
• Equipment and Facilities	05
• The Specialized Courses	06
• Center Accreditations	06

Customized Training

• Network technology	08
• Basic Unix Commands	11
• Very Small Aperture Terminal (VSAT)	14
• Air Traffic Services Message Handling Services (AMHS)	16
• National ANS Network	18
• Thales CVOR 431 / DME 435 Maintenance	21
• Thales CVOR 431 Maintenance	23
• Thales ILS System 420 Maintenance	25
• ILS Normarc NM 7000B Maintenance	27
• Distance Measuring Equipment (DME) – Fernau	29
• Thales DME 415 Maintenance	31
• Thales DME 435 Maintenance	33
• Communication Equipment R&S (Radio - 4200)	35
• Communication (RADIO) Equipment-JOTRON	37
• Voice Communication System (Frequants 3020)	39
• Voice Communication System (Frequants 3025)	41
• Schmid ICS 200/60 VCS Maintenance	43
• Communication Principles	45

CONTENT

COMMUNICATION, NAVIGATION & SURVEILLANCE PROGRAMMES

• Transmission Lines.....	47
• Fiber Optics	49
• Antenna Systems	51
• Tactical Air Navigation (TACAN) Principles	53
• VHF Omni-Directional Range (VOR) Principles	56
• Distance Measuring Equipment (DME) Principles	59
• Instrument Landing System (ILS) Principles	62
• Thales TACAN AN 453 Maintenance	65
• Secondary Surveillance Radar (MSSR-Raytheon)	67
• Radar Concepts and Fundamentals	69
• Introduction CNS/ATM	72
• Primary Surveillance Radar (PSR-Raytheon)	75
• Hardware and Software of Personal Computer	78
• MS Excel - Basic	80
• MS PowerPoint - Basic	83
• MS Word - Basic	86
• MS Excel - Advanced	89
• MS PowerPoint - Advanced	92
• MS Word - Advanced	95
• System Maintenance Engineer	98
• Safety Management System	100
• Human Factor for ASTEP	102



Saudi Academy of Civil Aviation

It is a leading educational entity in the Kingdom of Saudi Arabia, established in 1962 as a technical training institute in 2007 for a specialized academy offering a set of specialized diploma programs and training courses that suit the needs of the Aviation Sector and contribute to qualification and training of human resources working to support 28 airports in the Kingdom.

The programs and courses offered by the academy include the following **specializations**: Air Traffic Control - Maintenance of Aviation Systems - Fire and Rescue - Airport Operation and Safety - Aviation Security.

Communication, Navigation & Surveillance



The Aviation System Maintenance Training Center provides technical support materials for the trainees on the navigational devices according to the internationally approved laws of aviation and career mentoring.

The aviation system devices are also one of the most important navigational aids that serve air navigation and airway surveillance in the air, in addition to communication between the air traffic controller and the aircrafts.

Equipment and Facilities

The Aviation System Maintenance Center provides accredited training packages based on labs containing simulators that put the trainee in front of a virtual reality of navigational aids and devices. Laboratories offered by the center include the following sections: (Electronics - Navigation Systems “Radar” – Computer Applications - Navigational Data Processing - Navigational Aids -Telecommunications).



The Specialized Courses

- Basic Radar Systems.
- Radar Systems (PSR Raytheon).
- Basic Air Navigation Communication.
- VCSS FREQUANTIS (3020).
- JOTRON Radio Maintenance.
- Basic Navigational Aid Systems.
- TACAN 453 AIRSYS MAINTENANCE.
- ILS NORMAC /DME FERNAU MAINTENANCE.

Center Accreditations



Authorized by General Authority of
Civil Aviation (GACA)





CUSTOMIZED TRAINING



Network Technology



Network Technology

Course Summary

This course introduces the networking field. Emphasis is placed on network terminology and protocols, local area networks, wide-area networks, OSI model, cabling, switch and router configuration, Ethernet, IP addressing, and network standards.

Learning Activities



Lectures



Lab exercises



Presentation

Who should attend?

- General and ATSEP technician.



Prerequisites

- Hardware and Software of Personal Computer.



Course Language

- English.



Duration

- 10 Days – 60 hours.



Assessment and Certification

- Approved by GACA.

What will you learn?

- Network Architectures, topology and protocol.
- The data communication services provided by the OSI and TCP/IP models and how these layers operate in various networks.
- Types of data transmission.
- IP Address in Binary and Decimal Number.
- IP address Classes and subnet mask.
- Subnets design with IP addressing.
- CIDR (Classless Inter-Domain Routing).
- Public and Private IPv4 Addresses.
- Static and Dynamic IP Address.
- Reserved IPv4 Addresses.
- IP address Classless (Sub-netting) and it's range.
- How switching and routing happen.
- The Switch and Router operating system, protocols and its components.
- The basic configuration of Routers and Switches.
- And employ basic cabling and network designs to connect devices in accordance with stated objectives.



What is covered?

- Introduction to Networking
- Basic Network Types
- Network Protocols
- Network Architectures
- Type of Communication
- NETWORK DEVICES:
 - Hubs and switches
 - Bridges
 - Routers
 - A gateway
 - Network Interface Card (NIC)
- Network Topology:
 - Star topology
 - Ring Topology
 - Mesh Topology
 - Hybrid Topology
- Categories of Ethernet
- Ethernet Cabling Types:
 - Coaxial cable
 - Twisted-pair cable
 - Fiber Optics
- MAC Addressing (Hardware Addressing)
- IPv4 Addressing (Logical Addressing):
 - IPv4 Addressing
 - The Subnet Mask
 - IP Address Classes
- CIDR (Classless Inter-Domain Routing)
- Address Classes vs. Subnet Mask
- Subnet and Broadcast Addresses
- Public and Private IPv4 Addresses:
 - Static IP Address
 - Dynamic IP Address
- Reserved IPv4 Addresses
- Port Numbers and Sockets
- Domain Name System (DNS)
- DHCP - Dynamic Host Configuration Protocol
- IP address Classless (Subnetting):
 - Determining the Range of Subnetted Network
- Switching:
 - Forwarding Methods
- Routing:
 - Routing Protocol
 - Routing Information Protocol (RIP)
 - Enhanced Interior Gateway Protocol (EIGRP)
 - Open Shortest Path First (OSPF)
- Virtual LANs
- Type of network cable commonly used in network:
 - Twisted-Pair Cabling – Straight-Through Cable
 - Twisted-Pair Cabling – Crossover Cable
 - Twisted-Pair – Rollover Cable
- Cisco Routers and Switches:
 - Router Memory Components
 - Router Memory, Quick Reference
 - The Router Boot-Process, Quick Reference
 - Interfaces vs Lines
 - Using Lines to Configure the IOS
 - The IOS Modes on Cisco Devices
- IOS Commands Shortcuts:
 - Terminal History Buffer
- IOS context-sensitive help
- The enable password
- Command line passwords and configurations



Basic Unix Commands

Basic Unix Commands

Course Summary

The trainees will be provided with an extensive knowledge in Unix commands.

What will you learn?

Manage the files and directories using the command line interface.

Reduce the fear, uncertainty, and doubt in operating live equipment using Unix commands.

Performing maintenance tasks such as adding users, backing up the system, shutting down and rebooting the system.

Establish the relationship between Unix environment and air navigation system such as Radar and Communications

Deal with different commands of Unix.

Learning Activities



Lectures



Lab exercises



Presentation

Who should attend?

- General and ATSEP technician.



Prerequisites

- Hardware and Software of Personal Computer.



Course Language

- English.



Duration

- 5 days / 30 Hrs.



Assessment and Certification

- Approved by GACA.



What is covered?

■ COURSE INTRODUCTION:

- Trainees & Instructor introduction.
- Course objectives.
- Module objectives.

■ OPERATING SYSTEM AND DIRECTORY FILES:

- The UNIX operating system.
- Files and processes.
- Directory Structure.
- Starting an Xterminal session.
- Listing files and directories.
- Making Directories.
- Changing to a different directory.
- Practical Exercise.
- Directories.
- Pathnames.
- Practical Exercise.
- More about home directories and pathnames.
- Understanding pathnames.

