REGULATIONS FOR THE DEGREE OF MASTER OF ARCHITECTURE (MArch)

(See also General Regulations)
(These regulations and syllabuses will apply to candidates admitted in the 2010-11 academic year and thereafter)

Any publication based on work approved for a higher degree should contain a reference to the effect that the work was submitted to the University of Hong Kong for the award of the degree.

Admission requirements

Ar76 To be eligible for admission to the degree of Master of Architecture, a candidate shall
(a) comply with the General Regulations;
(b) be a Bachelor of Arts in Architectural Studies of this University; or possess a degree, diploma or other qualification of equivalent standard and content from another university or comparable institution; and
(c) complete the curriculum and satisfy the examiners in the First and Final Examinations in accordance with the regulations set out below.

Curriculum

Ar77 The curriculum shall extend over two academic years of full-time study and shall include the First Examination and the Final Examination. Candidates shall not be permitted to complete the curriculum in more than four academic years.

Ar78 To complete the curriculum, a candidate shall
(a) enroll for courses of a total 96 credits[1] (the average load per semester being 24 credits);
(b) follow instruction in the courses prescribed and complete satisfactorily all coursework set either as tests or as parts of any examination; and practical work[2] to be undertaken as an integral part of the MArch course; and
(c) satisfy the examiners at the First and Final Examinations in the manner specified below.
(d) A candidate may, subject to approval by the Head of Department, take other course(s) in the Faculty of Architecture to fulfill the elective course requirements.

Examinations

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(d) The First Examination shall comprise an examination of the candidate's completed projects and coursework in Architecture and Urban Design I and II and may include an oral examination at the end of the second semester; one core course plus five elective courses chosen from the following

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1 *1 credit = 8 teaching hours per semester (or 3-credit course = 2 teaching hours per week).*

2 *Candidates are required to undertake practical work for a minimum of 10 weeks normally during the summer vacation in the MArch course under the guidance of the Department on completion of the First Year of their studies. Reports for assessment on their practical work have to be submitted to the Department before the commencement of the First Semester in September.*

four categories[3,4]:

Category I: Architectural History and Theory
Category II: Architectural Management
Category III: Architectural Technologies
Category IV: Independent Studies

For elective courses offered by MArch, priority will be given to MArch students.

Choice of elective courses offered by MUD, MLA or ACP is subject to prior approval by the Head of Department in consultation with the respective Programme Directors. Priority will be given to the students from respective programmes.

(e) The Final Examination shall comprise an examination of the candidate's completed projects and coursework in Architecture and Urban Design II and shall include an oral examination at the end of the second semester; one core course plus five elective courses chosen from any of the four categories[5] in regulation Ar79(a) above.

Ar80 The following clauses apply to candidates of all years:

(a) Candidates who have passed in Architecture and Urban Design in the first semester or Architecture and Urban Design in the second semester;
  (i) but who fail on the first attempt in not more than three other core courses in any semester's examination may be permitted to present themselves for re-examination in the same course or courses before the commencement of the following semester. Those who fail in not more than one course on second attempt shall be permitted to proceed to the subsequent semester of the curriculum and to present themselves for re-examination in the same course only once more in the following academic year. Those who fail in more than one course on second attempt shall not be permitted to proceed to the subsequent semester and shall be required to repeat all or part of the year's curriculum and to present themselves for re-examination only once more in the following academic year.
  (ii) but who fail in more than three other core courses in any semester's examination on first attempt shall not be permitted to proceed to the subsequent semester and shall be required to repeat all or part of that year's curriculum and to present themselves for re-examination in the following academic year. If they fail again on second attempt, they may be permitted to present themselves for re-examination only once more before the commencement of the following academic year.

(b) Candidates who have failed in Architecture and Urban Design in the first semester shall not be permitted to continue in Architecture and Urban Design in the second semester. Candidates who have failed in Architecture and Urban Design in the first semester or Architecture and Urban Design in the second semester;
  (i) and in not more than three other core courses in any semester's examination on first attempt may be permitted to present themselves for re-examination before the commencement of the following semester. If they fail again in any core course or in Architecture and Urban Design on second attempt they shall not be permitted to proceed to the subsequent semester and shall be required to repeat all or part of that year's curriculum and to present themselves for re-examination only once more in the following academic year.

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3 *Not more than four courses are to be chosen from any one of the four categories offered by MArch or offered by Master of Urban Design (MUD), Master of Landscape Architecture (MLA) or Architectural Conservation Programme (ACP).*

4 *It should be noted that not all of the courses in the Categories I, II and III will be offered every year.*

5 *The choice of courses for the Final Examination is to be made with consideration of courses chosen for the First Examination in the following manner: not more than four courses from* any one *of the four categories are to be chosen.*

(ii) and in more than three other core courses in any semester's examination on first attempt shall not be permitted to proceed to the subsequent semester and shall be required to repeat all or part of that year curriculum and to present themselves for re-examination in the following academic year. If they fail again on second attempt, they may be permitted to present themselves for re-examination only once more before the commencement of the following academic year.

