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.

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 architecture through 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 Design Studio: How to Design and 4.022 Design Studio: Introduction to Design Techniques and Technologies, intended for sophomores.

The remaining core subjects include introductory study in the five discipline areas.

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.

This program prepares students for future studies in a professional Master of Architecture (MArch) program.

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*) provides undergraduates with a cohesive program of study that exposes them to cross-disciplinary fields in 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 Design Studio: How to Design and 4.022 Design Studio: Introduction to Design Techniques and Technologies, intended for sophomores. A choice of a third design studio is taken in the junior 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 required and a thesis is presented in the senior year.

Minor in Architecture

The requirements for a Minor in Architecture are as follows:

4.021	Design Studio: How to Design	9-12
or 4.02A	Design Studio: How to Design Intensive	
4.022	Design Studio: Introduction to Design Techniques and Technologies	12
Choose one of the following options:		48
Option 1		
4.023	Architecture Design Studio I	

Select two from the list of elective subjects below		
Option 2		
Select four from the list of elective subjects below		
Total Units		**69-72**

Elective Subjects

Architecture and Urbanism

4.041	Design Studio: Advanced Product Design	12
4.053	Visual Communication Fundamentals	12
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
4.344	Advanced Photography and Related Media	12
4.354	Introduction to Video and Related Media	12
4.356	Cinematic Migrations	12
4.368	Studio Seminar in Art and the Public Sphere	12
4.373	Advanced Projects in Art, Culture, and Technology	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
4.507	Introduction to Building Information Modeling in Architecture	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
4.605	A Global History of Architecture	12
4.609	Seminar in the History of Art, Architecture, and Design	12
4.614	Building Islam	12
4.635	Early Modern Architecture and Art	12
4.636	Topics in European Medieval Architecture and Art	12
4.651	Art Since 1940	12
4.657	Design: The History of Making Things	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	12
or 4.302	Foundations in Art, Design, and Spatial Practices	
Select one of the following:		12
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:		24
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:		18-24
4.314	Advanced Workshop in Artistic Practice and Transdisciplinary Research	
4.344	Advanced Photography and Related Media	
4.352	Advanced Video and Related Media	
4.356	Cinematic Migrations	
4.361	Performance Art Workshop	
4.368	Studio Seminar in Art and the Public Sphere	
4.373	Advanced Projects in Art, Culture, and Technology	

| **Total Units** | | **66-72** |

Minor in Design

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 [1]	
or 4.032	Design Studio: Information Design and Visualization	
Electives		
Select 30-36 units of the following (from any category):		30-36
Objects		
2.00A	Designing for the Future: Earth, Sea, and Space	

2.00B	Toy Product Design
2.00	Introduction to Design
2.007	Design and Manufacturing I [2]
2.009	The Product Engineering Process [2]
4.031	Design Studio: Objects and Interaction [1]
4.041	Design Studio: Advanced Product Design
4.043	Design Studio: Interaction Intelligence
4.110	Design Across Scales and Disciplines
4.118	Creative Computation
4.125	Furniture Making Workshop
4.451	Computational Structural Design and Optimization
4.501	Tiny Fab: Advancements in Rapid Design and Fabrication of Small Homes
4.657	Design: The History of Making Things
EC.720[J]	D-Lab: Design [2]
Information	
4.032	Design Studio: Information Design and Visualization [1]
4.051	The Human Factor in Innovation and Design Strategy
4.053	Visual Communication Fundamentals
4.500	Design Computation: Art, Objects and Space
4.502	Advanced Visualization: Architecture in Motion Graphics
4.520	Visual Computing
6.1040	Software Design [2]
6.4400	Computer Graphics [2]
6.8371	Digital and Computational Photography [2]
6.9101[J]	Introduction to Design Thinking and Innovation in Engineering
6.C35[J]	Interactive Data Visualization and Society
CMS.405	Visual Design [2]
CMS.631	Data Storytelling Studio
CMS.633	Digital Humanities: Topics, Techniques, and Technologies
Art and Experience	
4.301	Introduction to Artistic Experimentation
4.302	Foundations in Art, Design, and Spatial Practices

4.307	Art, Architecture, and Urbanism in Dialogue
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
4.602	Modern Art and Mass Culture
21M.601	Drawing for Designers
21M.603	Fundamentals of Theater Design
21M.737	Interactive Design and Projection for Live Performance
CMS.362	Civic Media Collaborative Design Studio

Total Units	**63-72**

[1] *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.*

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:

Tier I [1]		
4.601	Introduction to Art History	12
or 4.602	Modern Art and Mass Culture	
4.605	A Global History of Architecture	12
or 4.614	Building Islam	
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 [1]	
4.614	Building Islam [1]	
4.657	Design: The History of Making Things	
History of Art		
4.601	Introduction to Art History [1]	
4.602	Modern Art and Mass Culture [1]	

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	
Tier III		
Select one of the following:		12
4.609	Seminar in the History of Art, Architecture, and Design	
	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		**72**

[1]   *Can satisfy part of Tier I or Tier II requirement, but not both.*

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 282 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. The professional curriculum specifies that a student study a range of subjects in several interrelated fields and students in the MArch program have considerable choice. 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 282 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 but are encouraged to explore connections in their research across the other areas as well as beyond — to other programs and departments throughout MIT. SMArchS students work closely with one or more instructors who guide them in planning their course of study and direct them purposefully towards a thesis. Notable strengths of the and its range of concentration areas, its curricular flexibility and cross-disciplinary research focus, as well as its high instructor-to-student ratio.

The **Aga Khan Program for Islamic Architecture** focuses on the architecture, architectural history, heritage conservation, landscape, and urbanism in the Islamic world. Faculty interests include Islamic architectural and urban history and historiography, strategies for urban design, historic preservation and reconstruction, and the critique of contemporary art and architecture in Islamic countries.

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 + Urbanism,** design methods are employed to create new knowledge about cities and metropolitan regions. The program 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.

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 includes 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, and other technologically informed design methods. Some of the research is organized through laboratories dedicated to digital structures, urban metabolism, developing countries, or sustainable design.

The **Computation** group inquiresinto 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 and socially meaningful responses to challenging design problems.

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 HTC 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 methodology 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, or 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 admissions 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

The Art, Culture, and Technology Program (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 program (*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 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.

Faculty and Teaching Staff

Nicholas de Monchaux, MArch
Professor of Architecture
Professor of Urban Studies and Planning
Head, Department of Architecture

Miho Mazereeuw, MArch, MLA
Associate Professor of Architecture and Urbanism
Associate Head for Strategy and Equity, Department of Architecture
(On leave, fall)

Timothy Hyde, MArch, PhD
Associate Professor of the History of Architecture
Associate Head for Academics Department of Architecture

Professors

Judith Barry, MA
Professor of Art, Culture and Technology
(On leave)

Arindam Dutta, MArch, PhD
Professor of the History of Architecture

John E. Fernández, MArch
Professor of Architecture and Building Technology
(On leave)

Antón García-Abril, PhD
Professor of Architecture

Leon R. Glicksman, PhD
Professor Post-Tenure of Building Technology
Professor Post-Tenure of Mechanical Engineering

Renée Green, BA
Professor of Art, Culture and Technology
(On leave, fall)

Mark Jarzombek, PhD
Professor of the History and Theory of Architecture

Caroline A. Jones, PhD
Professor of the History of Art

Sheila Kennedy, MArch
Professor of Architecture
(On leave, fall)

Terry W. Knight, PhD
William and Emma Rogers Professor
Professor of Design and Computation

Ana Miljački, MArch, PhD
Professor of Architecture

Leslie Keith Norford, PhD
Professor of Building Technology
(On leave, spring)

John A. Ochsendorf, PhD
Class of 1942 Professor
Professor of Architecture
Professor of Civil and Environmental Engineering

