

M.Arch. Curriculum Revisions

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M.Arch. Curriculum

Overview of Pedagogy

Context:

Globalization and the information revolution are placing diverse cultures in unprecedented proximity, and unavoidable dialogue (Network Culture).

The proximity is both actual and virtual.

Together, they are transforming our historically heterogeneous space and time into homogeneous entities, virtually.

Consequence

World cultures, in all their diversity and differences, are no longer afforded space and time as literal and conceptual implements of mutual separation and distinction.

The actual and virtual cohabitation of diverse cultures is transforming world cultures at a scale and a rate that is impressive, if not unprecedented.

Change is the new constant.

The pedagogical question and challenge:

How to educate the next generation of architects to meet not only the unique demands of a plurality of cultures, but more important a plurality of cultures in a state of flux and change?

Assumptions

Professional practices of all kinds, including architecture, are/becoming multi-cultural propositions more so than ever.

Architecture, as a spatial, formal, and material language, is an indispensable medium that allows a culture to form and transform its assumptions, beliefs, views, and ideas about the world into a factual, lived experience.

A direct effect of globalization is an inevitable and challenging discrepancy between life as various cultures have previously defined and imagined it to be and life as various cultures presently experience it to be.

What is certain in the face of globalization is cultural change. What is essential in the face of change is constant analytical examination and thorough re-evaluation of change with an eye toward creative solutions that directly and critically address the change. Falling back on ready-made formulas, indigenous or imported, without close scrutiny is at best unproductive.

Pedagogical Implications

A necessary shift away from the traditional emphasis on the acquisition of bodies of knowledge to a greater emphasis on the development of analytical, critical, and creative abilities that are essential to engaging and effectively addressing diverse bodies of knowledge.

Given the speed and changing modalities of global communication and cross-cultural exchange, bodies of knowledge, in their cultural specificity, face obsolescence with increased pace.

In the global market place what is essential is not the extent of one's knowledge that is as such culture specific, rather it is the ability to engage, analyse, organize and manipulate diverse bodies of knowledge.

What is essential is creative problem solving skills rather than ready-made answers.

For these skills analytical and critical thinking are essential prerequisites.

Pedagogical Challenge

Educate a new generation of architects who, practicing within a global economy and faced with multiplicity and diversity of cultures, will not blindly facilitate the dominion of their own (sub)culture, or what is not absolutely different reduce cultural and ideological differences to facile and stereotypical imagery in the name of regional identity.

Pedagogical Requirements

Instilling a heightened understanding of the complex dialogue between architecture and culture

And the spirit of

- Exploration
- Experimentation
- Critical Engagement
- Creative Thought
- Innovation

Pedagogical Response

A shift in emphasis in the familiar areas of study within the discipline of architecture, i.e., history, technology, representational, cultural, professional, and design studies, etc..

Treat these areas not as bodies of information per se, but also and primarily as disciplines with distinct methodologies for collecting, analysing and organizing information.

Understanding and learning to apply the methodologies analytically and critically should be the skills the students acquire and take away from each class rather than the information alone.

To emphasize education over training, i.e., the ability to analyse and manipulate various bodies of knowledge in place of their mere amassment., the curriculum may be organized around areas of study as opposed to bodies of knowledge. These may be:

- I. Design Studies
- II. Representational Studies
- III. Historical/Cultural Studies
- IV. Technological Studies
- V. Professional Studies

M.ARCH Curriculum Narrative

Context:

Over the course of the past two decades Globalization, coupled as it has been with the digital information revolution have radically transformed the practice and the profession of Architecture. The consequences of this transformation for architectural pedagogy are measurable and direct.

Globalization's drive to overcome geographic divides and boundaries in effect has and will continue to force diverse cultures into unprecedented proximity, and an unavoidable dialogue.

The proximity is both real and virtual. The latter is, arguably, the more forceful of the two. What makes contemporary globalization a far more formidable and irresistible force than prior attempts at globalization is contemporary globalization's intimate and indispensable link to the information technologies that transform our historically heterogeneous space and time into homogeneous entities, virtually. One consequence of the convenient marriage between globalization and information technologies is that cultures, in all their diversity and differences, are no longer or in the least not readily afforded space and time as literal and conceptual implements of mutual separation and distinction. The cohabitation of diverse cultures induces a potentially tense and difficult dialogue. The difficulty of this dialogue is owing to the globalization's demand for uniformity in place of diversity across a wide spectrum of economic activities. In the long run this is a costly demand, as it requires adaptation and wholesale cultural change. The latter unavoidably entails resistance, friction, and conflict.

