

## Doctor of Philosophy Program in Architecture

### Faculty of Architecture

Name of the Curriculum: Doctor of Philosophy Program in Architecture

Name of the Degree: Doctor of Philosophy (Architecture)

Degree abbreviation: Ph.D. (Architecture)

#### Plan 1.1 Structure

	Term 1	Term 2
<b>1<sup>st</sup> Year</b>		
Total credits	8	8
Core courses (credits)	8	8
Elective courses (credits)	-	-
<b>2<sup>nd</sup> Year</b>		
Total credits	8	8
Core courses (credits)	8	8
Elective courses (credits)	-	-
<b>3<sup>rd</sup> Year</b>		
Total credits	8	8
Core courses (credits)	8	8
Elective courses (credits)	-	-

#### Plan 2.1 Structure

	Term 1	Term 2
<b>1<sup>st</sup> Year</b>		
Total credits	6	9
Core courses (credits)	6	6
Elective courses (credits)	-	3
<b>2<sup>nd</sup> Year</b>		
Total credits	6	9
Core courses (credits)	6	9
Elective courses (credits)	-	-
<b>3<sup>rd</sup> Year</b>		
Total credits	9	9
Core courses (credits)	9	9
Elective courses (credits)	-	-

## **1. Structure Program**

### **1.1 Plan 1.1 emphasizes the conducting of research and a thesis 48 credits.**

#### **Dissertation 48 credits**

709761	Dissertation 1, Type 1.1	8 Credits
709762	Dissertation 1, Type 1.1	8 Credits
709763	Dissertation 1, Type 1.1	8 Credits
709764	Dissertation 1, Type 1.1	8 Credits
709765	Dissertation 1, Type 1.1	8 Credits
709766	Dissertation 1, Type 1.1	8 Credits

## **2. Required Non-credit Courses 3 credits**

709751	Seminar 1	1 (0-2-1)
709752	Seminar 2	1 (0-2-1)
709753	Seminar 3	1 (0-2-1)

### **1.2 Plan 2.1 not less than 48 credits**

#### **Coursework 12 credits**

#### **Core cores 13 credits**

709712	Theory Criticism and Knowledge Integration	3 (2-2-5)
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#### **Electives not less than 9 credits**

709721	Ecological System and Sustainable Architecture	3 (2-2-5)
709722	Built-Environment Modelling	3 (2-2-5)
709731	Building Technology on Energy and Environmental	3 (2-2-5)
709732	Environmental Design Analysis and Evaluation	3 (2-2-5)
709741	Environmental Geographic Information System for Design	3 (2-2-5)

**Dissertation****36 Credits**

709781 Dissertation 1, Type 2.1

3 Credits

709782 Dissertation 2, Type 2.1

6 Credits

709783 Dissertation 3, Type 2.1

9 Credits

709784 Dissertation 4, Type 2.1

9 Credits

709785 Dissertation 5, Type 2.1

9 Credits

**Required Non-credit courses 3 credits not less than 3 credits**

709751 Seminar 1

1 (0-2-1)

709752 Seminar 2

1 (0-2-1)

709753 Seminar 3

1 (0-2-1)

**Study Program****Study Program Plan 1.1****First year****1<sup>st</sup> Semester**

709761 Dissertation 1, Type 1.1

8 Credits

709751 Seminar 1 (non-credit)

1 (0-2-1)

**Total 8 Credits****2<sup>nd</sup> Semester**

709762 Dissertation 2, Type 1.1

8 Credits

**Total 8 Credits****Second year****1<sup>st</sup> Semester**

709763 Dissertation 3, Type 1.1

8 Credits

709752 Seminar 2 (non-credit)

1 (0-2-1)

**Total 8 Credits****2<sup>nd</sup> Semester**

709764 Dissertation 4, Type 1.1

8 Credits

**Total 8 Credits****Third year****1<sup>st</sup> Semester**

709765 Dissertation 5, Type 1.1

8 Credits

709753 Seminar 3 (non-credit)

1 (0-2-1)

**Total 8 Credits**

**2<sup>nd</sup> Semester**

709766 Dissertation 6, Type 1.1

8 Credits

**Total 8 Credits****Study Program Plan 2.1****First year****1<sup>st</sup> Semester**

Xxxxxx Elective Course

3 (x-x-x)

Xxxxxx Elective Course

3 (x-x-x)

709751 Seminar 1 (non-credit)

1 (0-2-1)