(c) Candidates who have failed to satisfy the examiners in one or more electives in their first attempt may be permitted under special circumstances to register for alternative courses and be examined at a specified date. If they fail to satisfy the examiners in any of the substitute courses, they may be permitted to present themselves for re-examination only once more at specified date. If any of the failed courses is not being offered in the particular academic year, this may be construed as a special circumstance for the purpose of this article.

(d) Candidates who have failed in any course of the respective year Examination at the third attempt shall be recommended for discontinuation of studies under the provisions of General Regulations G 12.

Award of degree

Ar81 The degree of Master of Architecture may be awarded with Distinction, except that a candidate who presents himself more than once for Final Examination in any of the core courses shall not be eligible for distinction unless the Senate directs that he shall be so eligible because of exceptional circumstances.

SYLLABUSES FOR THE DEGREE OF MASTER OF ARCHITECTURE

(These regulations and syllabuses will apply to candidates admitted in the 2010-11 academic year and thereafter)

For the purpose of these syllabuses, the teaching of each course will be conducted within one semester.

FIRST YEAR: CORE COURSES

ARCH4001. & ARCH4002. Architecture and urban design I and II (15 units each)

These two courses aim to use the case-method to give candidates experience in problem-solving and decision-making. Projects will call for design integration of the many factors which shape our environment including legal-financial determinants and social conditions. Emphasis will be on complex buildings, and group work in urban design in Hong Kong and in the region. Sketch designs are required with emphasis on imagination, ideas and graphic communication.

Field trips will be required for the course.

ARCH4003. Professional practice I (3 credits)

The course covers the areas of land building, planning and contract law. Land ownership; lease conditions; landlord and tenant covenants; easements; rights of way; torts; Hong Kong town planning ordinance and procedures; buildings ordinance, regulations and other related laws; codes of practice and submission of plans to various authorities are also dealt in detail. Other topics which come under the preview of this course and are discussed include : Buildings Department's practice notes for Authorized Persons; formation and discharge of contracts; enforcement; breach and remedies, arbitration; types of contract; standard private and public building contract forms; subcontracts; nominated subcontractors and suppliers; relevant statute and case law and other professional practice issues.

SECOND YEAR: CORE COURSES

ARCH5001. & ARCH5002. Architecture and urban design III and IV (15 credits each)

These two final year courses conclude the curriculum by means of a written thesis or a design thesis where a report and a special study are required. Candidates choosing to do a design thesis are required to demonstrate a mature understanding of their chosen topics during an oral examination. The requirements for written thesis are those normally required in a Master's programme; an oral examination is also required. The course is supplemented by sketch designs the purpose of which is the same as those in the previous year.

Field trips will be required for the course.

Pre-requisite for ARCH5001 : ARCH4001, ARCH4002
Pre-requisite for ARCH5002 : ARCH5001, ARCH6127

ARCH6127. Research seminar (3 credits)

This course teaches research methods in architecture and urban design with the aim of preparing students to undertake a design thesis. The expected course outcome is the completion of a thesis statement based upon a proposal for an independent research and design project. The proposal should state a clear position in relation to contemporary architecture. Course format includes lectures, discussions, as well as individual research and writing.

Pre-requisite: ARCH4001, ARCH4002

The following core course may be taken in either the First or Second Year. Candidates must have completed ARCH4003 before taking ARCH5003.

ARCH5003. Professional practice II (3 credits)

Beginning with the code of ethics and professional conduct, the course proceeds to focus on architects registration ordinance; architect/client/ consultant/contractor relationship; project management; tendering procedures; bills of quantities (specifications). Scheduling techniques; measurement conventions; organization and management and other professional practice issues of HKIA and ARB are also covered. Analysis of relevant cases in architectural practice, with special reference to Hong Kong is also included.

FIRST AND SECOND YEAR: ELECTIVE COURSES

There are four categories offered by MArch as well as by MUD, MLA or ACP, within each of which there are a number of courses available for selection by candidates in the Master's programme. These courses may be taken in either the First or Second Year:

I: Architectural History and Theory;
II: Architectural Management;
III: Architectural Technologies;
IV: Independent Studies

1. Candidates shall be guided in selecting these courses. It should be noted that not all courses in Categories I, II & III would be offered every year and that new course(s) may be introduced in any year.

2. Not more than four courses are to be chosen from any one of the four Categories offered by MArch or offered by MUD, MLA or ACP.

3. The Examination of the course may take the form of a written, practical or oral test, or by continuous assessment or by any combination of these. If a candidate is required to repeat a course because of failure but that particular course is not offered in the following year, his choice of an alternative course must have the approval of the Head of Department and the relevant course teachers.

