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MODULE DESCRIPTOR

Module Title

Formal and Technical Design Methods

Reference	AC5100	Version	1
Created	February 2022	SCQF Level	SCQF 10
Approved	November 2022	SCQF Points	15
Amended		ECTS Points	7.5

Aims of Module

To equip the student with skills in the selection and use of advanced digital tools in the development and evaluation of formal and technical integrated design solutions.

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

- 1 Devise appropriate formal and / or technological strategies and methods for creating advanced architectural designs
- 2 Critically interpret and evaluate results of simulations in architectural design, as a tool for achieving enhanced technical performance and developed integrated resolution.
- 3 Select and structure appropriate digital methods, models, and tools for advanced architectural design work, and critically appraise their performance

Indicative Module Content

Architectural design methods with a focus on systematic methods such as formal, performance based methods, including digital modelling, structure, energy and lighting simulation, and their appraisal in performance. This should also include contemporary methods in developing design variants through optimisation and selecting the best fit. The brief includes at least a design brief which focuses on technologically-informed methods and processes, where the students develop variations of a Digital (Building Information) Model using appropriate software, that they then subject into environmental and structural performance simulations, to select the best variants possible. The process should involve numerical and computational appraisal of the designs using appropriate technical methods each time. The teaching schedule will be designed around two week blocks, where the first block focuses on developing a model, and then two weeks each for thermal performance, lighting, structure and formal methods of composition

Module Delivery

2 hours seminar and 2 hour studio tutorial per week, students develop their own coursework via digital modeling and simulation as a vehicle for developing the LOs.

Indicative Student Workload

	Full Time	Part Time
Contact Hours	46	N/A
Non-Contact Hours	104	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
Actual Placement hours for professional, statutory or regulatory body		

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

Type:	Coursework	Weighting:	30%	Outcomes Assessed:	1
Description:	Digital Model of a Building				

Component 2

Type:	Coursework	Weighting:	70%	Outcomes Assessed:	2, 3
Description:	Technical Report				

MODULE PERFORMANCE DESCRIPTOR**Explanatory Text**

The overall module grade is based on 30% weighting of Component 1 (Coursework X axis) and 70% weighting of Component 2 (Coursework Y axis). An overall minimum grade D is required to pass the module. Non-submission of either component will result in an NS grade

		Coursework:						
		A	B	C	D	E	F	NS
Coursework:	A	A	A	B	B	E	E	
	B	B	B	B	C	E	E	
	C	B	C	C	D	E	E	
	D	C	C	D	D	E	E	
	E	E	E	E	E	E	F	
	F	E	E	E	F	F	F	
NS		Non-submission of work by published deadline or non-attendance for examination						

Module Requirements

Prerequisites for Module	None.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

- 1 BIM Teaching and Learning Handbook: Implementation for Students and Educators, Routledge Hosseini, M. Reza
- 2 Understanding BIM: The Past, Present and Future, Ingram, Routledge Jonathan (VergeVT Pty Ltd, UK)
- 3 Designing for the Climate Emergency: A Guide for Architecture Students, RIBA Pelsmakers, Sofie
- 4 Integrated Strategies in Architecture (Technologies of Architecture) Paperback, Joan Zunde. 2006
- 5 Computing the Environment, Digital Design Tools for Simulation and Visualisation of Sustainable Architecture By Brady Peters, Terri Peters ? 2018