

Module Information

2022.01, Approved

Summary Information

Module Code	7086RTC
Formal Module Title	Human Factors in Design and Operations
Owning School	Engineering
Career	Postgraduate Taught
Credits	10
Academic level	FHEQ Level 7
Grading Schema	50

Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

Learning Methods

Learning Method Type	Hours
Lecture	8
Online	1
Tutorial	8

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
APR-PAR	PAR	April	12 Weeks

Aims and Outcomes

Aims	To define the scope and objectives of Human Factors and be able to justify the need for its appropriate consideration in risk assessment and control. To examine why humans make mistakes and what tools are available to identify and analyse human errors and the conditions and situations that cause them. To appreciate the positive impact excellent process design, optimal working environment and unambiguous clearly written procedures can have in reducing the probability of human error and improve human performance.
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Analyse the role of HF in systems engineering in order to achieve safe and effective designs, systems and processes.
MLO2	2	Evaluate the human characteristics which influence a user's experience of the workplace environment to ensure it is comfortable, healthy, safe and effective (accounting for physical and psychological capabilities and limitations).
MLO3	3	Evaluate human error types (including violation) and their potential causes.
MLO4	4	Appraise human reliability and performance using appropriate methods in order to develop measures to reduce the likelihood of human error.

Module Content

Outline Syllabus	1. Introduction to Module & Human Factors 2. Physical Human Factors 3. Cognitive Human Factors 4. Workplace Design 5. Factors Affecting Performance 6. Understanding Human Error and Violations 7. Human Reliability Analysis 8. Changing Behaviour Through Design 9. Human Factors Integration 10. Organisational Factors Review of Key Learning Points Bibliography, sources of further study Module conclusions and close out
Module Overview	
Additional Information	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. The module describes the benefits of Human Factors Integration (HFI) and the typical HFI activities required to support major projects throughout the design lifecycle. Assessment is in the form of an essay combined with activities (e.g. tests, discussions etc.). The module is delivered by a combination of face-to-face and online learning, described as follows: Lecture (using slides and slide notes): face-to-face workshop sessions Tutorial/Activities (Exercises and reviews): Online activities with teacher feedback, and virtual classrooms Tutor-supported Online: Tutor feedback for activities, virtual classrooms and email support. In this module, the knowledge learning outcomes are K1, K2, the skills learning outcomes are S1, S2, S5 and the behaviours learning outcomes are B1, B2, B3 and B4.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Essay	Essay	95	0	MLO2, MLO4
Test	Test	5	0	MLO1, MLO3

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Ben Matellini	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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