The Department of Architecture offers degrees at the bachelor, master, and doctoral levels. The department is composed of five discipline groups: Architecture and Urbanism; Building Technology; Computation; History, Theory and Criticism of Architecture and Art (HTC); and the Program in Art, Culture and Technology (ACT). The Aga Khan Program in Islamic Architecture (AKPIA) is a research group offering its own Master of Science in Architecture Studies and a PhD in association with HTC. The Norman B. Leventhal Center for Advanced Urbanism (LCAU) supports both the Master of Science in Architecture Studies program in urbanism as well as a collaborative doctoral program in advanced urbanism, while acting as an umbrella for research initiatives and collaborative projects between the Departments of Architecture and Urban Studies and Planning. The varied disciplines support substantial research activity.

The department offers seven degree programs: the Bachelor of Science in Architecture (BSA), Bachelor of Science in Art and Design (BSAD), Master of Architecture (MArch), Master of Science in Architecture Studies (SMArchS), Master of Science in Building Technology (SMBT), Master of Science in Art, Culture and Technology (SMACT), and the Doctor of Philosophy (PhD). The SMArchS and PhD programs offer concentrations in multiple research streams.

Architecture and Urbanism is taught from a broad range of perspectives and scales, from buildings to cities and metropolitan regions. The teaching of the Architecture and Urbanism faculty occurs primarily in the studio. However, workshops, lectures, seminars, and research projects all contribute to architectural education. A broad range of topics are introduced and integrated in the curriculum, including sustainability, computation, materials, fabrication, infrastructure, politics, social engagement, and cultural theory. The architecture design studio is the laboratory where these topics intermingle and students synthesize design concepts. The Architecture and Urbanism area of study offers a BSA, a BSAD, a Minor in Architecture, a Minor in Design, MArch and SMArchS degrees, as well as a doctoral degree in collaboration with HTC, Building Technology and Design and Computation.

The undergraduate BSA is a pre-professional degree program. The undergraduate studio sequence begins with instruction in design fundamentals and continues with design projects of increasing complexity. It is useful for those seeking a foundation in the field of architecture as preparation for either continued education in a professional degree program or for employment options in fields related to architecture and design.

The MArch is a three and one-half-year graduate degree. In exceptional circumstances, a student may be admitted with ‘advanced entry,’ subject to prior academic qualifications in architecture, and complete the program in two and one-half years. These professional degrees are structured to educate those who aspire to registration and licensure as architects. Entering MArch students enroll in a three-term core program that is tightly integrated with complementary subjects in design skills, geometric disciplines, cultural and theoretical precedents, and materials and construction. Advanced ‘option’ studios give students the opportunity to broaden their experience of culture, contexts, and varying scales for design, and to develop their own attitudes and positions toward architectural production. In thesis, a student develops a hypothesis and design strategy for a comprehensive architectural project or a design research inquiry that is carried out as an independent, critical project—from concept to completion—under the guidance of an advising committee.

Building Technology includes teaching and applications of the fundamentals of technology as well as research in critical topics for the future of the built environment. The program explores ways to use design and technology to create buildings that contribute to a more humane and environmentally responsible built world. This includes integrated architectural design strategies to improve structural performance, construction and fabrication technologies, access to daylight and thermal comfort, resource accounting through material flow analysis and life-cycle assessment, building and urban energy modeling, control design and engineering, and other technologically informed design methods. Through lecture subjects, laboratories, workshops, and independent research projects, students study innovative materials and assemblies, emerging and nontraditional building materials, resource-efficient building systems, innovative analysis and modeling of historic structures, energy-efficient buildings, early-stage design computation and optimization, and various issues of energy and material resources at the urban scale, including urban environmental sensing and the urban heat island effect. Some of the research of the Building Technology Program is organized through laboratories dedicated to digital structures, urban metabolism, developing countries, and sustainable design. Research facilities of other departments, such as Mechanical Engineering and Civil and Environmental Engineering, are also used in joint research projects.

