



Savitribai Phule Pune University

(Formerly University of Pune)

Three Year B.Sc. Degree Program in Aviation
(Faculty of Science & Technology)

T.Y.B.Sc.(Aviation)

Choice Based Credit System (CBCS) Syllabus

To be implemented from Academic Year 2021-22

Third Year BAV (Under Science & Technology Faculty) Semester V

Course Code: BAV 501

Course Title: Aircraft Mechanical and Electrical System

**Total Contact Hour: 48 Hrs Total Credits: 04. Total Marks: 100
(60 Lectures)**

Teaching Scheme: Theory-4 Lectures/Week

Objectives:

1. To get familiarize with basic aircraft mechanical & electrical systems.
2. To get familiarize with Air-conditioning and Cabin pressurization system of aircraft.
3. Introduction to Landing gear and Pneumatic system and Hydraulic Power of aircraft.
4. Introduction to Electrical Power and Light system of aircraft.
5. To study the concept of Fire and Rain protection.
6. To study on board maintenance system of aircraft.

Learning Outcomes:

1. Understand the aircraft mechanical operated controls and how it gets synchronized with electrical power.
2. Understand the general concept of Air Conditioning and its source of supply.
3. Understand the significance of electrical power and system associated with it.
4. Understand the Pneumatic system, Landing gear system.
5. Familiarisation with fire protection system along with the concept of board maintenance system.

UNIT I: Introduction to Mechanical & Electrical System and its Synchronization: (10 L)

- (a) Enumeration of Aircraft Mechanical and Electrical systems sub systems- purpose, brief description, aspect of safety / integrity, integration, interface and bonding.
- (b) Aircraft systems and their sub systems. Specification of requirements- mission requirements performance requirements. Operating environment conditions and the interdependence.

UNIT II: Air Conditioning and Cabin Pressurisation. (12L)

- (a) Air Supply. Source of air supply, including engine bleed, APU and Ground Cart.
- (b) Air Conditioning. Air Conditioning system, Air Cycle, Vapor cycle machine, Distribution system, Flow, temperature & Humidity Control System
- (c) Pressurisation. Pressurization System, Control and indication system, control & safety valves and Cabin pressure control, Protection and warning devices.

UNIT III: Electrical Power and Lights: (10L)

(a) Electrical Power System.

- (i) Batteries Installation and Operation
- (ii) DC & AC Power generation
- (iii) External/ ground power and Emergency power generation
- (iv) Voltage Regulator and Power Distribution
- (v) Inverters, Transformers and Rectifiers
- (vi) Circuit protection

(b) Light System.

- (i) External, Navigation, anti-collision, landing and Taxying
- (ii) Internal lighting system including cabin, cockpit and cargo.

UNIT IV: Protection system. (08L)

- (a) Fire and smoke detection and extinguishing systems.
- (b) Anti-icing systems, de-icing systems.
- (c) Landing gear extension and retraction, anti skid and autobraking systems

UNIT V Hydraulic Power: (12L)

- (a) Layout of Hydraulic Power System, Hydraulic Fluids, Reservoirs, Accumulators, Filters and pressure Control.
- (b) Pressure generation: Electrical, Mechanical and Pneumatic and its indication system.
- (c) Warning system and its interface with other systems

UNIT VI: Pneumatic System.

(08L)

- (a) Pneumatic System lay-out, Sources like engine/APU, compressors, reservoirs and ground supply.
- (b) Pressure Control, Distribution and Indication system.
- (c) Warnings and interface with other systems.

Reference Books:-

1. Aircraft Systems —by David A Lombardo Tata Mc Graw Hill Ed 2009
2. Aircraft Aircraft Systems : Mechanical, Electrical and Avionics sub system integration by—Moir, I. And Seabridge A, 3rd end, John Wiley, 2008, ISBN 978-0-470-05996-8.
3. Pneumatic and Hydraulic Systems—By Butterworth- Heine- mann.
4. Airframe Basic Electricity for A & P Mechanics by—Dale Crane
5. Electrical Fundamental System by — EPJ Pallet
6. Aircraft structure and system — EASA Module 13

Third Year BAV (Under Science & Technology Faculty) Semester V

Course Code: BAV 502

Course Title: Aircraft Instruments

Total Contact Hour: 45 Hrs

Total Credits: 03.

