AIRVET

Human Factors in Airport Management

HUMAN FACTORS IN AIRPORT MANAGEMENT

1.   MODULE SUMMARY

Aims and Target Groups

Many ground handling related incidents at airports have human failings as a causal factor. This module aims to provide an introduction to human factors and their impact on safety and security of airport operations. The module will concentrate on the generic human factors impacting on the wide range of tasks encompassed by airport operations, but will also include specific factors pertinent to specific ground operation tasks. Students will gain an understanding of the need to take into account human factors when managing airport operation task procedures in a robust manner.

A student studying this module would work within the airport environment, which could include a range of managers within functions of an airport for example: safety; baggage handling management; flight coordinator or check-in supervisor.

This module could form part of a larger course or act as a stand-alone short course.

This module will meet **EQF[1] level 4**.

Duration

It is recommended that **50** hours of contact should be allocated for this module.

Required pre-requisite knowledge

A working knowledge of at least one airport operation process gained through 6 months work within an airport environment.

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 airport operations (EQF IV knowledge) [10%]
2. Organisational/procedural factors which affect performance, safety and well-being (EQF IV knowledge) [15%]
3. Key human performance limitations (EQF IV knowledge and skill) [25%]
4. The impact of communication and teamwork on workplace performance (EQF IV knowledge) [15%]
5. The impact of shift/task turnover and fatigue affect performance and work-family dynamics (EQF IV knowledge) [15%]
6. Risk management and developing procedures in an airport operation environment (EQF IV skills) [20%]

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[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

Proposed teaching and learning methods

Teaching will be delivered through a combination of traditional classroom lectures and practical work. The module can be enhanced by e-learning used either during the classroom teaching or as guided study to reinforce the learning.

Study Activity	Learning Hours
On-Line Material - Learning Objects	10
Classroom Teaching	25
Guided and self-study.	10
Assessment	5
Total	50

Method of Assessment

The assessment strategy comprises of a case study presentation for the management and development of Human Factors issues with an emphasis on developing risk management procedures. This case study may be carried out as an individual or group activity and can be used to encourage further discussion on the subject. The module also incorporates a small formative test to ensure knowledge has been absorbed and understood across the topics raised in this module.

Assessment Task	Assessment Description	Intended Learning Outcomes assessed	Formative (F) and / or Summative (S)	Contribution to module mark	Indicative time taken to carry out assessment task (hours)
1	1 case study report related to a Human Factors investigation in Airport Operations	6	S	0	5
2	1 hour Multiple Choice Examination	all	F	100%	5 (including preparation for 1 hr test)

Summative assessments (S) will be marked and the marks will contribute directly to the overall pass requirement for the module.

Formative assessments (F) are intended to enable the student to learn from carrying out the assessment and receiving feedback, but any marks are indicative of performance only and do not contribute directly to the overall pass requirement for the module.

Reassessment is by a new case study investigation.

Attendance Requirement

80% minimum attendance required for all classroom teaching activities.

Indicative Content

1. Why human factors are important in airport operations

- Introduce the Human Factors concept
- Highlight influence of human factors in airport operations
- Show how human factors can improve safety, loyalty and satisfaction of passengers and employees
- Human factors as part of a robust management plan, risk-based approach
- Identify top key human factors issues that impact airport operations
- Human Factors and Decision Making in Airport Operations (e-learning)

2. Organisational/procedural factors which affect performance

- How company culture can compromise best working practices
- Leadership
- Safety Management System
- Procedure management policy affects on performance
- Operating procedures, audits, tools and sign off practices
- Shift/task turnover issues
- Working practices / fatigue
- Procedural compliance
- Anonymous and blame-free reporting
- Training
- Event management/investigation
- Importance of managing processes to control human factors in airport operations
- Manning levels, peer pressure, supervision

3. Key human performance limitations

- Information processing, human error and reliability
- Fitness and health, stress, workload, fatigue, medication, environment
- Physical and non-physical limitation, motivation, task repetitiveness
- Work and communication within and between teams
- Human error and technical fault incidents
- Need for clear and comprehensive information and guidance.
- Task complexity
- Time availability
- Work environment

- Physical effort required
- Error models, types of errors
- Transgression and deception; origin and escalation
- Competence
- Communication & teamwork introduction
- Fatigue and task/shift turnover introduction

4. The impact of communication and teamwork on workplace performance

- Verbal, written, body language, workplace social culture
- Maintaining good working relations
- Formal work logging
- Inspection
- Communication within the organisation
- Reading briefing material, notices and amendments to maintenance procedures
- Prevention of accidents
- High performance teams: features and development process
- Teamwork and Communication (e-learning)

5. The impact of shift/task turnover and fatigue affect performance

- Fitness and health, stress, workload, fatigue, medication, environment
- The nature of tasks: physical work, visual inspection, complexity and repetition
- Effects of rotating shifts on health sleep disturbance and work-family conflict
- Distraction, false assumptions, personnel conflicts, cultural prejudices
- Failure to document, information exchange during task turnover/shift changeovers

6. Risk management and developing procedures in an airport operation environment

- Identification of safety hazards
- Risk assessment
- Defining robust procedures
- Identifying and mitigating risk
- Managing Human Factor risks– likelihood verses severity
- Airport and legislative regulation and compliance
- Developing a Safety Management System culture within the organisation

3.   MODULE RESOURCES

Essential Reading

Course provided materials.

Required Reading

Six AIRVET (http://airvet-project.eu/) e-learning lessons could 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