



DOCTOR OF PHILOSOPHY PROGRAM IN ARCHITECTURE

■ FACULTY OF ARCHITECTURE

DOCTOR OF PHILOSOPHY PROGRAM IN ARCHITECTURE

The Doctor of Philosophy in Architecture is an interdisciplinary research-based program that can be completed within three to four years. The Ph.D. dissertation is a formal advanced research work at internationally recognized standards. A Ph.D. candidate will have the opportunity to make an original contribution to knowledge in a specific field. The program is highly encouraged as advanced interdisciplinary research related to the topic of the environment, architecture, and sustainability. The Ph.D. program types 1.1 and 2.1 are three year programs available for both Thai and international students with a Master's Degree or equivalent in architecture or other related fields. While the Ph.D. programs types 1.2 and 2.2 are four year programs available to both Thai and international students who received a high distinction or equivalent in their bachelor degree or an equivalent in architecture or other related fields. Dissertations are supervised in either Thai or English.



Objectives

The program aims at instilling the following in the graduates.

- Ability to create and integrate new knowledge in architecture from findings in various disciplines for the benefits of the profession, especially, relating to the environment, sustainability, and sustainable architecture.
- Competency and equipped with professional ethics, responsible to one's own actions and accountable to the society and its environs.
- Capability in research, systematic analysis, and creative problem-solving, presenting and referring to various research findings and approaches.
- Continuous self-directed learning abilities.
- Good team member, well-accepted by the community and adhering to morality and ethics.

Admission

In accordance with the Graduate School Rules and Regulations. The program committee reserves the rights to require more qualifications as deemed appropriate.

Medium of Instruction

Thai and English

Research Focus

- Sustainability
- Architecture and Sustainability
- Architectural Theory
- Building Technology
- Energy and Architecture
- Urban and Rural Planning and Development

Requirement for Graduation

In accordance with the Graduate School Rules and Regulations.



Doctor of Philosophy Program in Architecture

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Structure of the Program

1. Credit Requirement

Requirement	Option 1.1	Option 1.2	Option 2.1	Option 2.2
Coursework	-	-	12	24
Core Courses	-	-	3	6
Electives	-	-	9	18
Dissertation	48	72	36	48
Required Non-credit Courses	3	6	3	6
Total	48	72	48	72

2. Core Courses

Requirement	Option 1.1		Option 1.2		Option 2.1		Option 2.2	
	Course No.	Credits	Course No.	Credits	Course No.	Credits	Course No.	Credits
Theory Criticism and Knowledge Integration	-	-	-	-	709712	3	709712	3
Research Proposal and Publication	-	-	-	-	-	-	709615	3
Total	0	0	0	0	1	3	2	6

3. Electives

Requirement	Option 1.1		Option 1.2		Option 2.1		Option 2.2	
	Course No.	Credits	Course No.	Credits	Course No.	Credits	Course No.	Credits
Ecological System and Sustainable Architecture	-	-	-	-	709721	3	-	-
Built-Environment Modelling	-	-	-	-	709722	3	-	-
Building Technology on Energy and Environmental Conservation	-	-	-	-	709731	3	-	-
Environmental Design Analysis and Evaluation	-	-	-	-	709732	3	-	-
Environmental Geographic Information System for Design	-	-	-	-	709741	3	-	-
Architecture Program								
Built Environment and Sustainability	-	-	-	-	-	-	709612	3
Project Management and Planning	-	-	-	-	-	-	709613	3
Ecological Design	-	-	-	-	-	-	709621	3
Global Warming and Human Behaviour	-	-	-	-	-	-	709622	3
Built Environment Critical and Creative Thinking	-	-	-	-	-	-	709623	3

Requirement	Option 1.1		Option 1.2		Option 2.1		Option 2.2	
	Course No.	Credits	Course No.	Credits	Course No.	Credits	Course No.	Credits
Cultural Design Management	-	-	-	-	-	-	709624	3
Selected Topic in Architectural Study	-	-	-	-	-	-	709625	3
Housing and Property Development	-	-	-	-	-	-	709651	3
Project Design for Quality	-	-	-	-	-	-	709652	3
Ecological System and Sustainable Architecture	-	-	-	-	-	-	709721	3
Built-Environment Modelling	-	-	-	-	-	-	709722	3
Building Technology Program								
Solar Energy and Lighting	-	-	-	-	-	-	709631	3
Environmentally Responsive Building Design	-	-	-	-	-	-	709632	3
Building Environmental Analysis and Evaluation	-	-	-	-	-	-	709633	3
Building Material and Life-cycle	-	-	-	-	-	-	709634	3
Hybrid Building Construction	-	-	-	-	-	-	709635	3
Building Heat Transfer	-	-	-	-	-	-	709661	3