Total Marks: 100

(60 Lectures)

Teaching Scheme: Theory-3 Lectures/Week

Objectives:

1. To introduce Instrument Systems installed on Aircraft.
2. To study various conventional types of instruments with its construction and Principle of operation.
3. To get familiarize with Electronic Flight instruments.
4. To learn Auto Flight Control System with its operation.
5. To familiarize with Cockpit Voice Recorder and Flight data Recorder.

Learning Outcomes:

1. The student would understand basic principles of aircraft instrument system and its application in the operation of aircraft.
2. Understand general concept of Auto Flight Control System.
3. Understand operation of Electronic Flight Instruments.
4. Understand principle and importance of Cockpit Voice Recorder and Flight data Recorder.

UNIT I: Introduction to Instrument and Instrument system. (20L)

- (a) Typical system arrangements and cockpit layout of electronic Instrument System
- (b) Classification Instruments. Pressure measuring devices and systems.
- (c) Pitot Static Systems, Altimeters, Vertical speed Indicators, Air speed Indicators, Mach-meter, Altitude reporting/alerting systems, Air data Computers
- (d) Instrument Pneumatic Systems, Direct reading pressure and Temperature

- Gauges, Temperature indicating system, Fuel Quantity indicating system
- (e) Gyroscopic Principles, Artificial Horizons, Slip Indicator, Directional Gyros and Compass System (Magnetic Compass).

UNIT II: Auto Flight System. (20 L)

- (a) Fundamentals of automatic flight control, Command signal processing, Modes of Operation: Roll, Pitch and Yaw channels, Yaw dampers, Stability Augmentation System, Automatic Trim control.
- (b) Autopilot Navigation aids interface, Auto Throttle systems, Automatic landing Systems, modes of operation, approach, glide slope, land, go-around, System monitors and failure conditions.
- (c) Introduction to Fly-by-wire system.

UNIT III: Electronic Flight Instruments System (EFIS): (10L)

- (a) Introduction to EFIS.
- (b) Primary Flight Display, Multiple Flight display, Engine Instruments Display, Navigation Display, Warning panel, GPS, Weather Radars
- (c) Introduction to Head-up displays (HUD).

UNIT IV: Cockpit Voice Recorder and Flight Recorder. (10L)

- (a) Introduction, different generation FDR, Methods of Recording.
- (b) Aircraft integrated flight data system, decoding panel, methods of decoding.
- (c) Cockpit voice recorder characteristics and activation of FDR.

Reference Books:-

1. Aircraft Instrument by ——— C A Williams
2. Aircraft Flight control by — EHJ Pallet & Shawn Coyle
3. Flight Instrument sixth edition by ——— Davis Harries
4. Aircraft Instrument and Integrated System by——— EHJ Pallet
5. Auto Flight Control by ———- EHJ Pallet & Shawn Coyle

Third Year BAV (Under Science & Technology Faculty) Semester V

Course Code: BAV 503

Course Title: Propulsion II

Total Contact Hour: 45 Hrs

Total Credits: 03.

Total Marks: 100

(60 Lectures)

Teaching Scheme: Theory-3 Lectures/Week

Objectives:

1. To understand the fundamentals of aircraft Gas Turbine Engines.
2. To discuss the fundamentals of inlets, nozzles, compressors, combustion Chambers, gas turbines, its types, construction and operation
3. Introduction to Electronic Engine Control and Fuel Metering System (FADEC).
4. Introduction to Engine Starting, Ignition & Indication System.
5. Introduction to ramjet, scramjet engines and Rocket Propulsion.

Learning Outcomes:

1. Understand the operation of Jet engine used in aircraft.
2. Understand the differences of turbojet, turbofan, turbo shaft & Turbo propeller engines.
3. Understand the basic engine starting, ignition and indicating system.
4. Understand concept of advance propulsion system.

UNIT I: Introduction to Turbine Engines:

(15 L)

- (a) Types of Air Intakes, Compressors, Combustion chambers, Turbines and Jet Nozzles and their functions.
- (b) Construction arrangements and operation of turbojet, turbofan, turbo shaft and turbo propeller engines.