■ SEARCH AND MANAGING FILES WITH DIRECTION AND WILD CARD:

- Copying Files.
- Moving files.
- Removing files and directories.
- Displaying the contents of a file on the screen.
- Searching the contents of a file.
- Simple searching using less and grep.
- Summary.
- Redirection.
- Redirecting the Output.

- Practical Exercise.
- Redirecting the Input.
- Pipes.
- Summary.
- Wildcards.
- Filename conventions.
- Getting Help.
- On-line Manuals.

■ VI EDITOR AND LINKS FILES:

- What is vi.
- The Basics of vi.
- INSERT Mode.
- COMMAND Mode.
- Linking Files.
- Shell Script.
- Additional Unix commands.

■ MANAGING USERS AND GROUPS:

- Users and Groups.
- Changing ownership.
- File system security (access rights).
- Changing access rights.



Very Small Aperture Terminal (VSAT)



Course Summary

This 5-day course teaches the theory of operation, alignment procedures and troubleshooting exercises on the VSAT (very small aperture terminal) system.

What will you learn?

- Describe the system overview.
- Understand the Maintenance & Safety procedure.
- Describe and Understand the VSAT Antenna, transceiver, and satellite modem Systems.
- Explain the operation of Skywan IDU and FAD Unit.
- Explain the operation of Transceiver Unit.
- Apply procedures to isolate the faulty module or part.
- Apply procedures for VSAT terminal configuration and System Configuration.

What is covered?

- Brief Description for Satellite Fundamentals.
- General Overview for GACA VSAT Network.
- SKYWAN troubleshooting.
- Failure diagnostic.
- LED indication.
- Signal Power quality troubleshooting.

Learning Activities



Lectures



Presentation

Who should attend?

- General and ATSEP technician.



Prerequisites

- General and ATSEP technician.



Course Language

- English.



Duration

- 5 days / 30 Hrs.



Assessment and Certification

- Approved by GACA.



Air Traffic Services Message Handling Services (AMHS)

AMHS

Course Summary

Intended to provide fundamental knowledge on AMHS.

What will you learn?

General overview of the ATS Message Handling System. Provision of information and skills that will enable practical AMHS deployment plans.

Learning Activities



Lectures



Presentation

Who should attend?

- ATSEP technician.

What is covered?

- AMHS capabilities.
- Standards Development.
- System Design Criteria.
- User Types.
- Com Centre Architecture.
- Testing and migration.



Course Language

- English.



Duration

- 5 Days – 30 hours.



Assessment and Certification

- Approved by GACA.



Prerequisites

- Network technology.



National ANS Network



National ANS Network

Course Summary

- This 10-day course provides training for technicians on Tellabs. The course is 60 hours Academy lecture and practical. Lecture subjects include operate and maintain Tellabs.

What will you learn?

- Describe networks function.
- Identify the major components of network.
- Understand the basics of the Tellabs 8100 system and its network elements.
- Modify the Tellabs NODE Configuration.
- To do some troubleshooting to maintain it in case of failure.

Learning Activities



Lectures



Lab
exercises



Presentation

Who should attend?

- ATSEP technician.



Course Language

- English.



Duration

- 10 Days – 60 hours.



Assessment and Certification

- Approved by GACA.



Prerequisites

- Network technology.



What is covered?

■ Network:

- Basic Network Types.
- Network Protocols.
- Network Architectures.
- Type of Communication.
- Network Devices.
- Network Topology.
- Categories of Ethernet.
- Ethernet Cabling Types.
- Physical address.
- Logical Address.

■ Tellabs:

- NAN Overview.
- General Description.
- E1 Frame Structure.
- Remote Site connectivity.
- Introduction to Tellabs network and elements.
- Tellabs 8100 Architecture.
- Subracks.
- Tellabs 8100 Common Units.
- Predefined slots.
- Exercises.
- Naming The Interface.
- Service Computer.
- WorkStation PC Overview (Node Editor Program).
- Basic Troubleshooting.
- Line Problems.
- The D9 Connector wiring LOOP.
- Progress Test - 2.
- ACC Jeddah Visit.
- Steps to check the alarms and Fault messages.
- Common Unit Faults List



Thales CVOR 431 / DME 435 Maintenance

Thales CVOR 431 / DME 435 Maintenance

Course Summary

This 15-day course provides training for technicians on THALES VOR 431 and THALES DME 415. The course is 90 hours Academy lecture. Lecture subjects include VOR/DME Equipment Description, Operating, and Routine check.

What will you learn?

- Describe the THALES VOR 431 function.
- Describe the THALES DME 415 function.
- Describe the Equipment components.
- Read-out and modify Data with PC.
- Regular Maintenance of Equipment.
- Corrective Maintenance up to Board Level. Repair results evaluation.
- Routine check schedule of systems.
- Describe the Remote control of the Equipment.

Course Language

- English.



Duration

- 15 Days – 90 hours.



Assessment and Certification

- Approved by GACA.



Prerequisites

- VHF Omni-Directional Range (VOR) Principles.
- Distance Measuring Equipment (DME) Principles.
- Using PC knowledge.

Learning Activities



Lectures



Lab exercises



Presentation

Who should attend?

- ATSEP technician.

What is covered?

- Introduction to VOR.
- VOR Principle.
- Main Components of A VOR 431 Transmitter Cabinet.
- Functional Description of the Transmitter.
- Functional Description of the Monitor.
- Transmitter Subassemblies.
- Monitor Subassemblies.
- Functional Description Power Supply.
- Functional Description LCSU, RCSE, and SI.
- Software ADRACS Program.
- Routine Check Schedule.
- Introduction to DME.
- DME Principle.
- Main Components of A DME 415 Transmitter Cabinet.
- Functional Description of the Transponder.
- Functional Description of the Monitor system.
- Transponder Subassemblies.
- Monitor System Subassemblies.
- Functional Description Power Supply.
- Functional Description LCSU, RCSE, and SI.
- Software Win SV Program.
- Routine Check Schedule.



Thales CVOR 431 Maintenance

Thales CVOR 431 Maintenance

Course Summary

This course provides training for electronics technicians and engineers progressing into technical position having responsibility for operating, maintaining and certifying/verifying normal operational of VOR 431.

What will you learn?

- Operation the equipment.
- Read-out and modify Data with PC.
- Regular maintenance of equipment with BITE and external instrumentation.
- Regular Maintenance of Power Supply and Battery.
- Corrective maintenance up to Board Level and repairs.
- Routine Flight check Assistance.



Course Language

- English.



Duration

- 10 Days – 60 hours.



Assessment and Certification

- Approved by GACA.



Prerequisites

- VHF Omni-Directional Range (VOR) Principles.
- Using PC knowledge.

Learning Activities



Lectures



Lab exercises



Presentation

Who should attend?

- ATSEP technician.

What is covered?

- Introduction to VOR.
- VOR Principle.
- Main Components of A VOR 431 Transmitter Cabinet.
- Functional Description of the Transmitter.
- Functional Description of the Monitor.
- Transmitter Subassemblies.
- Monitor Subassemblies.
- Functional Description Power Supply.
- Functional Description LCSU, RCSE, and SI.
- Software ADRACS Program.
- Routine Check Schedule.



Thales ILS System 420 Maintenance

Thales ILS System 420 Maintenance

Course Summary

This 15-day course provides training for technicians on Thales ILS System 420 Maintenance. The course is 90 hours Academy lecture and practical. Lecture subjects include operate and maintain Thales ILS 420.

Learning Activities



Lectures



Lab exercises



Presentation

What will you learn?

- Operation the equipment.
- Read-out and modify Data with PC.
- Regular maintenance of equipment with BITE and external instrumentation.
- Regular Maintenance of Power Supply and Battery.
- Corrective maintenance up to Board Level and repairs.
- Routine Flight check Assistance.

Who should attend?

- ATSEP technician.

What is covered?

- Concept of Thales ILs 420.
- Operation of LLZ-GP.
- Operation of the ILS using the LCSU Local PC.
- Transmitter.
- Maintenance of the LOC System.
- Maintenance of the GP System.
- Maintenance of the Monitors.
- Maintenance of other boards.
- Flight Check.

Course Language

- English.



Duration

- 15 Days – 90 hours.



Assessment and Certification

- Approved by GACA.



Prerequisites

- ATSEP technician.