Nasser Rabbat, MArch, PhD
Aga Khan Professor
Professor of the History of Architecture

Christoph Reinhart, PhD
Professor of Building Technology

Hashim Sarkis, PhD
Professor of Architecture
Professor of Urban Planning
Dean, School of Architecture and Planning

Andrew M. Scott, BArch
Professor Post-Tenure of Architecture

Anne Whiston Spirn, PhD
Cecil and Ida Green Distinguished Professor
Professor of Planning
Professor of Landscape Architecture
(On leave, spring)

George N. Stiny, PhD
Professor of Design and Computation

Associate Professors
Azra Aksamija, MArch, PhD
Associate Professor of Art, Culture and Technology

Brandon Clifford, MArch
Class of 1958 Career Development Professor
Associate Professor of Architecture
(On leave, fall)

Yolande Daniels, MArch
Associate Professor of Architecture

Rania Ghosn, DDes
Associate Professor of Architecture and Urbanism

Mark Goulthorpe, BArch
Associate Professor of Design
(On leave)

Caitlin T. Mueller, PhD
Associate Professor of Architecture
Associate Professor of Civil and Environmental Engineering
(On leave, fall)

Takehiko Nagakura, MArch, PhD
Associate Professor of Design and Computation

William O'Brien Jr, MArch
Associate Professor of Architecture

Lawrence Sass, PhD
Associate Professor of Computation and Design
Member, Institute for Data, Systems, and Society

Rafael (Rafi) Segal, PhD
Associate Professor of Architecture and Urbanism

Kristel Smentek, PhD
Associate Professor of the History of Art
(On leave)

Skylar Tibbits, SMArchS
Associate Professor of Design Research

Gediminas Urbonas, MFA
Associate Professor of Art, Culture and Technology

Assistant Professors
Xavi Aguirre, MArch
Assistant Professor of Architecture

Huma Gupta, PhD
Aga Khan Assistant Professor

Carrie Norman, MArch
Assistant Professor of Architecture

Rosalyne Shieh, MArch
Assistant Professor of Architecture

Nida Sinnokrot, MFA
Ford International Career Development Professor
Assistant Professor of Art, Culture and Technology

Professors of the Practice
Angelo Bucci, PhD
Professor of the Practice of Architecture

Technical Instructors
Christopher B. Dewart, BA
Technical Instructor in Architecture

Jennifer O'Brien, BA
Technical Instructor in Architecture

Research Staff

Research Scientists
Jared S. Laucks, MS
Research Scientist of Architecture

Professors Emeriti

Michael Dennis, BArch
Professor Emeritus of Architecture

Eric J. Dluhosch, MArch, PhD
Professor Emeritus of Building Technology

David Hodes Friedman, PhD
Professor Emeritus of the History of Architecture

N. John Habraken
Professor Emeritus of Architecture

Joan Jonas, MFA
Professor Emerita of Visual Arts

William Lyman Porter, MArch, PhD
Professor Emeritus of Architecture

Adèle Naudé Santos, MArch, MCP, MAUD
Professor Emerita of Architecture
Professor Emerita of Urban Planning

Jan Wampler, MArch
Professor Emeritus of Architecture

James Wescoat, PhD
Aga Khan Professor Emeritus
Professor Emeritus of Urban Studies and Planning

Krzysztof Wodiczko, MFA
Professor Emeritus of Visual Arts

Architecture Design

4.001 Where Is and What Is Architecture and Design?
Prereq: Permission of instructor
U (Fall)
Not offered regularly; consult department
1-1-1 units

Introduces Architecture and Design through conversations and presentations with MIT architecture and design faculty and MIT alumni. Discusses the two undergraduate majors, two undergraduate minors, and two HASS concentrations offered through Course 4 along with careers in architecture and design. Subject can count toward the 6-unit discovery-focused credit limit for first-year students. Preference to first-year students.
Consult P. Pettigrew

4.021 Design Studio: How to Design
Prereq: None
U (Fall, Spring)
3-3-6 units. HASS-A
Credit cannot also be received for 4.02A

Introduces fundamental design principles as a way to demystify design and provide a basic introduction to all aspects of the process. Stimulates creativity, abstract thinking, representation, iteration, and design development. Equips students with skills to have more effective communication with designers, and develops their ability to apply the foundations of design to any discipline. Limited to 25; preference to Course 4 and 4B majors and Design and Architecture minors, and first- and second-year students.
Consult S. Tibbits

4.022 Design Studio: Introduction to Design Techniques and Technologies
Prereq: 4.02A or 4.021
U (Spring)
3-3-6 units

Introduces the tools, techniques and technologies of design across a range of projects in a studio environment. Explores concepts related to form, function, materials, tools, and physical environments through project-based exercises. Develops familiarity with design process, critical observation, and the translation of design concepts into digital and physical reality. Utilizing traditional and contemporary techniques and tools, faculty across various design disciplines expose students to a unique cross-section of inquiry. Limited to 25; preference to Course 4 and 4B majors, Design and Architecture minors, and first- and second-year students.
Consult S. Tibbits

4.023 Architecture Design Studio I
Prereq: 4.022
U (Fall)
0-12-12 units

Provides instruction in architectural design and project development within design constraints including architectural program and site. Students engage the design process through various 2-dimensional and 3-dimensional media. Working directly with representational and model making techniques, students gain experience in the conceptual, formal, spatial and material aspects of architecture. Instruction and practice in oral and written communication provided. Preference to Course 4 majors and minors.
Consult S. Tibbits

4.024 Architecture Design Studio II
Prereq: 4.023, 4.401, and 4.500
U (Spring)
0-12-12 units

Provides instruction in architectural design and project development with an emphasis on social, cultural, or civic programs. Builds on foundational design skills with more complex constraints and contexts. Integrates aspects of architectural theory, building technology, and computation into the design process. Preference to Course 4 majors.
Consult S. Tibbits

4.025 Architecture Design Studio III
Prereq: 4.024 and 4.440[J]
U (Fall)
0-12-12 units

Provides instruction in more advanced architectural design projects. Students develop integrated design skills as they negotiate the complex issues of program, site, and form in a specific cultural context. Focuses on how architectural concepts and ideas translate into built environments that transform the public sphere. Studio designed to prepare students for graduate studies in the field. Preference to Course 4 majors.
Consult S. Tibbits

4.02A Design Studio: How to Design Intensive
Prereq: None
U (IAP)
2-5-2 units. HASS-A
Credit cannot also be received for 4.021

Introduces fundamental design principles as a way to demystify design and provide a basic introduction to all aspects of the process. Stimulates creativity, abstract thinking, representation, iteration, and design development. Equips students with skills to have more effective communication with designers, and develops their ability to apply the foundations of design to any discipline. Limited to 30; preference to Course 4 and 4B majors and Design and Architecture minors, and first- and second-year students.
Consult S. Tibbits

4.031 Design Studio: Objects and Interaction
Prereq: 4.022 or permission of instructor
U (Fall)
3-3-6 units

Overview of design as the giving of form, order, and interactivity to the objects that define our daily life. Follows the path from project to interactive product. Covers the overall design process, preparing students for work in a hands-on studio learning environment. Emphasizes design development and constraints. Topics include the analysis of objects; interaction design and user experience; design methodologies, current dialogues in design; economies of scale vs. means; and the role of technology in design. Provides a foundation in prototyping skills such as carpentry, casting, digital fabrication, electronics, and coding. Limited to 15; preference to Course 4-B majors and Design Minors.
Consult M. Coelho

4.032 Design Studio: Information Design and Visualization
Subject meets with 4.033
Prereq: 4.022 or permission of instructor
U (Spring)
3-3-6 units