UNIT II: Introduction to Electronic Engine Control and fuel metering System (FADEC): (10 L)

- (a) FADEC fuel control system.
- (b) FADEC for auxiliary power unit.
- (c) FADEC Fuel control propulsion Engine, system control by electronic engine control.

UNIT III: Introduction to Engine Indicating System: (15L)

- (a) Exhaust gas temperature/Interstage turbine temperature system.
- (b) Engine Thrust indication, Oil pressure and Temperature.
- (c) Fuel pressure, temperature and flow, Manifold pressure.
- (d) Engine Torque and Propeller speed.

UNIT IV: Starting and Ignition system: (10L)

- (a) Operation of engine start system and components.
- (b) Ignition system and Components
- (c) Maintenance safety requirements

UNIT V: Introduction to Ramjet and Scramjet Engines and Rocket propulsion: (10L)

- (a) Basic operating principle of Ramjet and Scramjet Engines.
- (b) Fundamental of Rocket Propulsion, Solid Propellant rockets and Liquid Propellant Rockets
- (c) Fundamentals of Electric Rocket Propulsion

Reference Books:-

1. Jet aircraft power system third edition—Ralph Bent
2. Aircraft gas turbine engine technology third edition— Treager
3. Airframe Power Plant Mechanics Power Plant handbook—FAA-AC65-12A
4. Propulsion 14—EASA Module-14
5. Jet Engine — Roll Royce
6. Rocket Propulsion Element 7th edition—Sutton G P and Biblarz O

Third Year BAV (Under Science & Technology Faculty) Semester V

Course Code: BAV 504 Course Title: Material Science And Metallurgy

Total Contact Hour : 48 Hrs Total Credits: 04. Total Marks: 100

(60 Lectures)

Teaching Scheme: Theory-4 Lectures/Week

Objectives:

1. To understand the properties of various engineering materials and importance of aerospace materials.
2. To discuss the different types of ferrous and non-ferrous metals and alloys.
3. To study aerospace materials, its characteristic and application.
4. To Introduce concept of Metallurgy (Physical & Mechanical).

Learning Outcomes:

1. Understand the basic concept of Material Science, Characteristic of Aviation material and Metallurgy.
2. Understand the Aircraft Materials Ferrous and Non Ferrous and its application.
3. Understand the Characteristic and application of Composite and Non- Composite aircraft materials.
4. Understand different Non Destructive Testing (NDT) methods.
5. Know importance of metallic Corrosion in its prevention in Aviation.

UNIT I: Introduction to Material Science : (10 L)

- (a) Understanding of Engineering Materials and Importance of aerospace Materials.
- (b) Properties of material in general and properties of ideal aerospace materials and its selection.
- (c) Classification of Materials, its selection and production processes in brief.

UNIT II: Introduction to Metallurgy.

(12 L)

- (a) Physical Metallurgy. Crystallography, Phase Diagram, Time, Temperature and Transformation (TTT) diagram, Solidification of metals. Heat Treatment Processes.
- (b) Mechanical Metallurgy. Failure of metals, Deformation of metals, Testing Methods, Non Destructive inspection Methods/ Testing (NDT), Structural Health Monitoring (SHM).

UNIT III: Aircraft Materials- Ferrous and Non Ferrous.

(12 L)

(a) Ferrous Materials.

- (i) Characteristics, Properties and Identification of Common alloy steels used in aircraft.
- (ii) Heat Treatment and application of alloy steels.

(b) Non- Ferrous Materials.

- (i) Characteristics, Properties and Identification of common non ferrous materials used in aircraft.
- (ii) Heat Treatment and application of non-ferrous materials

UNIT IV: Aircraft Materials - Composite and Non-Metallic:

(14 L)

(a) Composite and non-metallic other than Wood and Fabric.

- (i) Characteristics, properties and identification of common composite and non-metallic materials, other than wood, used in aircraft; sealant and bonding agents.
- (ii) Detection of defects/deterioration in composite and non-metallic materials.

(b) Wooden Structures.

- (i) Construction methods and wooden airframe structures.
- (ii) Characteristics, properties, Types of wood and glue used in aircraft.
- (iii) Defects, detection methods and repair of wooden structure.

(c) Fabric Covering.

- (i) Characteristics, properties and types of fabric used in aviation.
- (ii) Inspection Methods, Types of defects and repair scheme of fabric covering.