This area of study offers an SMBT, an SMArchS, and a doctoral degree with an emphasis on building technology.

The Computation group inquires into the varied nature and practice of computation in architectural design, and the ways in which design meaning, intentions, and knowledge are constructed through computational thinking, representing, sensing, and making. They focus on the development of innovative computational tools, processes, and theories, and the application of these in creative, socially meaningful responses to challenging design problems. Topics taught cover visualization, digital fabrication and construction processes and technologies, shape representation and synthesis, building information modeling, generative and parametric design, critical studies of digital and information technologies, digital heritage, and software and hardware development of advanced tools for spatial design and analysis. Students are encouraged to acquire both the technical skills and the theoretical and conceptual
foundations to rethink and challenge the limits of current design processes and practices, and to consider the social and cultural implications of their positions.

This area of study offers a concentration in the SMArchS program and a doctoral program. SMArchS and PhD students are encouraged to take subjects in other relevant departments as a means to explore and develop their interests.

The History, Theory and Criticism of Architecture and Art (HTC) group teaches subjects that deal with the history of architecture, art and design, placing strong emphasis on historiography and analytical methodologies. Offerings deal with the social and physical context of the built environment, the significant issues in current disciplinary thinking, as well as with the philosophical, political, and material contexts for works of art and architecture. Subjects are taught from the Renaissance to the present, with emphasis on topics of modern art and architecture. They focus on materials that are both abstract and concrete, with scales that range from the architectural drawing to the art installation to the urban environment. There is a special emphasis on topics of modern art and architecture in Europe as well as the Americas, with a comparable set of offerings on the Islamic world developed by AKPIA and taught within the HTC group.

HTC offers a HASS concentration and Minor in the History of Architecture, Art and Design that are open to all MIT undergraduates. There is an SMArchS concentration in HTC, and a doctoral program.

The Aga Khan Program for Islamic Architecture (AKPIA) at MIT is a graduate program dedicated to the study of architecture, urbanism, history, landscape, reconstruction, and conservation in the Islamic world. The program prepares students for careers in research, design, and teaching. Topics covered in its curriculum include critical study of the history and historiography of Islamic architecture; the interaction between architecture, society, and culture; strategies of urban and architectural preservation; and environmental and material-sensitive landscape and design research.

Established in 1979, AKPIA offers students a concentration in Islamic architecture and urbanism as part of the two-year SMArchS degree and the PhD program in HTC. Undergraduates may concentrate in Middle Eastern Studies using subjects offered by AKPIA. The program also has links with the City Design and Development and Environmental Planning and Policy programs in the Department of Urban Studies and Planning, ArchNet, the Aga Khan Programs at Harvard, the Aga Khan Trust for Culture (AKTC), and the Aga Khan Development Network (AKDN).

The Program in Art, Culture and Technology (ACT) promotes leadership in critical artistic practice and invention, developing art as a vital means of experimenting with new registers of knowledge and new modes of valuation and expression. Through an integrated approach to pedagogy, public events programming, exhibitions, and publications, ACT builds a community of artist-thinkers exploring art's complex relationship to culture and technology.

Research and pedagogy are intertwined, and MIT's culture of scientific inquiry informs all artistic arenas; cinema, video, sound, performance, photography, experimental media, and new genres; conceptual, sculptural, and spatial experiments; interventions in public spaces; and writings and publications. ACT emphasizes experimentation and transdisciplinary approaches to studio production in both traditional and new medias. Students consider both the physical and the cultural context of their artworks/projects as central to their interpretation. Presentations on contemporary art as well as discussions in theory and criticism, and an understanding of research-based artistic practice complement studio production.

ACT offers a HASS minor and concentration, and a two-year graduate program leading to an SMACT.

Computer resources for educational purposes are distributed in the laboratories and studios of the department and overseen by the staff of the School of Architecture and Planning's computer resources office. Students are required to learn the techniques and applications of computational-based design, production, and advanced representation. Other computation subjects and studio work permit further experimentation with modeling techniques, graphic representations, design methods, technical analysis, prototyping, and assistance with the design process.