4. For the purpose of examination, one course shall constitute a paper.

5. Choice of elective courses offered by MUD, MLA or ACP is subject to prior approval by the Head of Department in consultation with the respective Programme Directors. Priority will be given to students from the respective programmes. Please check the courses offered by these programmes at the time of enrolment and refer to the respective programme syllabuses for their course

descriptions.

CATEGORY I: ARCHITECTURAL HISTORY AND THEORY

ARCH5103. Housing in urban development (3 credits)

The course investigates the production of housing within the social, political and spatial conditions in urban development. Topics include social and economic determinants of housing location, standards and quality of design; impact on urban development; analysis of housing production including site and infrastructure, provisions; constraints and innovations in the housing industry; and case studies by field trip.

ARCH5105. The design of Chinese cities (3 credits)

The course looks into the basic physical organization and development of traditional, colonial and contemporary Chinese cities. It aims to introduce methods in understanding how built forms, particularly urban public spaces and city fabric, express certain aspirations of a culture, and how culture itself conditions their physical shape. It also addresses the issue of urban transformation: how cities took the shape they did? What and why have they changed from their past forms to the present shape?

Field trips form an integral part of the course.

ARCH5106. The modern movement and beyond (3 credits)

The course is concerned with theoretical aspects of design activities in architecture. It attempts to trace the evolution of spatial concepts significant to the modern movement and beyond. The course consists of two parts: analytical and synthetic. The analytical part is to develop the candidates' skill for deeper understanding of the complexity of the built form. The synthetic part attempts to follow the vicissitudes of architectural design through the examination of the works of certain architects.

ARCH5107. Vernacular architecture of Asia (3 credits)

Vernacular built-form is the most obvious and direct means of expression of a people and its culture. Through the examination of different indigenous building types in different parts of Asia, viz. China, Japan, Indonesia, Malaysia and Thailand, candidates are able to develop a broader sense of understanding of the relationship between architecture, climate and culture.

ARCH5108. Topics in architecture (3 credits)

This course gives students the opportunity to further explore specific issues and topics in architectural design and urban theory.

ARCH5109. Topics in architectural theory (3 credits)

This course gives students the opportunity to further explore specific issues and topics in architectural design and theory.

ARCH5110. Topics in urban studies (3 credits)

This course gives students the opportunity to further explore specific issues and topics in urban design and planning.

ARCH5111. Contemporary urbanism (3 credits)

This course integrates urban analysis research and architectural design methodologies to examine relationships between architecture and urbanism through the development of a working understanding of urban and architectural form in the context of the Contemporary City. The course examines the contemporary urban condition through readings of critical theories, analysis of developmental models, as well as empirical investigation of urban sites. In conjunction with physical, historical, social and economic research, alternative design strategies are explored to challenge existing presumptions and models of the contemporary urbanism.

ARCH5113. The international style (3 credits)

This course examines the architectural, urban, and discursive involvement of major protagonists of the modern movement in the non-Western world, including Africa, Asia, Latin America, and the Middle East. Through specific projects ranging from Le Corbusier's plan for Algiers between 1931 and 1934 to Louis Kahn's National Assembly Building in Dhaka, Bangladesh, begun in 1962, students will explore a variety of theoretical issues related to the internationalization of architectural modernism and its cultural, political, and social impact. Major themes to be addressed include but are not limited to the influence of early 20th century colonial planning upon modernism, the modern discourse on vernacular, the modern architect as social activist, regionalism vs. critical regionalism, and the relationship between modernism and particularly "national" expressions of architectural form.

Sites and issues will be paired with a selection of primary and secondary source reading material intended to expose students to specific methodological concerns in the history of modernism while providing them with new perspective on the evolution of these theoretical concepts over time.

ARCH5114. Architecture and memory (3 credits)

This course introduces students to a broad and critical approach towards issues surrounding the conservation of our built environment and cultural landscapes. With an increased relevance of architectural conservation in cities today, it imperative for students and practitioners to come to terms with the arguments, philosophies and genealogies leading up to the formulations of codes and practices. Unlike most histories and theories of conservation, which have remained within disciplinary boundaries of architectural practice, material research, techniques, applications and policies, this course seeks out relevance and theoretical formations across disciplines. Readings for this course include foundational texts in the discourses of tradition, historiography, collective memory, myth-making, structuralism and narratology, alongside various manifestations of history and memory in the forms of monuments, museums, theme parks and others.

ARCH5115. Architectural histories (3 credits)

This reading seminar offers an introduction to the historiography of architectural history and its predominant methodologies. Over the course of the semester, and proceeding in a roughly chronological manner, we will examine some of the key texts in architectural history, their authors, and their respective foci upon fundamental questions of structure, style, materials, and the historical origins of architecture itself.