Provides an introduction to working with information, data and visualization in a hands-on studio learning environment. Studies the history and theory of information, followed by a series of projects in which students apply the ideas directly. Progresses though basic data analysis, visual design and presentation, and more sophisticated interaction techniques. Topics include storytelling and narrative, choosing representations, understanding audiences, and the role of designers working with data. Graduate students are expected to complete additional assignments. Preference to 4-B majors and Design minors.
Consult B. Fry

4.033 Design Studio: Information Design and Visualization
Subject meets with 4.032
Prereq: Permission of instructor
G (Spring)
Units arranged

Provides an introduction to working with information, data and visualization in a hands-on studio learning environment. Studies the history and theory of information, followed by a series of projects in which students apply the ideas directly. Progresses though basic data analysis, visual design and presentation, and more sophisticated interaction techniques. Topics include storytelling and narrative, choosing representations, understanding audiences, and the role of designers working with data. Graduate students are expected to complete additional assignments.
Consult B. Fry

4.041 Design Studio: Advanced Product Design
Prereq: 4.031 or permission of instructor
U (Spring)
3-3-6 units

Focuses on producing a small series of manufactured products. Students develop products that address specific user needs, propose novel design concepts, iteratively prototype, test functionality, and ultimately exhibit their work in a retail context. Stemming from new research and technological developments around MIT, students try to imagine the future products that emerge from new materials and machine intelligence. Provides an in-depth exploration of the design and manufacturing of products, through narrative, form, function, fabrication, and their relationship to customers. Enrollment imited to 15; preference to Course 4B majors and Design Minors.
Consult S. Tibbits

4.043 Design Studio: Interaction Intelligence
Subject meets with 4.044
Prereq: 4.031 or permission of instructor
U (Spring)
3-3-6 units

Overview of core principles and techniques for the design of interaction, behavior, and intelligence across objects and spaces. In a studio environment, students develop low and high-fidelity interactive prototypes that can be deployed and experienced by real users. Lectures cover the history and principles of human-computer interaction, behavior prototyping, physical and graphical user interfaces, machine intelligence, neural networks, and large language models. Provides a foundation in technical skills, such as physical prototyping, coding, and electronics, as well as how to collect data, train, and deploy their own neural network models. Students complete a series of small interaction exercises and a portfolio-level final project. Students taking graduate version complete additional assignments. Limited to 16; preference to 4B majors and Design minors.
M. Coelho

4.044 Design Studio: Interaction Intelligence
Subject meets with 4.043
Prereq: Permission of instructor
G (Spring)
Units arranged

Overview of core principles and techniques for the design of interaction, behavior, and intelligence across objects and spaces. In a studio environment, students develop low and high-fidelity interactive prototypes that can be deployed and experienced by real users. Lectures cover the history and principles of human-computer interaction, behavior prototyping, physical and graphical user interfaces, machine intelligence, neural networks, and large language models. Provides a foundation in technical skills, such as physical prototyping, coding, and electronics, as well as how to collect data, train, and deploy their own neural network models. Students complete a series of small interaction exercises and a portfolio-level final project. Students taking graduate version complete additional assignments. Limited to 16; preference to 4B majors and Design minors.
Consult M. Coelho

4.051 The Human Factor in Innovation and Design Strategy
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Spring)
2-2-8 units

Focuses on understanding the emerging field of human-centered design and its approach to real-world design challenges. Through group working sessions, design reviews, and presentations by leading design practitioners, thinkers, and business leaders, the class explores core methodologies on how design brings value to human experiences and to the contemporary marketplace. Limited to 20; preference to 4B majors and Design minors.
Consult S. Tibbits

4.053 Visual Communication Fundamentals
Prereq: None
U (Fall)
3-3-6 units. HASS-A; CI-H

Provides an introduction to visual communication, emphasizing the development of a visual and verbal vocabulary. Presents the fundamentals of line, shape, color, composition, visual hierarchy, word/image relationships and typography as building blocks for communicating with clarity, emotion, and meaning. Students develop their ability to analyze, discuss and critique their work and the work of the designed world. Limited to 18; preference to Course 4-B majors and Design minors.
Consult S. Tibbits

4.090 Practical Experience in Architecture for Undergraduates
Prereq: Permission of instructor
U (IAP, Summer)
Units arranged [P/D/F]
Can be repeated for credit.

Practical experience through summer and January IAP internships secured by the student in the field of architecture, urbanism, digital design, art, or building technology. Before registering for this subject, students must have an offer from a company or organization and complete the Department of Architecture application signed by the advisor. Upon completion of the internship, students must submit an evaluation form available from the departmental academic office. Students are limited to a total of three approved experiences. Restricted to Course 4 undergraduate students.
Consult P. Pettigrew

4.091 Independent Study in Design
Prereq: None
U (Fall, IAP, Spring)
Units arranged
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Staff

4.092 Independent Study in Design
Prereq: None
U (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Staff

4.093 Independent Study in Design
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Staff

4.094 Independent Study in Design
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Staff

4.105 Geometric Disciplines and Architecture Skills
Prereq: Permission of instructor
G (Fall)
2-2-5 units

Intensive introduction to architectural design tools and process, taught through a series of short exercises. Covers a broad range of topics relating to the discourse of geometry as the basis of architectural design process. Focuses on projective drawings, explicit 3D modeling, and the reciprocity between representation and materialization. Lectures, workshops, and pin-ups address the architectural arguments intrinsic to geometry and its representation. Restricted to level one MArch students.
Consult B. Clifford

4.109 Materials and Fabrication for Architecture
Prereq: Permission of instructor
G (IAP)
0-3-6 units

Provides the material system knowledge and fabrication process skills to successfully engage with all areas of the shop, from precision handwork to multi-axis computer numerically controlled (CNC) machining. Progresses through a series of basic exercises that introduce the material and workflow, concluding with more complex problems that explore opportunities and issues specific to architecture. Limited to 12; preference to first-year MArch students.
Consult J. O'Brien

4.110 Design Across Scales and Disciplines
Prereq: None
U (Spring)
2-2-8 units. HASS-A

Inspired by Charles and Ray Eames' canonical Powers of Ten, explores the relationship between science and engineering through the lens of design. Examines how transformations in science and technology have influenced design thinking and vice versa. Provides interdisciplinary skills and methods to represent, model, design and fabricate objects, machines, and systems using new computational and fabrication tools. Aims to develop methodologies for design research of interdisciplinary problems. Enrollment limited; preference to Course 4-B majors and Course 4 minors.
Consult S. Tibbits

4.117 Creative Computation
Subject meets with 4.118
Prereq: Permission of instructor
G (Spring)
Units arranged

Dedicated to bridging the gap between the virtual and physical world, the subject embraces modes of computation that hold resonance with materials and methods that beg to be computed. Students engage in bi-weekly exercises to solve complex design problems. Each exercise is dedicated to a different computation approach (recursion, parametric, genetic algorithms, particle-spring systems, etc.) that is married to a physical challenge, thereby learning the advantages and disadvantages to each approach while verifying the results in physical and digitally fabricated prototypes. Through the tools of computation and fabrication, it empowers students to design as architects, engineers and craftspeople. Additional work required of student taking for graduate credit. Enrollment limited; preference to MArch students.
Consult B. Clifford

4.118 Creative Computation
Subject meets with 4.117
Prereq: 4.500 or permission of instructor
U (Spring)
3-0-9 units

Dedicated to bridging the gap between the virtual and physical world, the subject embraces modes of computation that hold resonance with materials and methods that beg to be computed. Students engage in bi-weekly exercises to solve complex design problems. Each exercise is dedicated to a different computation approach (recursion, parametric, genetic algorithms, particle-spring systems, etc.) that is married to a physical challenge, thereby learning the advantages and disadvantages to each approach while verifying the results in physical and digitally fabricated prototypes. Through the tools of computation and fabrication, it empowers students to design as architects, engineers and craftspeople. Additional work required of student taking for graduate credit. Enrollment limited; preference to 4-B majors and Design minors.
Consult B. Clifford