Inquiries

Further information concerning undergraduate and graduate academic programs in the department, admissions, financial aid, and assistantships may be obtained from the Department of Architecture (http://architecture.mit.edu), Room 7-337, 617-253-7387.

Undergraduate Study

The Department of Architecture offers two undergraduate courses of study. They provide a broad undergraduate education for students who have clear professional goals and for those who desire a solid foundation for a number of possible careers. Course 4 leads to the Bachelor of Science in Architecture and Course 4-B leads to the Bachelor of Science in Art and Design.

Bachelor of Science in Architecture (Course 4)

Course 4 (http://catalog.mit.edu/degree-charts/architecture-course-4) offers a program introducing students to the department's five discipline areas: art, culture and technology; architectural design and urbanism; building technology; design and computation; and history, theory and criticism of architecture, art and design.

The requirements for the SB in Architecture (BSA) (http://catalog.mit.edu/degree-charts/architecture-course-4) curriculum begin with two introductory subjects taken in sequence, 4.021 and 4.022, intended for sophomores. The remaining core subjects include study in the arts, design and computation, building technology, and the history of architecture.
The BSA includes two or three sequential architecture design studios. The approach fosters investigation and discussion in the development of sensitivity to the built environment. These sensibilities are linked to values and responsibilities to the community at large. Students in design studios develop technical and analytical skills and learn synthesis and invention using the elements of architectural form: material, structure, construction, light, sound, memory, and place. A thesis is optional and taken during the senior year.

Students who plan to continue their studies in a professional graduate program in architecture must apply for admission to a school offering the Master of Architecture (MArch).

**Bachelor of Science in Art and Design (Course 4-B)**
The Bachelor of Science in Art and Design (BSAD) ([http://catalog.mit.edu/degree-charts/architecture-course-4-b](http://catalog.mit.edu/degree-charts/architecture-course-4-b)) provides undergraduates with a cohesive program of study that exposes them to cross-disciplinary fields of art and design. It provides a rigorous conceptual foundation along with strong practical skills that can be applied across diverse design domains. Students will be introduced to the design process, from concept to completion, through contextual critical thinking, experimentation, representation, and physical production techniques, critique, iteration, and reflection. The objective is to prepare students to pursue diverse career paths from product design to visual communication to information design to 2D and 3D art practices and more. Study in this program will enable students to take advantage of emerging opportunities in industry and academia.

The requirements for the BSAD curriculum begin with two introductory subjects taken in sequence, 4.021 and 4.022, intended for sophomores. A choice of a third design studio is taken in the junior or senior year along with four additional core foundational subjects in design, art, computation, and history. The remaining four requirements are selected from a list of interdisciplinary subject offerings grouped around the following themes: objects, information, and art and experience. A thesis preparation subject is taken and a thesis presented in the senior year.

**Minor in Architecture**
The requirements for a Minor in Architecture are as follows:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.021</td>
<td>Design Studio: How to Design</td>
<td>9-12</td>
</tr>
<tr>
<td>or 4.02A</td>
<td>Design Studio: How to Design Intensive</td>
<td>12</td>
</tr>
<tr>
<td>4.022</td>
<td>Design Studio: Introduction to Design Techniques and Technologies</td>
<td>12</td>
</tr>
</tbody>
</table>

**Option 1**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.023</td>
<td>Architecture Design Studio I</td>
<td>12</td>
</tr>
</tbody>
</table>

**Option 2**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.024</td>
<td>Architecture Design Studio II</td>
<td>12</td>
</tr>
<tr>
<td>4.025</td>
<td>Architecture Design Studio III</td>
<td>12</td>
</tr>
<tr>
<td>4.026</td>
<td>Architecture Design Studio IV</td>
<td>12</td>
</tr>
<tr>
<td>4.027</td>
<td>Architecture Design Studio V</td>
<td>12</td>
</tr>
<tr>
<td>4.028</td>
<td>Architecture Design Studio VI</td>
<td>12</td>
</tr>
</tbody>
</table>