What is certain is that globalization is inevitably transforming all cultures concerned at a scale and a rate that is impressive, if not unprecedented. The question and challenge that this change directly and forcefully poses for architectural education is how to educate the next generation of architects to meet not only the unique demands of a plurality of cultures, but more important a plurality of cultures in a state of flux and change? The assumption here being that with the rapid transformation of traditional spatial and temporal dividing-lines between cultures, professional practices of all kinds, including architecture, are multi-cultural propositions more so than ever.

Assuming that architecture, as a spatial, formal, and material language, is an indispensable medium that allows a culture to form and transform its assumptions, beliefs, views, and ideas about the world into a factual, lived experience, the pedagogical challenges of globalization are formidable and immediate.

In spatial and temporal seclusion, a culture may readily maintain a prolonged and effective synthesis between its assumptions about the world and its experience of the world through the agency of, among others, its architecture. In the face of globalization maintaining this synthesis is a formidable and perpetual challenge. A direct effect of globalization is an inevitable and challenging discrepancy between life as various cultures have previously defined and imagined it to be and life as various cultures presently

experience it to be. This is a direct consequence of the proximity and the inevitable dialogue that are the immediate legacies of globalization and its reliance on information technologies.

Another major catalyst for change is the cross and/or inter-cultural nature of architectural practice in a global economy. Wholesale importation of architectural and urban-forms produced in very different cultural contexts, coupled with rapid and phenomenal transformation in such familiar examples as Singapore, Shanghai and Dubai, and to a lesser degree in numerous other locals are fundamentally changing the world as the local cultures experience them.

However, it is not only the local experience that is changing, but also that experience now encompasses and/or overlaps a far wider geography and more life-styles than it ever has. In the age of globalization and information technologies, one's experience of the world extends far beyond one's immediate environment in real time.

What is certain in the face of globalization is cultural change. What is essential in the face of change is constant analytical examination and thorough re-evaluation of change with an eye toward creative solutions that directly and critically address the change. Falling back on ready-made formulas, indigenous or imported, without close scrutiny is at best unproductive.

The Pedagogical Consequences

The ramifications for and the specific demand on architecture pedagogy in the age of globalization are the effective education of a new generation of architects who, practicing within a global economy and faced with multiplicity and diversity of cultures, will not blindly facilitate the dominion of their own (sub)culture, or what is not absolutely different reduce cultural and ideological differences to facile and stereotypical imagery in the name of regional identity. What is required more so than ever from architecture pedagogy in the age of globalization is instilling a heightened understanding of the complex dialogue between architecture and culture and along with that a spirit of exploration, experimentation, critical engagement, creative thought and innovation.

The broader implication of globalization for not only architecture education, but higher education in general is a necessary shift away from the traditional emphasis on the acquisition of bodies of knowledge to a greater emphasis on the development of analytical, critical, and creative abilities that are essential to engaging and effectively addressing diverse bodies of knowledge.

Given the speed and changing modalities of global communication and cross-cultural exchange, bodies of knowledge, in their cultural specificity, face obsolescence with increased pace. In addition, the sphere of professional practice far exceeds the bounds of any one culture. In the global market place what is essential is not the extent of one's knowledge that is as such culture specific, rather it is the ability to

engage, analyse, organize and manipulate diverse bodies of knowledge. What is essential is creative problem solving skills rather than ready-made answers. For these skills analytical and critical thinking are essential prerequisites. These are the skills higher education has to emphasize if it is to respond effectively to globalization and the information age.

Specifically with regard to architecture education, the above entails and requires a shift in emphasis in the familiar areas of study within the discipline of architecture, i.e., history, technology, representational, cultural, professional, and design studies, etc.. It entails treating these areas not as bodies of information per se, but also and primarily as disciplines with distinct methodologies for collecting, analysing and organizing information. History, for instance, should primarily be understood and taught as a unique mode of inquiry with particular methodologies for analysing, organizing, categorizing and delivering information about the built environment. Understanding and learning to apply these methodologies analytically and critically should be the skills the students acquire and take away from each class rather than the information alone. It is these skills that will enable the students to become effective practitioners in a multi-cultural environment, rather than their specific knowledge of a particular period in a particular culture. This is not to say that the latter is not important, rather that it should be seen as a means to an end and not an end in itself.

