

DOCTOR OF PHILOSOPHY (PHD) IN SUSTAINABLE BUILT ENVIRONMENTS

WHY STUDY DOCTOR OF PHILOSOPHY (PHD) IN SUSTAINABLE BUILT ENVIRONMENTS

The Doctor of Philosophy (PhD) in Sustainable Built Environments meets an important need in skill and knowledge in the increasingly important area of environmentally responsive design. The PhD SBE graduate will gain knowledge and skills in the areas of sustainable design strategies, advanced energy modelling, urban infrastructure and transport, interior environment, and environmental policy and economic.

CAREER PROSPECTS

A PhD SBE graduate will have the knowledge, skills and tools needed to critically assess and address a wide range of sustainability related topics. This will allow graduates to make significant contributions in a wide range of industries such as academia, research centres, regulatory and policy making organisations, and private sector management and strategy. The programme is suitable for professionals in related fields such as architecture, building services, urban design, and interior design.

ENTRY REQUIREMENTS

- A recognised Master's degree in a subject related to the programme with a cumulative grade point average of greater than 3.0 on a 4.0-point scale or its equivalent.
- A recognised Bachelor's degree in a subject related to the programme.
- At least the Master or the Bachelor degree should be in SBE related subject.
- A minimum EmSAT score of 1400, TOEFL score of 550 (213 CBT, 79 iBT), IELTS academic score of 6.0, or their equivalents on another standardised nationally, or internationally, recognised test that is approved by the Ministry of Education in the UAE.
- The chosen area of SBE study must be one, which can be supervised by staff within the University.
- An initial proposal for research, including motivation to study for a PhD, which will be discussed through an interview.
- Submission of a certificate of equivalency issued by the Ministry of Education in the UAE for all previous degree certificates awarded by institutions outside the UAE.

PROGRAMME STRUCTURE

Stage	Details	Requirements	Credit Hours
Taught part	Research part	Research Methods	3
		(A student may be exempted from this module if they have taken a similar module in their Masters programme and pass a written or oral examination.)	
	Core modules	Passive and Low Energy Design	3
		Sustainable Materials	3
		Energy and the Environment	3
		Sustainable Urbanism and Social Sustainability	3
	Elective modules (4*3CR= 12CR)	Elective 1	3
		Elective 2	3
		Elective 3	3
		Elective 4	3
Pass an oral Comprehensive exam			0
Proposal defence	<ul style="list-style-type: none"> Submit a detailed proposal Pass the proposal defense viva 	0	
Thesis	<ul style="list-style-type: none"> Conducted a PhD level research Submit a PhD thesis Pass the PhD viva 	30	
Total		57	

Elective modules	
Module Title	Credit
Sustainable Infrastructure	3
Environmental Sustainability	3
Advanced Indoor Air Quality and Climate	3
Lighting Performance and Strategies	3
Environmental Economics and Policy	3
Transport Planning	3
Special Topics in Sustainable Built Environment	3
A PhD level module from another PhD programme within BUiD if deemed by the supervisor that such a module is relevant	3

MODULE DESCRIPTORS

Research Methods (A student may be exempted from this module if they have taken a similar module in their Masters programme and pass a written or oral examination.)

The initial stages of the module will consider key issues relating to research methods in general, including ethics, and how to design a research proposal and carry out research assignment. The module will then consider qualitative research techniques including data collection, data transcription, and analysis using NVIVO. Consideration will then be given to quantitative research techniques such as surveys and analysing data with PASW. Qualitative, quantitative and mixed-methods research approaches such as Action research, Ethnographic research, Case studies, and Modelling/Simulation will also be dealt with.

Core modules:

Passive and Low Energy Design

In this module the students will learn advanced modelling techniques to simulate and optimise the performance of different components used in buildings. Integration of passive and low energy design will also be addressed, e.g. solar and wind. The integrative effect of these components will also be studied. This includes both thermal & fluid modelling for some components as well as mathematical modelling and optimization for the control systems. One or more commercial software packages will be used, e.g. IES

Sustainable Materials

This module focuses on the materials used in the built environment (construction and operation) and their environmental impact. This covers traditional as well as new & innovative materials and construction processes. Life Cycle Assessment (LCA) will be discussed as a method of assessing the environmental impact of different materials. It provides an advanced knowledge of cladding, moisture control, and building finishes, fire performance, and construction robotics. It discusses construction issues related to complex structures and high-rise buildings. It explores 3-D printing technologies and how construction robotics affect the architectural design of buildings.