Requirement	Option 1.1		Option 1.2		Option 2.1		Option 2.2	
	Course No.	Credits	Course No.	Credits	Course No.	Credits	Course No.	Credits
Advance Building Experiment	-	-	-	-	-	-	709662	3
Building Technology on Energy and Environmental Conservation	-	-	-	-	-	-	709731	3
Environmental Design Analysis and Evaluation	-	-	-	-	-	-	709732	3
Urban Community Program								
Urban Design and Sustainable Community Development	-	-	-	-	-	-	709641	3
Land Economics and Policy	-	-	-	-	-	-	709642	3
Rural and Urban Development Planning	-	-	-	-	-	-	709643	3
Urban Conservation	-	-	-	-	-	-	709644	3
Stakeholder Participation Process	-	-	-	-	-	-	709645	3
Quality of Life and Urban Environmental Management	-	-	-	-	-	-	709671	3
Urban Transportation Design and Planning	-	-	-	-	-	-	709672	3

Requirement	Option 1.1		Option 1.2		Option 2.1		Option 2.2	
	Course No.	Credits	Course No.	Credits	Course No.	Credits	Course No.	Credits
Environmental Geographic Information System Planning	-	-	-	-	-	-	709741	3
Total	0	0	0	0	5	≥9	28	≥18

4. Required Non-credit Courses

Requirement	Option 1.1		Option 1.2		Option 2.1		Option 2.2	
	Course No.	Credits	Course No.	Credits	Course No.	Credits	Course No.	Credits
Seminar 1	709751	1	709751	1	709751	1	709751	1
Seminar 2	709752	1	709752	1	709752	1	709752	1
Seminar 3	709753	1	709753	1	709753	1	709753	1
Research Methodology in Science and Technology	-	-	709611	3	-	-	709611	3
Total	3	3	4	6	3	3	4	6

5. Dissertation Credit Requirements.

Requirement	Option 1.1		Option 1.2		Option 2.1		Option 2.2	
	Course No.	Credits	Course No.	Credits	Course No.	Credits	Course No.	Credits
Dissertation 1, Type 1.1	709761	8	-	-	-	-	-	-
Dissertation 2, Type 1.1	709762	8	-	-	-	-	-	-
Dissertation 3, Type 1.1	709763	8	-	-	-	-	-	-
Dissertation 4, Type 1.1	709764	8	-	-	-	-	-	-
Dissertation 5, Type 1.1	709765	8	-	-	-	-	-	-
Dissertation 6, Type 1.1	709766	8	-	-	-	-	-	-
Dissertation 1, Type 1.2	-	-	709771	9	-	-	-	-
Dissertation 2, Type 1.2	-	-	709772	9	-	-	-	-
Dissertation 3, Type 1.2	-	-	709773	9	-	-	-	-
Dissertation 4, Type 1.2	-	-	709774	9	-	-	-	-
Dissertation 5, Type 1.2	-	-	709775	9	-	-	-	-
Dissertation 6, Type 1.2	-	-	709776	9	-	-	-	-
Dissertation 7, Type 1.2	-	-	709777	9	-	-	-	-
Dissertation 8, Type 1.2	-	-	709778	9	-	-	-	-
Dissertation 1, Type 2.1	-	-	-	-	709781	3	-	-
Dissertation 2, Type 2.1	-	-	-	-	709782	6	-	-
Dissertation 3, Type 2.1	-	-	-	-	709783	9	-	-
Dissertation 4, Type 2.1	-	-	-	-	709784	9	-	-
Dissertation 5, Type 2.1	-	-	-	-	709785	9	-	-
Dissertation 1, Type 2.2	-	-	-	-	-	-	709791	4
Dissertation 2, Type 2.2	-	-	-	-	-	-	709792	4
Dissertation 3, Type 2.2	-	-	-	-	-	-	709793	8
Dissertation 4, Type 2.2	-	-	-	-	-	-	709794	8
Dissertation 5, Type 2.2	-	-	-	-	-	-	709795	8
Dissertation 6, Type 2.2	-	-	-	-	-	-	709796	8
Dissertation 7, Type 2.2	-	-	-	-	-	-	709797	8
Total	6	48	8	72	5	36	7	48

Course Descriptions

709611 Research Methodology in Science and Technology 3(3-0-6)

Defining the research, research type, objectives, and processes; research problem determination; research variables and hypotheses; data collection and analysis; research proposal and report writing; research evaluation; research application; ethical considerations in research; and research techniques in science and technology.