**Total 6 Credits****2<sup>nd</sup> Semester**

709712 Theory Criticism and Knowledge Integration

3 (2-2-5)

Xxxxxx Elective Course

3 (x-x-x)

Xxxxxx Dissertation 1, Type 2.1

3 Credits

**Total 6 Credits****Second year****1<sup>st</sup> Semester**

709782 Dissertation 2, Type 2.1

6 Credits

709752 Seminar 2 (non-credit)

1 (0-2-1)

**Total 6 Credits****2<sup>nd</sup> Semester**

709783 Dissertation 3, Type 2.1

9 Credits

**Total 9 Credits**

**Third year****1<sup>st</sup> Semeste**

709784 Dissertation 4, Type 2.1

9 Credits

709753 Seminar 3 (non-credit)

1 (0-2-1)

**Total 9 Credits****2<sup>nd</sup> Semester**

709785 Dissertation 5, Type 2.1

9 Credits

**Total 9 Credits**

## **Course Description**

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

Research definition, characteristic and goal; type and research process; research problem determination; variables and hypothesis; data collection; data analysis; proposal and research report writing; research evaluation; research application; ethics of researchers; 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 efficient use of energy, renewable energy, and other resources in architecture and manmade environment; examination of renewable energy; roles of designers and architects on environmental conservation and creation of sustainability through professional practice.

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

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

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

Selection of research questions and topic; appropriate research methodology and study process; preparation of research proposal; academic writing and publication of research results.

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

Theory and approach of ecological design, green architecture, environmental architecture and sustainable architecture; examples of such architecture; design considerations of energy and environmental conservation, technologies and limitations of natural resources; analysis and comparison of such architecture and conventional and contemporary architectural design.

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

Studies the phenomenon of global warming and its origins; the relationships between global warming and human behaviour; the roles of responsible citizen, user, architects and designers in reduction of global warming; techniques and strategies for behavioural changes that helps to decelerate global warming.

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

Critical and creative thinking; study and analyse of choices, variables and factors to both negative and positive impacts regards build environment. Process of decision in logical analysis; form, analysis and criticise models or methods from present research.

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

Study of the relationship between human and design; analytical study through cultures together with socio-cultural factors, such as philosophy, belief, value and local wisdom that influence design practice; theoretical development of cultural design and cultural heritage and frameworks for conservation; organisations, policies and legislations in relation to cultural heritage assessment, management, and conservation planning.

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

Selected topic proposed by learners under the field of architecture, building technology, urban and community design, urban and community planning, as well as other related knowledge.

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

Housing and property development; basic concept, methods and process of real estate development; limits, subsidy and control of real estate development through government organisation and policy. Urbanisation and city development from real estate development, roles, authority and mechanism of public and private sectors involved housing and property development

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

Principle of Design for Quality (DFQ) through project procedures; 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 the emphasis on teamwork and problem solving; related tools and software

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

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

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

Relationships between ecological system and architecture; concepts of sustainable architecture and its design processes; integration of ecological concepts into sustainable architectural design.

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

Modelling build–environment scenarios; factors such as economic factors, demographic factors, urban development, law, environment and sustainable aspects; impact analysis linked to changes of 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; building integrated systems.

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

Analysis of environmental conditions for building design particularly emphasising climatic data collection for building design; theory and practice for quantitative measurement by related equipments for data collection and coding for research; environmentally responsive buildings design in tropical climate; appropriate design of solar controlled panels and building envelope through the application of computer program' energy efficient building design.

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

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

**709634 Building Material and Life-cycle****3(2-2-5)**

Components and quality of building materials; experiments on material quality and usage; alternative building materials; life-cycle analysis (LCAs) and lifecycle cost (LCC).

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

Study ways to utilise building construction technology, building materials, local materials, alternative materials, as well as structure and construction of hybrid building in connection to appropriate technology/ intermediate technology for creating sustainable, energy efficient, and comfortable building, as well as the suitability of architectural identity to the immediate environment.

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

Principles of heat transfer; heat transfer behaviour consisting of conduction, convection and radiation; factors affecting heat transfer; understanding basic calculations of types of heat transfer by using heat transfer equation.

**709662 Advance Building Experiment****3(2-2-5)**

Advance study in theoretical and methodological experiments on building materials and structural elements; relationship between stress and strain; terms of the failure mechanisms; fracture mechanics and stability theory to construct sustainable buildings in the environmental setting of Thailand.

**709731 Technology on 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 by using heat transfer equation and computer program; analysis and evaluation of environmental quality; materials and systems for energy and environmental conservation.