To emphasize education over training, i.e., the ability to analyse and manipulate various bodies of knowledge in place of their mere amassment., the curriculum may be organized around areas of study as opposed to bodies of knowledge. These may be:

- I. Design Studies
- II. Representational Studies
- III. Historical/Cultural Studies
- IV. Technological Studies
- V. Professional Studies

The distinction between the proposed areas of study is based on both methodology and content. Specific courses will fall into one or another area of study based on emphasis and specific method of investigation. This should help clarify the pedagogical mission of each course and prevent duplication and undue overlap. The proposed areas of study are not finite; nor are they autonomous. The same subject matter may be examined in two area courses using two different methodologies. The areas introduced are meant to ensure basic coverage and academic competence.

I. Design Studies

Given that Architecture is a language, in the broader sense of the term, of form and space, and individual designs are complex cultural statements (promoting and sustaining specific values, beliefs, and ideals in space and time), the broader objectives of the design studio sequence are:

1. Teaching students the language of form and space and expanding their vocabulary over time.
- 2.. Teaching students how to:
 - a. Decipher, evaluate, and form ideas understood as a complex set of values, beliefs, and ideals (requiring analytical skills and an understanding of the link between form and ideology).
 - b. Express and communicate ideas in form and space (requiring formal and visual communication skills).

The primary objective of the studio pedagogy is to promote a heightened understanding of the complex dialogue between architecture and culture, and along with that a spirit of exploration, experimentation, critical engagement, creative thought and innovation. To this end, the sequence of studios may be divided into three broad categories: elemental studios, analytical (intermediate) studios, and reflective (advanced) studios.

II. Representational Studies

The objectives of analytical and representational studies courses are to teach students not only how to effectively re-present what is seen or envisioned (both mechanically and digitally), but also to ensure students have a thorough understanding of drawing in all its manifestations as:

- a. A communication tool - as distinct from representation.
- b. A design tool - as distinct from communication.

Both skills, particularly the latter, require understanding abstraction as an analytical process, a mode of thinking, and a mode of visualizing. They require developing an understanding of abstraction as a means to an end and learning how to think with and through abstraction as a primary component of the design process.

III. Historical/Cultural Studies

Courses in the historical studies area focus on the history of Architecture as a history of ideas, realized through form. They offer lessons in formal and spatial composition as they explore the inextricable link

between specific historical examples and the broader social, political, economic, and ideational context of their production.

The objective of this area of studies is to make students keenly aware of the intricate and complex link between culture and design. This requires a deliberate focus on developing effective formal and conceptual analytical skills. The former enables students to decipher the formal and compositional intricacies of the object of study, while the latter enables them to decipher its conceptual and ideational underpinning.

IV. Technological Studies

The specific objective of this area of study is to introduce students to current and emerging sustainable building technologies. The broader objective is to introduce students to the scientific methodology that is integral to investigation of technology. The goal is to make students aware of technology not as technique per se, but as a problem-solving process that mandates logical analysis and creative and context-specific solutions. A vigorous investigation of sustainable building practices pertinent to the health and welfare of the built environment and the cultures that use them are at the core of this area of study.

IV. Professional Studies

The objective of this area of study is to introduce students to the various facets of the professional practice of architecture, including project management, client role and requirements, legal responsibilities, ethical and professional responsibilities, financial management, community and social responsibility, and programming.

The Design Studies Sequence Narrative

The primary objective of the studio pedagogy is to promote a heightened understanding of the complex dialogue between architecture and culture, and along with that a spirit of exploration, experimentation, critical engagement, creative thought and innovation. To this end, the sequence of studios may be divided into three broad categories: *elemental studios*, *analytical studios*, and *reflective studios*.

Elemental Studios:

Aside from focusing on the development of a common formal vocabulary and the skills needed to communicate mechanically and digitally, the pedagogical goals of these studios may be summarized as learning:

1. The language of architecture, its formal elements and their expressive potential
2. Learning how to speak this language wilfully and effectively.

To this end, one may proceed from the exploration of the expressive potential of the more abstract elements of architecture, e.g., solids and voids, planes and lines, to their more concrete expressions, e.g., columns, walls, stairs, windows, corners, etc., to their assemblages into paths and places, rooms and passages. In turn, one may also proceed from detail, to building, to site, to city over the extended time frame of the curriculum.