Energy and the Environment

In this module the students will learn the impact of traditional energy sources on the environment, energy conservation methods, alternative renewable energy systems including storage, and ability to conduct economic analysis of different energy configurations. Energy systems' modelling software such as HOMER Pro will be introduced and used to assess a range of conventional & renewable energy configurations. Throughout different assessments, the module will help students to build and to consolidate greater reliance on independent study, critical appraisal, reflection and analysis, and how to present and justify their own ideas.

MODULE DESCRIPTORS

Elective modules (4 Modules required):

Sustainable Urbanism and Social Sustainability

This module aims to develop critical understanding of the formal and informal processes; systems; structures; and relationships actively support the capacity of current and future generations to create healthy and liveable urban communities. Topics to cover include sustainable urban design principals, process, social dimensions and case studies. After successfully completing this module, students will be expected to acquire a strong theoretical background of socially sustainable communities are equitable, diverse, connected and democratic and provide a good quality of life.

Sustainable Infrastructure

This module offers an in-depth look at sustainable engineering practices in an urban design context. It aims to provide advanced knowledge on various aspects related to achieving smart and sustainable infrastructure including water resource management, materials, environmental performance, site planning and transportation-related issues.

Student will practice real life assessment on urban site including measuring the urban microclimate with assessment tools.

Environmental Sustainability

This module offers an in-depth look at environmental sustainability. It aims to provide advanced knowledge on various aspects related to environment including environmental quality, depletion or degradation of natural resources, sustainable forestry, and environmental sustainability applications. Student will practice real life assessment on urban site including measuring the urban microclimate with assessment tools.

Advanced Indoor Air Quality and Climate

This module aims to provide students with the latest research development, knowledge and skills needed for creating healthy, comfortable and productive indoor environments. Students will acquire the ability to conduct independent research and/or to practise as consultants in the industry on topical issues that include indoor air quality (IAQ) and thermal conditions, ventilation, sources and IAQ modelling, particle characterisation, indoor air chemistry, environmental tobacco smoke, IAQ purification strategies, the effects of biological agents, and infectious disease transmission and control.

Lighting Performance and Strategies

This module offers an in-depth look at natural light performance and design in the built environment. It aims to provide advanced knowledge on various aspects related to design issues and strategies, the effect of daylighting on occupant performance, calculations methods and visual comfort evaluation. The module will also highlight the role of electrical lighting and investigate ways to compromise its use with daylighting systems.

MODULE DESCRIPTORS

Environmental Economics and Policy

This module tackles aspects related to the impact of environmental economics and policy on the built environment and the appropriate ways of regulating economic activity. Students will also establish an understanding of the role of markets and regulations in determining acceptable amounts of pollution levels that lead to achieving a socially-desirable environment.

Transport Planning

This module aims to provide an insight into transport planning principles and techniques and how they are applied to address existing transportation issues and to prepare plans to cater for future travel demand. It explores the methods and approaches that could be developed in identifying key parameters impacting travel demand and patterns and the transport plans required to maintain acceptable levels of urban mobility.

Special Topics in Sustainable Built Environment

This module provides students with an opportunity to gain an in-depth understanding of the science and issues related to advanced topics in the sustainable built environment. The module would cover new theories and/or technologies and/or applications that are not offered in the current modules descriptions.

Thesis

This element comprises the planning, development, and submission of a doctoral research thesis of 60,000 to 80,000 equivalent words; the word count does not include references and appendices. The word count is an indicative number and the focus will be on the quality rather than the quantity. This thesis will address a specific and recent research area related to the Sustainable Built Environment. This is an individual research work conducted under the supervision of a Director of Studies (DoS) and a Second Supervisor (SS), as needed. The PhD thesis is expected to make a distinct and original contribution to the knowledge of the topic addressed. Publication from this research in a scientific journal(s) and/or conference(s) is expected and is highly encouraged.

ALL OUR PROGRAMMES ARE ACCREDITED BY UAE MINISTRY OF EDUCATION



Block 10 & 11, Dubai International Academic City

Tel: +971 4 279 1400 | Email: admissions@buid.ac.ae | www.buid.ac.ae



[buid_team](#)



[@buid_team](#)



[buid2003](#)



[buid](#)



[BUiDTeam](#)



[+971 50 701 2843](#)