Select four from the list of elective subjects below

<table>
<thead>
<tr>
<th>Subject</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.029</td>
<td>Architecture Design Studio VII</td>
<td>12</td>
</tr>
<tr>
<td>4.030</td>
<td>Architecture Design Studio VIII</td>
<td>12</td>
</tr>
<tr>
<td>4.031</td>
<td>Architecture Design Studio IX</td>
<td>12</td>
</tr>
<tr>
<td>4.032</td>
<td>Architecture Design Studio X</td>
<td>12</td>
</tr>
</tbody>
</table>

**Total Units: 69-72**

**Elective Subjects**

**Architecture and Urbanism**

- 4.211[J] The Once and Future City 12
- 4.218 Disaster Resilient Design 12
- 4.231 SIGUS Workshop 12
- 4.250[J] Introduction to Urban Design and Development 12

**Art, Culture and Technology**

- 4.301 Introduction to Artistic Experimentation 12
- 4.302 Foundations in Art, Design, and Spatial Practices 12
- 4.307 Art, Architecture, and Urbanism in Dialogue 12
- 4.322 Introduction to Three-Dimensional Art Work 12
- 4.341 Introduction to Photography and Related Media 12
- 4.354 Introduction to Video and Related Media 12
- 4.368 Studio Seminar in Art and the Public Sphere 12

**Building Technology**

- 4.401 Environmental Technologies in Buildings 12
- 4.411[J] D-Lab Schools: Building Technology Laboratory 12
- 4.432 Modeling Urban Energy Flows for Sustainable Cities and Neighborhoods 12
- 4.440[J] Introduction to Structural Design 12
- 4.451 Computational Structural Design and Optimization 12

**Computation**

- 4.500 Design Computation: Art, Objects and Space 12
- 4.501 Tiny Fab: Advancements in Rapid Design and Fabrication of Small Homes 12
- 4.502 Advanced Visualization: Architecture in Motion Graphics 12
- 4.520 Visual Computing 12

**History and Theory of Architecture, Art and Design**

- 4.601 Introduction to Art History 12
- 4.602 Modern Art and Mass Culture 12
- 4.603 Understanding Modern Architecture 12
Minor in Art, Culture and Technology
The HASS Minor in Art, Culture and Technology is designed to explore the conjunction of art with culture, science, technology, and design, and to develop critical and production practices.

The minor consists of six subjects arranged into three levels of study and chosen as follows:

**Tier I**
- **4.301** Introduction to Artistic Experimentation or **4.302** Foundations in Art, Design, and Spatial Practices
- Select one of the following:
  - **4.601** Introduction to Art History
  - **4.602** Modern Art and Mass Culture
  - **4.635** Early Modern Architecture and Art
  - **4.636** Topics in European Medieval Architecture and Art
  - **4.641** 19th-Century Art: Painting in the Age of Steam
  - **4.651** Art Since 1940
  - **4.657** Design: The History of Making Things

**Tier II**
Select two of the following:
- **4.320** Introduction to Sound Creations
- **4.322** Introduction to Three-Dimensional Art Work
- **4.341** Introduction to Photography and Related Media
- **4.354** Introduction to Video and Related Media

**Tier III**
Select two of the following:
- **4.314** Advanced Workshop in Artistic Practice and Transdisciplinary Research
- **4.344** Advanced Photography and Related Media
- **4.352** Advanced Video and Related Media

<table>
<thead>
<tr>
<th>Minor in Design</th>
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</table>
The Minor in Design provides undergraduates with a cohesive program of study that exposes them to the cross-disciplinary field of design. The minor provides a rigorous conceptual foundation in design along with strong design skills. Students will be introduced to design from concept to completion through contextual critical thinking, experimentation, representation, and physical production techniques, critique, iteration and reflection. The minor prepares students to pursue diverse career paths or further education in multiple areas of design, from product design to 3D design to visual communication, and enables them to take advantage of emerging opportunities in industry and academia.