At the outset, it is important to analyse and understand the dual nature of each architectural element as both a function and an expression, i.e., in terms of what each does and what each says or is capable of expressing. Subsequently, it is important to distinguish and explore how architecture communicates both statically and dynamically, in space and in time, i.e., passive and active reception. One may start with passive communication (in place, looking at) and elements that readily lend themselves to this form of communication, i.e., elements that can make a statement without requiring time and movement (columns, walls, windows) and then introduce elements that reveal their message with time and movement as requisite components of the expression, e.g., a staircase, a room, etc. In this latter context organizational principles such as axis, layers, etc., can be introduced and explored. In this same vein, it is important to distinguish between experiencing architecture, which is accumulative, and viewing it, which is totalizing as a mode of reception.

While exploring the expressive potential of architectural elements, it is important for the students to realize that, on the one hand, what an element says and what it is are two separate issues, e.g., being solid is not the equivalent of expressing solidity and that the former is not an acceptable substitute for the latter. On the other hand it is also important for them to realize that the expressive potential of each

element is conditioned by what it does, e.g., support, define, lead, connect, etc. (later the question of program will have to be explored in the same vein).

As a matter of strategy, addressing the above issues, one may formulate assignments that require students to contradict in expression the overt function of the elements they are to analyse and design, e.g., design a column that appears to defy weight, design a stair that resists its destination, design a transparent opaque wall, design an infinite room, etc. On the one hand, this type of exercise forces to surface assumptions and presuppositions about the element, and on the other hand, it forces students to distinguish between what the element does and what it can say (they cannot depend on the element to make the statement for them, insofar as the expression is meant to contradict the function).

In learning how to express ideas through form, it is important to begin with architectural or formal concepts, e.g., finite, infinite; static, dynamic; transparent, opaque; etc., and having mastered them, move on to explore how non-architectural ideas can be translated and transformed into an architectural concept and communicated formally. Throughout this process it is important for the students to develop a clear understanding of reading (as distinguished from the metaphysical term meaning) being context dependent (present or assumed). This latter is, of course, a major theme that should lead to the realization that architectural expression is a question of relational composition at every scale, that no element, in itself, communicates anything. Also, architectural expressions are fundamentally experiential and evanescent and not concrete or verbal.

In the end, students should have a clear understanding that to design means forming an idea in relation to the specifics of the problem at hand and then struggle to realize and express that idea in architectonic form through deliberate and successive assemblage or composition of parts. This implies the realization that function (as distinct from program) has no form, e.g., there are endless possibilities for transferring a given load from point A to B, the form of which is determined by one's design agenda and expressive intent.

On another general note, students should come away with a clear understanding of the crucial interplay between analysis and design as two complementary processes. They should understand analysis as a process of moving from realization to abstraction (e.g., from form to principle, to intent) and design as a process of going from abstraction to realization (e.g., from intent to form).

Formally, students should be able to conceive and construe a wilful and detailed architectural composition that incorporates structure, light, and material as expressive elements of an experiential composition.

Analytical Studios:

Assuming students come to these studios with an understanding of the formal elements of architecture and their expressive potential, as well as the ability to speak this language wilfully and effectively, the pedagogical goals of the analytical studios may be defined as developing a thorough understanding of architecture as the spatial dimension of culture, and buildings as ideological constructs. This entails learning how to design in deference to specific ideologies or world-views. The latter, of course, requires the ability to analyse and decipher the complex relationship between architectural form, function, and ideology.

Focusing on small-scale buildings with varying degrees of contextual complexity, in this segment of the curriculum students should learn how culture appropriates architecture through program and aesthetics. They should develop an understanding of program as a cultural interpretation of function (e.g., sleeping is natural or instinctive, where and under what conditions we sleep is cultural) and aesthetics as a mode of cultural appropriation of form, in keeping with specific cultural agendas, presuppositions, or world-views. They should understand that “design ideas” are not merely random opinions, but analytical constructs reflecting specific cultural agendas. They embody and reflect cultural values, beliefs and ideals. “Partis” are cultural blueprints.

To develop an appreciation for architecture as the spatial dimension of culture (as distinct from its motivated perception as a cultural artefact), it is important to assign design problems that require the students to become aware and eventually learn to operate outside the confines of their own cultural or sub-cultural presuppositions and in the process develop an understanding and an appreciation for their own presuppositions, as such. It is important to ask students to design for the peculiarities of world-views that are different (as a matter of degree) from their own.