The course's main objective is to teach students how to think critically about how different histories of architecture have been constructed over time in a variety of particular political, social, as well as cultural contexts. Through these texts, students will also learn about the architects, buildings, and ideas that comprise them. More generally, this course provides students with a variety of theoretical and analytical tools necessary to develop a critical and comparative perspective with respect to the reading and writing of architectural history and theory today.

ARCH5116. Art in architecture (3 credits)

The course attempts to build a bridge between students' professional architectural training and a broader education in the relevant liberal arts areas: in the psychology and philosophies of art and the history of art as it relates to architecture. Topics include an overview of aesthetic theories, on how ideas gain physical shape: the historical background, recent systemic theories, interpretation, criticism and the issue of art and linguistics versus architecture: from Aristotle, Tolstoy, Kant, Hegel, Hume, Nietzsche, Freud, Jung to Arnheim, Dewey, Goodman, Langer, Derrida, Scruton and more. The course will also address the issues of the social and environmental responsibilities of architecture, as well as the sentiments towards architectural conservation as societies seek to preserve their artistic and cultural identities.

ARCH5306. Changes in architectural depiction (3 credits)

This course studies past, present and future ways of representing architectural space. Using a variety of sources, the class will elucidate ways in which modes of description affect perception. Digital and analogue tools will be used to reconstruct the geometry of both historical precedents and future structures, investigate representational systems and generate alternate realities.

ARCH6109. The politics of the object (3 credits)

This course investigates how designed objects interface with the larger discourse of the political and urban environment. From public art installations, public and private spaces to civic architecture- objects situated in these contexts have multiple cultural meaning and transformative power of representation. Historical perspectives of industry, art-related programs, utilitarian products to international case-studies and their relationship to the user will be examined. An in-depth investigation of a specific local condition with global reach will be used as a site for research, design and built agenda. This will be followed by an onsite installation that builds upon the research into a design strategy and innovative cultural project.

ARCH6111. ReBuilding utopia: visions of architecture in the post-war world (3 credits)

This course examines the occurrences of the utopian tendency within the production of architecture in the aftermath of World War II – an event of global magnitude that triggered a series of political, social, economic and cultural consequences in its wake. The bipolar struggle that characterized most of the latter half of the 20th century implicated architecture in many ways and at many levels. Amidst postwar reconstruction in Europe and Japan, the continuation of war via the Cold War, widespread decolonization and the territorial divisions of the globe into First, Second and Third Worlds, the rise of America as the dominant superpower, and the internationalization of American popular culture, visions of the future were conceived. Within these post-war contexts and post-colonial realities, the promise of utopia was not simply proclaimed by the avant-gardes. Under the rubric of democracy and modernization, the United Nations, governments of nations, non-governmental organizations, academic institutions and multi-disciplinary groups, took on the task of vision building. At the same time, there emerged those who conceived of counter-utopias and dystopias as responses to the experiences of global homogenization and upheavals occurring at local and regional levels. How was architecture

instrumental in forwarding the objectives of the visionaries? How did technologies, methodologies and mindsets find their way into architecture and their corresponding discourses? In what ways did the multiple trajectories of utopia and utopian building inform the history of the discipline as it is understood today? Class discussions are based on assigned readings and individual presentations. Readings are primarily architectural texts but also include definitive texts from other disciplines including cultural studies, geography, sociology, and philosophy that are important in framing pertinent issues or events.

ARCH6112. Modern architecture and the visual realm (3 credits)

The objective of this seminar is to investigate the relationship of modern architectural work and the visual realm. The development of architectural theory, publication and/or detailing which simultaneously accept and deny the perception on modern architecture as a retinal art form will be the subject of discussion and investigation. In-depth analysis conducted on selected modern buildings form the basis of argument for students to develop their own critical thinking towards architectural theory and building appreciations.

ARCH6113. Architecture and the social (3 credits)

Social and environmental conditions pose significant challenges to contemporary design practices. This course examines how architecture and critical spatial practices confront these 'shifts' in political, economic and material processes that shape the built environment. Through collaborative investigations and interdisciplinary action, the 'Social' will be defined in a multiplicity of ways; where research on current urban policy, civic issues, community based architectures and design pedagogy will be used to create new forms of critique for the 'Social' project.

ARCH6114. Paradigms and prototypes (3 credits)

This one term graduate seminar module develops knowledge and skills related to the design of prototypical models of architecture and urbanism, by means of students' analysis and evaluation of recent, innovative, seminal design projects, and their related techniques, strategies, discourses, and effects. The aim of this seminar course is to provide a thorough background to the theoretical knowledge related to work pursued in contemporary avant-garde design studios emphasising computational design and fabrication techniques. The seminar creates an important opportunity for students to reflect upon and evaluate their own ongoing design objectives and interests, in relation to recent design projects, and their affiliated techniques, concepts and discourses.