The minor consists of six subjects:

**Required Subjects**
Design Studios 33-36
- **4.021** Design Studio: How to Design
- or **4.02A** Design Studio: How to Design Intensive
- **4.022** Design Studio: Introduction to Design Techniques and Technologies
- **4.031** Design Studio: Objects and Interaction
- or **4.032** Design Studio: Information and Visualization

**Electives**
Select 30-36 units of the following (from any category): 30-36
- **2.00A** Fundamentals of Engineering Design: Explore Space, Sea and Earth
- **2.00** Introduction to Design
- **2.007** Design and Manufacturing 1
- **2.009** The Product Engineering Process
- **4.031** Design Studio: Objects and Interaction
- **4.041** Design Studio: Advanced Product Design
- **4.043** Design Studio: Advanced Interactions
- **4.110** Design Across Scales and Disciplines
- **4.118** Creative Computation
- **4.125** Furniture Making Workshop
Minor in the History of Architecture, Art and Design

The HASS Minor in the History of Architecture, Art and Design is designed to enable students to concentrate on the historical, theoretical, and critical issues associated with artistic and architectural production. Introductions to the historical frameworks and stylistic conventions of art and architectural history are followed by more concentrated study of particular periods and theoretical problems in visual culture and in cultural history in general.

The minor consists of six subjects arranged into three levels of study and chosen as follows:

<table>
<thead>
<tr>
<th>Tier I ^1</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.601 Introduction to Art History</td>
</tr>
<tr>
<td>or 4.602 Modern Art and Mass Culture</td>
</tr>
<tr>
<td>4.605 A Global History of Architecture</td>
</tr>
<tr>
<td>or 4.614 Building Islam</td>
</tr>
</tbody>
</table>

| Tier II |
| Select three from the lists below, including at least one from each category: 36 |

**History of Architecture and Design**

- 4.603 Understanding Modern Architecture
- 4.605 A Global History of Architecture
- 4.614 Building Islam
- 4.657 Design: The History of Making Things

**History of Art**

- 4.601 Introduction to Art History
- 4.602 Modern Art and Mass Culture
- 4.625 Early Modern Architecture and Art
- 4.636 Topics in European Medieval Architecture and Art
- 4.641 19th-Century Art: Painting in the Age of Steam
- 4.651 Art Since 1940

**Tier III**

Select one of the following: 12

- 4.609 Seminar in the History of Art and Architecture

Other advanced seminar in the history of art, design and/or architecture, including offerings from Harvard or Wellesley, with permission of the HASS Minor Advisor and the instructor.

| Total Units | 63-72 |

| 2 | 4.031 or 4.032 may be used as restricted elective if not selected as part of the design studio requirement. |

| ^2 | Subject has prerequisites that are outside of the program. |

For a general description of minors (http://catalog.mit.edu/mit/undergraduate-education/academic-programs/minors), see Undergraduate Education.
Graduate Study

The Department of Architecture offers five graduate degree programs—the Master of Architecture (MArch), Master of Science in Architecture Studies (SMArchS), Master of Science in Building Technology (SMBT), Master of Science in Art, Culture and Technology (SMACT), and the Doctor of Philosophy (PhD).

The MArch is awarded to students who complete a program, accredited by the National Architectural Accrediting Board, which is an essential step toward licensure for architectural practice.

The SMArchS program stresses research and inquiry in the built environment; the degree is meant both for students who already have their first professional architecture degree and those whose previous education orients them toward non-professional graduate study in architecture.

The SMBT program is run jointly by the Departments of Architecture, Civil and Environmental Engineering, and Mechanical Engineering. This degree program is intended for students interested in pursuing topics of significant technical and engineering depth.

The SMACT focuses on the development of artist-thinkers in the context of an advanced technological and scientific community. Discussion of contemporary and historical theory and criticism complements rigorous and innovative transdisciplinary studio production.