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

Study and analysis of approaches and principles of advanced environmental design evaluation; advanced evaluation techniques and methods, emphasising on the whole processes from material production, pre-design, design, construction, operation, maintenance, demolition, and renovation; practices of environmental design evaluation.

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

Study of principle of urban design; implementation of sustainable development concept in communal scale; roles of designers, planners, architects and community members in urban design and sustainable community development.

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

Policies and economy of land; land used, land facility; supply and demand of land; land potentiality and utility in physical aspect: finance and sustainable development; government policy and roles to Central Business District (CBD), urban area and rural area; impact factors such as economic, social and urban development.

**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; processes, techniques, and methodologies in rural and urban planning; public hearing; types and forms of control measures in urban planning; laws and regulations in urban planning; Geographic Information System (GIS) and the basic applications of the system in relation to urban planning; creating and editing database associated with maps; analysing problems from data in order to assist in rural and urban planning.

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

Study of approaches and principles of architectural and urban conservation; relationship between conservation and urban design; conservation process and methods; relevant regulations.

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

Objectives of public participation; public participation process; methods for public participation; definition of stakeholders; stakeholder analysis process; negotiating process; project risk management.

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

Urban environmental management for quality of life; improvement of quality of life through physicality aspect of urban area; environmental management and environmental engineering system for urban area; codes, regulations, and related environmental laws.

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

Principles of land-use and urban transportation system relationship; specification of traffic and transportation systems; route distribution methods; traffic design and management.

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

Concepts and characteristics of spatial environmental data, advanced techniques in geographic information system to identify spatial ecosystem and their environmental problems, advanced application of geographic information system 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 related to advanced architecture concerning research projects; results, conclusion, and progress report presentation.

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

Reviews the topic of interest; research question; research methodology study.

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

Literature Reviews; thesis research method; scope of study; definitions and related theories; references and citation methods.

**709763 Dissertation 3, Type 1.1****8 Credits**

Data collection; data management; or related experimentation according to research topic; thesis proposal examination.

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

Data collection; data management or related experimentation according to research topic;

data analysis; progressive report.

**709765 Dissertation 5, Type 1.1****8 Credits**

Data collection/re-collection; data management or related experimentation according to research topic; result analysis and thesis draft; progressive report.

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

Discussion and conclusion of research; thesis final write-up; preparation of research publication or academic conference; oral examination; correction and preparation of thesis for submission.

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

Reviews the topic of interest; research question; research methodology study.

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

Literature Reviews; thesis research method; scope of study; definitions and related theories; and references and citation methods.

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

Data collection; data management or related experimentation according to research topic.

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

Data collection; data management or related experimentation according to research topic; progressive report on research; thesis proposal examination.

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

Data analysis; data collection/re-collection; data management or related experimentation according to research topic.

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

Data collection/re-collection; data management or related experimentation according to research topic; result analysis and thesis draft.

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

Discussion of result; preparation of thesis final draft; preparation of research publication or academic conference.

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

Discussion and conclusion of research; thesis final write-up; preparation for oral examination; oral examination; correction and preparation of thesis for submission.

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

Reviews the topic of interest; research question; research methodology study.

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

Literature Reviews; thesis research method; scope of study; definitions and related theories; references and citation methods.

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

Data collection; data management or related experimentation according to research topic; progressive report; thesis proposal examination.

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

Data collection/re-collection; data management or related experimentation according to research topic; data analysis and thesis draft.

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

Discussion and conclusion of research; thesis final write-up; preparation of research publication or academic conference; preparation for oral examination; oral examination; correction and preparation of thesis for submission.

**709791 Dissertation 1, Type 2.2****9 Credits**

Reviews the topic of interest; research question; research methodology study.

**709792 Dissertation 2, Type 2.2****4 Credits**

Literature Reviews; thesis research method; scope of study; definitions and related theories; references and citation methods.

**709793 Dissertation 3, Type 2.2****8 Credits**

Data collection; data management or related experimentation according to research topic; progressive report.

**709794 Dissertation 4, Type 2.2****8 Credits**

Data collection/re-collection; data management or related experimentation according to research topic; data analysis and thesis draft; thesis proposal examination.

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

Analysis and report of research findings; thesis draft.

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

Discussion and conclusion of research; thesis final write-up; preparation of research publication or academic conference; preparation for oral examination.

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

Conclusion; oral examination; correction and preparation of thesis for submission.