COURSE OUTLINE

DEPARTMENT: Aviation Maintenance Technology

CURRICULUM: Aviation Powerplant Technology

COURSE TITLE: Advanced Powerplant

COURSE NUMBER: AMT 235

TYPE OF COURSE: Occupational Preparatory

COURSE LENGTH: 1 quarter

CREDIT HOURS: 17 credits

CLASS SIZE: 25 maximum

COURSE DESCRIPTION: This course provides the student with a sound knowledge of aircraft propellers used with both small and large piston or turbo-prop engines. The area of study will also include engine fire detection and extinguishing, engine electrical systems and turbine engine pneumatic starting systems. Reciprocating and turbine engine test run, run-in and troubleshooting are covered in depth, along with powerplant inspection methods and techniques.

This is the final phase of powerplant technology. Reviews are given in carburetion, ignition, basic powerplants, lubrication, propellers, electrical systems and weight/ balance control. Emphasis is placed on F.A.A. Regulations, airworthiness concepts, safety, personal and technical ethics.

Home study and research assignments will be made throughout the course allowing maximum use of shop time in order to complete all required projects.

COURSE OBJECTIVES: The student will develop a sound foundation in the advanced stages of powerplant and propeller overhaul, testing, troubleshooting and safety practices.

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STUDENT LEARNING OUTCOMES:

1. Communication - Speak and write effectively for all aircraft form and records.
2. Critical Thinking and Problem Solving - Think critically in troubleshooting various engine problems.
3. Technology - Read and apply engine reference data to analyze and solve engine malfunctions.

PREREQUISITES: Successful completion of AMT 111,112,133, and AMT 234 or by permission of Unit Administrator and the instructor.

REQUIRED TEXTS: Refer to required textbook list provided.

ADDITIONAL REFERENCES: Texts suggested by instructor.

MAJOR DIVISIONS OR TOPICAL OUTLINE:

I. Propeller Systems, Engine
II. Electrical Components, Engine
III. Fire Detection and Extinguishing Systems, Engine
IV. Reciprocating Engines
V. Turbine Engines
VI. Powerplant Inspections and Troubleshooting

Lecture time for **the program** will **be as** much **as 1/2** but not **less** than **1/4** of the total hours. **Laboratory/shop** time will **be as** much **as 3/4** but not **less** than **1/2** of the total hours. Total contact time available is 265 hours.

AMT 235
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I. PROPELLER SYSTEMS

A. Safety
B. Theory
C. Material processes
D. Fixed pitch
F. Constant speed
G. Full-feathering
H. Hydromatic
I. Governor systems
J. Synchronizing systems
K. Anti-ice systems
L. Removal and installation
M. Inspection
N. Servicing, troubleshooting and repair
O. Limitations of repair
P. FAR requirements

II. ELECTRICAL COMPONENTS, ENGINE

A. Electrical engine accessories

III. ENGINE FIRE DETECTION AND EXTINGUISHING

A. Safety
B. Theory
C. Types
D. Operation
E. Installation and test
F. Inspection
G. Servicing, troubleshooting and repair
H. Replacement
I. FAR requirements

IV. RECIPROCATING ENGINES

A. Safety
B. Advanced overhaul practices
C. Engine removal
D. Engine installation
E. Engine control rigging
F. Advanced test and run-up
G. Advanced inspection
H. Servicing, troubleshooting and repair
I. Storage procedure

V. TURBINE ENGINES

A. Safety
B. Advanced overhaul practices
C. Engine removal
D. Engine installation
E. Engine control rigging
F. Advanced test and run-up procedures
G. Advanced inspection
H. Servicing, troubleshooting and repair
I. Engine Indication and Crew Alert (EICAS)
J. Built in test equipment (BITE)
K. Fault isolation procedures

VI. INSPECTION AND TROUBLESHOOTING

A. Advanced troubleshooting technique
B. Powerplant conformity
C. Airworthiness inspection
D. Documentation technique
F. FAR research