The PhD program is an advanced degree program in the areas of History, Theory and Criticism; Building Technology; and Design and Computation. An Advanced Urbanism specialization can be earned in conjunction with one of the three PhD programs.

Master of Architecture

The Master of Architecture is awarded upon the satisfactory completion of an approved program of at least 312 units and an acceptable thesis. The program requires three and one-half academic years of residence.

Advanced entry may be considered in exceptional circumstances for students who have majored in architectural design at a '4 plus 2' architecture school. These students may be considered for completion of the program in two and one-half years depending on their academic experience and accomplishments.

The professional MArch program is diverse and open-ended, with many views of appropriate research and practice of architecture available. Shared concerns include an interest in materials, fabrication, and technology; drawing and geometry; theory and criticism; sustainability and climate change; and culture in an age of rapid change and globalization. They also include a commitment to design as it engages related disciplines aligned with architectural production, a view of the environment as an ecologically structured phenomenon, a regard for the fabrication processes of building, a perspective on new technologies and their impact on practice, and a concern for the spatial, temporal, social, and urban contexts of buildings. Given the varied perspectives from which the curriculum is conceived, an important aspect of the student's development is to be able to establish links between different areas of focus and its many disciplines.

The focus of the MArch degree program is through architecture design studios integrated with supporting subjects central to the curriculum. While the professional curriculum specifies that a student study a range of subjects in several interrelated fields, students in the MArch program have some choice and are required to develop a concentration in a self-determined area. Required and elective subjects taught by the various discipline groups within the department and in other related departments offer a way of charting multiple paths for future professional possibilities. Therefore, students are expected to develop a cohesive structure for their individual educational interests within the MArch program at MIT beyond the core curriculum and toward the development of a design thesis.

Accreditation for MArch Program in the United States

Most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit US professional degree programs in architecture, recognizes three types of degrees—the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a six-year, three-year, or two-year term of accreditation depending on the extent of its conformance with established educational standards. Doctor of Architecture and Master of Architecture degree programs may consist of a preprofessional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the preprofessional degree is not, by itself, recognized as an accredited degree. The Massachusetts Institute of Technology Department of Architecture offers one NAAB-accredited degree program: MArch (non-preprofessional degree plus 312 units and an acceptable 24-unit thesis). The next accreditation visit is in 2023.

Master of Science in Architecture Studies

The Master of Science in Architecture Studies (SMArchS) is a two-year program of advanced study founded on research and inquiry in architecture as a discipline and as a practice. First established at MIT in 1979, the program is intended both for students who already have a professional degree in architecture and those interested in advanced non-professional graduate study. The degree may be pursued in one of six areas described below. Students select one area as their intellectual home and are encouraged to explore connections in their research across the other areas, and beyond to other programs and departments throughout MIT. SMArchS students work closely with one or more faculty who guide them in planning their course of study and in directing them purposefully.
towards a thesis. Notable strengths of the program are its range of concentration areas, its curricular flexibility and cross-disciplinary research focus, as well as its high faculty-to-student ratio.

The Architectural Design program nurtures research that contributes to current thinking about design in the field of architecture. It aims to advance architectural design by cultivating lateral thinking between design expertise and a range of allied fields, such as material sciences, media arts and technology, cultural studies, computation, sustainability, and emerging fabrication protocols. The program provides opportunity for designers to explore theoretical foundations of architectural design as well as its pedagogy, and to provide a platform for applied research and new forms of design practice.

In Architecture and Urbanism, design methods are employed to create new knowledge about cities and metropolitan regions. It encompasses, and yet strives to go beyond, the theory and practice of urban design. This program has close collaboration with the Department of Urban Studies and Planning’s City Design and Development field, and with the Norman B. Leventhal Center for Advanced Urbanism. Areas of faculty interest include theory of urban form and design, urban ecology and landscape, collective housing design, and urban risk.

The Aga Khan Program for Islamic Architecture supports students interested in pursuing research on architecture, architectural history, landscape, and urbanism in the Islamic world. Faculty interests include Islamic architectural and urban history and historiography, strategies for landscape and urban preservation and reconstruction, and the critique of contemporary architecture in Islamic countries.