4.120 Furniture Making Workshop
Prereq: Permission of instructor
G (Spring)
2-2-5 units
Credit cannot also be received for 4.125

Provides instruction in designing and building a functional piece of furniture from an original design. Develops woodworking techniques from use of traditional hand tools to digital fabrication. Gives students the opportunity to practice design without using a building program or code. Surveys the history of furniture making. Additional work required of students taking for graduate credit. Limited to 12; preference to graduate Course 4 students.
C. Dewart

4.123 Architectural Assemblies
Prereq: None
G (Spring)
2-2-5 units

Fosters a holistic understanding of the architectural-building cycle, enabling students to build upon the history of design and construction to make informed decisions towards developing innovative building systems. Includes an overview of materials, processing methods, and their formation into building systems across cultures. Looks at developing innovative architectural systems focusing on the building envelope. Seeks to adapt processes from the aerospace and automotive industries to investigate buildings as prefabricated design and engineering assemblies. Synthesizes knowledge in building design and construction systems, environmental and structural design, and geometric and computational approaches.
Consult W. O'Brien

4.125 Furniture Making Workshop
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Fall)
2-2-5 units
Credit cannot also be received for 4.120

Provides instruction in designing and building a functional piece of furniture from an original design. Develops woodworking techniques from use of traditional hand tools to digital fabrication. Gives students the opportunity to practice design without using a building program or code. Surveys the history of furniture making and includes site visits to local collections and artists/craftsmen. Additional work required of students taking for graduate credit. Limited to 12; preference to undergraduate Course 4 and 4B majors and Design and Architecture minors.
C. Dewart

4.130 Architectural Design Theory and Methodologies
Prereq: None
G (Fall)
3-3-6 units
Can be repeated for credit.

Studies design as an interrogative technique to examine material sciences, media arts and technology, cultural studies, computation and emerging fabrication protocols. Provides in-depth, theoretical grounding to the notion of 'design' in architecture, and to the consideration of contemporary design methodologies, while encouraging speculation on emerging design thinking. Topical focus varies with instructor. May be repeated for credit with permission of department.
Consult S. Kennedy

4.140[J] How to Make (Almost) Anything
Same subject as 6.9020[J], MAS.863[J]
Prereq: Permission of instructor
G (Fall)
3-9-6 units

See description under subject MAS.863[J].
N. Gershenfeld, J. DiFrancesco, J. Lavallee, G. Darcey

4.151 Architecture Design Core Studio I
Prereq: Permission of instructor
G (Fall)
0-12-9 units

Explores the foundations of design through a series of bracketed methods of production. These methods exercise topics such as form, space, organization, structure, circulation, use, tectonics, temporality, and experience. Students develop methods of representation that span from manual to virtual and from canonical to experimental. Each method is evaluated for what it offers and privileges, supplying a survey of approaches for design exercises to follow. First in a sequence of design subjects, which must be taken in order. Limited to first-year MArch students.
Consult W. O'Brien

4.152 Architecture Design Core Studio II
Prereq: 4.151
G (Spring)
0-12-9 units

Builds on Core I skills and expands the constraints of the architectural problem to include issues of urban site logistics, cultural and programmatic material (inhabitation and human factors), and long span structures. Two related projects introduce a range of disciplinary issues, such as working with precedents, site, sectional and spatial proposition of the building, and the performance of the outer envelope. Emphasizes the clarity of intentions and the development of appropriate architectural and representational solutions. Limited to first-year MArch students.
Consult W. O'Brien

4.153 Architecture Design Core Studio III
Prereq: 4.152
G (Fall)
0-12-9 units

Interdisciplinary approach to design through studio design problems that engage the domains of building technology, computation, and the cultural/historical geographies of energy. Uses different modalities of thought to examine architectural agendas for 'sustainability'; students position their work with respect to a broader understanding of the environment and its relationship to society and technology. Students develop a project with a comprehensive approach to programmatic organization, energy load considerations, building material assemblies, exterior envelope and structure systems. Limited to second-year MArch students.
Consult W. O'Brien

4.154 Architecture Design Option Studio
Prereq: 4.153
G (Fall, Spring)
0-10-11 units
Can be repeated for credit.

Offers a broad range of advanced-level investigations in architectural design in various contexts, including international sites. Integrates theoretical and technological discourses into specific topics. Studio problems may include urbanism and city scale strategies, habitation and urban housing systems, architecture in landscapes, material investigations and new production technologies, programmatic and spatial complex building typologies, and research centered studies. Mandatory lottery process.
Consult W. O'Brien

4.163[J] Urban Design Studio
Same subject as 11.332[J]
Prereq: Permission of instructor
G (Fall)
Units arranged
Can be repeated for credit.

The design of urban environments. Strategies for change in large areas of cities, to be developed over time, involving different actors. Fitting forms into natural, man-made, historical, and cultural contexts; enabling desirable activity patterns; conceptualizing built form; providing infrastructure and service systems; guiding the sensory character of development. Involves architecture and planning students in joint work; requires individual designs or design and planning guidelines.
Consult R. Segal

4.173[J] China Urban Design Studio
Same subject as 11.307[J]
Prereq: Permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Spring)
0-21-0 units

See description under subject 11.307[J]. Limited to 10.
B. Ryan

4.180 Design Workshop
Prereq: Permission of instructor
G (Fall)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Subject in design inquiry taught in studio format treating selected issues of the built world in depth. The problem may be prototypical or a particular aspect of a whole project, but always interdisciplinary in nature.
Consult Architecture Design Staff

4.181 Architectural Design Workshop
Prereq: Permission of instructor
G (Fall, Spring)
Units arranged
Can be repeated for credit.

Addresses design inquiry in a studio format. In-depth consideration of selected issues of the built world. The problem may be prototypical or a particular aspect of a whole project, but is always interdisciplinary in nature.
Consult Architecture Design Staff

4.182 Architectural Design Workshop
Prereq: Permission of instructor
G (Fall)
Units arranged
Can be repeated for credit.

Addresses design inquiry in a studio format. In-depth consideration of selected issues of the built world. The problem may be prototypical or a particular aspect of a whole project, but is always interdisciplinary in nature.
Consult Architecture Design Staff

4.183-4.185 Architectural Design Workshop
Prereq: Permission of instructor
G (Fall, Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Addresses design inquiry in a studio format. In-depth consideration of selected issues of the built world. The problem may be prototypical or a particular aspect of a whole project, but is always interdisciplinary in nature.
Consult Architecture Design Staff

4.189 Preparation for MArch Thesis
Prereq: Permission of instructor
G (Fall, Spring, Summer)
3-1-5 units
Can be repeated for credit.

Preparatory research development leading to a well-conceived proposition for the MArch design thesis. Students formulate a cohesive thesis argument and critical project using supportive research and case studies through a variety of representational media, critical traditions, and architectural/artistic conventions. Group study in seminar and studio format, with periodic reviews supplemented by conference with faculty and a designated committee member for each individual thesis. Restricted to MArch students.
Consult W. O'Brien

4.190 Practical Experience in Architecture
Prereq: Permission of instructor
G (IAP, Summer)
Units arranged [P/D/F]
Can be repeated for credit.

