DEPARTMENT OF ARCHITECTURE

The Department of Architecture (*http://architecture.mit.edu*) 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 Art, Culture, and Technology Program (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; and strategies of urban and architectural preservation.

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 **Art, Culture, and Technology Program (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 SM.

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.