UNIT V: Corrosion.

(12 L)

- (a) Causes of Corrosion, Types of Corrosion and Chemical Fundamentals.
- (b) Formation by, Galvanic action process, microbiological stress, Material Types, Susceptibility of corrosion.
- (c) Prevention Methods and introduction to CPCP (Corrosion Protection and Corrosion Prevention) program in Aviation.
- (d) Super alloys and advanced materials for Jet Engines

Reference Books:-

1. Introduction to Engineering Materials. TMH — B K Agarwal
2. Physical Metallurgy Principles and Practice— PHI Raghvan V
3. Engineering Materials and Metallurgy TMH — Shrinivasan R
4. Material Science and Metallurgy — O P Khanna
5. Aviation Maintenance Technician Hand Book ——— FAA
6. Aircraft Mechanics Shop manual ——— Larry Reithmaier
7. Aircraft Construction Repair and Inspection ——— JOE Christy

Third Year BAV (Under Science & Technology Faculty) Semester V

Course Code: BAV 505

Course Title: Lab - I (Flight Controls)

Total Contact Hour: 45 Hrs

Total Credits: 03.

Total Marks: 100

Teaching Scheme: Theory- 6 Practicals /Week

Learning Outcomes:

Students will be able to:

1. Carry out the check operation of control column.
2. Remove and fit Mach Trim switch of aircraft.
3. Remove and fit Auto Pilot Electrical Box.
4. Remove and fit various flight instruments, location and its safety hazard.
5. Understand the testing of various instruments in Avionics lab

Students have to perform minimum 12 Practical listed below:-

1. Installation and Removal of Autopilot Electrical Box.
2. Removal and Installation of Autopilot Controller.
3. Removal and Installation of Autopilot Altitude Controller.
4. Removal and Installation of Air Data Sensor.
5. Removal and Fitment of Mach/Over Speed Switch.
6. Removal and Installation of Oxygen Mask.
7. Removal and Installation of Oxygen Gauge.
8. Performing the calibration of press by using Dead Weight Tester.
9. Performing Altimeter leak test by using Altimeter test chamber mock up.
10. Replacement and Installation of Airspeed indicator in Aircraft.
11. Removal and Installation of Clock
12. Check flight management system through simulation.
13. Removal and Installation of Ram Air Temperature Bulb.
14. Removal and Installation of Artificial Horizon in Aircraft
15. Removal and Installation of Shut Off valve and regulator assembly.

Third Year BAV (Under Science & Technology Faculty) Semester V

Course Code: BAV 506

Course Title: Lab - II Aircraft Mechanical and Electrical System

Total Contact Hour: 45 Hrs Total Credits: 03. Total Marks: 100

Teaching Scheme: Theory- 6 Practicals/Week

Learning Outcomes:

Students will be able to:

1. Carry out visual inspection of structural parts.
2. Operation and service management of fire protection system.
3. Learn about various light system and removal and installation.
4. Know how to maintain AC and Dc Bar, carryout routine inspections.
5. Operation and service management of Micro Switch involved in landing gears

Students have to perform minimum 12 Practical listed below:-

1. Installation and Removal of aircraft Battery.
2. Maintenance of lead acid and Nickel Cadmium Battery.
3. Charging of battery Lead acid and Nickel Cadmium.
4. Demonstration, Location and maintenance of AC and DC Bus Bar
5. Identification, removal and fitment of Inverters.
6. Identification of various controlling and protective devises.
7. Maintenance on GPU and Battery Trolley.
8. Removal and installation of Landing and taxing lights.
9. Removal and installation of Navigation Lights.
10. Removal and installation of Anti-collision Lights.
11. Removal and installation of Strobe Lights.
12. Removal and installation of passenger lights.
13. Removal and installation of fire detection control unit.
14. Removal and installation of Fire annunciator / switch
15. Removal and installation of micro switches fitted in Wheel Bay.