ILS Normarc NM 7000B Maintenance

ILS Normarc NM 7000B Maintenance

Course Summary

This 15-day course provides training for technicians on ILS NORMARC 7000 B. The course is 90 hours Academy lecture and practical. Lecture subjects include operate and maintain ILS NORMARC 7000 B.

What will you learn?

- A clear understanding of the complete PSR system and its sub-systems.

- Knowledge of the functional operation of the PSR system and an understanding of board/LRU functions.

- Detailed knowledge of how to perform preventive and corrective maintenance including:

- How to check performance parameters?

- The interpretation of fault conditions
Selection and use of maintenance aids
such as fault-finding procedures, manual and automatic fault isolation tools, control and monitoring system.

- Restoration of PSR system operation after minor or serious fault conditions.

- How to perform required preventative maintenance routines.

Learning Activities



Lectures



Lab
exercises



Presentation

Who should attend?

- ATSEP technician.

What is covered?

- Operate and maintain ILS / NORMARC 7000 B.
- Operate the system with software.
- Run system diagnosis.
- Perform transmitter alignment.
- Perform LLZ and GP alignment.
- Perform monitor alignment.
- Perform boards adjustments / configuration.
- Flight check.



Course Language

- English.



Duration

- 15 Days – 90 hours.



Assessment and Certification

- Approved by GACA.



Prerequisites

- ATSEP technician.



Distance Measuring Equipment (DME) – Fernau

Distance Measuring Equipment (DME) – Fernau



Course Summary

The course will provide ATSEP Technicians with the necessary knowledge, skills and attitude to maintain the DME 2020 to the standards established by manufacturer.



Learning Activities



Lectures



Lab exercises



Presentation



What will you learn?

- DME2020 General Characteristics and Specification.
- Block Diagram and Signal Flow.
- Module Function and Identification.
- Use of Test Equipment.
- Maintenance Procedures.
- Fault Diagnosis Techniques.



Who should attend?

- ATSEP technician.



What is covered?

- DME2020 General Characteristics and Specification.
- Block Diagram and Signal Flow.
- Module Function and Identification.
- Use of Test Equipment.
- Maintenance Procedures.
- Fault Diagnosis Techniques.



Course Language

- English.



Duration

- 10 Days – 60 hours.



Assessment and Certification

- Approved by GACA.



Prerequisites

- Distance Measuring Equipment (DME) Principles.
- ATSEP Technician.
- Using Computer software.



Thales DME 415 Maintenance

Thales DME 415 Maintenance

Course Summary

This course provide training for electronics technicians and engineers progressing into technical position having responsibility for operating, maintaining and certifying/ verifying normal operational of DME 415.

Learning Activities



Lectures



Lab
exercises



Presentation

What will you learn?

- Operation of the equipment.
- Read-out and modify Data with PC.
- Regular maintenance of equipment with BITE and external instrumentation.
- Regular Maintenance of Power Supply and Battery.
- Corrective maintenance up to Board Level and repairs.
- Routine Flight check Assistance.

Who should attend?

- ATSEP technician.

What is covered?

- DME 415 General Characteristics and Specification.
- Block Diagram and Signal Flow.
- Module Function and Identification.
- Use of Test Equipment.
- Maintenance Procedures.
- Fault Diagnosis Techniques.



Course Language

- English.



Duration

- 5 Days – 30 hours.



Assessment and Certification

- Approved by GACA.



Prerequisites

- Distance Measuring Equipment (DME) Principles.
- ATSEP Technician.
- Using Computer software.



Thales DME 435 Maintenance

Thales DME 435 Maintenance

Course Summary

This course provide training for electronics technicians and engineers progressing into technical position having responsibility for operating, maintaining and certifying/ verifying normal operational of DME 435.

What will you learn?

- Operation of the equipment.
- Read-out and modify Data with PC.
- Regular maintenance of equipment with BITE and external instrumentation.
- Regular Maintenance of Power Supply and Battery.
- Corrective maintenance up to Board Level and repairs.
- Routine Flight check Assistance.

Course Language

English.



Duration

5 Days – 30 hours.



Assessment and Certification

Approved by GACA.



Prerequisites

- Distance Measuring Equipment (DME) Principles.
- ATSEP Technician.
- Using Computer software.

Learning Activities



Lectures



Lab exercises



Presentation

Who should attend?

- ATSEP technician.

What is covered?

- Refresh on DME.
- Equipment standard configuration.
- Block Diagrams Description.
- Trans fare switch.
- DPX – Duplexer Unit.
- RX – Receiver Unit.
- DPX – Digital Processor Unit.
- DMD – Demodulator Unit.
- TX – 100 W transmitter Unit.
- TKW – 1kwp Transmitter.
- DME Antenna.
- Power Supply General Block Diagram.
- AC/DC & DC/DC power supply.
- Monitor General Block Diagrams.
- MON – Monitor Unit.
- Local Control & Status Unit LCSU.
- Remote Control Unit.
- Software Operating Program (WINSV).



Communication Equipment R&S (Radio - 4200)

Communication Equipment R&S (Radio - 4200)

Course Summary

This 10-day course provides training for technicians on R & S (Radio - 4200).

The course is 60 hours Academy lecture and practical. Lecture subjects include operation and maintenance of Rohde & Schwarz (Radio - 4200).

Learning Activities



Lectures



Lab exercises



Presentation

What will you learn?

After successful completion of this module, the trainees (Electronic Technicians) will have the skill and the knowledge of Operation and Maintenance of R & S Radio Equipment installed on the airports of the Kingdom. Also, they will:

Get familiarized with different types of radio equipment used for different frequency bands.

Understand Radio Communication introduction & identification of the basic building blocks of Radio Communication System.

Understand Job assignments, logging & reporting procedures of Radio Communication system at the site in actual Operational environment.

Who should attend?

- ATSEP technician.

What is covered?

- Operation of R&S equipment.
- Equipment Maintenance.



Course Language

- English.



Duration

- 10 Days – 60 hours.



Assessment and Certification

- Approved by GACA.



Prerequisites

- Communication Principles.



Communication (RADIO) Equipment - JOTRON

Communication (RADIO) Equipment - JOTRON

Course Summary

After the successful completion of this module, the trainees (ATSEP Technicians) will have the skill and the knowledge of Operation and Maintenance of Jotron Radio Equipment installed on the airports of the Kingdom.

Learning Activities



Lectures



Lab exercises



Presentation

What will you learn?

After successful completion of this module, the trainees (Electronic Technicians) will have the skill and the knowledge of Operation and Maintenance of R & S Radio Equipment installed on the airports of the Kingdom. Also, they will:

Get familiarized with different types of radio equipment used for different frequency bands.

Understand Radio Communication introduction & identification of the basic building blocks of Radio Communication System.

Understand Job assignments, logging & reporting procedures of Radio Communication system at the site in actual Operational environment.

Who should attend?

- ATSEP technician.

What is covered?

- Introduction to the Jotron Radio Equipment.
- Naming procedure.
- General Features of the Equipment.
- Operation.
- Modes of Operation.
- Configuration.
- Fault Diagnostics.
- Maintenance.
- Modules Replacement.

Course Language

- English.



Duration

- 10 Days – 60 hours.



Assessment and Certification

- Approved by GACA.



Prerequisites

- Communication Principles.



Voice Communication System (Frequants 3020)

Voice Communication System (Frequants 3020)

Course Summary

This 2-week (10 days) course is designed to give 1st level maintenance knowledge for Freq. VCS-3020 Equipment installed on the Kingdom Airports as accordance with the levels and the responsibilities that the technicians have to bear up on the Kingdom Airports.

What will you learn?

After successful completion of this module, the trainees (Electronic Technicians) will have the skill and the knowledge of Operation and Maintenance of VCS-3020 Equipment installed on the airports of the Kingdom. Also, they will:

- Get familiarized with different types of radio equipment used for different frequency bands.

- Understand VCS 3020 equipment introduction & identification of the basic building blocks of Voice Communication System.

- Understand Job assignments, logging & reporting procedures of Voice Communication system at the site in actual Operational environment.



Prerequisites

- English language (writing & speaking).
- A good knowledge in using PC.
- Technicians with experience and knowledge of Communication Technologies.