By way of furthering the understanding of the operational link between analysis and design, as well as exploring the link between form(ation) and culture, students may be asked to begin with a text (in any of its numerous guises) that articulates a particular point of view, go through the exercise of deciphering that point of view, translating and transforming it into a series of formal ideas and experiential strategies, and proceed to realization. Each exercise should require analytical rigor and the expansion and adaptation of one’s formal vocabulary to the exigencies of the problem at hand. The key is to understand the way world-views are translated into rituals (courses of action and behaviour) and how rituals demand specific settings and formal experiences.

Examples that readily come to mind are domestic or public settings that embody a particular point of view or a particular experience such as exile which forces questions of place and placement, of grounding and occupation, etc., both mental and formal.

Formally, the focus of analytical studios should be on developing greater appreciation for compositional hierarchies leading to detail, i.e., understanding the role of primary, secondary and tertiary elements of the composition and clarification of intent in each subsequent layer of the hierarchy, i.e., how what is intended in one layer is clarified by the secondary layer of articulation, and so on down the line. The focus should also be on developing greater appreciation for experiential progression and the significance of relationships. Culture, it is important for the students to realize, primarily communicates through architecture experientially and not merely statically (it is not the icons of the church so much as the congregational or processional experience of its space and form that convey its message, to say nothing here of its mediated relationship to the outside as the space of the profane or else the spacing of the outside as profane). Sacred is not an idea that is communicated as such, but an experience that is imparted.

Students should complete this sequence of studios with a clear understanding of how design ideas are formed through the analysis of the program as a cultural recipe for action and perception and how to transform those ideas into formal strategies and specific architectural experiences.

Reflective Studios:

These studios should follow in much the same vein as the analytical studios, focusing on small-scale institutional buildings in various contexts. These studios will differ primarily in assuming a reflective/critical stance as opposed to the affirmative stand of the analytical studios. The assignments should require students to engage programmatic issues or rather cultural presuppositions critically and explore the ways in which architecture can play a critical as well as an affirmative role within the broader cultural context.

These studios should focus on institutional building types, e.g., libraries, museum, theatres, etc. and the cultural institutions they serve in order to explore the link between form, function, and ideology. The intent would be to probe and demonstrate that edifices, intended or not, are ideological constructs, that they express ideas (theses) and as such reaffirm and reinforce or else critically engage the values, beliefs, ideas and the ideals of the culture they serve. How theses are formed and given architectonic form and what specific role buildings do or can play within the wider cultural context are some of the issues that would be explored in these studios.

Exploring the ways in which culture is promoted and sustained by a host of institutions such as libraries, museums, cinemas, etc., these studios should probe the history of the chosen institutional building type, identifying its formal continuities and discontinuities in time. The stylistic discontinuities should be accounted for in relation to the ever-shifting cultural context. The continuities in functional distribution and spatial organization should be analysed in turn as the attributes of specific institutional demands and requirements whose purpose is the promotion and sustenance of a set of cultural presuppositions.

A critical re-evaluation of these presuppositions should in turn form the parameters of a new context for design. A context, within which the link between the formal/architectural properties of the building type and the institutional/cultural presuppositions in question could neither be acknowledged nor ignored, neither reinforced nor discarded. A context within which there could be no intuitive and/or positive re-formulation of the building type in affirmation of the link, but only a critical de-formulation of the type in recognition of the link.

The pedagogical intent of these design exercises is twofold. The goal is to foster and further develop the type of analytical skills essential to deciphering the complex relationship between architecture and the culture industry it perpetually serves, i.e., the skills essential to the formation and evaluation of design ideas and programs. It is also the goal of these exercises to promote a conscious re-evaluation of all the subconscious assumptions regarding spatial organization, the relationship of parts to whole, the inside to the outside, the particulars of volume and mass, solid and void, path and place, structure and material, ornamentation, proportion, scale, and others. This is with the intention of designing a building that in the end is all too familiar and yet all too alien, one that is neither a copy nor strictly an original. A building that speaks silently of the designer's ability to wilfully manipulate the language of architecture as opposed to faithfully re-produce its various speech acts.

