Liverpool John Moores University **University Modular Framework**

Module Code: 7511CATSCI

Module Title: Buildings and People

School: NSP

Version No:	
Updated on:	
Authorisation:	
Validation Date:	
Date version starts:	
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Dormant Date:	

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Module Leader
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Level: 7 Credit Rating: 15

Indicative Time Allowances (hours):

Lec	Tut	Sem	Prt	Wrk	Fld	Other	Deliv. Tot	Exam	Private Study	Tot. Learning Hours
13.5	1.5	7.5	0	7.5	0	0	30	0	120	150

NB Workshops are Practical based workshops

Semester Delivery: (Select one only)

Semester 1 [X] Semester 2 [ ] Runs twice (S1 & S2) [ ]

Year Long [ ] Summer [ ] Other [ ]

Pre-requisites: none

Recommended Prior Study: none

Co-requisites: none

Barred Combinations: none

Aims:

a) Synthesise an understanding of the conceptual aspects and appreciate the complex nature of the inter relationships that exist between occupant comfort, energy flows in buildings and energy efficient building design.

b) Apply the above in practice and define how they relate to adaptation and sustainability in the built environment.
c) Develop a systematic, holistic, multidisciplinary and analytical approach to the critical appraisal of energy efficient design, heat flows, and provision of thermal comfort with respect to the demands of climate change adaptation and the principles of sustainability.

Learning Outcomes:

At the end of this module, students will be able to:

1. Demonstrate a comprehensive understanding of the principles of occupant comfort in the context of energy efficient design of the built environment under an adaptation and sustainability remit;
2. Illustrate a critical understanding of the general principles of heat transfers and ventilation in buildings in the context of the design of buildings under an adaptation and sustainability remit;
3. Demonstrate skills in numerical analysis applied to energy flows in buildings;
4. Critically evaluate a building's design in terms of effectiveness in providing for occupant comfort, energy efficiency, wider environmental impacts, and resilience to climate change;

Learning Activities:
This module will comprise a series of lectures covering factual material, alongside interactive seminars, practical workshop, presentations, and tutorials. Throughout this process an active exchange of views and opinions is encouraged.

Distance learners will have access to the lectures via the VLE and will take part in group seminars to discuss the lecture topics via Skype. The practical activities will be available as situation related practical exercises

Outline Syllabus:

Thermal comfort, Heat transfers through building fabric, determination of U values; Thermal mass, Ventilation, Impact of moisture on building fabric and occupant health, Passive Cooling, Passive approaches to sunlight and solar gain, Natural lighting, Solar resource, Urban heat island effect, Climate influences on design and future climate change considerations for this and Quantification of building performance

Indicative References:

Core
McMullan, R., (2012) Environmental Science in Building 7th Edition, London: Palgrave Macmillan.
Recommended
Baker N. and Steemers K. (2002). Daylight Design of Buildings, James & James. 2013 edition, Abingdon: Earthscan.
Clements-Croombe D. (editor) (1997). Naturally Ventilated Buildings: Buildings for the Senses, Economy and Society. Abingdon: Spon Press.

Givoni B. (1976). Man, Climate and Architecture, London: Applied Science Publishers.
Harvey, L. D. D. (2010). Energy Efficiency and the Demand for Energy Services. Energy and the New Reality 1. London: Earthscan. (*)
Roaf, S. (2009) Adapting Buildings and cities for climate change: a 21st century survival guide. 2nd ed. Oxford: Elsevier. (*)
Santamouris, M. (2001). Energy and Climate in the Urban Built Environment. James and James (Science Publishers) Ltd. 2011 edition, Abingdon: Routledge.
Further relevant journals, websites and other relevant resources will be provided within reading materials that are made available for the module.
(*) Available as an e-book

Assessment Details:

1. Coursework: Essay (2,000 word max). 67%
2. Coursework: Numerical Analysis 1000 words equivalent). 33%

Weighting between E and CW: 0% 100%

Relationship between learning outcomes and assessment tasks:

	Learning Outcomes			
	1	2	3	4
Component 1	X	X		
Component 2			X	X

Minimum Pass Mark (%): 50

Module Notes:

This module is available to be studied on-site or at distance