Learning Activities



Lectures



Lab exercises



Presentation

Who should attend?

- ATSEP technician.

What is covered?

- Introduction to the VCS-3020 Equipment.
- Modular Structure.
- General Features of the Equipment.
- Operation.
- Modes of Operation.
- Configuration.
- Fault Diagnostics.
- Maintenance.
- Modules Replacement.
- Practical Training on the LIVE equipment.



Course Language

- English.



Duration

- 10 Days – 60 hours.



Assessment and Certification

- Approved by GACA.



Voice Communication System (Frequants 3025)

Voice Communication System (Frequants 3025)

Course Summary

This 2-week (10 days) course is designed to give 1st level maintenance knowledge for Freq. VCS-3025 Equipment installed on the Kingdom Airports as accordance with the levels and the responsibilities that the technicians have to bear up on the Kingdom Airports.

What will you learn?

After successful completion of this module, the trainees (Electronic Technicians) will have the skill and the knowledge of Operation and Maintenance of VCS-3025 Equipment installed on the airports of the Kingdom. Also, they will:

- Get familiarized with different types of radio equipment used for different frequency bands.

- Understand VCS 3025 equipment introduction & identification of the basic building blocks of Voice Communication System.

- Understand Job assignments, logging & reporting procedures of Voice Communication system at the site in actual Operational environment.



Prerequisites

- English language (writing & speaking).
- A good knowledge in using PC.
- Technicians with experience and knowledge of Communication Technologies.

Learning Activities



Lectures



Lab exercises



Presentation

Who should attend?

- ATSEP technician.

What is covered?

- Introduction to the VCS-3025 Equipment.
- Modular Structure.
- General Features of the Equipment.
- Operation.
- Modes of Operation.
- Configuration.
- Fault Diagnostics.
- Maintenance.
- Modules Replacement.
- Practical Training on the LIVE equipment.



Course Language

- English.



Duration

- 10 Days – 60 hours.



Assessment and Certification

- Approved by GACA.



Schmid ICS 200/60 VCS Maintenance

Schmid ICS 200/60 VCS Maintenance



Course Summary

This course provides training for electronic technicians and engineers progressing into technical positions having responsibility for operating, maintaining, and certifying or verifying normal operation of SCHMID VCS.



Learning Activities



Lectures



Lab exercises



Presentation



What will you learn?

After successful completion of this course trainees will be able to perform preventive, operative and corrective maintenance on SCHMID VCS.



Who should attend?

- ATSEP technician.



Prerequisites

- Communication Principles.



Course Language

- English.



Duration

- 10 Days – 60 hours.



Assessment and Certification

- Approved by GACA.



What is covered?

- Introduction.
- System Architecture.
- Operator Position.
- Touch Screen.
- System Supervision.
- System Maintenance.
- System Practical Training Session.



Communication Principles

Communication Principles



Course Summary

- This 10-day course provides training for technicians on Communications Principles. The course is 60 hours Academy lecture.



What will you learn?

- After completion of this module, the trainees should be able to understand thoroughly the objectives, functionalities & applications of the basic of analogue and digital communications.



Prerequisites

- English language (writing & speaking).
- ATSEP Technician.



Course Language

- English.



Duration

- 10 Days – 60 hours.



Assessment and Certification

- Approved by GACA.



Learning Activities



Lectures



Presentation



Who should attend?

- ATSEP technician.



What is covered?

- Basics of analogue and digital communications.



Transmission Lines

Transmission Lines

Course Summary

This 10-day course provides training for technicians on Transmission Lines. The course is 60 hours Academy lecture.

What will you learn?

Upon successful completion of the transmission lines course, participants will be able to:

- Describe different types of transmission lines.

- Know how they are used & how to determine the equivalent circuit of a transmission line.

- Be familiar with the concepts of characteristic impedance & impedance mismatch.

- Know how a transmission line terminated by different resistive loads behaves when voltage steps are launched into the line.

- Measure the velocity of propagation of a signal in a transmission line, using the step response method.

- Explain what causes attenuation & distortion, and how they can affect the shape of the transmitted signal.

- Use the Smith Chart to determine the different values of line parameters.

Learning Activities



Lectures



Presentation

Who should attend?

- Electronics and communication engineers and technician.

What is covered?

- Characteristics of transmission lines.
- Transient conditions (Step testing).
- Sinusoidal (Steady-State) condition.
- Smith Chart.



Prerequisites

- Mathematics and common principles of basic electronics.



Course Language

- English.



Duration

- 10 Days – 60 hours.



Assessment and Certification

- Approved by GACA.



Fiber Optics

Fiber Optics



Course Summary

This 10-day course provides training for technicians on Fiber Optics. The course is 60 hours Academy lecture.



Learning Activities



Lectures



Presentation



What will you learn?

At the completion of this unit, the student will be able to understand the different types of the Fiber Optic Communications. Also, he will be able to describe the basic parts of a fiber-optic communication link.



Who should attend?

- ATSEP Technician.



What is covered?

- Introduction to fiber optics.
- Fiber optic cable & Optical fiber.
- Fiber optic transmitter.
- Fiber optic receiver.
- Fiber optic systems.



Prerequisites

- Mathematics and common principles of basic electronics.



Course Language

- English.



Duration

- 10 Days – 60 hours.



Assessment and Certification

- Approved by GACA.



Antenna Systems

Antenna Systems

Course Summary

After completion of this course, the trainees should be able to understand thoroughly the objectives, functionalities & applications of the basic of Antenna Systems.

Learning Activities



Lectures



Presentation

Who should attend?

- Electronics and communication engineers and technicians.



Prerequisites

- English language (writing & speaking).
- ATSEP Technician.



Course Language

English.



Duration

5 Days – 30 hours.



Assessment and Certification

Approved by GACA.

What is covered?

■ Basic of Antenna Systems:

- Introduction to Antenna.
- Radiation from an Antenna.
- The Electromagnetic Wave.
- Antenna Polarization.
- Induction and Radiation Field.
- Impedance of Free Space.
- The Radiation Patterns.
- Beam-width (Directivity).
- Antenna Gain.
- Front-to-Back Ratio.
- Antenna Resistance.
- Velocity Factor.

■ Antenna Types:

- The Half-Wave and Quarter-Wave Antenna.
- Beam Antennas.
- The Yagi-Uda Antenna.
- The Rhombic Antenna.
- Folded Dipole Antenna.
- Horn Antennas
- Helical Antennas
- Turnstile Antenna
- The Parabolic Reflector (Dish) Antenna
- Waveguide

■ The Propagation of Radio Waves:

- Modes of Propagation
- The Ionosphere Layers

■ Introduction to CNS Antennas:

- Comms Systems Antennas
- Nav aids Systems Antennas
- Radar Systems Antennas



Tactical Air Navigation (TACAN) Principles

Tactical Air Navigation (TACAN) Principles

Course Summary

This 5-day course provides training for technicians on TACAN Principles. The course is 30 hours Academy lecture.

Learning Activities



Lectures



Presentation

What will you learn?

On the completion of this course, the trainees can perform the following:

- Identify and understand TACAN Principle, function and operation.
- Understand TACAN Specification.
- Understand the degradability of TACAN.
- Identify the Associated Facility of the TACAN.

Who should attend?

- ATSEP Technician.



Prerequisites

- English language (writing & speaking).
- ATSEP Technician.



Course Language

- English.



Duration

- 5 Days – 30 hours.



Assessment and Certification

- Approved by GACA.



What is covered?

- TACAN Function.
- Coverage.
- Accuracy.
- Availability.
- Integrity.
- Continuity.
- Capacity (number of users).
- Two-way ranging technique.
- Slant Range.
- Time Measurement.
- A/C Interrogation.
- Pulse Pairs.
- Ground Reply.
- fixed time delay.
- interrogation stagger.
- 'X' And 'Y' Channels.
- ICAO Annex 10, L-Band and Hi-Band.
- Electronic cabinet.
- antenna system.
- Power Supply.
- Remote controls and monitoring.
- Sensitivity.
- Selectivity.
- Dynamic range.
- Jamming immunity.
- Decoder.
- Decode Parameters.
- Carrier Frequency.
- Pulse Spacing.
- Pulse Shape.
- Pulse Repetition Frequency.
- Reply Delay.
- ID Code.
- North reference burst.
- Auxiliary reference burst.
- Rate of Replies.
- Automatic Reply Rate Control.
- Priority (Azimuth, Ident, DME signal, Squitter).
- Encode.
- Main Delay.
- Dead Time.
- Power and pulse measurements.
- modulation measurements.
- TACAN Antenna Type.
- Collocation with the VHF Equipment.