Course Sequence

Course Number	Course Name	Credits
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First Year Fall (18 Credits)

ARCH 5110	Design Studio I	6
ARCH 5111	Analysis and Representation I	3
ARCH 5210	Introduction to Architecture	3
ARCH 5350	Structures I	3
ARCH	Elective	3

First Year Spring (18 Credits)

ARCH 5120	Design Studio II	6
ARCH 5112	Analysis and Representation II	3
ARCH 5120	History of Architecture I	3
ARCH 5360	Structures II	3
ARCH xxxx	Elective	3

First Year Summer

ARCH 5130	Design Studio III	6
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Second Year Fall (18 Credits)

ARCH 5130/40	Design Studio III/IV	6
ARCH 5230	History of Architecture II	3
ARCH 5310	Building Construction and Methods I	3
ARCH 5370	Sustainable Architecture	3
ARCH xxxx	Elective	3

Second Year Spring (18 Credits)

ARCH 5140/50	Design Studio IV/V	6
ARCH 5320	Building Construction and Methods II	3
ARCH 5330	Environmental Control Systems I	3
ARCH 5410	Professional Practice I	3
ARCH xxxx	Elective	3

Second Year Summer

ARCH 6150	Design Studio V	6
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Third Year Fall (18 Credits)

ARCH 6160	Design Studio VI	6
ARCH 5340	Environmental Control Systems II	3
ARCH 5420	Professional Practice II	3
ARCH xxxx	Elective	3
ARCH xxxx	Elective	3

Third Year Spring (18 Credits)

ARCH 6170	Comprehensive Studio	6
ARCH 6180	Comprehensive Studio Seminar	3
ARCH xxxx	Elective	3
ARCH xxxx	Elective	3
ARCH xxxx	Elective	3

Curricular Guidelines

1. All required courses listed in the Course Sequence prior to each studio will be prerequisites for that studio.
2. All elective courses will have an Area of Study designation.
3. All new courses will be reviewed and approved by the Curriculum Committee prior to offering.
4. All elective offerings for each semester will be reviewed for duplication and overlap and approved by the faculty in the designated Area of Study prior to the eighth week of the semester.

New Courses

Sustainable Architecture

B. 3. Sustainability: Ability to design projects that optimize, conserve, or reuse natural and built resources, provide healthful environments for occupants/users, and reduce the environmental impacts of building construction and operations on future generations through means such as carbon-neutral design, bioclimatic design, and energy efficiency.

B. 4. Site Design: Ability to respond to site characteristics such as soil, topography, vegetation, and watershed in the development of a project design.

Professional Practice II

B. 2. Pre-Design: Ability to prepare a comprehensive program for an architectural project, such as preparing an assessment of client and user needs, an inventory of space and equipment requirements, an analysis of site conditions (including existing buildings), a review of the relevant laws and standards and assessment of their implications for the project, and a definition of site selection and design assessment criteria.

B. 2. Accessibility: Ability to design sites, facilities, and systems to provide independent and integrated use by individuals with physical (including mobility), sensory, and cognitive disabilities.

B. 5. Life Safety: Ability to apply the basic principles of life-safety systems with an emphasis on egress.

C. 2. Human Behavior: Understanding of the relationship between human behavior, the natural environment and the design of the built environment.

Eliminated Courses (subjects incorporated into new courses)

Human Factors in Design

Site Planning

CREDIT DISTRIBUTION

Required - 114 credits:

Design Studies - 45 credits

Representational Studies - 6 credits

Historical/Cultural Studies - 21 credits

Technological Studies - 24 credits

Professional Studies - 6 credits

Electives - 12 credits

Design Studies (45 credits)

ARCH 5110	Design Studio I	6
ARCH 5120	Design Studio II	6
ARCH 5130	Design Studio III	6
ARCH 5140	Design Studio IV	6
ARCH 6150	Design Studio V	6
ARCH 6160	Design Studio VI	6
ARCH 6170	Comprehensive Studio	6
ARCH 6180	Comprehensive Studio Seminar	3

Representational Studies (6 credits)

ARCH 5111	Analysis and Representation I	3
ARCH 5112	Analysis and Representation II	3

Historical/Cultural Studies (Required 9 + Elective 12 = 21 credits)

ARCH 5210	Introduction to Architecture	3
ARCH 5220	History of Architecture I	3
ARCH 5230	History of Architecture II	3

Technological Studies (Required 18 + Elective 6 = 24 credits)

ARCH 5350	Structures I	3
ARCH 5360	Structures II	3
ARCH 5310	Building Construction and Methods I	3
ARCH 5320	Building Construction and Methods II	3
ARCH 5330	Environmental Control Systems I	3
ARCH 5340	Environmental Control Systems II	3
ARCH 5370	Sustainable Architecture	3

Professional Studies (6 credits)

ARCH 5410	Professional Practice I	3
ARCH 5420	Professional Practice II	3

Free Electives 12

Distribution of NAAB Student Performance Criteria

Design Studies (45 credits)

ARCH 5110	Design Studio I	6
ARCH 5120	Design Studio II	6

A.1. Communication Skills: Ability to read, write, speak and listen effectively.