709612 Built Environment and Sustainability 3(2-2-5)

Concepts of sustainability and expected characteristics of architecture according to sustainability concepts, ideas and practices of the efficient use of energy, renewable energy and other resources in architecture and man-made environments, examination of renewable energy, and the roles of designers and architects in environmental conservation and the creation of sustainability through professional practice.

709613 Project Management and Planning 3(2-2-5)

Basic principles of project management; techniques in organising for project management; organisation preparation; project feasibility and planning; budget, resources, and technology management; and project control and project closeout.

709615 Research Proposal and Publication 3(2-2-5)

Selection of research questions and topics, appropriate research methodology and study processes, preparation of the research proposal, and academic writing and publication of research results.

709621 Ecological Design**3(2-2-5)**

Theory of and approaches to ecological design, green architecture, environmental architecture, design considerations of energy and environmental conservation, technologies and limitations of natural resources, analysis and comparison of ecological design and conventional and contemporary architectural design.

709622 Global Warming and Human Behaviour**3(2-2-5)**

A study of the phenomenon of global warming and its origins; the relationships between global warming and human behavior; the roles of responsible citizens, users, architects, and designers in reducing global warming; and techniques and strategies for behavioural changes that help to decelerate global warming.

709623 Built Environment: Critical and Creative Thinking**3(2-2-5)**

A study of critical and creative thinking; the study and analysis of choices, variables, and factors with both positive and negative impacts on the built environment; processes of decision making in logical analysis; and the critical analysis of current models or methods in recent research.

709624 Cultural design Management**3(2-2-5)**

A study of the relationship between humans and design; analytical study through cultures and socio-cultural factors such as philosophy, beliefs, values, and local wisdom that influence design practices; theoretical development of cultural design and cultural heritage and frameworks for conservation; and organisations, policies, and legislation relating to cultural heritage assessment, management, and conservation planning.

709625 Selected Topic in Architectural Study**3(2-2-5)**

A selected topic proposed by learners in the fields of architecture, building technology, urban and community design, and urban and community planning as well as other related knowledge areas.

709651 Housing and Property Development**3(2-2-5)**

Housing and property development; basic concepts, methods, and processes of real estate development; limitations, subsidies, and control of real estate development through government organisations and policies; urbanisation and city development resulting from real estate development; and roles, authority, and mechanisms of public and private sectors involved in housing and property development.

709652 Project Design for Quality**3(2-2-5)**

Principles of design for quality (DFQ) through project procedures; the role of quality in the total production cycle, including customer input, competitive benchmarking, performance specifications, product and process design; manufacturing variability and product reliability; DFQ exercises and industry based projects with an emphasis on team work and problem solving; and related tools and software.

709712 Theory, Criticism and Knowledge Integration**3(2-2-5)**

Development of concepts, theories, and research methods in architecture and the integration of architectural knowledge with multi-disciplinary knowledge of the past, present, and future developments.

709721 Ecological Systems and Sustainable Architecture**3(2-2-5)**

Relationships between ecological systems and architecture, concepts of sustainable architecture and design processes, and integration of ecological concepts into sustainable architectural design.

709722 Built Environment Modeling**3(2-2-5)**

Modeling built environment scenarios; economic, environmental sustainability and demographic factors; urban development and law; and impact analysis linked to changes in the surrounding environment.

709631 Solar Energy and Lighting**3(2-2-5)**

Solar energy and lighting design theories for daylighting and artificial lighting, lighting simulation and improvement, analysis and evaluation of lighting conditions in building, and building integrated systems.

709632 Environmentally Responsive Building design**3(2-2-5)**

Analysis of environmental conditions for building design particularly emphasizing climatic data collection, theory and practice of quantitative measurement for research by relevant data collecting and coding equipment, environmentally responsive building design for tropical climates, and appropriate design of solar controlled panels and building envelopes through the application of computer programs for energy efficient building design.