Third Year BAV (Under Science & Technology Faculty) Semester V

Course Code: BAV 507

Course Title: Skill Enhancement Course: Project I

Total Contact Hour: 30 Hrs Total Credits: 02. Total Marks: 50

Teaching Scheme: Theory cum practical 4 /Week

Learning Outcomes:

1. Students will be able to enhance their additional technical skill which will help in their carrier development.
2. Students will be able to enhance their managerial skills which will help in their personality development.
1. Student have to undergo one of the following course and submit details to enhance their
Technical skills:-
 - (a) Course on NDT (15 L)
 - (b) Course on Composite material (15L)
 - (c) Course on RTR (15L)
 - (d) Course on Aircraft Maintenance Tools TQM (15L)
2. Student have to undergo one of the following course to enhance their
Managerial skills:-
 - (a) Leadership Course (15L)
 - (b) Capsule on Communication Skills. (15L)
 - (c) Capsule on Critical Thinking Skills (15L)
 - (d) Capsule on Positive Thinking (15L)
 - (e) Capsule on Team Work (15L)
3. Students have to submit a project report on the course/capsule undergo to enhance their skills.

Third Year BAV (Under Science & Technology Faculty) Semester VI

Course Code: BAV 601

Course Title: Aircraft Electronic and Digital system

**Total Contact Hour: 48 Hrs Total Credits: 04. Total Marks: 100
(60 Lectures)**

Teaching Scheme: Theory- 4 Lectures/Week

Objectives:

1. To familiarize with integrated modular avionics (IMA).
2. To get familiarize with multiple functions, combined into a single piece of Equipment
3. To get familiarize with navigation and communication equipment and control of Aircraft
4. To know methods to improve overall reliability of avionics with less components.
5. To familiarize with ease of fault isolation and additional facilities such as BITE (Built-in-Test -Equipment).

Learning Outcomes:

1. The student would understand basic principles of Avionics integration of Aircraft.
2. Understand general concept of Digital Data Bus.
3. Understand the design concept of common networking.
4. Understand Boeing Information Management System.

UNIT I: Typical Electronic/Digital Aircraft System. (15L)

- (a) General arrangement of typical electronics/digital aircraft system and associated BITE testing. Introduction of Integrated modular Avionics (IMA)
- (b) ACARS - ARINC Communication and addressing and reporting system.
- (c) EICAS - Engine Indication and Crew Alerting System.
- (d) Fly- by- Wire (FBW) and Flight Management System (FMS).
- (e) Inertial Reference System (IRS), Electronic Centralized Aircraft Monitoring (ECAM) and Global positioning System (GPS).
- (f) Traffic Collision Avoidance System (TCAS) and integrated Modular Avionics, Cabin System and Information System

UNIT II: Digital Data Bus.

(15 L)

- (a) Purpose and Introduction to ARINC 429, ARINC 629, Avionics full duplex.
- (b) VHF Communication Receiver, VHF Communication System Interconnections, VHF Communication System Tuning
- (c) Computer Architecture.

UNIT III: Design Concept:

(15L)

- (a) Introduction to design concept of common networking.
- (b) Introduction to various network components.
- (c) Information Management Cabinet.

UNIT IV: BOEING 777 AIMS.

(15L)

- (a) Airplane Information Management System, Line Replaceable Modules.
- (c) Primary Display system (PDS) and Flight Management Computer System (FMCS).
- (d) Thrust Management Computer System (TMCS) and Center Maintenance Computer System (CMCS)
- (e) Airplane Condition Monitoring system (ACMS) and Data Communication Management System (DCMS)
- (e) Flight Data Recorder System (FDRS)

Reference Books:-

1. Digital Integrated Electronics by —Herbert Taub, Donald Schilling
2. Digital fundamental by—Floyd
3. Digital Signal Processing by —S. Salivahananan, A Vallavaraj, C. Gnanapriya
4. Electronics Communication System by —George, Kennedy, Bernard Devis
5. Aircraft Communication & Navigation System by —Mike Tooley
6. Electronics Communication System by —George Kennedy
7. Aircraft Structure and System by — EASA Module 13 Sub Module 22

Third Year BAV (Under Science & Technology Faculty) Semester VI

Course Code: BAV 602

Course Title: Aircraft Ground Handling

Total Contact Hour: 45 Hrs

Total Credits: 03.

Total Marks: 100

(60 Lectures)

Teaching Scheme: Theory-3 Lectures/Week

Objectives:

1. To understand the necessity and importance of Ground handling.
2. To study various conventional Aircraft ground Handling Equipment
3. To get familiarize and able to follow with Sketches, Drawings and Schematics on Ground handling
4. To learn importance of maintenance of Aircraft Ground Handling equipment.