Practical experience through summer and January IAP internships secured by the student in the field of architecture, urbanism, digital design, art, or building technology. Before registering for this subject, students must have an offer from the organization and complete the Department of Architecture application with their advisor's signature. Upon completion of the internship, students must submit an evaluation form available from the departmental academic office. Students are limited to a total of three approved experiences. Restricted to Course 4 graduate students.
Consult P. Pettigrew

4.191 Independent Study in Architecture Design
Prereq: Permission of instructor
U (Fall, IAP, Spring)
Units arranged
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Architecture Design Staff

4.192 Independent Study in Architecture Design
Prereq: Permission of instructor
U (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Architecture Design Staff

4.193 Independent Study in Architecture Design
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Architecture Design Staff

4.194 Independent Study in Architecture Design
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Architecture Design Staff

4.S00 Special Subject: Design
Prereq: Permission of instructor
U (Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Consult Architecture Design Staff

4.S01 Special Subject: Design
Prereq: Permission of instructor
U (Fall)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Consult Architecture Design Staff

4.S02 Special Subject: Design
Prereq: None
G (IAP)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Architecture Design Staff

4.S03 Special Subject: Design
Prereq: None
G (Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Architecture Design Staff

4.S10 Special Subject: Architecture Design
Prereq: None
U (Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in architecture design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Architecture Design Staff

4.S11 Special Subject: Architecture Design
Prereq: None
U (IAP, Spring)
Not offered regularly; consult department
Units arranged [P/D/F]
Can be repeated for credit.

Seminar or lecture on a topic in architecture design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Architecture Design Staff

4.S12 Special Subject: Architecture Design
Prereq: Permission of instructor
G (Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in architecture design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Consult Architecture Design Staff

4.S13 Special Subject: Architecture Design
Prereq: Permission of instructor
G (Fall, Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in architecture design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Consult Architecture Design Staff

4.S14 Special Subject: Architecture Design
Prereq: Permission of instructor
G (Spring)
Not offered regularly; consult department
Units arranged [P/D/F]
Can be repeated for credit.

Seminar or lecture on a topic in architecture design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Architecture + Urbanism Staff

4.S15 Special Subject: Design
Prereq: None
G (Fall, Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
B. Clifford

Architecture Studies

4.210 Positions: Cultivating Critical Practice
Prereq: None
G (Fall)
3-0-6 units

Through formal analysis and discussion of historical and theoretical texts, seminar produces a map of contemporary architectural practice. Examines six pairs of themes in terms of their recent history: city and global economy, urban plan and map of operations, program and performance, drawing and scripting, image and surface, and utopia and projection. Restricted to year-one MArch students.
B. Clifford

4.211[J] The Once and Future City
Same subject as 11.016[J]
Prereq: None
U (Spring)
Not offered regularly; consult department
3-0-9 units. HASS-H; CI-H

See description under subject 11.016[J]. Enrollment limited.
A. Spirn

4.213[J] Ecological Urbanism Seminar
Same subject as 11.308[J]
Prereq: Permission of instructor
G (Spring)
3-0-9 units

See description under subject 11.308[J]. Enrollment limited.
A. Spirn

4.215[J] Sensing Place: Photography as Inquiry
Same subject as 11.309[J]
Prereq: None
G (Spring)
3-0-9 units

See description under subject 11.309[J]. Enrollment limited.
A. Spirn

4.217[J] Disaster Resilient Design
Same subject as 11.315[J]
Subject meets with 4.218
Prereq: None
G (Fall)
Not offered regularly; consult department
3-0-6 units

Seminar examines the linkages between natural hazards and environmental design. Engages theoretical debates about landscapes of risk, vulnerability, and resilience. Participants generate proposals for disaster resilience through combinations of retrofit, reconstruction, resettlement, commemorative, and anticipatory design. Methods include rapid bibliographic search, risk analysis, landscape synthesis, and comparative international methods. Projects vary and may focus on current crises or involve collaboration with the Aga Khan Development Network and other humanitarian organizations. Additional work required of students taking the graduate version. Limited to 15.
Consult M. Mazereeuw

4.218 Disaster Resilient Design
Subject meets with 4.217[J], 11.315[J]
Prereq: None
U (Fall)
Not offered regularly; consult department
3-0-9 units

Seminar examines the linkages between natural hazards and environmental design. Engages theoretical debates about landscapes of risk, vulnerability, and resilience. Participants generate proposals for disaster resilience through combinations of retrofit, reconstruction, resettlement, commemorative, and anticipatory design. Methods include rapid bibliographic search, risk analysis, landscape synthesis, and comparative international methods. Projects vary and may focus on current crises or involve collaboration with the Aga Khan Development Network and other humanitarian organizations. Additional work required of students taking the graduate version. Limited to 15; preference to Course 4 majors and minors.
Consult M. Mazereeuw

4.221 Architecture Studies Colloquium
Prereq: Permission of instructor
G (Fall)
2-0-1 units

Aims to create a discourse across the various SMArchS discipline groups that reflects current Institute-wide initiatives; introduce SMarchS students to the distinct perspective of the different SMarchS discipline groups; and provide a forum for debate and discussion in which the SMarchS cohort can explore, develop and share ideas. Engages with interdisciplinary thinking, research, and innovation that is characteristic of MIT's culture and can form a basis for their future work. Limited to first-year SMArchS students.
Consult S. Tibbits

4.222 Professional Practice
Prereq: Permission of instructor
G (Fall)
3-0-3 units

Gives a critical orientation towards a career in architectural practice. Uses historical and current examples to illustrate the legal, ethical and management concepts underlying the practice of architecture. Emphasis on facilitating design excellence and strengthening connections between the profession and academia. Restricted to MArch students.
Consult B. Clifford

4.227 Landscapes of Energy
Prereq: Permission of instructor
G (Spring)
3-0-9 units

Spatializes large technological systems of energy, analyzes existing and speculative energy visions, and imagines energy futures in relation to concerns of ecology, politics, and aesthetics. Identifies different scales of thinking about the territory of energy from that of environmental systems, to cities, regions, and global landscapes. Readings and students' research projects draw on critical geography, history of technology, environmental history to synthesize energy attributes within the design disciplines. Limited to 10.
Consult R. Ghosn

4.228 Contemporary Urbanism Proseminar: Theory and Representation
Prereq: Permission of instructor
G (Fall)
Units arranged

Critical introduction to key contemporary positions in urbanism to the ends of researching, representing, and designing territories that respond to the challenges of the 21st century. Provides an overview of contemporary urban issues, situates them in relation to a genealogy of urban precedents, and constructs a theoretical framework that engages the allied fields of architecture, landscape architecture, political ecology, geography, territorial planning, and environmental humanities. Comprised of three sections, first section articulates a framework on the urban as both process and form, shifting the emphasis from city to territory. Second section engages a series of related urban debates, such as density/sprawl, growth/shrinkage, and codes/exception. Third section calls upon urban agency in the age of environment through the object of infrastructures of trash, water, oil, and food. Limited to 25.
R. Ghosn

4.229[J] Collectives: New Forms of Sharing
Same subject as 11.228[J]
Prereq: Permission of instructor
G (Spring)
3-0-9 units

Considers ways in which collaborative approaches to living can reshape architecture and the city. Students investigate historic and present spatial models and platforms (digital and physical) of collaboration and sharing. Explores how economic, political and social transformations, such as co-ownership, community-based exchange, digital collectives, and self-organization, can lead to new programs, typologies, designs, and new relationships between user, designer, and developer. Limited to 15.
Consult R. Segal

4.230 SIGUS Workshop
Prereq: Permission of instructor
G (Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Interdisciplinary projects and interactive practices in urban settlement issues as investigated by MIT's SIGUS (Special Interest Group in Urban Settlements), with a focus on developing countries throughout the world. Participation by guest practitioners. Additional work required of students taking the graduate version.
R. Goethert

4.231 SIGUS Workshop
Prereq: Permission of instructor
U (Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Interdisciplinary projects and interactive practices in urban settlement issues as investigated by MIT's SIGUS (Special Interest Group in Urban Settlements), with a focus on developing countries throughout the world. Participation by guest practitioners. Additional work required of students taking the graduate version.
R. Goethert