VHF Omni-Directional Range (VOR) Principles

VHF Omni-Directional Range (VOR) Principles



Course Summary

This 5-day course provides training for technicians on VOR Principle. The course is 30 hours Academy lecture.



Learning Activities



Lectures



Presentation



What will you learn?

On completion of this course, the trainees can perform the following:

Identify and understand VOR Principle, function and operation.

Understand VOR Specification.

Identify and understand the different between VOR and DVOR.

Identify the subsystem of the VOR.



Who should attend?

- ATSEP Technician.



Prerequisites

- Mathematics and common principles of basic Electronics.



Course Language

- English.



Duration

- 5 Days – 30 hours.



Assessment and Certification

- Approved by GACA.



What is covered?

- CVOR (Conventional VOR).
- DVOR (Doppler VOR).
- Type of Information (Azimuth).
- Coverage.
- Accuracy.
- Availability.
- Integrity.
- Continuity.
- Signal Broadcast Differences.
- Bearing Information Robustness.
- Declination.
- Reference and Variable Signals.
- Antenna System.
- Rotating Antenna Principle.
- Generating a Rotating Radiation Pattern with Static Antennas.
- Amplitude Modulation.
- Frequency Modulation.
- ID Code.
- Electronic Cabinet.
- Antenna System.
- Power Supply.
- Monitoring.
- NDB Backup.
- Carrier Frequency Stability.
- Output Power.
- Signals Generated.
- Radiation Power and Modulation Measurements.
- Spectrum Measurements.
- Antenna Polarization.
- Monitor Near Field Sensors.
- In Space Modulation.
- Phase Sideband/Carrier.
- Ground Check for Bearing Errors.
- Flight Check for Bearing Errors and Modulation.
- Carrier Frequency Deviation,
- Depth of Modulation.
- Local and Remote Monitoring.
- Collocation with the Uhf Equipment.



Distance Measuring Equipment (DME) Principles

Distance Measuring Equipment (DME) Principles



Course Summary

This 5-day course provides training for technicians on Basic DME Principles. The course is a 30 hours Academy lecture.



Learning Activities



Lectures



Presentation



What will you learn?

On completion of this course, the trainees can perform the following:

- Identify and understand DME Principle, function and operation.
- Understand DME Specification.
- Identify DME types.
- Identify the Associated Facility of the DME.



Who should attend?

- ATSEP Technician.



Prerequisites

- Mathematics and common principles of basic Electronics.



Course Language

- English.



Duration

- 5 Days – 30 hours.



Assessment and Certification

- Approved by GACA.



What is covered?

- DME Function.
- Coverage.
- Accuracy.
- Availability.
- Integrity.
- Continuity.
- Capacity (number of users).
- Two-way ranging technique.
- Slant Range.
- Time Measurement.
- A/C Interrogation.
- Pulse Pairs.
- Ground Reply.
- Fixed time delay.
- Interrogation stagger.
- 'X' And 'Y' Channels .
- ICAO Annex 10, L-Band and Hi-Band.
- Electronic cabinet.
- Antenna system.
- Power Supply.
- Remote controls and monitoring.
- Sensitivity.
- Selectivity.
- Dynamic range.
- Jamming immunity.
- Decoder.
- Decode Parameters.
- Carrier Frequency.
- Pulse Spacing.
- Pulse Shape.
- Pulse Repetition Frequency.
- Reply Delay.
- ID Code.
- Rate of Replies.
- Automatic Reply Rate Control.
- Priority (Ident, DME signal, Squitter).
- Encode.
- Main Delay.
- Dead Time.
- Power and pulse measurements.
- Modulation measurements.
- ICAO Annexes 10, protection area criteria and enforcement.
- DME Antenna Type.
- Collocation with the VHF Equipment.



Instrument Landing System (ILS) Principles

Instrument Landing System (ILS) Principles

Course Summary

This 5-day course provides training for technicians on ILS Principle. The course is 30 hours Academy lecture.

Learning Activities



Lectures



Presentation

What will you learn?

On completion of this course, the trainees can perform the following:

Identify and understand ILS Principle, function and operation.

Understand ILS Specification.

Identify and understand ILS Sighting effect and local/remote control.

Identify the subsystem of the ILS.

Who should attend?

- ATSEP Technician.



Prerequisites

- English language (writing & speaking).
- ATSEP Technician.



Course Language

- English.



Duration

- 5 Days – 30 hours.



Assessment and Certification

- Approved by GACA.



What is covered?

- Annex 10 And 14.
- Coverage.
- Accuracy.
- Availability of The System.
- Integrity.
- Continuity.
- Number of Users.
- Only 40 Channels.
- Cat I, Cat II, Cat III.
- Different Operational Category Depending On Operational Minima.
- Equipment and Airport Facilities.
- ILS Beam Protection.
- Carrier Signal and A Side Band Signal In Space.
- Amplitude and Phase Relationship.
- Antenna Systems.
- Phases and Amplitudes in Antenna Array.
- Modulations On Carrier Signal.
- Phase and Amplitude of Sideband.
- Impact On Location of Critical and Sensitive Area.
- Multipath in Adverse Environment and Terrain (1F).
- Capture Effect in Receiver Circuits.
- Types of Antenna Arrays.
- Signal Distribution.
- Radiated Power.
- Electronic Cabinet.
- Antennas.
- Power Supply.
- Remote Controls and Monitoring.
- Tower Indication.
- Carrier Frequency.
- Output Power.
- Signals Generated.
- LOC, GP, Marker Beacons.
- Synthesizer.
- Modulator.
- Power Amplifier.
- Control Coupler.
- RF Changeover.
- RF Level.
- DDM.
- SDM On Position and Width.
- External, Internal and Integral Monitoring.
- Output Power.
- Spectrum Analysis.
- Modulation.
- ID Code.
- DDM and SDM Mis-Alignment.
- Marker Beacons.
- Collocation with DME.



Thales TACAN AN 453 Maintenance

Thales TACAN AN 453 Maintenance



Course Summary

- This 10-days course provides training for technicians on Thales TACAN AN 453 Maintenance. The course is 60 hours Academy lecture and practical. Lecture subjects include operate and maintain Thales TACAN AN 453.



What will you learn?

On completion of this course, the trainees can perform the following:

- Identify and understand TACAN Principle, function and operation.
- Understand TACAN Specification.
- Understand the degradability of TACAN.
- Identify the Associated Facility of the TACAN.



Prerequisites

- Tactical Air Navigation (TACAN) Principles.
- ATSEP Technician.
- Using Computer software.



Course Language

- English.



Duration

- 10 Days – 60 hours.



Assessment and Certification

- Approved by GACA.



Learning Activities



Lectures



Lab exercises



Presentation



Who should attend?

- ATSEP Technician.



What is covered?

- Operation of the equipment.
- Read-out and modify Data with PC.
- Regular maintenance of equipment with BITE and external instrumentation.
- Regular Maintenance of Power Supply and Battery.
- Corrective maintenance up to Board Level and repairs.
- Routine Flight check Assistance.



Secondary Surveillance Radar (MSSR-Raytheon)

Secondary Surveillance Radar (MSSR-Raytheon)

Course Summary

This course is based upon approximately 50% lecture and 50% practical. The topics covered will be to the block diagram level for the system and its LRUs. The material will be performed explaining corrective and preventative maintenance routines. The practical exercises which will give the engineers/technicians the confidence and skills needed in order to maintain and trouble shoot the MSSR-Raytheon.

What will you learn?

The topics covered will be to the block diagram level for the system and its LRUs. The material will be performed explaining corrective and preventative maintenance routines. The practical exercises which will give the engineers/technicians the confidence and skills needed in order to maintain and trouble shoot the MSSR-Raytheon.



Prerequisites

- Radar Concepts and Fundamentals.



Course Language

English.