ARCH6118. Urban research seminar (3 credits)

This course is a research seminar open to MArch and RPG students with a serious interest in self-directed investigation into contemporary spatial, political and economic issues in contemporary urban studies. The course combines independent research projects and iterative analytical exercises. A reading list in contemporary urban studies and supplemented by readings introduced through research topics forms the basis for in-class discussion. With a goal of establishing literacy in both contemporary research topics and methods, and developing a critical activism towards contemporary urban conditions, a dual emphasis will be put on research and its representation with student presentations scheduled throughout the term.

ARCH6128. Protracting night (3 credits)

This seminar explores both historical and contemporary issue of nocturnal phenomena, investigating night as a medium how cities develop and addressing its architectural forms, and as a site that generate

our theoretical understanding of anomalies in politic and economy. The phenomenon of night invokes theoretical contemplation into perception and the senses. We will explores as architectural research and develop design methods inductively addressing a range of issues, from the domestic to the urban, from literary forms to the architectural text. Case studies examine contemporary art and architectural practices, writings that circumscribe night reflect on its limits and potentials. Students will develop a detailed research project, grapple with night as the artificial and natural agent that stimulates our sight, ultimately coming to understand our needs for light but also finding a place for darkness.

ARCH6129. Inter cities (3 credits)

Inter Cities will explore transitional areas that are about to undergo significant urban transformation either in terms of massive growth or shrinkage. Usually occupying peripheral territories on the edge of cities these areas display unique characteristics – they are anomalies, estranged and contradictory to normative planning methods. Their condition is patchy and often incoherent mixing landscapes, industrial wastelands, and pockets of residential enclaves. Their governance and control is often contested involving overlapping political and individual desires. Examples include the Frontier Closed Area of the Hong Kong and Shenzhen border as well as the Thames Gateway in East London. As they are emergent they display conditions of urbanism that are un-tested and somehow prototypical providing clues to how the future of our cities may evolve. To this extent Inter Cities are at the forefront of contemporary urbanism. The course will examine the conflicting forces that shape these unique urban landscapes including economy, politics, globalisation, industry, environmental conditions and shifting cultural values. Graphic techniques of mapping, diagramming and composite drawings will be key tools of investigation. Future speculations will be drawn as visual provocations for these unique urban landscapes.

CATEGORY II: ARCHITECTURAL MANAGEMENT

ARCH5201. Aspects of contract management (3 credits)

Detail analysis and studies of standard contracts and sub-contracts for public and private works in Hong Kong. Practical problems in contract administration and project management, the cooperation and partnering of the architect, project manager and the contractor will be examined. Claims, counter-claims, mediation and arbitration will be considered.

ARCH5202. Building economics and management (3 credits)

The course deals with economic and cost factors relevant to the architectural design and construction processes. The course will also provide instruction in the theory and practice of appropriate techniques to achieve economy and efficiency. Topics include: feasibility analyses for projects, economic analysis for design, project cost analysis, financial monitoring and evaluation, case studies. A term paper on a relevant topic will be required.

ARCH5204. Principles and practices of building codes (3 credits)

The course covers the area of Building Control in detail. The principles, practices and applications of the Building Codes, including the Buildings Ordinance, Building Regulations, Codes of Practices, and Practice Notes for Authorized Persons, will be extensively discussed and explained. Lectures will be supplemented with case studies involving projects in local architectural practices.

ARCH5205. The building process (3 credits)

The course will examine the architect's role in different stages of the building process, from bidding, being commissioned, designing, tendering, coordination, construction to completion. Focus will be put on how various factors, including client/architect relationship, teamwork, management and economics could affect the outcome of a building process. Coursework may include case studies of actual projects through interviews and research.

ARCH5206. Management in architectural projects (3 credits)

Aspects of project management in building projects from the perspective of an architect will be discussed. Theories and practices associated with time, costs, production and risks management will be studied. Coursework may include case studies of actual projects through interview and research.

ARCH5311. Digital media and methods (3 credits)

This course provides a comprehensive introduction for Masters students to three-dimensional digital media and methods for architects. The focus of the course is on the application of relevant software packages towards design, analysis, fabrication, and documentation, emphasising topics as the controlled modeling of complex form and the rationalization non-planar geometries. The goal of the class is to bring Masters students with basic skills in the use of software for architects quickly up to speed with essential tools and processes. Students who did not graduate from the BA(AS) program at HKU and do not have a background in digital media and methods are highly encouraged to enroll in this course in their first semester in the MArch program.

