

## Learning Objectives 040 Human Performance

Syllabus reference	Syllabus details and associated Learning Objectives
<b>040 00 00 00</b>	<b>HUMAN PERFORMANCE</b>
<b>040 01 00 00</b>	<b>HUMAN FACTORS: BASIC CONCEPTS</b>
<b>040 01 01 00</b>	<b>Human Factors in aviation</b>
<b>040 01 02 00</b>	<b>Accident statistics</b>
LO	Give an estimate of the accident rate in commercial aviation in comparison to other means of transport
LO	State in general terms the percentage of aircraft accidents which are caused by human factors
<b>040 01 03 00</b>	<b>Flight safety concepts</b>
LO	Explain the three components of the Threat and Error Management Model (TEM).
LO	Explain and give examples of latent threats
LO	Explain and give examples of Environmental Threats
LO	Explain and give examples of Organizational Threats
LO	State the importance for flight safety in understanding the causes and categories of accidents and incidents
LO	Explain and give examples of Procedural Error
LO	Identify and explain the interaction between flight crew and management as a factor in flight safety
<b>040 01 04 00</b>	<b>Safety culture</b>
LO	Distinguish between "open cultures" and "closed cultures"
LO	Illustrate how Safety Culture is reflected by National Culture
LO	Question the set expression "Safety First" in a commercial entity
LO	Explain James Reason's Swiss Cheese Model
LO	State important factors that promote a good Safety Culture
LO	Distinguish between "Just Culture" and "Non-punative Culture"
<b>040 02 03 02</b>	<b>Body rhythm and sleep</b>
LO	Explain the term 'circadian rhythm'.
LO	Explain the significance ' <i>the internal clock</i> ' in regulating the normal circadian rhythm
LO	State the effect of the circadian rhythm of body temperature on an individual's performance standard and the effect on an individual's sleep patterns
LO	List and describe the stages of a sleep cycle
LO	Differentiate between REM and non-REM sleep
LO	Explain the function of sleep and describe the effects of insufficient sleep on performance
LO	Explain the simple calculations for the sleep/wake credit/debit situation
LO	Explain how sleep debt can become cumulative
LO	State the time formula for the adjustment of body rhythms to the new local time scale after crossing time zones
LO	State the problems caused by circadian dysrhythmia (jet-lag) on an individual's performance and sleep
LO	Describe the main effects of lack of sleep on an individual's performance
<b>040 03 00 00</b>	<b>BASIC AVIATION PSYCHOLOGY</b>
<b>040 03 01 00</b>	<b>Human information processing</b>
<b>040 03 01 01</b>	<b>Attention and vigilance</b>

<b>Syllabus reference</b>	<b>Syllabus details and associated Learning Objectives</b>
LO	Differentiate between 'attention' and 'vigilance'
LO	Differentiate between 'selected' and 'divided' attention
LO	Define 'hypovigilance'
LO	Identify the factors which may affect the state of vigilance
LO	Name factors that affect a person's level of attention
<b>040 03 02 02</b>	<b>Mental models and situation awareness</b>
LO	Define the term 'situation awareness'
LO	List factors which influence one's Situation Awareness both positively and negatively and stress the importance of Situation Awareness in the context of flight safety
<b>040 03 02 03</b>	<b>Theory and model of human error</b>
LO	Define the term 'error'
LO	Interpret the concept of the 'error chain'
LO	Differentiate between an isolated error and an error chain
LO	State examples of an isolated error and an error chain
LO	State the difference between forms/types of errors (e.g. RASMUSSEN, REASON)
<b>040 03 02 04</b>	<b>Error generation</b>
LO	State the difference between internal and external factors in error generation
LO	Name possible sources of internal error generation
LO	Name the three main sources for external error generation in the cockpit
LO	Name (and describe) strategies which are used to reduce human error
LO	Define the term 'environment capture'
<b>040 03 03 00</b>	<b>Decision making</b>
<b>040 03 03 01</b>	<b>Decision -making concepts</b>
LO	Name the major factors on which a decision-making should be based on (FOR-DEC)
LO	Describe the main human attributes with regard to decision making
LO	Describe the main error sources and limits in an individual's decision making mechanism
LO	State the factors upon which an individual's risk assessment is based
LO	Explain the relationship between risk assessment, commitment, and pressure of time on decision making strategies
LO	Describe the positive and negative influences exerted by other group members on an individual's decision making process
<b>040 03 04 00</b>	<b>Avoiding and managing errors: cockpit management</b>
<b>040 03 04 02</b>	<b>Co-ordination (multi – team concepts)</b>
LO	Name the objectives of the multi – team concept
LO	State and explain the elements of multi – team concepts
LO	Explain the concept "Standard Operating Procedures" (SOP)
LO	Illustrate the purpose and procedure of team briefings
LO	Illustrate the purpose and procedure of checklists
LO	Describe the function of communication in a coordinated team
<b>040 03 04 03</b>	<b>Co-operation</b>
LO	Define the term 'group'
LO	Illustrate the influence of interdependence in a group
LO	Explain the term 'synergy'