Learning Outcomes:

1. The student would understand basics of aircraft Taxing, Towing and safety Precautions
2. Understand general concept of Jacking and Leveling Procedures
3. Understand operation of ground handling servicing equipment.
4. Understand procedure of refueling and de-fuelling of aircraft and safeties to be Observed during the operation
5. Familiarize with engine ground run and ground starting procedure of aircraft

UNIT I: Aircraft Taxing/Towing and Associated Safety Precautions.
(20L)

- (a) Tie down procedures preparing of aircraft, Tie down procedure for Helicopter, procedure for securing weight shift control aircraft
- (b) Procedure for securing powered parachutes, towing bars, ground movement of aircraft, Towing of aircraft, Taxing of aircraft.
- (c) Ground Marshaling signal day time as well as night time and safety measures adopted.

UNIT II: Aircraft Jacking and Choking. (10L)

- (a) Aircraft jacking precautions, need and precautions to be followed,
- (b) Errors made while jacking, verifying points of jacking, leveling
Maintenance and Choking

UNIT III: Aircraft Servicing Methods: (10L)

- (a) Details on Types of servicing on aircraft.
- (b) Charging of aircraft with air/nitrogen/oxygen and various types of
Oils and fluids
- (c) Effect of environmental condition on aircraft, ground deicing and
Anti-icing of aircraft
- (d) Servicing of ground support equipment and Ground Power Units,
Hydraulic charging trollies.
- (e) Oxygen servicing equipment, Hydraulic jacks, towing/ steering arms,
Servicing ladders and platform

UNIT IV: Refueling and Defueling Procedures . (10L)

- (a) Introduction to types of Fuel used in aircraft and its identification
- (b) Aircraft Refueling and De-fuelling procedures and precautions to be
Followed, necessity of grounding and bonding
- (c) Fuel Contamination checks procedure and precautions to be followed.
- (d) Study the operation of Bowser for refueling and de-fuelling operations.

UNIT V: Ground Starting of Aircraft. (10L)

- (a) Engine starting on ground: procedure, precautions and operation in
Case of reciprocating engine, jet engines and Turboprops, Turbofan en-
gines
- (b) Need to hand crank the engine.
- (c) False or Hunting start of engines, Extinguishing Engine fire.

Reference Books:-

1. Maintenance Practice Module 07A — EASA Part 66/147
2. Introduction to Aircraft Maintenance Engineering —CAP 715 CAA
3. Human factors in aircraft Maintenance and Inspection — CAP 718
4. Aviation Maintenance Technician Series by— Dale Crane
5. Civil Aircraft Inspection Procedure (CAP 459) —Part I
6. Civil Aircraft Inspection Procedure (CAP 459) —Part II

Third Year BAV (Under Science & Technology Faculty) Semester VI

Course Code: BAV 603 Course Title: Airport Planning and Operation

Total Contact Hour: 45 Hrs Total Credits: 03. Total Marks: 100

(60 Lectures)

Teaching Scheme: Theory-3 Lectures/Week

Objectives:-

1. To introduce students concept of Airport Operation and it's planning.
2. To study the various factors affecting Airport Planning and its operation.

Learning Outcomes:-

1. Understand the need of Airport Operation and Airport Operational System.
2. Understand the general concept of Airport Planning.
3. Understand the general concept go Ground handling.
4. Know about Passenger Terminal Operations and Cargo operations.
5. Familiarize with Airport Technical Services and Access.

UNIT I: Airport an Operational System (15 L)

- (a) Private Airports and Public use Airports, Commercial Service Airports and Primary Commercial Service Airports, General Aviation Airports, Deliver Airports.
- (b) Components of an Airports, L and Side.
- (c) Airport as a System Function of Airport and Complexity of Airport Operation

UNIT II: Airport Planning: (10 L)

- (a) Need of Airport System planning. Airport Master Plan.
- (b) Airport layout plan- For-casting Facility Requirements, Design Alternatives.
- (b) Financial plans, Land Use Planning and Environmental Planning.