ARCH5403. Design and management (3 credits)

The course reviews management theory and practice and explores the implications for architectural design practices and their projects by examining modes of practice and project results

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ARCH6130. Building information modeling in architectural practice (3 credits)

BIM technology is more and more often adopted in architectural practices throughout the world as the main tool for design, managing and documenting projects. Successful implementation of BIM for day to day work in an office and taking most advantage of the technology requires proper configurations, methodologies and standards. Without such structured approach and without applying best practices developed by the industry, BIM may easily become more of a problem then a solution. BIM technology allows integration within one project database of Architecture, Structure, MEP (Mechanical, Electrical, Plumbing) and others to create a complete virtual model of a future building. Such a model is like a living entity, constantly updated throughout the design process and later during the building lifetime. In various stages of this lifetime a BIM model can be used for many purposes from scheduling and calculating areas, curtain wall costing, outputting documentation, performing thermal analysis to managing tenants and security issues in the field of building maintenance. Achieving those goals requires understanding of capabilities and limitations of the technology in very practical aspects, but also orientation in prospects and future opportunities for BIM. paradigm.

ARCH6131. Introduction to building information modeling and management (3 credits)

BIM technology is changing and will continue to change the face of architectural profession. It influences all stages of design and project management and aims to integrate within one database Architecture, Structural Design, MEP (Mechanical, Electrical, Plumbing) and others. This database, which contains a 3D model of a building, formal project documentation and other information is a dynamic object, constantly updated throughout the whole design process and building lifetime. In any stage of the project it may be a source of invaluable, up-to-date information about building parameters and physical performance, which would be difficult or expensive to obtain using traditional methods. Such data can help the architect to make more informed decisions at earlier stages of design, which greatly reduces costly changes and errors. The objective of this course is to familiarize students with basic ideas and applications of BIM technology using the most widely adopted BIM software package, Revit Architecture. Examples used for this purpose during the course will be based on real projects and case studies, which count themselves among the most complex and innovative in terms of design, modeling approach and project management.

ARCH6132. Digital practice: design development (3 credits)

The development of digital technology has changed contemporary practice radically, from design to project management and delivery. Accordingly this seminar focuses on the techniques of Digital Project Gehry Technologies, the most sophisticated digital application currently available in architectural industry. Rather than simply teaching how to use the software, the underlying thinking process involved in its use will be emphasized. This course combines software demonstrations, case studies, hands-on practice and design exercises. Students are encouraged to use the tool in their own ways and apply it to different problems after following standard demonstrations. The contents cover parametric modeling, building information modeling, visual outputs, analytic feedback, design optimization. The final submission will be a BIM model of design work (such as a studio project). At the end of the course, students should be able to utilize Digital Project in and associated digital tools (e.g. scripting) as a tool in the comprehensive design and management of an architectural project.

ARCH6133. Digital practice: design delivery (3 credits)

In a successful architectural project, the efficiency of design communication and the control of information-flow cannot be less important than creative design. This seminar teaches students to understand how Digital Project Gehry Technologies, the most sophisticated digital application currently available in architectural industry, is applied during different stages of an architectural project, i.e. delivery, management and communication of design information in a team-based working environment. By learning advanced digital techniques through standard tutorials and case studies, students will be able to develop design concepts to articulated BIM models through managing detailed design information, as well as to embed and extract different types of design information (rather than just geometric data and technical drawings) based on the BIM model within a team. The final submission will be comprehensive design reports which can be used to produce big scale physical models for specific design tasks. At the end of the course, students are expected to grasp Digital Project in terms of management and communication of design information, which will lead to their understanding of the profound impact to the professional practice by digital applications.

ARCH6134. Explorative architecture practice (3 credits)

As advanced digital and information-based design methods and production techniques are applied increasingly in contemporary architectural design, it is essential for architects operating in this Information Age to gain an understanding of its explorative design methods. With case studies of today's leading architectural practices as a starting point, this course investigates how evolutions in digital design trigger a paradigm shift in the production of architectural form, material application and

project management. Research on manufacturing and construction technology is combined with analysis from initial geometry build-ups to project delivery, aiming to gain an understanding of the coherent building systems used in the creation of explorative architecture.

ARCH6135. Explorative architecture techniques (3 credits)

The profound embedding of advanced digital and information-based tools in all aspects of explorative architectural practices has caused a radical revolution in contemporary design techniques. By combining case studies of today's leading architects with tutorials on advanced 3D modeling, parametric and algorithmic design methods (scripting), this course investigates the use of digital design techniques in the translation of geometries into built form. The aim is to gain an understanding of the geometric challenges, material possibilities and limitations faced with when working within this new

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CATEGORY III: ARCHITECTURAL TECHNOLOGIES

ARCH4005. Building structures and systems (3 credits)

The course is designed to close the gap between structural theory and design. The subject is divided into two parts. The first part highlights the more important aspects of the structural planning process from architects' point of view. The second, analytical part, develops candidates' skills through case studies of actual projects leading to a deeper understanding of the complexities of the structural problem. Topics such as building failures, structural alteration and additions, building regulations, geotechnics, foundations on difficult grounds and computer-aided structural design/analysis will be discussed.