A. 2. Design Thinking Skills: Ability to raise clear and precise questions, use abstract ideas to interpret information, consider diverse points of view, reach well-reasoned conclusions, and test alternative outcomes against relevant criteria and standards.

A. 3. Visual Communication Skills: Ability to use appropriate representational media, such as traditional graphic and digital technology skills, to convey essential formal elements at each stage of the programming and design process.

A.5. Investigative Skills: Ability to gather, assess, record, apply, and comparatively evaluate relevant information within architectural coursework and design processes.

A. 6. Fundamental Design Skills: Ability to effectively use basic architectural and environmental principles in design.

ARCH 5130	Design Studio III	6
ARCH 5140	Design Studio IV	6
ARCH 6150	Design Studio V	6
ARCH 6160	Design Studio VI	6

A.1. Communication Skills: Ability to read, write, speak and listen effectively.

A. 2. Design Thinking Skills: Ability to raise clear and precise questions, use abstract ideas to interpret information, consider diverse points of view, reach well-reasoned conclusions, and test alternative outcomes against relevant criteria and standards.

A.5. Investigative Skills: Ability to gather, assess, record, apply, and comparatively evaluate relevant information within architectural coursework and design processes.

A. 7. Use of Precedents: Ability to examine and comprehend the fundamental principles present in relevant precedents and to make choices regarding the incorporation of such principles into architecture and urban design projects.

A. 8. Ordering Systems Skills: Understanding of the fundamentals of both natural and formal ordering systems and the capacity of each to inform two- and three-dimensional design.

B. 1. Pre-Design: Ability to prepare a comprehensive program for an architectural project, such as preparing an assessment of client and user needs, an inventory of space and equipment requirements, an analysis of site conditions (including existing buildings), a review of the relevant laws and standards and assessment of their implications for the project, and a definition of site selection and design assessment criteria.

B. 2. Accessibility: Ability to design sites, facilities, and systems to provide independent and integrated use by individuals with physical (including mobility), sensory, and cognitive disabilities.

B. 3. Sustainability: Ability to design projects that optimize, conserve, or reuse natural and built resources, provide healthful environments for occupants/users, and reduce the environmental impacts of building construction and operations on future generations through means such as carbon-neutral design, bioclimatic design, and energy efficiency.

B. 4. Site Design: Ability to respond to site characteristics such as soil, topography, vegetation, and watershed in the development of a project design.

B. 5. Life Safety: Ability to apply the basic principles of life-safety systems with an emphasis on egress.

ARCH 6170/80 Comprehensive Studio/Seminar 6/3

B. 6. Comprehensive Design: Ability to produce a comprehensive architectural project that demonstrates each student's capacity to make design decisions across scales while integrating the following SPC:

A.2. Design Thinking Skills, A.4. Technical Documentation, A.5. Investigative Skills, A.8. Ordering Systems, A.9. Historical Traditions and Global Culture, B.2. Accessibility, B.3. Sustainability, B.4. Site Design, B.5. Life Safety, B.8. Environmental Systems, B.9. Structural Systems

A.4. Technical Documentation: Ability to make technically clear drawings, write outline specifications, and prepare models illustrating and identifying the assembly of materials, systems, and components appropriate for a building design.

Representational Studies (6 credits)

ARCH 5111 Analysis and Representation I 3

ARCH 5112 Analysis and Representation II 3

A. 3. Visual Communication Skills: Ability to use appropriate representational media, such as traditional graphic and digital technology skills, to convey essential formal elements at each stage of the programming and design process.

A. 5. Investigative Skills: Ability to gather, assess, record, apply, and comparatively evaluate relevant information within architectural coursework and design processes.

Historical/Cultural Studies (Required 9 + Elective 12 = 21 credits)

ARCH 5210 Introduction to Architecture 3

ARCH 5220 History of Architecture I 3

ARCH 5230 History of Architecture II 3

A. 9. Historical Traditions and Global Culture: Understanding of parallel and divergent canons and traditions of architecture, landscape and urban design including examples of indigenous, vernacular, local, regional, national settings from the Eastern, Western, Northern, and Southern hemispheres in terms of their climatic, ecological, technological, socioeconomic, public health, and cultural factors.