4.240[J] Urban Design Skills: Observing, Interpreting, and Representing the City
Same subject as 11.328[J]
Prereq: None
G (Fall; first half of term)
4-2-2 units

See description under subject 11.328[J].
E. Ben-Joseph, M. Ocampo

4.241[J] The Making of Cities
Same subject as 11.330[J]
Prereq: 11.001[J], 11.301[J], or permission of instructor
G (Spring)
Units arranged

Examines the complex development of cities through history by tracing a diachronic accumulation of forms and spaces in specific cities, and showing how significant ideas were made manifest across distinct geographies and cultures. Emphasizes how economic, spiritual, political, geographic and technological forces have simultaneously shaped and, in turn, been influenced by the city.
L. Jacobi, R. Segal

4.244[J] Urban Design Seminar: Perspectives on Contemporary Practice
Same subject as 11.333[J]
Prereq: None
G (Spring)
2-0-7 units

See description under subject 11.333[J].
Staff

4.245[J] DesignX Entrepreneurship
Same subject as 11.245[J]
Prereq: Permission of instructor
G (IAP)
4-0-2 units

See description under subject 11.245[J]. Registration limited to students accepted to the MITdesignX accelerator in the fall.
S. Gronfeldt, D. Frenchman, G. Rosenzweig

4.246[J] DesignX Accelerator
Same subject as 11.246[J]
Prereq: Permission of instructor
G (Spring)
2-4-6 units

See description under subject 11.246[J]. Registration limited to students accepted to the MITdesignX accelerator in the fall.
S. Gronfeldt, D. Frenchman, G. Rosenzweig

4.247[J] Urban Design Ideals and Action
Same subject as 11.337[J]
Prereq: None
G (Fall)
2-0-7 units

See description under subject 11.337[J].
B. Ryan

4.248[J] Advanced Urban Design Skills: Observing, Interpreting, and Representing the City
Same subject as 11.329[J]
Prereq: 11.328[J] or permission of instructor
G (Fall; second half of term)
4-2-4 units

See description under subject 11.329[J].
E. Ben-Joseph, M. Ocampo

4.250[J] Introduction to Urban Design and Development
Same subject as 11.001[J]
Prereq: None
U (Spring)
3-0-9 units. HASS-H

Examines the evolving structure of cities and the way that cities, suburbs, and metropolitan areas can be designed and developed. Surveys the ideas of a wide range of people who have addressed urban problems. Stresses the connection between values and design. Demonstrates how physical, social, political and economic forces interact to shape and reshape cities over time. Introduces links between urban design and urban science.
L. Vale (fall); A. Sevtsuk (spring)

4.252[J] Introduction to Urban Design and Development
Same subject as 11.301[J]
Prereq: Permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Spring)
3-0-9 units

Examines the physical and social structure of cities and ways they can be changed. Includes significant thinkers in urban form, 20th-century American city design, urban design and society, global urban design, and design of neighborhoods and streets. Core lectures are supplemented by student papers examining the relationship of contemporary projects to history and theory, and factors of high quality global urban design and development. Guest speakers present cases involving current projects or research illustrating scope and methods of urban design theory and practice. Intended for those seeking an introduction to fundamental knowledge of theory and praxis in city design and development.
B. Ryan

4.253[J] Urban Design Politics
Same subject as 11.302[J]
Prereq: Permission of instructor
G (Spring)
3-0-9 units

See description under subject 11.302[J].
L. Vale

4.254[J] Real Estate Development Studio
Same subject as 11.303[J]
Prereq: Permission of instructor
G (Spring)
6-0-12 units

See description under subject 11.303[J].
K. Shen

4.255[J] Site and Environmental Systems Planning
Same subject as 11.304[J]
Prereq: Permission of instructor
G (Spring)
6-0-9 units

See description under subject 11.304[J].
E. Ben-Joseph, M. A. Ocampo

4.256[J] Encounters and Ruptures: Writing About the Modern City
Same subject as 11.256[J]
Prereq: Permission of instructor
G (Fall)
Not offered regularly; consult department
2-0-7 units

See description under subject 11.256[J]. Limited to 12 students.
G. Cadogan

4.264[J] Advanced Seminar in Landscape and Urbanism
Same subject as 11.334[J]
Prereq: Permission of instructor
G (Spring)
Not offered regularly; consult department
3-0-9 units

See description under subject 11.334[J].
A. Berger

4.270 Innovation for Disaster Relief and Preparedness
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Spring)
3-3-6 units

Explores innovative solutions for disaster relief and preparedness through both design and engineering. Interactive exercises provide an overview of large-scale disaster relief issues, including response communities, operating environments, logistics and technical challenges. Projects will be developed through hands-on prototyping, emphasizing the importance of system-oriented, sustainable design. Speakers from organizations such as FEMA and The Red Cross will contribute. Limited to 12.
M. Mazereeuw

4.275[J] Advanced Urbanism Colloquium
Same subject as 11.912[J]
Prereq: Permission of instructor
G (Fall, Spring)
1-1-1 units
Can be repeated for credit.

Introduces critical theories and contemporary practices in the field of urbanism that challenge its paradigms and advance its future. Includes theoretical linkages between ideas about the cultures of urbanization, social and political processes of development, environmental tradeoffs of city making, and the potential of design disciplines to intervene to change the future of built forms. Events and lecture series co-organized by faculty and doctoral students further engage and inform research. Preference to doctoral students in the Advanced Urbanism concentration.
Consult S. Williams

4.286 SMArchS Urbanism Pre-Thesis Preparation
Prereq: None
G (Spring)
Units arranged [P/D/F]

Explores initial thesis ideas and bases for choosing among multiple interests. Assessment of design research strengths and weaknesses. Overview of conceptual frameworks and research methods. Preparation for summer field research and proposal development.
Advisor

4.288 Preparation for SMArchS Thesis
Prereq: Permission of instructor
G (Fall, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit.

Students select thesis topic, define method of approach, and prepare thesis proposal for SMArchS degree. Faculty supervision on an individual or group basis. Intended for SMArchS program students prior to registration for 4.ThG.
Consult Architecture Staff

4.291 Independent Study in Architecture Studies
Prereq: Permission of instructor
U (Fall, IAP, Spring)
Units arranged
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Architecture Studies Staff

4.292 Independent Study in Architecture Studies
Prereq: Permission of instructor
U (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Architecture Studies Staff

4.293 Independent Study in Architecture Studies
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Architecture Studies Staff

4.294 Independent Study in Architecture Studies
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Architecture Studies Staff

4.299 Summer Research Topics
Prereq: Permission of instructor
G (Summer)
Units arranged [P/D/F]
Can be repeated for credit.

Supplementary summer work on individual basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Staff

4.S20 Special Subject: Architecture Studies
Prereq: None
U (Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in architecture studies that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Architecture Staff

4.S21 Special Subject: Architecture Studies
Prereq: None
U (IAP, Spring)
Not offered regularly; consult department
Units arranged [P/D/F]
Can be repeated for credit.

Seminar or lecture on a topic in architecture studies that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Architecture Staff

4.S22 Special Subject: Architecture Studies
Prereq: Permission of instructor
G (Fall)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in architecture studies that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Architecture Staff

4.S23 Special Subject: Architecture Studies
Prereq: Permission of instructor
G (Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in architecture studies that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
S. Kennedy

4.S24 Special Subject: Architecture Studies
Prereq: Permission of instructor
G (Fall)
Units arranged [P/D/F]
Can be repeated for credit.