Duration

10 Days – 60 hours.



Assessment and Certification

Approved by GACA.

Learning Activities



Lectures



Lab exercises



Presentation

Who should attend?

- ATSEP Technician.

What is covered?

- Introduction.
- MSSR System Overview.
- Maintenance & Safety.
- Antenna Systems.
- Turning Gear.
- Modulation & Monitor.
- Transmitter System.
- Receiver System.
- Video & Timing PEC.
- SSR Reply Decoder.
- Mode S Reply Decoder.
- Plot Extractor.
- Dynamic Parameters.
- Parameters Switches.
- Output Link Management OLM.
- Fans and Power Supply.
- Site Monitor.
- Control and Maintenance System - CMS.
- Technical Maintenance Display - TMD.



Radar Concepts and Fundamentals

Radar Concepts and Fundamentals

Course Summary

This course provides basic radar fundamentals training for technicians and engineers within the radar discipline. The 60-hour course is divided into 30 hours of academy lecture and 30 hours academy laboratory.

The laboratory exercises focus on the radar training system (Radar Lab-volt simulator), a small low-power room-sized radar, to illustrate radar theory along with demonstration labs conducted at various academy radar system.

What is covered?

- Introduction to radar.
- General on pulse radar.
- Performance of pulse.
- CW and FM CW radars.
- Moving Target Indicator.
- Pulse Doppler Radar.
- Doppler Filtering.
- Search Radars.
- TWS Radar.
- Continuous Tracking Radar.
- Frequency agility- pulse compression and diversity radar.
- Synthetic Aperture Radar (SAR).
- Multi-functional Radar.
- Functional Description of SSR-IFF.
- Principle of SSR-IFF.
- Functional Description of SSR-IFF.
- Mono-pulse SSR (MSSR).

Learning Activities



Lectures



Presentation

Who should attend?

- This course provides training for electronic technicians and engineers progressing into technical positions having responsibility for operating, maintaining, and certifying/ verifying normal operation of Radar Equipment.



Prerequisites

- Mathematics and Common Principles of basic electronics.



Course Language

- English.



Duration

- 10 Days – 60 hours.



Assessment and Certification

- Approved by GACA.



What will you learn?

At the conclusion of the course, participants will be able to:

- **Primary Surveillance Radar**

To provide the trainees with the fundamental knowledge on modern radars such as frequency agility and pulse compression.

Describe the characteristics of radars.

Describe the multifunction radars functions.

- **Secondary Surveillance Radar**

To provide the trainees with the basic knowledge of the (MSSR) system ((Mono-pulse) Secondary Surveillance Radar

Role of the secondary radar. Interrogation modes, reply codes, encoding and decoding of altitude reply code. Decoding and display of replies. Replies on side lobes, Interrogation Side Lobe Suppression (ISLS), Reception Side Lobe Suppression (RSLS).

Explain the need for and benefits of Mode S.



Introduction CNS/ATM

Introduction CNS/ATM



Course Summary

- Gain an overview of ICAO CNS/ATM technologies and infrastructure to support the transition to a performance-based air navigation system.



What will you learn?

- To provide participants with the knowledge, skills and attitudes to effectively apply the various aspects of Communication, Navigation, Surveillance and Air Traffic Management (CNS/ATM) systems.



Learning Activities



Lectures



Presentation



Who should attend?

- ATSEP Technician.



Prerequisites

- Participants must be certified as skilled ATSEP technicians.



Course Language

- English.



Duration

- 5 Days – 30 hours.



Assessment and Certification

- Approved by GACA.



What is covered?

1- ICAO and FANS.

- 1.1 Historical overview.

2. Global Navigation Satellite System (GNSS)

- 2.1 Introduction to GNSS.
- 2.2 Basics of position determination from satellites.
- 2.3 Augmentation systems.
- 2.4 GNSS performance: Accuracy, availability, integrity, vulnerability.
- 2.5 New developments in global positioning system.
- 2.6 Galileo and other new systems.
- 2.7 Multi-sensor systems and GNSS and inertial navigation system integration.

3- Communications.

- 3.1 Current and Future Environment.
- 3.2 Controller Pilot Data Link Communication (CPDLC).
- 3.3 Aeronautical Telecommunications Network (ATN).

4- Navigation.

- 4.1 Current and Future Environment.
- 4.2 Area Navigation (RNAV).
- 4.5 WGS-84 Geodetic Reference Datum.
- 4.6 Improved Navigation Benefits.

5- Surveillance.

- 5.1 Current and Future Environment.
- 5.2 Automatic Dependent Surveillance (ADS).
- 5.3 Aircraft Collision Avoidance System (ACAS).
- 5.5 Mode S.
- 5.6 Improved Surveillance Benefits.
- 6- Air Traffic Management.
- 6.1 Future Environment.
- 6.2 ATS Message Handling Service (AMHS).
- 6.3 Benefits of VSAT.



Primary Surveillance Radar (PSR-Raytheon)

Primary Surveillance Radar (PSR-Raytheon)

Course Summary

This course is based upon approximately 50% lecture and 50% practical. The topics covered will be to the block diagram level for the system and its LRUs. The material will be performed explaining corrective and preventative maintenance routines. The practical exercises which will give the engineers/technicians the confidence and skills needed in order to maintain and trouble shoot the PSR-Raytheon System.

Learning Activities



Lectures



Presentation



Lab
exercises

Who should attend?

- ATSEP Technician.

What will you learn?

This course provide training for electronics technicians and engineers progressing into technical position having responsibility for operating, maintaining and certifying/verging normal operational of PSR Radar.



Prerequisites

- Radar Concepts and Fundamentals.



Course Language

- English.



Duration

- 15 Days – 90 hours.



Assessment and Certification

- Approved by GACA.



What is covered?

- Overview.
- Radar Fundamentals.
- RF Safety.
- ASR System Overview.
- Control and Monitoring System (SMS).
- Exciter.
- Local Oscillator (LO).
- Up Converter (UCON).
- Transmitter.
- DRIVER & RF Pallet.
- AMPLIFIER & 1:16 Divider Network.
TCMM.
- TX Power Supplies & Power Distribution.
- Waveguide Assy. & 8:1 Combiner.
- Receiver.
- RF Assembly (STC/Beam Maps).
- Down Converter (DCON).
- Stability Monitor.
- REX Power Supply & UPS.
- Advanced Signal Data Processor (ASDP).
- APG.
- Pedestal & Rotary Joint & Encoders
& Motor Controllers & Compressor/
Dehydrator.
- Antenna & Polarizer (Radome if Required).
- SCDI – Site Control and Data Interface.



Hardware and Software of Personal Computer

Hardware and Software of Personal Computer

Course Summary

This course is designed to provide a detailed introduction to PC hardware and peripherals. The fundamentals of storage, processing, graphics, audio are covered. The trainees will have a deeper understanding of how devices work, the trainee can gain a foundation of the computer's hardware and software knowledge by examining the steps and techniques demonstrated in this course.

Learning Activities



Lectures



Presentation



Lab
exercises

Who should attend?

- Anyone.

What will you learn?

After successful completion of these courses the trainees will be able to:

Identify the basic hardware PC components and understand the procedure of assembling the personal computers.

Understand the basic concept of computer software and its operating systems.

What is covered?

- PC Hardware Components.
- Assemble PC – Put everything together.
- Install a Motherboard.
- How to install a Processor – CPU.
- How to install a Memory – SDRAM.
- How to install a IDE Hard Disk Drive?
- How to install a SATA Hard Disk Drive?
- How to install a Floppy Disk Drive?
- How to install CD / DVD ROM.?
- How to install a CD Writer, CD-RW?
- How to install a AGP Graphics Card.?
- How to install a Sound Card.?
- How to install a Modem?
- Finalizing stage.
- How to Install Windows and the driver's software?



Course Language

- English.



Duration

- 10 Days – 60 hours.



Assessment and Certification

- Approved by GACA.



MS Excel - Basic

MS Excel



Course Summary

This 5-days course provides training on MS Excel. The course is 30 hours Academy lecture.



What will you learn?

Upon successful completion of this course, participants will be able to:

You will feel more confident using Excel and be able to create a spreadsheet from scratch.

Understanding built in calculation and formula functionality will allow you to be more productive in your work and home Excel environments.