709633 Building Energy Efficiency Evaluation**3(2-2-5)**

A study and analysis of approaches and principles of environmental design evaluations; evaluation techniques and methods; environmental assessment and related codes, regulations, rating systems, and benchmarking tools; and examples of evaluations and their results.

709634 Building Materials and Life Cycles**3(2-2-5)**

Quality of components and building materials, experiments on material quality and usage, alternate building materials, and life cycle analysis (LCA) and life cycle cost (LCC).

709635 Hybrid Building Construction**3(2-2-5)**

A study of ways to utilise building construction technology, building materials, local materials, and alternative materials as well as the structure and construction of hybrid buildings (in connection with appropriate technology/intermediate technology) for creating sustainable, energy efficient, and comfortable buildings whilst maintaining the sustainability of architectural identity to the immediate environment.

709661 Building Heat Transfer**3(2-2-5)**

Principles of heat transfer; heat transfer behavior—conduction, convection, and radiation; factors affecting heat transfer; and understanding basic calculations of types of heat transfer by using heat transfer equations.

709662 Advanced Building Experiments**3(2-3-5)**

Advanced study of theoretical and methodological experiments on building materials and structural elements, relationships between stress and strain, terms of the failure mechanisms, and fracture mechanics and stability theory in the construction of sustainable buildings in the environmental setting of Thailand.

709731 Technology of Energy and Environmental Conservation**3(2-2-5)**

Building technology related to energy and environmental conservation, daylighting and artificial lighting design and simulation, calculations of types of heat transfer using heat transfer equations and computer programs, analysis and evaluation of environmental quality, and materials and systems for energy and environmental conservation.

709732 Environmental Design, Analysis and Evaluation 3(2-2-5)

A study and analysis of approaches and principles of advanced environmental design evaluation; advanced evaluation techniques and methods placing emphasis on the whole process from material production pre-design, design construction, operation, maintenance, renovation, or demolition; and practices of environmental design evaluation.

709641 Urban Design and Sustainable Community Development 3(2-2-5)

A study of the principles of urban design; the implementation of sustainable development concepts on a communal scale; and the roles of designers, planners, architects, and community members in urban design and sustainable community development.

709642 Land Economics and Land Policy 3(2-2-5)

Policies and economics of land; land use; land facilities; supply and demand of land; physical aspects of land potential and utility; finance and sustainable development; the effects of government roles and policies on the central business district (CBD), urban areas, and rural areas; and the role of economic, social, and urban development factors.

709643 Rural and Urban Development Planning 3(2-2-5)

Urban elements and structures; visions and goals in rural and urban development; assessment of situations, problems, and trends in rural and urban development; techniques and methodologies in rural and urban planning; laws and regulations in rural and urban planning; the geographic information system (GIS) and its basic application in relation to urban planning; creating and editing databases associated with maps; and analysing problems from data in order to assist rural and urban planning.

709644 Urban Conservation**3(2-2-5)**

A study of approaches and principles of architectural and urban conservation and urban design, conservation processes and methods, and relevant regulations.

709645 Stakeholder Participation Processes**3(2-2-5)**

Objectives of public participation, public participation processes, methods for public participation, definition of stakeholders, stakeholders analysis processes, negotiation processes, and project risk management.

709671 Quality of Life and Urban Environmental Management 3(2-2-5)

Urban environmental management for the quality of life; improvement in the quality of life through physical aspects of the urban area; environmental management and environmental engineering systems for urban areas; and codes, regulations, and related environmental laws.

709672 Urban Transportation Planning and Design**3(2-2-5)**

Principles of land use and urban transportation system relationships, specifications of urban transportation systems, route distribution methods, and traffic design and management.

709741 Environmental Geographic Information System (GIS) Planning 3(2-2-5)

Concepts and characteristics of spatial environmental data, advanced techniques in geographic information system usage to identify spatial ecosystems and their environmental problems, and advanced application of GIS in environmental research.

709751 Seminar 1**1(0-2-1)**

Review and discussion of progress and contemporary issues in architecture.

709752 Seminar 2**1(0-2-1)**

Discussion of special topics related to advanced architecture concerning research projects, analysis of data, and progress report presentation.

709753 Seminar 3**1(0-2-1)**

Discussion of special topics relating to advanced architecture concerning research projects, results and conclusions, and research report presentation.