The course provides an understanding of the realities of designing and manufacturing components of buildings within aesthetic, economic and time frameworks. Design construction communication is studied through production and technical drawings, manufacturer's shop drawings with special emphasis on the use of materials and manufacturing technology. Direct studies of manufacturing techniques both traditional and new are undertaken by field trips to factories and construction sites. Construction systems including the systems approach, standardized buildings, contractual strategies and their impact on the evolution of building production are investigated.

Field trips to construction sites and design offices form an integral part of the course.

ARCH5302. Computer graphics for architects (3 credits)

Through a series of exercises, presentations, and discussions, the course will investigate the evolving relationship between architecture and its means of representation, as well as broader issues of technology, information, and culture. While the course will explore the impact of computing technology on the representation of architecture, it will also provide a firm understanding of some of the software required to do so.

ARCH5303. Sustainable building systems (3 credits)

Advanced studies in innovative technologies are undertaken. Energy efficient and intelligent buildings are analyzed and advances in parallel industries such as aerospace, shipbuilding and the transportation industries are studied for applicability in the building industry. Computer modelling is used extensively in this option. Total energy systems are investigated as are low environmental impact techniques.

ARCH5304. The computer in architecture (3 credits)

An introduction to computer-related tools and techniques useful to architects in professional practice. It includes the use of computers for office automation and management as well as various design and analysis applications in architecture and related fields.

ARCH5305. Computer-aided architectural design methods (CAAD Methods) (3 credits)

A study of current computer techniques and technologies which can be used by architects to develop design methods that fully exploit contemporary computers as design aids.

ARCH5307. Advanced architectural technology (3 credits)

This course concentrates on understanding and applying the principles of building structures, building materials and construction technology, environmental controls and building services, in an advanced level of integrated architectural design, geared to the local context. For building materials and construction technology, the emphasis is on the performance criteria and applications of building materials, components and systems of construction. For building structures, the emphasis is on structural schemes systems relating to local building regulations and codes. For environmental controls and building services, the emphasis is on local regulations and codes, and coordination of services for heating, ventilation, air-conditioning, fire safety, plumbing and drainage, electrical, lift and escalators, etc.

ARCH5308. Topics in advanced technology (3 credits)

This course gives students the opportunity to further explore specific issues and topics in computer and advanced technology.

ARCH5309. Design research on architectural sustainability (3 credits)

This course focuses on new and more precise understandings of the way in which architects design and work with principles of sustainability. It foregrounds design research and looks at the "architectural" use of various energy-related building technologies. Students will be introduced to critical and noteworthy texts underpinning the more general relationships between architectural design and technology. Case studies, model making and prototypical modes of research will be used as a vehicle to discern specific disciplinary design techniques and strategies.

ARCH5310. Design, assessment and certification of sustainable buildings (3 credits)

Integrated principles and methods for assessing and certifying green buildings will be taught and discussed. The key elements and characteristics of green building certification methods commonly used in Hong Kong, mainland China, and overseas will be highlighted. The Hong Kong Building Environmental Assessment Method, the Green Building Design Label Of China, and the US Leadership in Energy & Environmental Design (LEED) methods will be elaborated. Details on the scope of the US LEED Green Associate Examination will be taught.

ARCH5312. Materials, services and structure (3 credits)

This course concentrates on understanding and applying the principles of building structures, building materials and construction technology, environmental controls and building services, in an advanced level of integrated architectural design, geared to the local context. For building materials and construction technology, the emphasis is on the performance criteria and applications of building materials, components and systems of construction. For building structures, the emphasis is on structural schemes systems relating to local building regulations and codes. For environmental controls and building services, the emphasis is on local regulations and codes, and coordination of services for heating, ventilation, air-conditioning, fire safety, plumbing and drainage, electrical, lift and escalators, etc.

ARCH5313. Nonspace: Materials, processes, and constructions (3 credits)

While space is the most distinguished objective of architecture, the boundaries and character of space are defined by elements of non-space: materials, processes, and constructions. This is the paradox of architecture. This course explores a conceptual framework for the environmentally responsive design of building assemblies, based upon a clear understanding of materials and their inherent processes and construction technologies. Building materials will be analyzed and carefully drawn with emphasis on their physical and architectural properties, functions, and behavior in manufactured and installed constructions. The design of building assemblies made from concrete, masonry, timber, steel, and glass will be examined in relation to the forces that shape their composition and performance.

ARCH5314. Parametric structures (3 credits)

This research seminar will examine the concept of parametric systems and their applications in and implication on architecture. Through a series of lectures and guided design exercises students will be introduced to the theoretical background and logic of parametric systems and the generation of them in the digital environment. Historical building precedents of specific architectural typologies will be examined to open up a critical dialogue between existing physical constraints and the digital realm. Different design techniques will be studied and deployed in order to generate several parametrically driven prototypes that have the capacity to form innovative architectural structures.

