

## **AE8005 AERO ENGINE MAINTENANCE AND REPAIR**

### DETAILED SYLLABUS

#### **UNIT I PISTON ENGINES**

Carburation and Fuel injection systems for small and large engines - Ignition system components - spark plug detail - Engine operating conditions at various altitudes – Engine power measurements – Classification of engine lubricants and fuels – Induction, Exhaust and cooling system - Maintenance and inspection check to be carried out. Inspection and maintenance and troubleshooting - Inspection of all engine components - Daily and routine checks - Overhaul procedures - Compression testing of cylinders - Special inspection schedules - Engine fuel, control and exhaust systems - Engine mount and super charger - Checks and inspection procedures.

#### **UNIT II PROPELLERS**

Propeller theory - operation, construction assembly and installation - Pitch change mechanism-Propeller axially system- Damage and repair criteria - General Inspection procedures - Checks on constant speed propellers - Pitch setting, Propeller Balancing, Blade cuffs, Governor/Propeller operating conditions – Damage and repair criteria.

#### **UNIT III JET ENGINES**

Types of jet engines – Fundamental principles – Bearings and seals - Inlets - compressors-turbines-exhaust section – classification and types of lubrication and fuels- Materials used - Details of control, starting around running and operating procedures – Inspection and Maintenance- permissible limits of damage and repair criteria of engine components- internal inspection of engines- compressor washing- field balancing of compressor fans- Component maintenance procedures - Systems maintenance procedures - use of instruments for online maintenance - Special inspection procedures-Foreign Object Damage - Blade damage .

#### **UNIT IV TESTING AND INSPECTION**

Symptoms of failure - Fault diagnostics - Case studies of different engine systems - Rectification during testing equipments for overhaul: Tools and equipments requirements for various checks and alignment during overhauling - Tools for inspection - Tools for safety and for visual inspection - Methods and instruments for non-destructive testing techniques - Equipment for replacement of parts and their repair. Engine testing: Engine testing procedures and schedule preparation - Online maintenance.

#### **UNIT V OVERHAULING**

Engine Overhaul - Overhaul procedures - Inspections and cleaning of components - Repairs schedules for overhaul - Balancing of Gas turbine components. Trouble Shooting: Procedures for trouble shooting - Condition monitoring of the engine on ground and at altitude - engine health monitoring and corrective methods.

#### **OBJECTIVES:**

- To make the students to familiarize with the Aircraft engine maintenance procedure and practice.

Diploma, Anna Univ UG & PG Courses

*Notes*  
*Syllabus*  
*Question Papers*  
*Results and Many more...*

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- Must have knowledge of basics of Aeronautics and engine components.

**TEXT BOOK:**

1. Kroes & Wild, "Aircraft Power plants ", 7th Edition - McGraw Hill, New York, 1994.

**REFERENCES:**

1. Turbomeca, " Gas Turbine Engines ", The English Book Store ", New Delhi, 1993.
2. United Technologies Pratt & Whitney, "The Aircraft Gas turbine Engine and its Operation", The English Book Store, New Delhi.