709761 Dissertation 1, Option 1.1**8Credits**

Undertaking a literature review of basic knowledge, research relevant to the topic and creating guidelines and hypotheses for the proposed research.

709762 Dissertation 2, Option 1.1**8Credits**

Topics include: literature reviews, thesis research methods, scope of the proposed study, definitions and theory, and references and citation methods.

709763 Dissertation3, Option 1.1**8Credits**

Data collection, management, and related experimentation for the research topic and thesis proposal.

709764 Dissertation 4, Option 1.1**8Credits**

Data collection, analysis, management, and related experimentation for the research topics along with submission of a progress report.

709765 Dissertation5, Option 1.1**8Credits**

Data collection, review, analysis, related experimentation according to the research topic, draft of the research, and submission of a progress report.

709766 Dissertation 6, Option 1.1**8Credits**

Discussion and conclusion of the research, preparation of a research article for publication in a national or international journal or presentation at an academic conference, an oral examination, and necessary corrections and alterations to the thesis prior to final submission.

709771 Dissertation 1, Option 1.2**9Credits**

Reviewing the topic of interest and establishing research questions, hypotheses, and guidelines and frameworks for the research methodology.

709772 Dissertation 2, Type 1.2**9Credits**

Undertaking a literature review of basic knowledge, theories, and research relevant to the topic; creating guidelines and hypotheses for the proposed research methodology; and studying references and citation methods.

709773 Dissertation 3, Option 1.2**9Credits**

Data collection, analysis, management, and related experimentation for the research topic.

709774 Dissertation 4, Option 1.2**9Credits**

Data collection, review, analysis, related experimentation according to the research topic, submission of a progress report, and a thesis proposal examination.

709775 Dissertation 5, Option 1.2**9Credits**

Data collection, review, analysis, and related experimentation according to the research topic.

709776 Dissertation 6, Option 1.2**9Credits**

Data collection, review, analysis, related experimentation according to the research topic, and submission of a draft thesis.

709777 Dissertation 7, Option 1.2**9Credits**

Discussion and conclusion of research, preparation of final thesis, and a research article for publication in a national or international journal or presentation at an academic conference.

709778 Dissertation 8, Option 1.2**9Credits**

Discussion and conclusion of research, preparation of final thesis, an oral examination, and any necessary corrections and alterations to the thesis prior to final submission.

709781 Dissertation 1, Option 2.1**3Credits**

Reviewing the topic of interest and establishing research questions and research methodology.

709782 Dissertation 2, Option 2.1**6Credits**

Undertaking a literature review of basic knowledge, theories, definitions, and research relevant to the topic, creating guidelines and hypotheses for the proposed research methodology, studying references and citation methods.

709783 Dissertation 3, Option 2.1**9Credits**

Data collection, review and analysis, related experimentation according to the research topic, submission of a progress report, and a thesis proposal examination.

709784 Dissertation 4, Option 2.1**9Credits**

Data collection, management, related experimentation for the research topic, and preparation of a draft thesis.

709785 Dissertation 5, Option 2.1**9Credits**

Discussion and conclusion of research, preparation of a research article for publication in a national or international journal or presentation at an academic conference, an oral examination, and any necessary corrections and alterations to the thesis prior to final submission.

709791 Dissertation1, Option 2.2**4Credits**

Reviewing the literature on the topic of interest, establishing the research question, and research methodology.

709792 Dissertation2, Option 2.2**4Credits**

Undertaking a literature review of basic knowledge, theories, definitions, and research relevant to the topic, research methodology, scope of the study, and references and citation methods.

709773 Dissertation 3, Option 2.2**8Credits**

Data collection, review, analysis, and related experimentation according to the research topic, and submission of a progress report.

709774 Dissertation 4, Option 2.2**8Credits**

Data collection, management, and related experimentation for the research topic, and thesis proposal examination.

709795 Dissertation 5, Option 2.2**8Credits**

Analysis and reporting of research findings and preparation of a draft thesis.

709796 Dissertation 6, Option 2.2**8 Credits**

Discussion and conclusion of the research, preparation of final thesis and a research article for publication in a national or international journal or presentation at an academic conference, and preparation for an oral examination.

709797 Dissertation 7, Option 2.2**8 Credits**

Conclusion of the research, oral examination, necessary corrections to the thesis, and preparation for submission.