The Computation group inquires into the varied nature and practice of computation in architectural design and the ways in which design meaning, intention, and knowledge are constructed through sensing, thinking, and making computationally. It focuses on developing innovative computational tools, processes, and theories, and applying them in creative, socially meaningful responses to challenging design problems.

Building Technology focuses on the intersection of design and technical issues for buildings that positively contribute to a more humane and environmentally responsible built world. Research within the group include integrated architectural and urban design strategies to improve structural performance, construction and fabrication technologies, access to daylight and thermal comfort, resource accounting through material flow analysis and the life-cycle assessment, building and urban energy modeling, control design and engineering as well as other technologically informed design methods. Some of the research is organized through laboratories dedicated to digital structures, urban metabolism, developing countries, and sustainable design.

SMArchS students in History, Theory and Criticism of Architecture and Art will expand upon prior experience (which can be in design, theory, history, practice, or other post-undergraduate work) to explore compelling research that links historical or contemporary topics with methodological issues. Working alongside doctoral students in the program, SMArchS students are exposed to a wide range of historical periods and theoretical approaches. It is expected that research topics will be developed in close discussion with HTC faculty, building on the required Methods seminar (taken twice) to clarify the appropriate scope and original sources required for the master’s thesis. The HTC program is interdisciplinary, and students are expected to enrich their core disciplines of history and theory with inquiry into other fields as appropriate for their research interests. Opportunities occasionally emerge for HTC students to become involved in editing, organizing research symposia, and preparing exhibitions; students will also be brought into discussion with colleagues from across the discipline groups in the SMArchS program.

Simultaneous Master's Degrees in Architecture and City Planning

Students admitted to the Department of Architecture can propose a program of joint work in Architecture and Urban Studies and Planning that will lead to the simultaneous award of two degrees. Degree combinations may be MArch/Master in City Planning (MCP) or SMArchS/MCP. SMArchS students must apply by the January admission deadline of their first year at MIT. MArch students must apply during their second year. Students are considered during the regular admissions process. All candidates for simultaneous degrees must meet the requirements of both programs, but may submit a joint thesis. Neither the Department of Architecture nor the Department of Urban Studies and Planning support study plans for the simultaneous award of two Masters degrees with less than one or two regular semesters (fall and spring terms only) of residence and registration beyond the time required to complete the first degree.

Master of Science in Building Technology

This program provides a focus for graduate students interested in the development and application of advanced technology for buildings and cities. Students in this program take relevant subjects in basic engineering disciplines along with subjects that apply these topics to the built environment. The program is open to qualified students with a degree in engineering or in architecture. The latter group may also consider the Master of Science in Architecture Studies Program with a concentration in Building Technology.

The program concentrates on the development of the next generation of technology for the built environment as well as the innovative application of state-of-the-art concepts to building and urban systems. Research topics within the group include integrated architectural and urban design strategies to improve structural performance, construction and fabrication technologies, access to daylight and thermal comfort, resource accounting through material flow analysis and life-cycle assessment, building and urban energy modeling, control design and engineering as well as other technologically-informed design methods. Some of the research is
organized through laboratories dedicated to digital structures, urban metabolism, developing countries, and sustainable design.

The SMBT degree is generally completed in two years and requires 66 units of coursework and the completion of an acceptable thesis.

Master of Science in Art, Culture and Technology
ACT is an academic program and research center that facilitates artist-thinkers’ exploration of art’s broad, complex, global history in conjunction with culture, science, technology, and design via rigorous critical artistic practice and practice-driven theory. It focuses on individual and collaborative forms and media, including cinema, video, sound, performance, photography, experimental media and new genres, writings and publications, and conceptual, sculptural, and spatial experiments. Emphasis is also placed on critical thinking, knowledge mining, creative engagement, and the exploration of changing public and private spheres. Participation in faculty research, collaborations within the Institute, connections with visitors, and an ongoing studio seminar provide students with many opportunities to develop and exchange ideas. ACT maintains the Center for Advanced Visual Studies (CAVS) Special Collection, which preserves the legacy of the center and serves as a resource for scholars.