A. 10. Cultural Diversity: Understanding of the diverse needs, values, behavioral norms, physical abilities, and social and spatial patterns that characterize different cultures and individuals and the implication of this diversity on the societal roles and responsibilities of architects.

A.11. Applied Research: Understanding the role of applied research in determining function, form, and systems and their impact on human conditions and behavior.

A.1. Communication Skills: Ability to read, write, speak and listen effectively.

Technological Studies (Required 18 + Elective 6 = 24 credits)

ARCH 5350 Structures I 3

ARCH 5360 Structures II 3

B. 9. Structural Systems: Understanding of the basic principles of structural behavior in withstanding gravity and lateral forces and the evolution, range, and appropriate application of contemporary structural systems.

ARCH 5310 Building Construction and Methods I 3

ARCH 5320 Building Construction and Methods II 3

B. 12. Building Materials and Assemblies: Understanding of the basic principles utilized in the appropriate selection of construction materials, products, components, and assemblies, based on their inherent characteristics and performance, including their environmental impact and reuse.

ARCH 5330 Environmental Control Systems I 3

ARCH 5340 Environmental Control Systems II 3

B. 8 Environmental Systems: Understanding the principles of environmental systems' design such as embodied energy, active and passive heating and cooling, indoor air quality, solar orientation, daylighting and artificial illumination, and acoustics; including the use of appropriate performance assessment tools.

B. 10. Building Envelope Systems: Understanding of the basic principles involved in the appropriate application of building envelope systems and associated assemblies relative to fundamental performance, aesthetics, moisture transfer, durability, and energy and material resources.

B. 11. Building Service Systems: Understanding of the basic principles and appropriate application and performance of building service systems such as plumbing, electrical, vertical transportation, security, and fire protection systems.

ARCH 5370 Sustainable Architecture 3

B. 3. Sustainability: Ability to design projects that optimize, conserve, or reuse natural and built resources, provide healthful environments for occupants/users, and reduce the environmental impacts of building construction and operations on future generations through means such as carbon-neutral design, bioclimatic design, and energy efficiency.

B. 4. Site Design: Ability to respond to site characteristics such as soil, topography, vegetation, and watershed in the development of a project design.

Professional Studies (6 credits)

ARCH 5410 Professional Practice I 3

C. 3 Client Role in Architecture: Understanding of the responsibility of the architect to elicit, understand, and reconcile the needs of the client, owner, user groups, and the public and community domains.

- C. 4. Project Management: Understanding of the methods for competing for commissions, selecting consultants and assembling teams, and recommending project delivery methods.
- C. 5. Practice Management: Understanding of the basic principles of architectural practice management such as financial management and business planning, time management, risk management, mediation and arbitration, and recognizing trends that affect practice.
- C. 6. Leadership: Understanding of the techniques and skills architects use to work collaboratively in the building design and construction process and on environmental, social, and aesthetic issues in their communities.
- C. 7. Legal Responsibilities: Understanding of the architect's responsibility to the public and the client as determined by registration law, building codes and regulations, professional service contracts, zoning and subdivision ordinances, environmental regulation, and historic preservation and accessibility laws.
- C. 8. Ethics and Professional Judgment: Understanding of the ethical issues involved in the formation of professional judgment regarding social, political and cultural issues in architectural design and practice.
- C.9. Community and Social Responsibility: Understanding of the architect's responsibility to work in the public interest, to respect historic resources, and to improve the quality of life for local and global neighbors
- B. 7 Financial Considerations: Understanding of the fundamentals of building costs, such as acquisition costs, project financing and funding, financial feasibility, operational costs, and construction estimating with an emphasis on life-cycle cost accounting.

ARCH 5420

Professional Practice II

3

- B. 2. Pre-Design: Ability to prepare a comprehensive program for an architectural project, such as preparing an assessment of client and user needs, an inventory of space and equipment requirements, an analysis of site conditions (including existing buildings), a review of the relevant laws and standards and assessment of their implications for the project, and a definition of site selection and design assessment criteria.
- B. 2. Accessibility: Ability to design sites, facilities, and systems to provide independent and integrated use by individuals with physical (including mobility), sensory, and cognitive disabilities.
- B. 5. Life Safety: Ability to apply the basic principles of life-safety systems with an emphasis on egress.
- C. 2. Human Behavior: Understanding of the relationship between human behavior, the natural environment and the design of the built environment.