Seminar or lecture on a topic in architecture studies that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
S. Tibbits

4.S25 Special Subject: Urban Housing
Prereq: Permission of instructor
G (Fall)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in urban housing that is not covered in the regular architecture curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
R. Goethert

4.S26 Special Subject: City Form
Prereq: Permission of instructor
G (Fall)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in city form that is not covered in the regular architecture curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Architecture Staff

4.S27 Special Subject: Urban Design
Prereq: Permission of instructor
G (Fall)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in urban design that is not covered in the regular Architecture curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
R. Ghosn

4.S28 Special Subject: Architecture Studies
Prereq: None
G (Fall)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in architecture studies that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Architecture Staff

Art, Culture and Technology

4.301 Introduction to Artistic Experimentation
Prereq: None
U (Fall, Spring)
3-3-6 units. HASS-A

Introduces artistic practice and critical visual thinking through three studio-based projects using different scales and media, for instance, "Body Extension," "Shaping Time," "Public Making," and/or "Networked Cultures." Each project concludes with a final presentation and critique. Students explore sculptural, architectural, performative artistic methods; video and sound art; site interventions and strategies for artistic engagement in the public realm. Lectures, screenings, guest presentations, field trips, readings, and debates supplement studio practice. Also introduces students to the historic, cultural, and environmental forces affecting both the development of an artistic vision and the reception of a work of art. Lab fee required. Limited to 20.
Consult A. Aksamija

4.302 Foundations in Art, Design, and Spatial Practices
Prereq: 4.02A or 4.021
U (Spring)
3-3-6 units

Develops an introductory foundation in artistic practice and its critical analysis, and develops artistic approaches and methods by drawing analogies to architectural thinking, urbanism, and design practice. Covers how to communicate ideas and experiences on different scales and through two-dimensional, three-dimensional, and time-based media in new genres. Uses artistic methods that engage the public realm through spatial, sculptural, performative, and process-oriented practices. Instruction components include video screenings, guest lectures, visiting artist presentations, and field trips. Instruction and practice in written and oral communication provided. Lab fee required. Limited to 18; preference to Course 4 majors and minors.
Consult A. Aksamija

4.307 Art, Architecture, and Urbanism in Dialogue
Subject meets with 4.308
Prereq: 4.301, 4.302, or permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Spring)
3-3-6 units. HASS-A

Initiates a dialogue between architecture, urbanism, and contemporary art by focusing on the work of practitioners who intertwine the three disciplines in a critical spatial practice. Investigates themes and works ranging from early modernist practices to the contemporary and research based. Lectures, screenings, readings, and discussions with guests and faculty contribute to the development of group and individual projects and their presentation. Additional work required of students taking graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.308 Art, Architecture, and Urbanism in Dialogue
Subject meets with 4.307
Prereq: Permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Spring)
Units arranged

Initiates a dialogue between architecture, urbanism, and contemporary art by focusing on the work of practitioners who intertwine the three disciplines in a critical spatial practice. Investigates themes and works ranging from early modernist practices to the contemporary and research based. Lectures, screenings, readings, and discussions with guests and faculty contribute to the development of group and individual projects and their presentation. Additional work required of students taking graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.314 Advanced Workshop in Artistic Practice and Transdisciplinary Research
Subject meets with 4.315
Prereq: 4.301, 4.302, or permission of instructor
U (Spring)
3-3-6 units. HASS-A
Can be repeated for credit.

Examines artistic practice as a form of critical inquiry and knowledge production. Offers opportunity to develop art as a means for addressing the social, cultural, and ecological consequences of technology, to build bridges between industry and culture, and to challenge the boundaries between public and private, and human and non-human. Provides instruction in evaluating models of experimentation, individual research, and collaboration with other disciplines in the arts, culture, science, and technology. Supports the development of individual and collective artistic research projects. Additional work required of students taking the graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.315 Advanced Workshop in Artistic Practice and Transdisciplinary Research
Subject meets with 4.314
Prereq: Permission of instructor
G (Spring)
Units arranged
Can be repeated for credit.

Examines artistic practice as a form of critical inquiry and knowledge production. Offers opportunity to develop art as a means for addressing the social, cultural, and ecological consequences of technology, to build bridges between industry and culture, and to challenge the boundaries between public and private, and human and non-human. Provides instruction in evaluating models of experimentation, individual research, and collaboration with other disciplines in the arts, culture, science, and technology. Supports the development of individual and collective artistic research projects. Additional work required of students taking the graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.316 Culture Fabric: Art, Fashion, Identity (New)
Subject meets with 4.317
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Spring)
3-3-6 units
Can be repeated for credit.

Focuses on the concept of "fabric" both as a medium and as a framework to explore the complex cultural histories, meanings, and functions of clothing and wearable technologies. Guides students in an exploration of ways in which clothing signals one's belonging to a group and reflects the degree of one's conformity with established social or cultural norms as well as ways in which clothing and fashion may provide insights into broader cultural codes, societal politics, and processes of transformation. Additional work is required of students taking the graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.317 Culture Fabric: Art, Fashion, Identity (New)
Subject meets with 4.316
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Spring)
3-3-3 units
Can be repeated for credit.

Focuses on the concept of "fabric" both as a medium and as a framework to explore the complex cultural histories, meanings, and functions of clothing and wearable technologies. Guides students in an exploration of ways in which clothing signals one's belonging to a group and reflects the degree of one's conformity with established social or cultural norms as well as ways in which clothing and fashion may provide insights into broader cultural codes, societal politics, and processes of transformation. Additional work is required of students taking the graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.318 Toxic Textiles/Fashion Fables (New)
Subject meets with 4.319
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Spring)
3-0-9 units
Can be repeated for credit.

Critiques the widespread phenomenon of fast fashion and considers the notion of "toxic textiles" to explore the cultural, social, political, economic, and environmental footprint of clothing. Examines the storytelling capacity of the textile medium as an artistic and critical response to the world's pressing concerns. Introduces experimentation with textile art and fashion design, informed case studies in contemporary art, decolonizing fashion, performative and wearable technologies, experimental preservation, and fabric upcycling. Students exhibit one studio-based final project at the end of the term. Sewing skills beneficial but not required. Additional work required of students taking the graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.319 Toxic Textiles/Fashion Fables (New)
Subject meets with 4.318
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Spring)
3-0-9 units
Can be repeated for credit.

Critiques the widespread phenomenon of fast fashion and considers the notion of "toxic textiles" to explore the cultural, social, political, economic, and environmental footprint of clothing. Examines the storytelling capacity of the textile medium as an artistic and critical response to the world's pressing concerns. Introduces experimentation with textile art and fashion design, informed case studies in contemporary art, decolonizing fashion, performative and wearable technologies, experimental preservation, and fabric upcycling. Students exhibit one studio-based final project at the end of the term. Sewing skills beneficial but not required. Additional work required of students taking the graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.320 Introduction to Sound Creations
Subject meets with 4.321
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Spring)
3-3-6 units. HASS-A

Develops a critical awareness of how sound art as a field for artistic exploration is performed, produced, and distributed. Explores contemporary and historical practices that emerge outside of purely musical environments and investigates specific compositional developments of post-war modernity and electro-acoustic music, as well as non-musical disciplines related to the psychophysics of hearing and listening. Lectures, screenings, readings, and discussions with guests and faculty contribute to the development of group and individual projects. Additional work required of students taking the graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.321 Introduction to Sound Creations
Subject meets with 4.320
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Spring)
Units arranged

Develops a critical awareness of how sound art as a field for artistic exploration is performed, produced, and distributed. Explores contemporary and historical practices that emerge outside of purely musical environments and investigates specific compositional developments of post-war modernity and electro-acoustic music, as well as non-musical disciplines related to the psychophysics of hearing and listening. Lectures, screenings, readings, and discussions with guests and faculty contribute to the development of group and individual projects. Additional work required of students taking the graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.322 Introduction to Three-Dimensional Art Work
Subject meets with 4.323
Prereq: None
U (Spring)
3-3-6 units. HASS-A

Explores three-dimensional art work, including sculptures and installations, from design to model to finished piece. Addresses challenges associated with design and fabrication, process, context, and relationships between objects, the body, and physical or cultural environments. Lectures, screenings, field trips, readings, and debates supplement studio practice. Additional work required of students taking the graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.323 Introduction to Three-Dimensional Art Work
Subject meets with 4.322
Prereq: None
G (Spring)
Units arranged

Explores three-dimensional art work, including sculptures and installations, from design to model to finished piece. Addresses challenges associated with design and fabrication, process, context, and relationships between objects, the body, and physical or cultural environments. Lectures, screenings, field trips, readings, and debates supplement studio practice. Additional work required of students taking the graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.324 Artist, Architect, Tinkerer, Engineer: How to Collaborate Across Disciplines (New)
Subject meets with 4.325
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Fall)
3-3-6 units
Can be repeated for credit.