UNIT III: Ground Handling (12L)

- (a) Passenger Handling, Ramp Handling - Aircraft Ramp Servicing, Ramp Layout, Departure Control
- (b) Division of Ground handling responsibility. Ground handling Efficiency.
- (c) Baggage Handling and its Operations - Operating Characteristics of Baggage Handling System - Inbound Baggage systems, Outboard Baggage System - Operating performance and Organizing for the task.

UNIT IV: Passenger Terminal Operations and Cargo Operations (15L)

- (a) Function of the Passenger Terminal, Philosophies of Terminal Management
- (b) Direct Passenger Services, Airline related Passenger Services, Airline Related Operation Functions
- (c) Governmental requirements - Non - Passenger Related Airport Authority Functions, Processing Very Important Persons
- (d) Passenger Information system.
- (e) Air Cargo Market - Expanding The Movement. Flow through the cargo Terminal unit, Loading Devices. Handling with in the terminal Cargo Apron Operations - Computerization of Facilitation
- (e) Example of Modern Cargo Design - Freight Operations for integrated carrier

UNIT V: Airport Technical Services and Access: (08 L)

- (a) Scope of Technical services – Air traffic Control Telecommunications Metrology - Aeronautical Information
- (b) Access as a part of Airport System - Factors Effecting Access Mode Choice, Access Users and Model Choice, Access Interaction with Passenger Terminal Operation, Access Modes in - Town and Off - Airport Terminals

Reference Books:-

1. Airport Planning and Management, 5th edn, by ——— McGraw - Hill, 2004, Well, A. T. And Young, S . B.
2. Airport Operations, McGraw - Hill, 1997 by ——— Ashford, N. Stanton, H.P.M. and Moore
3. Airport Design and Operation, 2nd end, Elsevier, 2007 by ——— Kazda, A and Caves, R. E.
4. Planning and Design of Airport, 5th end. McGraw - Hill, 2010 by ————— Ho ronjeff, R. McKelvey, F. X. Sproule, W. J. And Young, S. B.

Third Year BAV (Under Science & Technology Faculty) Semester VI

Course Code: BAV 604

Course Title: Soft Skill and Organizational Behavior

Total Contact Hour: 48 Hrs Total Credits: 04. Total Marks: 100

(60 Lectures)

Teaching Scheme: Theory-3 Lectures/Week

Objectives:

1. To understand the need of soft skills in Aviation.
2. To discuss the fundamentals Organizational Behavior as applicable to working In aviation field
3. To know Types of soft skills used n work place.
4. Introduction the concept of study of organizational culture and tools to improve Interpersonal effectiveness
5. List the lessons to be learnt to be successful at work pace especially in aviation.

Learning Outcomes:

1. Understand the importance of soft skills development and its application.
2. Understand the personal attributes that enhances an individual's interactions, job Performance and career prospects
3. Understand the basic of organizational Behavior and importance of its learning.
4. Understand concept of Human Resource Management, organizational Culture and organizational change.
5. Students are able to provide hands on skills to work practically in aviation field and its basic terms.

UNIT I: Introduction to Soft Skills at Work Place: (12 L)

- (a) Definition of soft skills and synonym to People Skills, Interpersonal skills And transferable skills

- (b) Soft skills development and its types and its application.

UNIT II: Key Soft Skills:

(18L)

- (a) Communication, Team work and Professional Ethics.
- (b) Interpersonal skills and Leadership.
- (c) Critical thinking, problem solving, and Creativity.
- (d) Negotiation, Decision Making, self Confidence and self-awareness.
- (e) Preparation of a resume and self-introduction.

UNIT III: Organizational Behavior Model:

(12L)

- (a) Learning objectives and definition and need to study O B Model.
- (b) Study of O B attributes like Personality, Perception and Motivation at work Place.
- (c) Introduction an application of Herzberg's. Two Factor theory and Maslow's Need Hierarchy Theory in aviation field.
- (d) Case study analysis.

UNIT IV: Organizational Structure and its Effectiveness.

(18L)

- (a) Groups in organisation, its culture, and Conflict resolution.
- (b) An introduction to Transactional analysis.
- (c) Importance of Change, planned change & OB Techniques.
- (d) An introduction to individual & Interpersonal Behavior in Global Perspective
- (e) A case study analysis.