Spreadsheets that you create will be easier to use and look more presentable.

You will be able to present your data visually using charts and Sparkline's



Learning Activities



Lectures



Presentation



Lab exercises



Who should attend?

- Anyone.



Prerequisites

- Hardware and Software of Personal Computer.



Course Language

- English.



Duration

- 5 Days – 30 hours.



Assessment and Certification

- Approved by GACA.



What is covered?

Module One: Getting Started

- Opening Excel
- Understanding the Interface
- Using Backstage View
- Understanding Worksheets
- Understanding Workbooks

Module Two: Entering and Editing Data

- Entering Data
- Editing Data
- Using the Wrap Command
- Adding Rows and Columns
- Checking Your Spelling

Module Three: Building Formulas

- The Math Basics of Excel
- Building a Formula
- Editing a Formula
- Copying a Formula
- Relative vs. Absolute References

Module Four: Using Excel Functions

- Formulas vs. Functions
- Using the SUM Function
- Using Other Basic Excel Functions
- Understanding the Formulas Tab
- Using the Status Bar to Perform Calculations
- Understanding the New Function Names

Module Five: Formatting Your Data

- Changing the Appearance of Text
- Changing the Appearance of Numbers
- Setting Alignment Options
- Using Merge
- Removing Formatting
- Borders

- Adding Fill Color
- Using Cell Styles
- Changing the Theme

Module Six: Using Time Saving Tools

- Using AutoFill
- Using AutoComplete
- Adding Sparklines

Module Seven: Working with Excel Files

- Saving Files
- Publishing Files to PDF
- Sending Files via E-Mail
- Closing Files
- Opening Files

Module Eight: Printing Excel Data

- An Overview of the Page Layout Tab
- Setting Up Your Page
- Using Print Preview
- Printing Data

Module Nine: Creating Charts

- Inserting a Chart
- Overview of the Chart Tools Tab
- Understanding the Parts of a Chart
- Changing the Chart Style
- Resizing and Moving the Char



MS PowerPoint - Basic

MS PowerPoint - Basic



Course Summary

- This 5-days course provides training on MS PowerPoint. The course is 30 hours Academy lecture.



What will you learn?

- At the end of this course you will have a good working knowledge of Microsoft PowerPoint basics.

You will feel more confident using Power Point and be able to create a Presentation from scratch.

- Understanding and using the Slides tab and the Outline View.

Understanding how to create and managing your Presentation that you create to look more presentable.



Learning Activities



Lectures



Presentation



Lab exercises



Who should attend?

- Anyone.



Prerequisites

- Hardware and Software of Personal Computer.



Course Language

- English.



Duration

- 5 Days – 30 hours.



Assessment and Certification

- Approved by GACA.



What is covered?

UNIT 1: PowerPoint Basics

- Opening Microsoft PowerPoint Presentation
- Open a Presentation
- Interacting with PowerPoint
- Closing PowerPoint
- Closing Presentation
- Minimize Ribbon
- About Online Help

Unit 2: Building New Presentations

- Creating a New Presentation
- Adding a New Slide
- Editing a Slide
- Cutting, Copying and Pasting Text
- Using the Format Painter
- Text AutoFit
- Clipboard
- Cutting, Copying and Pasting Slides
- Saving a Presentation

Unit 3: Formatting and Proofing

- Formatting
- Paragraph
- Bullets and Numbering
- Adding Bullets/Numbers
- Customizing Bullets and Numbers
- Removing Bullets and Numbers
- Alignment
- Using Justification
- Changing Text Direction
- Proofing
- Spell Check

Unit 4: Using Drawing Tools

- Insert Shapes
- The Drawing Tools Ribbon
- The Format Pane

Unit 5: Working with WordArt and ClipArt

- Adding and Formatting ClipArt

Unit 6: Using Tables and Charts

- Working with Table
- Insert a Table
- Format a Table
- Working with Charts

- Creating and Linking Worksheet Charts and Graphs
- Chart Tools Ribbon
- Design Ribbon
- Format Ribbon
- Legends and Labels
- chart types in Excel 2016
- Creating SmartArt
- SmartArt Tools
- Design Ribbon
- Resizing Diagrams

Unit 7: Enhancing Presentations

- Using Templates
- Opening a Template
- Using a Template
- Downloading Templates
- Creating a Template
- The Design Ribbon
- Themes
- Variants
- Preview
- Slide Transition
- Add Header or Footer
- Introduction to Slide Masters
- Types of Masters
- Using the Slide Master Ribbon
- Create a Master Slide
- Using Masters
- Apply Master to a Slide
- Removing Masters

Unit 8: Delivering Presentations

- Slide Show Ribbon
- Start Slide Show
- Setup
- Print Preview
- Opening Print Preview
- Using the Print What Option
- Web Features
- Hyperlinks
- Saving a presentation as Webpage
- Open a document



MS Word - Basic

MS Word - Basic



Course Summary

- This 5-days course provides training on MS Word. The course is 30 hours Academy lecture.



What will you learn?

At the end of this Word training course, you will have a good working knowledge of Word basics.

- You will feel more confident using Word and be able to create a document from scratch.

Understanding and using some of the built-in layout and text editing functionality will enable you to produce far more striking and effective documentation in your work and home Word environments.

- Documents that you create will be easier to read and look more presentable.

Understanding how to create and managing table, how to accessing the header or footer and changing document margins and inserting a page break.

- You will be capable to Using the spelling and grammar checker, Printing Word document and emailing a document from Word



Learning Activities



Lectures



Presentation



Lab exercises



Who should attend?

- Anyone.



Prerequisites

- Hardware and Software of Personal Computer.



Course Language

- English.



Duration

- 5 Days – 30 hours.



Assessment and Certification

- Approved by GACA.



What is covered?

UNIT 1: Getting Started

- Elements of the Word window
- Create a new document
- Saving a document
- Using Help

Unit Two: Editing Documents

- Open a document
- Navigating a document using the scroll bar
- Navigating a document using the keyboard
- Using Go To
- Edit text in a document
- Find and Replace

Unit Three: Moving and Copying Text

- Selecting text using the mouse
- Selecting text using the keyboard
- Move or copy text using the mouse

Unit Four: Formatting Characters and Paragraphs

- Applying character formatting – font and font size
- Paragraph alignment

- Bullet and numbering
- Viewing tabs
- Understanding the New Function Names

UNIT Five: Creating and Managing Tables

- Insert a table
- Inserting rows or columns
- Deleting rows or columns
- Using AutoFit options
- Changing cell text alignment

UNIT Six: Controlling Page Layout

- Accessing the header or footer
- Changing document margins
- Inserting a page break



MS Excel - Advanced

MS Excel – Advanced



Course Summary

■ This 5-days course provides training on MS Excel - Advanced. The course is 30 hours Academy lecture.



What will you learn?

Upon successful completion of this course, participants will be able to:

■ At the end of this course, you will have a complete understanding of the higher functions of Excel.

■ You will be able to perform the most advanced calculations and functions, manipulate data using pivot tables and 'advanced' analysis, record macros and integrate with other office applications.



Prerequisites

- Hardware and Software of Personal Computer.



Course Language

- English.



Duration

- 5 Days – 30 hours.



Assessment and Certification

- Approved by GACA.



Learning Activities



Lectures



Presentation



Lab
exercises



Who should attend?

- Anyone.



What is covered?

Module One: Using logical functions

- Naming ranges
- Creating named ranges
- Using named ranges in formulas
- The IF function (recap) Creating nested IF functions AND, OR functions.
- Combining logical functions

Module Two: Working with lookups

- The VLOOKUP function The HLOOKUP function

Module Three: Advanced list management

- Using data validation
- Setting criteria for entry of text, values and dates
- Creating a dropdown list Using database functions
- Setting up criteria - DSUM - DAVERAGE - DCOUNT

Module Four: PivotTables and Pivot Charts

- Using the PivotTable Wizard Rearranging PivotTables Using the PivotTable toolbar Creating Pivot
- Charts Using Slicers to manipulate PivotTables

Module Five: Using analytical options

- Using Goal Seek Using the Solver add-in
- Working with scenarios
- Creating and saving scenarios
- Viewing scenarios



MS PowerPoint – Advanced

MS PowerPoint – Advanced

Course Summary

This 5-days course provides training on MS PowerPoint. The course is 30 hours Academy lecture.