<b>Syllabus reference</b>	<b>Syllabus details and associated Learning Objectives</b>
LO	Define the term 'risk shift'
LO	Define the term 'groupthink'
LO	State the essential conditions for good teamwork
LO	Explain the function of role and norm in a group
LO	Name the different role patterns which occur in a group situation
LO	State different leadership styles (BLAKE+MOUTIN) and judge their influence on communication patterns and behavior of crewmembers
LO	Name the duty and role of the pilot in Command(PIC)
LO	Name the duty and the role of the First Officer (FO) and other crewmembers
<b>040 03 04 04</b>	<b>Communication</b>
LO	Define the term 'communication'
LO	List the most basic components of interpersonal communication
LO	Name the advantages of two-way communication as opposed to one-way communication
LO	Explain the statement by Watzlawick "One cannot not communicate."
LO	State the difference between verbal and non-verbal communication
LO	Name the functions of non-verbal communication
LO	Describe general aspects of non-verbal communication
LO	Define the term 'meta-plane'
LO	State the attributes of using 'professional' language
LO	Name and explain major obstacles to effective communication
LO	Name examples for misunderstanding arising from inadequate communication
LO	Name the effect of incompatibility on the difference between verbal and non-verbal communication
LO	Name the various levels of communication (SCHULZ VON THUN): <ul style="list-style-type: none"> <li>- Factual level</li> <li>- Appeal level</li> <li>- Self-disclosure level</li> <li>- Relation level</li> </ul>
<b>040 03 05 00</b>	<b>Human behaviour</b>
<b>040 03 05 03</b>	<b>Identification of hazardous attitudes (error proneness)</b>
LO	Summarise examples of attitudes and behaviour which, if prevalent in a crew member, might represent a hazard to flight safety and their signs
LO	Describe the personality attitude and behaviour patterns of an ideal crew member
<b>040 03 06 00</b>	<b>Human overload and underload</b>
<b>040 03 06 02</b>	<b>Stress</b>
LO	Explain the term 'stress'. Why is stress a natural human reaction
LO	Explain the biological reaction to stress by means of the 'general adaptation syndrome' (GAS)
LO	State the relationship between arousal and stress, referring to the effects of 'good' and 'bad' stress
LO	State the relationship between stress and performance
LO	State the basic categories of stressors
LO	Name major stress factors
LO	Name the major environmental sources of stress in aviation
LO	Name the process which is responsible for the individual differences in experiencing stress.

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LO	Name the differences between stress factors and risk factors
LO	<a href="#"><u>State the effects of anxiety on human performance</u></a>
LO	<a href="#"><u>State the general effect of acute stress on the human system</u></a>
LO	<a href="#"><u>Name symptoms of stress</u></a>
LO	<a href="#"><u>State the relationship between stress,attention and vigilance</u></a>
LO	<a href="#"><u>State the diffence between psychological,psychosomatic and somatic stress reactions</u></a>
LO	<a href="#"><u>Name typical common physiological and psychologival syptoms of human overload</u></a>
LO	<a href="#"><u>Name that stress is cumulative and that stress from one situation can be transferred to a different situation</u></a>
LO	<a href="#"><u>Name that successful completion of a stressful task,will reduce the amount of stress experienced when a similar situation arises in the future</u></a>
LO	<a href="#"><u>State the effect of human under/overload is effective in work</u></a>