Reference Books:-

1. Handbook of Improving performance in the workplace by ——Siber H, Kenneth and Foshay RW (2009)
2. A Holistic Approach to soft skills training by ——Anju A.
3. Organisational behavior by —— Aswathapp
4. Organisational behavior by —— Carry Coop
5. Organisational behavior by ——Laurie J M

Third Year BAV (Under Science & Technology Faculty) Semester VI

Course Code: BAV 605

Course Title: Lab - I Aircraft Electronic and Digital System

Total Contact Hour: 45 Hrs Total Credits: 03. Total Marks: 100

Teaching Scheme: Theory- 6 Practicals/Week

Learning Outcomes:

Students will be able to:

1. Understand the avionics and cockpit ventilation control.
2. Understand general concept of digital data bus.
3. Understand the design concept of networking components.
4. Understand airplane conditioning monitoring system.

Students have to perform minimum 10 Practical listed below:-

1. Installation and Removal of VHF Communication Receiver.
2. Removal and Installation of VHF Communication System Tuning.
3. Demonstration of Avionics and Cockpit Ventilation Control.
4. Identification, Removal and Installation of Inverters.
5. Maintenance practice of flight data recorder system.
6. Removal and Installation of Network components.
7. Identification of various controlling and protective devices.
8. Removal and installation of information management cabinet.
9. Demonstration of Air Traffic Controls.
10. Demonstration of electrical system built in test equipment.
11. Demonstration of Electrical Load Management.
12. Removal and installation of Airplane Conditioning Monitoring system.

Third Year BAV (Under Science & Technology Faculty) Semester VI

Course Code: BAV 606

Course Title: Activity

Total Contact Hour: 20 Hrs

Total Credits: 02.

Total Marks: 50

Teaching Scheme: Theory cum practical 4 /Week

Learning Outcomes:

Student will be able to

1. Carry out maintenance check the operation of control column.
2. Removal and fitment of Tyres of aircraft.
3. Removal and Fitment of electronic and radio system.
4. Removal and fitment of Flight instruments.
5. Periodical maintenance of aircraft
6. Rigging of control surfaces
7. Servicing of GSE of aircraft
8. Aircraft Tool Handling
9. Maintenance Safety and Security

1. Student have to perform minimum one activity stated above or as decided by Manager Hangar Maintenance. (10L)

2. Site visit to any one of the establishment and submit individual report. (10 L)

- (a) Visit to MRO/AMO/Airline or any other aviation establishment
- (b) Visit to Civil/Defense Airport to the operation and organisational set up
- (b) Project on Prototype Aircraft Model or any aircraft system with detailed structure.

3. Students have to submit a project report on their industrial visit And activity undertaken covering

- a) About Aviation Industry b) Management c) Organization Setup d) Various Department in Organization

Third Year BAV (Under Science & Technology Faculty) Semester VI

Course Code: BAV 607

Course Title: Skill Enhancement Course: Project II

Total Contact Hour: 45 Hrs Total Credits: 03. Total Marks: 100

Teaching Scheme: Theory cum practical 6 /Week

Learning Outcomes:

1. Students will be able to apply their enhanced technical skill in a project in form of working model/demonstration/conceptual paper in group as decided by the institute as per their area of interest.
2. Students will be able to apply their enhanced managerial skill in a project in form of working model/demonstration/conceptual paper individually or in a group as decided by the institute as per their area of interest.

1. Students/student have to undertake a Technical project on two of the subject listed below (or as decided by the project guide) and make a presentation:-

- | | |
|--|--------|
| (a) NDT | (15 L) |
| (b) Composite material | (15L) |
| (c) Radio Telecommunication | (15L) |
| (d) TQM | (15L) |
| (e) Aircraft GSE | (15L) |
| (f) Aircraft Documentation. | (15L) |
| (g) Aircraft Electrical/Mechanical System | (15L) |
| (h) Aircraft Maintenance Management /Program | (15L) |
| (j) Aircraft Structure/Materials | (15L) |

2. Students/student have to present a Paper on one of the topic listed below or the topic given by the institute:-

- | | |
|--|-------|
| (a) Leadership in Aviation Maintenance Management. | (15) |
| (b) Communication Skills in Aviation | (15L) |
| (c) Critical Thinking Skills | (15L) |
| (d) Positive Thinking | (15L) |
| (e) Team Work | (15L) |