

AIRCRAFT MAINTENANCE MANAGEMENT

DETAILED SYLLABUS

OBJECTIVES

1. To prepare Technicians of Aeronautical engineering disciplines to work at middle management level effectively and to deal with workforce and management problems.
2. To prepare technicians for optimum utilization of the resources with higher productivity, quality and least cost in the industry.

UNIT- I INTRODUCTION, MAINTAINABILITY, AVAILABILITY AND SAFETY

Management - Definition – Functions of Management. Types of management. Introduction to Maintenance and its importance towards maintaining optimum serviceability of the aircraft. Explanation of important terms like Life Cycle profitability, maintenance cost, Explanation of life Characteristic curve. Definition of Maintainability. Factors effecting Maintainability. Maintainability and cost. Availability definition and explanation.

UNIT- II RELIABILITY AND FAILURE ANALYSIS

Reliability Concept and definition Failure Rate: Explanation of term. Mean Time Between Failure (MTBF). Explanation of the term Hazard Rate. Explanation of term areas of Reliability. Explanation of the term Reliability Specification. Reliability studies: brief explanation. Life testing and Reliability. Classification of Life Testing. Quality control Life Test. Pilot-run life test. Establishment life test. Application life test. Individual life test. Concept of Failure: EARLY failure, CHANCE Failure, Wear-Out Failure. Explanation of Modes of failure: Catastrophic failure, Degradation Failure, Independent Failure, Secondary Failure.

UNIT- III MAINTENANCE PHILOSOPHY AND ERGONOMICS

Definition of Maintenance. Objectives of maintenance. Forms of maintenance. Emergency maintenance. Break down Maintenance. Preventive Maintenance. Corrective maintenance. Automatic Maintenance. Maintainability Vs Maintenance. maintenance cost Analysis. Out sourcing or Contracted Maintenance. Built in test Equipment (BITE). Importance of BITE in Maintenance. Total Productive Maintenance (TPM). Prophylactic Maintenance. Condition monitoring. Predictive Maintenance. Wear Detection and Monitoring (WDM). Magnetic Chip Detector. Electric Chip Detector. Spectrometric Oil Analysis Program (SOAP), Vibration Monitoring and Control. Vibration Check. Vibration Analysis. ERGONOMICS: Basic meaning

and explanation of term ergonomics. Human – Machine matching. Ergonomically reasons for lay out and display.

UNIT- IV MATERIALS MANAGEMENT AND COMPUTERIZATION OF AIRCRAFT MAINTENANCE

Material management - definition, functions- Storekeeping- classification of stores - Functions of store keeper. Store management- Bin Card - Material Issue Requisition- Material Returned Note- Store ledgers -Codification of stores-Inventory Management- Definition - functions of Inventory Control- Advantages of Inventory Control. Enterprise resource planning - concept, features and applications.- Material Requirement Planning (MRP)- concept, applications -Just in Time (JIT)-concept and benefits-Supply chain management-concept and benefits Computerization of Aircraft Maintenance. Basic data maintained with computerization: Main Schedule. Component Service life as applicable to that maintenance. Parts Catalogue with illustration. Work Card Reference. List of authorized modification and their implications. Existing Technical orders and Service Instructions. Details of Flying hours for that Aircraft. Condition of information like - Mechanics, Work areas, Flight destination detail etc.

UNIT- V QUALITY, STANDARDS AND STATISTICS

Quality–Concept-Quality control- Definition - Factors affecting quality- Advantages of quality control – Inspection-Different types of inspection. Total Quality Management-Meaning- Principles of total quality management- TQM, Problem solving tools- Flow charts, Control charts, Histograms, Pareto charts, Cause and effect diagram, 5-S, Kaizen, and Six-sigma. Introduction and scope of Statistics. Importance of statistical data. Classification of Statistical methods: Descriptive (Sampling). Inductive (Inference). Sampling, Merits and demerits of Sampling. Introduction to statistical Quality Control (SQC) Control Charts: Types of control charts. Use of control charts. Quality Certification Systems- ISO 9000 series quality standards– quality certification procedure, AS 9100, ISO 18000, QS14000

UNIT- VI SOCIAL ISSUES AND ENVIRONMENT

Environment – Definition. Global environmental issues. Ozone layer depletion. Observations on Ozone layer depletion. Consequence of Ozone layer depletion: (a) Biological effects (b) Effects on Humans. (C) Effects on Crops. Greenhouse effect. Global warming, Causes, Effects of global warming on Society, Acid rain. Causes and effects. Different types of wastes. Causes, effects, prevention / disposal. Nuclear hazards: List the sources of nuclear radiation. Disposal of Radio active waste. Explain effects of Radiation. Explain prevention of the above.

Diploma, Anna University-UG, PG., HSC & SSLC

Notes
Syllabus
Question Papers
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Water conservation and rain water harvesting. Regulation on pollution prevention and control. Functions of Pollution Boards. Environment (protection) Act, 1986. Definition. General power of the Central Government. Rules to regulate Environmental Pollution.

TEXT BOOKS AND REFERENCES

1. Industrial Organization and Engineering Economics T.R.Banga & S C Sharma Khanna. Publishers
2. Industrial management and engineering economics O.P.Khanna Khannapublishers
3. Production and operations management -Dr .K.Aswathappa And Dr.Sreedhar Bhatt Himalaya Publishers
4. Safety Management in Industry Krishnan.N V Jaico Publishing House, Bombay, 1997
5. Total Quality Management S Raja Ram, Shivashankar
6. Environmental Engineering BR Sharma
7. Environmental Science & Engg P Venugopal Rao
8. Environmental Science & technology K Saravanan, S Ramachandran, R Bhaskar
9. Environmental Engineering Shradha Sinha