What will you learn?

Upon successful completion of this course, participants will be able to:

At the end of this Power Point training course, you will have a good working knowledge of Power Point Advance feeling more confident

You will understand how to Build Templates and Custom Presentations also knowing how to Insert and work with Graphics, Charts and Tables

Understanding Advanced delivery options, Animations and Transitions

Understanding how to Customize your workspace, Slide Master

Understanding how to Import/Exporting from PowerPoint

Learning Activities



Lectures



Presentation



Lab exercises

Who should attend?

- Anyone.



Prerequisites

- Hardware and Software of Personal Computer.



Course Language

- English.



Duration

- 5 Days – 30 hours.



Assessment and Certification

- Approved by GACA.



What is covered?

Unit 1: Building Custom Presentations

- Advanced Slide Master Techniques
- Using the Slide Master Ribbon
- Using the Notes Master Ribbon
- Using the Handout Master Ribbon
- Creating Notes Master
- Creating Handouts Master
- Apply Note and Handout Masters
- Removing Masters
- Modifying Templates
- Modify Themes
- Saving Templates

Unit 2: Using Multimedia in Presentations

- Customize your diagrams
- Customizing Your Diagrams
- The Drawing Tools Ribbon
- Advanced ClipArt Formatting
- Other Illustrations
- Inserting a Picture from a File
- Inserting a Photo Album
- ding Video and Sound
- Insert Video from the Clip Organizer or File
- Deleting a Video
- Adding a Sound Clip
- Deleting a Sound
- Using Animation Effects
- Add animation to an object
- Apply multiple animation effects to a single object
- View a list of animations currently on the slide
- Set the effect options, timing, or order for an animation
- Test your animation effect
- Using Slide Transitions
- Add a transition to a slide
- Set the timing for a transition
- Add sound to slide transitions
- Creating a Custom Animation

Unit 3: Microsoft Office Integration with PowerPoint

- Merging Your Presentation with Another
- Slides from Word Outline
- Create Handouts in Microsoft Word
- Create a New Embedded Object

- Embedding Part of a File
- Edit Embedded Objects

Unit 4: Working with Organization Charts and Tables

- Advanced Organization Chart Options
- Create an Organization Chart
- Edit an Organization Chart
- Formatting and Modifying Tables
- Table Tools: Design Sub Ribbon
- Table Styles

Unit 5: Advanced Presentation Techniques

- Create Action Buttons
- Custom Shows
- Creating, Editing, Copying, and Deleting Shows
- Setting Show Options
- E-mail Presentation

Unit 6: Advanced presentation delivery options

- Write on slides during a presentation
- Copying a Presentation to a CD or Folder
- Package Presentation for CD
- Opening Packaged Presentations

Unit 7: Customizing the PowerPoint Environment

- PowerPoint Options
- Proofing
- Using the Quick Access toolbar
- Adding Buttons
- Removing Buttons
- Customizing the Toolbar
- Slide Sections
- Add and name a section
- Rename a section
- Move a section up or down in a list of slides
- Remove a section
- Headers and Footers
- Add Header or Footer
- Screenshots
- Add a Screenshot



MS Word - Advanced

MS Word- Advanced



Course Summary

- This 5-days course provides training on MS Word. The course is 30 hours Academy lecture.



What will you learn?

Upon successful completion of this course, participants will be able to:

- At the end of this Word Advanced course, you will have a complete understanding of the higher functions of Word.

- You will be able to perform the most advanced functions, including merging your documents with databases for mail-shots

- You will learn how to produce well-defined forms.

- You will learn how to work with extremely large documents

- You will be able to use macros to speed through any repetitive functions



Learning Activities



Lectures



Presentation



Lab exercises



Who should attend?

- Anyone.



Prerequisites

- Hardware and Software of Personal Computer.



Course Language

- English.



Duration

- 5 Days – 30 hours.



Assessment and Certification

- Approved by GACA.



What is covered?

Unit One: Using Mail Merge

- Starting the Mail Merge Wizard
- Using Mail Merge to create letters
- Mail Merge Wizard step-by-step
- Using Mail Merge to create labels

Unit Two: Creating Forms

- The Developer Ribbon
- Form controls
- Creating a form
- Inserting a control into a form
- Modifying a control's properties
- Protecting a form
- Saving a form

Unit Three: Working with large documents

- Master documents
- Creating a master document
- Editing a sub document
- Moving and deleting a subdocument
- Footnotes and Endnotes
- Inserting a footnote or endnote
- Review footnotes or endnotes in a document
- oIndexes
- Marking index entries
- Creating an index
- Updating the index
- Table of Contents
- Applying a style
- Creating a Table of Contents
- Updating the Table of Contents
- Remove the Table of Contents
- Bookmarks
- Creating a bookmark
- Locating a bookmark

- Cross-references
- Creating a cross-reference

Unit Four: Managing document revision

- o Using Track Changes
- o Turning Track Changes on
- o Turning Track Changes off
- o Using Tracking Options and Balloons
- o Reviewing Changes
- o Comparing Documents
- o Combining documents

Unit Five: Automation and customization

- Macros
- Running a macro
- Modifying a macro
- Deleting a macro
- Customizing Word
- Customizing the Quick Access Toolbar

Unit Six: Insight

- Quick Insights

Unit Seven: Real-time collaboration

- Change Highlighting
- Quick reference: Word shortcut keys



System Maintenance Engineer

System Maintenance Engineer

Course Summary

This 10-days' course is designed to give a basic idea of the standards that has to be met by the SME in maintaining the systems within the limits of flight information region of the Kingdom, as well as accordance with the levels and responsibilities that the SME has to bear up as a leader of a task force.

What will you learn?

This course provides training for system engineers having responsibility for maintaining normal operation of CNS equipment.



Prerequisites

- ATSEP Technician and A working knowledge of Windows.



Course Language

- English.



Duration

- 10 Days – 60 hours.



Assessment and Certification

- Approved by GACA.

Learning Activities



Lectures



Presentation



Lab
exercises

Who should attend?

- ATSEP Technician.

What is covered?

- Introduction to SME.
- Maintenance Classifications.
- SANS Navigational Equipment.
- SME Responsibility.
- SME Procedure.
- Update Process.
- M/C & NOTAM office procedures.
- Classification of failures.
- Safety.
- ICAO Regulations.
- Practical Exercises on SME Pro.



Safety Management System

Safety Management System

Course Summary

This 3-day course is designed to give a basic idea of SMS and its influence on the maintenance procedures for CNS/ATM equipment.

What will you learn?

Upon successful completion of the course, the participants will be able to:

- Understand SMS Policy.
- Define Risk management.
- Explain Safety assurance.
- Understand Reporting.



Prerequisites

- ATSEP Technician



Course Language

English.



Duration

3 Days – 18 hours



Assessment and Certification

Approved by GACA.

Learning Activities



Lectures



Presentation

Who should attend?

- Anyone

What is covered?

- Introduction to SMS.
- Safety Management Policy and objectives.
- Safety assurance.
- Safety Promotion.
- SMS implementation & the just culture concept .
- Update Process.
- M/C & NOTAM office procedures.
- Safety reporting.



Human Factor For ATSEP

Human Factor



Course Summary

- This 2-day course designed to give a general information about human factor to ASTEP personnel.



What will you learn?

- Definition of human factor.
- Working knowledge and skills effect on avoiding errors.
- Psychological factors.
- Medical issues result on human work.
- Organizational and social factors.
- Communication.



Prerequisites

- ATSEP Technician



Course Language

- English.



Duration

- 2 Days – 12 hours



Assessment and Certification

- Approved by GACA.



Learning Activities



Lectures



Presentation



Who should attend?

- ATSEP Technician.

What is covered?

- Introduction.
- Working knowledge and skills.
- Psychological factors.
- Medical.
- Organizational and social factors.
- Communication.
- Stress.
- Human error



الهيئة العامة للطيران المدني
General Authority of Civil Aviation



الأكاديمية

السعودية للطيران المدني
Saudi Academy of Civil Aviation

ANS

TRAINING CENTER

www.saca.edu.sa

✕  @SACA_SA