Liverpool John Moores University

Title:	HUMAN FACTORS IN DESIGN AND OPERATIONS
Status:	Definitive
Code:	**7513ENGRSK** (113878)
Version Start Date:	01-08-2019
Owning School/Faculty:	Maritime and Mechanical Engineering
Teaching School/Faculty:	Risktec Solutions

Team	Leader
Alan Wall	Y

Academic Level:	FHEQ7	**Credit Value:**	10	**Total Delivered Hours:**	16
Total Learning Hours:	100	**Private Study:**	84		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	8
Tutorial	8

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Coursework Approx 2000-3000 words (excluding diagrams, tables etc)	100	

Aims

To explain why humans make mistakes and what tools are available to identify and analyze human errors and the conditions and situations that cause them.

To highlight how to enhance process design, working environment and procedures, to improve human performance.

Learning Outcomes

After completing the module the student should be able to:

1	Justify the application of human factors to the design and assessment of tasks, equipment, systems and processes
2	Compare and contrast the different types of human error and violations, and devise appropriate strategies for prevention / reduction
3	Critically review the tools and techniques available to support human error identification and quantification
4	Illustrate and interpret models of accident causation, relating them to actual industrial accidents and strategies for improving safety

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

coursework	1	2	3	4

Outline Syllabus

Introduction to Ergonomics / Human Factors
** Historical background*
** Defining Human Factors*
** Human Centred Design*
Introduction to Physical Ergonomics
** Fitting the Task to the User*
** Anthropometry & Relationship to the Workspace*
** Design and Assessment of Manual Tasks*
** Interface Design*
** Physical Environment*
Introduction to Cognitive Ergonomics
** Human Information Processing*
** Skill, Rule and Knowledge based behaviour*
** Human Error Theory*
** Job Design Considerations*
Safety and Human Reliability
** H&S Issues*
** Accident causation*
** Causes of Human Error*
** Human Reliability Analysis*
** Accident Prevention*
** Safety Culture*
Human Factors Integration
** Overview*
** Methods and Tools*
** HFI in the Project Lifecycle*

Learning Activities

A combination of lectures, exercises and background reading.

Notes

The purpose of this module is to explain how an understanding of human abilities, limitations, and needs, can be applied to the design and assessment of tasks, equipment, systems and processes, in order to reduce human error, improve safety and increase efficiency

It also aims to highlight how and why human errors occur, and to describe the methods, tools and techniques that can be used to identify, analyse and reduce them.

This includes definitions, physical ergonomics, cognitive ergonomics, safety and human reliability and human factors integration.

The assessment for this module is coursework.