ARCH5315. Creative computation (3 credits)

Based on advanced applications of programming in architectural design, this course offers students opportunities to learn code-based design skills (e.g. Rhino Scripting) and associated knowledge. The objective of the course is to fuse the intuition of the human brain and the computational power of the computer processor towards more meaningful creativity within the field of architectural design. Students will synthesize computation with functional, aesthetic and other architectural constraints in respect to individual sense and intuitive preference.

ARCH5316. Design research on architecture and the environment (3 credits)

This course focuses on case studies and design experiments related to architecture and the environment. It foregrounds an understanding of the effects of architecture on its immediate environment, literally the environments that buildings create. This course will be conducted as a research seminar, the predominate mode of thinking, intellectual development and idea formation for the course is physical modeling and diagramming. Each week students will be required to do a series of readings and will

work in teams to analyze two precedents through sectional models, drawings and diagrams. Students will study two precedents over the course of the entire semester devoting approximately a half a semester to each. Students will be asked to cull out specific design ideas from readings and associate them with sectional models and drawings for in class discussions and pin ups. Case studies, model making and prototypical modes of research will be used as a vehicle to discern specific disciplinary design techniques and strategies.

ARCH5317. Making Ways and Ways of Making (3 credits)

One to one design is not an issue of how large a physical output becomes but rather how the properties of real materials are vigorously experimented with at any particular scale. The seminar will strive to bring forward inventive means of making that engage material behaviours in response to external forces at work while remaining receptive to its investigated scale. Making ways for such prototypes will address the necessity to construct intermediary frameworks which will become an integral part of the making process. This workshop based seminar, supported by a series of lectures, will encourage students to explore procedural logics of making that expand on and revisit initial design premises from a series of physical explorations at incrementing scales. Each scale of investigation will have its own design focus and will inform the overall conception of a collective design-built project realized by the students near the end of the course. The core ideology is to influence the process of architectural design in reverse; that is by synthesizing an architectural proposal from the findings emerging out of a succession of well crafted experiments.

ARCH6115. Topological structures (3 credits)

This intensive workshop focuses on two main objectives. The first one concentrates on a practical investigation on topological surfaces and their spatial properties to expand the language of architecture. The second one addresses the issue of parts to whole and the question of constructability. Where in the first part students will learn how to draw and construct intricate surfaces digitally using software packages like Maya and Rhino, the second part focuses on the parametric discretization of these morphologies and later how to digitally manufacture them.

ARCH6123. Topics in architectural technologies (3 credits)

This course gives students the opportunity to further explore specific issues and topics in architectural technologies.

ARCH6126. Building technology & prospects (3 credits)

The intention of this course is three-fold. First, for students to learn about existing building technology beyond conventional building systems such as mechanical, electrical, plumbing, fire services, etc., and how such technological advancement has been changing the design and construction industry, the environment, as well as users' experience. Second, to inspire and encourage students to develop a vision of the future of technology, its application to / integration with architecture, and its interface with users and environment. Third, for students to explore how technology is going to bring innovation to sustainability design, and how individuals or companies can use building technology to make a positive impact to architecture and the environment.

ARCH6136. Innovative façade design (3 credits)

This course explores in depth the technical knowledge necessary to design, detail, specify and construct the building enclosure. The course emphasizes current and emerging technologies of the curtain wall. Case studies of historical as well as contemporary examples are used throughout to illustrate the technical content of the course.

While discussion of specific technical issues and methodologies focuses on those aspects that directly inform architectural design, it is the intent of this course to provide graduating students with a comprehensive understanding of the technical concepts as well as the specific technical skills necessary to undertake the actual detailing and specification of a curtain wall. Deliverables include the design and detailing of a curtain wall of the student's own design.

CATEGORY IV: INDEPENDENT STUDIES

ARCH5404. Practicum (3 credits)

This course provides candidates in the Exchange Programme opportunities in understanding the architectural professional practices in Hong Kong. Candidates are expected to undertake the practical training for a period of no less than two consecutive months under the supervision of the Exchange Programme Director. A log-book is required at the end of the Practicum.

ARCH5405. Independent studies (3 credits)

The objective of this course is to allow candidates to pursue independent studies to strengthen critical analytical skills and reflexive learning. With the permission of the supervisor, students may choose reading materials that focus on the exploration, analysis and/or revelations on concepts in architecture and urbanism.

ARCH5406. Community building workshop (3 credits)

The course intends to investigate issues in design and construction through hand-on experiences and involvements in an actual building process. By participating in the design and construction of varies types of community projects including temporary or permanent installations, shelters or buildings, students are to explore the nature of materials and structure, methods in construction, as well as modes of fabrication and design media. The process also provides opportunities for students to interact and exchange knowledge with different stakeholders involving in the building process: users, contractors, managers and sponsors. The focus of task for each year may varies pending on the nature of project and resources available, but a commitment to the community and a team work spirit, as well as the appreciation of the tactile and tectonic quality in design will always be essential part for the course.

(revised on 28 November 2011)