The SMACT degree (http://catalog.mit.edu/degree-charts/master-art-culture-technology) requires four semesters of on-campus academic work, including 135 units of coursework and the completion of a written thesis. For more information, visit the ACT website (http://act.mit.edu).

Doctor of Philosophy
The PhD in Architecture may be pursued in one of the following areas: History and Theory of Architecture/History and Theory of Art; Building Technology; or Design and Computation.

The PhD program in History, Theory and Criticism of Architecture and Art emphasizes the study of art, architecture, and urbanism, together with the historical and methodological issues that inform or link conceptual and practical work. The Aga Khan Program for Islamic Architecture is part of this doctoral program.

The doctoral program in Building Technology concentrates on the development of the next generation of technology for the built environment as well as the innovative application of state-of-the-art concepts to building and urban systems. Research topics within the group include integrated architectural and urban design strategies to improve structural performance, construction and fabrication technologies, access to daylight and thermal comfort, resource accounting through material flow analysis and life cycle assessment, building and urban energy modeling, control design and engineering as well as other technologically-informed design methods. Some of the research is organized through laboratories dedicated to digital structures, urban metabolism, developing countries, and sustainable design.

The PhD program in Design and Computation is broadly conceived around computational ideas and digital technologies as they pertain to the understanding, description, generation, and construction of architectural form. Research topics include the mathematical foundations of shape and shape representation; generative tools for design synthesis; advanced modeling and visualization techniques; rapid prototyping and CAD/CAM technologies for physical fabrication; and the analysis of the design process and its enhancement through supporting technologies and workspaces. The mission of the program is to enrich design from a computational perspective, with clear implications for teaching and practice.

Admission and degree requirements vary somewhat in the specific areas listed above, and may be obtained from the Department of Architecture website or in correspondence with the separate areas. The residency requirement for the PhD is a minimum of two full academic years. Completion of all of the requirements for the PhD—including the dissertation—is usually accomplished in four to six years.

Each student admitted to work in the doctoral program consults closely with one principal professor in his or her area to develop a general plan of study. In all three areas, progress toward the PhD follows a sequence of required subject work, general examinations, and dissertation research, writing, and defense. Students are encouraged to take subjects appropriate to their study plans in other departments at MIT and at Harvard.

The Norman B. Leventhal Center of Advanced Urbanism (LCAU), the Department of Architecture, and the Department of Urban Studies and Planning (DUSP) have established a collaborative doctoral-level certificate program in Advanced Urbanism. At MIT, we speak of advanced urbanism as the field that integrates research on urban design, urbanization, and urban culture. The concentration in Advanced Urbanism is designed for those who have at least one professional design degree (in architecture, landscape architecture, urban design, etc.) and research interests in urbanism that would align with those of both architecture and urban studies and planning faculty. Admissions applications are submitted to either Building Technology; Design and Computation; History, Theory and Criticism of Architecture and Art; or the DUSP PhD program and must meet all specific admissions requirements of each respective PhD program. Admissions committees nominate applicants who fit the urbanism program to a joint advanced urbanism admissions committee. The selected applicants are admitted by their home department discipline group and fulfill all degree requirements of that discipline plus additional requirements for the Advanced Urbanism concentration. Tuition support and research assistantships are provided by LCAU. Additional information can be found on the LCAU website (http://lcau.mit.edu/center/education).

Urban Design Certificate
The Department of Architecture and the Department of Urban Studies and Planning jointly offer a Certificate in Urban Design. The purpose of the program is to provide the fundamental knowledge and
special skills required to design urban and suburban environments. Students in the MArch, SMArchS, MCP, or Master of Science in Urban Studies and Planning programs are eligible for a Certificate in Urban Design if they complete a specific set of subjects drawn from the two departments.

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