

Senior and staff cadet training

ACP 33
Flight
Volume 4

Airframes



Course	Flight, Airframes, ACP 33, volume 4		
Lesson Number	Chapter	Title	Notes
1	1	Airframe design – introduction	<ol style="list-style-type: none"> The structure <ol style="list-style-type: none"> Wings Fuselage Tail unit Undercarriage Weight Drag Aerodynamic forces conclusions
2	2	Airframe design – structures	<ol style="list-style-type: none"> Introduction Struts, ties, beams and webs Stressed skin and mono-coque construction
3	3	Airframe design – shape	<ol style="list-style-type: none"> Introduction Wing loading Monoplanes Sweep back, swing wings and delta wings Aspect ratio The best compromise
4	4	Materials	<ol style="list-style-type: none"> Introduction Aluminium and magnesium alloys Steel and its alloys
5			<ol style="list-style-type: none"> Titanium and its alloys Plastics and composites Fatigue
6	5	Wings	<ol style="list-style-type: none"> Introduction Fabric-covered wings Stressed skin wings Machined skin
7	6	Fuselage and tail units	<ol style="list-style-type: none"> Introduction Stressed-skin fuselage Tail units and fore planes
8	7	Engine installation	<ol style="list-style-type: none"> Introduction Twin and four engine aircraft Wing mounted engines
9	8	Undercarriages	<ol style="list-style-type: none"> Introduction Shock absorbers Undercarriage configurations Retraction Braking
10	9	Control	<ol style="list-style-type: none"> Introduction Controls Stick forces Computers and fly-by-wire Actuators Other forms of control surface <ol style="list-style-type: none"> Elevons Canard Controls The All flying tail Variable incidence Tail plane Tailerons
11	10	Auto-pilot and related systems	<ol style="list-style-type: none"> Purpose of an autopilot Principles of operation Related systems <ol style="list-style-type: none"> ILS Terrain RADAR
12	11	Aircraft systems	<ol style="list-style-type: none"> Hydraulic systems Pneumatic systems
13			<ol style="list-style-type: none"> Electrical systems

			2. Fuel systems
14			1. Weapons a) AAMs, Guns, rockets b) ASMs and bombs
15	12	The cockpit	1. Introduction 2. Instruments a) Altitude indicator b) Horizontal situation indicator c) Air-speed indicator d) Mach meter e) Altimeter f) Vertical speed indicator
16			1. Glass cockpits 2. Head up display 3. Controls 4. Escape systems 5. Future developments
17		Revision	Past Papers
18		Revision	Past Papers