AIRVET

Aerospace: Human performance and limitations

Lifelong Learning Programme

Project Number: 539319 – LLP-1-2013-1-PT-LEONARDO-LMP

AEROSPACE: HUMAN PERFORMANCE AND LIMITATIONS

1. MODULE SUMMARY

Aims and Target Groups

Many incidents at airports are due to errors caused by humans rather than technological errors. This short module aims to provide an introduction to human factors and the impact on safety and security issues within an airport. The module will concentrate on the generic human factors impacting on the wide range of tasks within an airport. A student taking this module would be a young person, possibly still at school, considering a career within the aviation industry.

This module forms part of a day course introducing airport careers opportunities.

This module will meet **EQF[1] level 2**.

Duration

It is recommended that **90 minutes** contact should be allocated for this module.

Required pre-requisite knowledge

None

2. TEACHING, LEARNING AND ASSESSEMENT

Intended Learning Outcomes

Upon successful completion of this module, students should be able to understand:

1. Why human factors are important in an airport environment (EQF II knowledge) [50%]
2. Key human performance variability (EQF II knowledge and skill) [50%]

Proposed teaching and learning methods

Study Activity	Learning Time
On-Line Material - Learning Objects and Case Study[2]	45 minutes
Classroom Teaching	45 minutes
Guided and self-study	
Assessment	
Total	90

Attendance Requirement

80% minimum attendance required for all classroom teaching activities.

[1] European Qualifications Framework (EQF) is a translation tool that helps communication and comparison between qualifications systems in Europe. Its eight common European reference levels are described in terms of learning outcomes: knowledge, skills and competences. For more information please go to: https://ec.europa.eu/ploteus/search/site?f%5B0%5D=im_field_entity_type%3A97

[2] The module contains e-learning materials and case studies illustrating aviation accidents due to human error.

Indicative Content

1. Why human factors are important in an airport

- Introduction to human factors concepts [lesson 1 Ben & Chen + lesson 2 Human Factors Spectacles]
- The influence of human factors in airport operations, planning, and air traffic control [lesson 3 Categories of Analysis]
- How human factors can improve the safety and security of passengers and employees
- Case study examples illustrate human errors and their impact on airport security and safety [lesson 3 Categories of Analysis]
- Identification of key human factors issues that impact on the airport: [lesson 2 Human Factors Spectacles]

2. Key human performance limitations

- Information processing, human error and reliability
- Fitness and health, stress, workload, fatigue, medication, environment [partially covered in lesson 3 Categories of Analysis]
- Physical and non-physical limitation, motivation, task repetitiveness [partially covered in lesson 3 Categories of Analysis]
- Work and communication within and between teams [partially covered in lesson 3 Categories of Analysis]
- Human error and technical fault incidents
- Need for clear and comprehensive information and guidance
  Task complexity [partially covered in lesson 3 Categories of Analysis]
- Time availability
- Error models, types of errors and their causes beyond those of the pilot
- Competence
- Human Factor model of analysis based on PEAR and SHELL [lesson 3 Categories of Analysis]

3. MODULE RESOURCES

Essential Reading

Course provided materials.

Required Reading

Six AIRVET (http://airvet-project.eu/) e-learning lessons can be used to support the teaching:

- Human Factors and Decision Making in Airport Operations
- Teamwork and Communication
- Case study: Security Personal
- Human error in Aviation Maintenance
- Case study: The Helious Airways S22
- The 'Dirty Dozen'

Other sources:

- *Implementing Safety Management Systems in Aviation (2011) by Alan J. Stolzer, Carl D. Halford and John J. Goglia. Ashgate Publishing Limited: England*
- *Handbook of Aviation Human Factors (2009) by John A. Wise, V. David Hopkin, Daniel J. Garland. CRC Press: USA*
- *"Methodology for Operational Risk Assessment in Aviation Organisation" ARMS working group:*
- *www.easa.europa.eu/essi/documents/Methodology.pdf*
- *"SMS for Aviation – a practical guide Safety Risk Management": http://casa.gov.au/wcmswr/_assets/main/sms/download/2012-sms-book3-safety-risk-management.pdf*

Required Equipment

Access to on-line teaching materials