Liverpool John Moores University

Title: INTELLIGENT BUILDINGS
Status: Definitive
Code: **7081BEPG**   (119552)
Version Start Date: 01-08-2013

Owning School/Faculty: Built Environment
Teaching School/Faculty: Built Environment

Team	Leader
Andy Shaw	Y
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Academic Level:	FHEQ7	**Credit Value:**	10.00	**Total Delivered Hours:**	26.00
Total Learning Hours:	100	**Private Study:**	74		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Online	26.000

Grading Basis: 50 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	EVALUATION AND DESIGN TASK	100.0	

Aims

This module aims to enable students to understand the role of technology in creating intelligent buildings and the benefits that it brings to stakeholders.

Learning Outcomes

After completing the module the student should be able to:

1   Identify and analyse the key components of intelligent buildings and have an appreciation for the technological efficiencies.
2   Critically appraise the implications of moves toward increasingly intelligent buildings for stakeholders, demonstrating an appreciation of building functionality that optimises stakeholder benefits.
3   Critically evaluate the technological and functional issues associated with managing and operating intelligent buildings.

Learning Outcomes of Assessments

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

REPORT   1   2   3

Outline Syllabus

Knowledge and awareness of intelligent buildings in relation to facilities management.

Appreciation of building life cycles and the role of facilities management.

The use of building information systems and the key role they play in intelligent buildings.

The use of specific technologies to enhance building intelligence (e.g. radio frequency identification, remote sensors, microwave technology, computer aided management systems, etc.).

Discussion of sensor such as those used for proximity, temperature, humidity, position, flow, etc.

Energy management and efficiency and the utilisation of information technology for this purpose.

Discussion of buildings made to be "fit for purpose" as work spaces, and ensuring that they are both healthy and productive (i.e. provision of privacy, space, personalisation, etc.).

How the intelligence fits with the rest of the Building services (traditional building management systems and controllers, etc.).

How the added sensors can feed into and enhance the future cities concept of interconnected buildings and environment

Learning Activities

Online lectures, interactive workshop.

References

Course Material	Journal / Article
Author	Rizal, S
Publishing Year	2011
Title	Changing roles of the clients, architects and contractors through BIM
Subtitle	
Edition	Vol. 18, No. 2, pp.176 – 187
Publisher	Engineering, Construction and Architectural Management
ISBN	

Course Material	Journal / Article
Author	Elmualim, A and Pelumi-Johnson, A
Publishing Year	2009
Title	Application of computer-aided facilities management
Subtitle	
Edition	Vol. 27, No. 11/12, pp.421 – 428
Publisher	Facilities
ISBN	

Course Material	Journal / Article
Author	Mawson, A
Publishing Year	2003
Title	A fresh look at intelligent buildings
Subtitle	
Edition	Vol. 21, No. 11/12, pp.260 – 264
Publisher	Facilities
ISBN	

Course Material	Journal / Article
Author	Alexander, K
Publishing Year	1990
Title	Analysis: intelligent buildings
Subtitle	
Edition	Vol. 8, No. 2, pp.7 – 12
Publisher	Facilities
ISBN	

Course Material	Book
Author	Vaughn Bradshaw
Publishing Year	2006
Title	The building environment: active and passive control systems
Subtitle	
Edition	3rd Edition

Publisher	Hoboken, N.J.: Wiley
ISBN	9781118010129

Course Material	Book
Author	Oliver Gassman and Hans Meixner
Publishing Year	2001
Title	Sensors application: vol.2: Sensors in intelligent buildings
Subtitle	
Edition	3rd Edition
Publisher	Weinheim; Cambridge: Wiley-VCH
ISBN	9783527295579

Notes

Develops understanding of the role technology plays within the building context, showing the types of technology, their operation and implementation and the potential ramifications for stakeholders. A discussion will take place about the building life cycle from design to post construction and on the important intelligent features which can be applied (or are necessary) at each of these stages. The role of building information systems in building intelligence will be discussed with examples and methods for achieving such systems given. The use of RFID for tracking of assets such as building materials and equipment as well as people as well as the implementation of RFID for security will be discussed, along with the ethical issues associated with it. The importance of building health will be discussed, with topics such as legionella and sick building syndrome being covered. The use of intelligence to overcome these issues will be discussed, in addition to how some features deemed to be intelligent can be counter-productive. An insight into the increasing role that technology could play in order to further enhance building awareness for the benefit of stakeholders will also be considered.