

SECTION 3.09**SYLLABUS OF HUMAN FACTORS****LEVELS OF KNOWLEDGE AND APPLICATION**

The following syllabus specifies the **MINIMUM** standard of knowledge required. Qualifying letters are used to indicate the specific levels of knowledge necessary for each individual item within a particular subject, as follows:

- A A **basic** understanding of the subject matter, sufficient, with some assistance from an RA-Aus instructor, for the solution of simple practical problems either by calculation or by the exercise of judgment.
- B A **sound** understanding of the subject matter, sufficient, without assistance, for the solution of more advanced practical problems either by calculation or by the exercise of judgment.
- C A **thorough** understanding of the subject matter, achieving without assistance, a first attempt accuracy of 80% in the solution of advanced practical problems either by calculation or by the exercise of judgment.
- P- **Basic** practical application of relevant procedures
- P+ **Thorough** practical application of relevant procedures

PASS MARK

The pass mark for the examinations set to this syllabus is 80%.

1.1 - AVIATION MEDICINE		Standard prior to:	
		Solo	P/Cert
1.1.1	Fitness for flight: the pilot will be able to (a) describe the basic levels of fitness required for safe flight (b) demonstrate an awareness of a pilots responsibility for his medical fitness	B	C
1.1.2	Body systems: the pilot will be able to (a) describe briefly the functions of the skeletal, muscular, respiratory, nervous, circulatory, digestive and endocrine systems and their relevance to pilot fitness	B	C
1.1.3	Incapacitation: the pilot will be able to (a) describe subtle, partial, total incapacitation, (b) demonstrate an awareness of the prevention and causes	B	C
1.1.4	Diet , exercise, lifestyle: the pilot will be able to (a) demonstrate an awareness of the importance of diet and exercise on pilot fitness (b) demonstrate an awareness of the risk factors for heart disease	B	C
1.1.5	Common conditions affecting flight: (a) the pilot will be able to describe the effects of Headache and migraine, dehydration, hypoglycaemia, blood donation, anaesthetics, injuries, food poisoning, and pregnancy on safe flight	B	C
1.1.6	Drugs and medicines: (a) the pilot will be able to demonstrate an awareness of the need for care with both prescription and common over the counter medicines. (b) The pilot will be able to demonstrate an awareness of the adverse effects of cigarette smoking on pilot performance. (c) The pilot will be able to demonstrate an awareness of the adverse effects of alcohol on pilot performance.	B	C
1.1.7	Hypoxia, hyperventilation, Carbon monoxide poisoning: the pilot will be able to: (a) describe the causes, symptoms and treatment required even below 5000 ft.	B	C

1.1.8	The common cold and barotraumas: the pilot will be able to (a) describe the reasons for not flying with a cold (b) demonstrate an awareness of the problems caused by expansion of gases in other parts of the body, including the reasons for not flying after Scuba diving	B	C
1.1.9	Limitations of vision: the pilot will be able to (a) describe the basic structure of the eye and its effect on vision. (b) demonstrate an awareness of the effect on the pilots vision of empty sky, myopia, brightness and sunglare. (c) describe factors conducive to mid air collisions (d) demonstrate methods of effective scanning and collision avoidance	B	C
1.1.10	Visual Illusions: the pilot will be able to (a) Demonstrate an awareness of illusions resulting from the following factors: false horizons, approach angles, runway slope and width	B	C
1.1.11	Hearing loss: the pilot will be able to (a) describe common causes of hearing loss and the need for hearing protection when flying	B	C
1.1.12	Acceleration: the pilot will be able to (a) describe the physiological effects of acceleration on the body	B	C
1.1.13	Vestibular illusions: the pilot will be able to (a) Demonstrate an awareness of illusions associated with linear and angular acceleration and the reasons for remaining in VFR conditions	B	C
1.1.14	Motion Sickness: the pilot will be able to list (a) the causes, symptoms, prevention and treatment of motion sickness	B	C
1.1.15	The pilot will be able to (a) list the Medical standards for pilot certificate, controlled airspace (and instructor ratings)	B	C
1.1.16	Survival and Basic first aid: the pilot will be able to (a) demonstrate an awareness of the first aid and survival information in ERSA	B	C

1.2 HUMAN FACTORS		Standard prior to:	
		Solo	P/Cert
1.2.1.	What is human factors: the pilot will be able to (a) Define human factors (b) List components of human factors (c) Demonstrate an awareness of the importance of human factors in minimising human error	B	C
1.2.2	The SHELL model: the pilot will be able to describe and give examples of (a) Components of the model (b) Interactions (interfaces) of the model	B	C
1.2.3	Classification of Errors into slips, lapses, mistakes, violations: the pilot will be able to (a) describe each error type (b) identify examples of each error type (c) identify error chains (d) analyse scenarios (e) suggest minimization strategies	B	C
1.2.4	Airmanship; Proficiency, skill, discipline: The pilot will be able to (a) Identify the components of airmanship (b) Define each of the components (c) Identify examples of each component	B	C
1.2.5	Airmanship; Flight Discipline: The pilot will be able to (a) List aviation examples of imposed, self and collective discipline (b) Explain the relevance of flight discipline (c) Analyse scenarios for flight discipline	B	C
1.2.6	Airmanship; Skills: The pilot will be able to (a) Define motor, intellectual and perceptive skills (b) List examples of their application in aviation	B	C
1.2.7	Stress and fatigue: The pilot will be able to (a) Define stress (b) Describe examples of chronic and acute stress (c) Recognise stress and causes of stress (d) Recognise the effects of stress (e) Develop stress management strategies (f) Define fatigue	B	C

	(g) Identify causes and effects of fatigue (h) Develop fatigue countermeasures		
1.2.8	Risk Management and hazard analysis: The pilot will be able to (a) Define risk (b) Identify and classify hazards (c) List risk control strategies (d) Assess the level of risk in scenarios (e) Complete a hazard Record (f) Use a Flight Safety hazard analysis form	B	C
1.2.9	Information processing: The pilot will be able to (a) Explain perception and the function of short term memory (b) Explain the function of the long term memory (c) Explain the function of the working memory with respect to decision making (d) Explain how channel capacity effects decision making (e) Explain the role of attention in decision making (f) Explain the difference between selective , focussed and divided attention (g) Explain the effects of stress on attention (h) Develop strategies for improving memory	B	C
1.2.10	Attitudes and behaviour: The pilot will be able to; (a) Define attitude and its component processes (b) Describe and identify hazardous attitudes	B	C
1.2.11	Airmanship, Situational awareness, Judgement: The pilot will be able to (a) Define situational awareness (b) Identify behavioural markers of situational awareness (c) Perform situational assessment in flight preparation (d) Identify critical elements of situational awareness	B	C
1.2.12	Judgement and decision making: The pilot will be able to (a) Define judgement (b) List examples of cognitive and perceptual judgement (c) Use the Jensen Model of judgement to analyse a scenario (d) Explain the difference between judgement and decision making (e) Define Aeronautical Decision Making (ADM) (f) List 6 steps of good decision making (g) Define Naturalistic Decision Making (NDM) (h) Define Rule Based Decision Making (i) Examine ways to improve their own decision making	B	C
1.2.13	Accident & incident reviews: The pilot will be able to (a) Analyse accident scenarios with respect to human factors to learn from them	B	C

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