Seminar connecting the arts and sciences by exploring methodological similarities and differences across the arts, architecture, engineering, and social sciences. Through targeted reading and exercises, each student develops a collaborative project that engages directly with another discipline. Projects are iterated over the course of the term. Readings, visitors, and lectures expose students to a wide range of practitioners across different fields. Students interrogate the underlying methodologies that unite and separate their disciplines. Presents best-practice models for cultivating collaboration through the use of case studies. Additional work required of students taking the graduate version. Lab fee required. Limited to 20.
Consult J. Barry

4.325 Artist, Architect, Tinkerer, Engineer: How to Collaborate Across Disciplines (New)
Subject meets with 4.324
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Fall)
Units arranged
Can be repeated for credit.

Seminar connecting the arts and sciences by exploring methodological similarities and differences across the arts, architecture, engineering, and social sciences. Through targeted reading and exercises, each student develops a collaborative project that engages directly with another discipline. Projects are iterated over the course of the term. Readings, visitors, and lectures expose students to a wide range of practitioners across different fields. Students interrogate the underlying methodologies that unite and separate their disciplines. Presents best-practice models for cultivating collaboration through the use of case studies. Additional work required of students taking the graduate version. Lab fee required. Limited to 20.
Consult J. Barry

4.328 Climate Visions (New)
Subject meets with 4.329
Prereq: None
U (Fall, Spring)
3-3-6 units
Can be repeated for credit.

Presents artistic intelligence and modes of creative production as ways to contribute to and critically engage with climate science. In conversation with local stakeholders, students develop hybrid projects of art and design that negotiate between pragmatics and fiction to envision solutions to the climate crisis. Case studies and class participation examine dialectics between aesthetics and scientific knowledge related to environmental care and repair. Includes prototyping and publishing spatial, digital, and material experimentations to generate new work individually and/or collaboratively by way of diverse media explorations. Visiting speakers and field trips accompany lectures, readings, class discussions, and presentations. Additional work required of students taking the graduate version. Lab fee required. Limited to 12.
Consult G. Urbonas

4.329 Climate Visions (New)
Subject meets with 4.328
Prereq: None
G (Fall, Spring)
3-3-3 units
Can be repeated for credit.

Presents artistic intelligence and modes of creative production as ways to contribute to and critically engage with climate science. In conversation with local stakeholders, students develop hybrid projects of art and design that negotiate between pragmatics and fiction to envision solutions to the climate crisis. Case studies and class participation examine dialectics between aesthetics and scientific knowledge related to environmental care and repair. Includes prototyping and publishing spatial, digital, and material experimentations to generate new work individually and/ or collaboratively by way of diverse media explorations. Visiting speakers and field trips accompany lectures, readings, class discussions, and presentations. Additional work required of students taking the graduate version. Lab fee required. Limited to 12.
Consult G. Urbonas

4.341 Introduction to Photography and Related Media
Subject meets with 4.342
Prereq: None
U (Fall, Spring)
3-3-6 units. HASS-A

Introduces history and contemporary practices in artistic photography through projects, lectures, artist visits, group discussions, readings, and field trips. Fosters visual literacy and aesthetic appreciation of photography/digital imaging, as well as critical awareness of how images in our culture are produced and constructed. Provides instruction in the fundamentals of different camera formats, film exposure and development, lighting, black and white darkroom printing, and digital imaging. Assignments allow for incorporation of a range of traditional and experimental techniques, development of technical skills, and personal exploration. Throughout the term, present and discuss projects in a critical forum. Additional work required of students taking the graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.342 Introduction to Photography and Related Media
Subject meets with 4.341
Prereq: Permission of instructor
G (Fall, Spring)
Units arranged

Introduces history and contemporary practices in artistic photography through projects, lectures, artist visits, group discussions, readings, and field trips. Fosters visual literacy and aesthetic appreciation of photography/digital imaging, as well as critical awareness of how images in our culture are produced and constructed. Provides instruction in the fundamentals of different camera formats, film exposure and development, lighting, black and white darkroom printing, and digital imaging. Assignments allow for incorporation of a range of traditional and experimental techniques, development of technical skills, and personal exploration. Throughout the term, present and discuss projects in a critical forum. Additional work required of students taking the graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.344 Advanced Photography and Related Media
Subject meets with 4.345
Prereq: 4.341 or permission of instructor
U (Fall)
3-3-6 units. HASS-A

Fosters critical awareness of how images in our culture are produced and constructed. Covers a range of experimental techniques and camera formats, advanced traditional and experimental black-and-white darkroom printing, and all aspects of digital imaging and output. Includes individual and group reviews, field trips, and visits from outside professionals. Topical focus changes each term; coursework centers on student-initiated project with emphasis on conceptual, theoretical, and technical development. Additional work required of students taking the graduate version. Equipment available for checkout. Lab fee required. Limited to 20.
Consult A. Aksamija

4.345 Advanced Photography and Related Media

Subject meets with 4.344
Prereq: 4.342 or permission of instructor
G (Fall)
Units arranged
Can be repeated for credit.

Fosters critical awareness of how images in our culture are produced and constructed. Covers a range of experimental techniques and camera formats, advanced traditional and experimental black-and-white darkroom printing, and all aspects of digital imaging and output. Includes individual and group reviews, field trips, and visits from outside professionals. Topical focus changes each term; coursework centers on student-initiated project with emphasis on conceptual, theoretical, and technical development. Additional work required of students taking the graduate version. Equipment available for checkout. Lab fee required. Limited to 20.
Consult A. Aksamija

4.352 Advanced Video and Related Media

Subject meets with 4.353
Prereq: 4.354 or permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Fall)
3-3-6 units. HASS-A

Introduces advanced strategies of image and sound manipulation, both technical and conceptual. Covers pre-production planning (storyboards and scripting), refinement of digital editing techniques, visual effects such as chroma-keying, post-production, as well as audio and sonic components. Context provided by regular viewings of contemporary video artworks and other audio-visual formats. Students work individually and in groups to develop skills in media literacy and communication. Additional work required of students taking the graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.353 Advanced Video and Related Media

Subject meets with 4.352
Prereq: 4.355 or permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Fall, Spring)
Units arranged

Introduces advanced strategies of image and sound manipulation, both technical and conceptual. Covers pre-production planning (storyboards and scripting), refinement of digital editing techniques, visual effects such as chroma-keying, post-production, as well as audio and sonic components. Context provided by regular viewings of contemporary video artworks and other audio-visual formats. Students work individually and in groups to develop skills in media literacy and communication. Additional work required of students taking the graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.354 Introduction to Video and Related Media

Subject meets with 4.355
Prereq: None
U (Fall)
3-3-6 units. HASS-A

Examines the technical and conceptual variables and strategies inherent in contemporary video art practice. Analyzes structural concepts of time, space, perspective, and sound within the art form. Building upon the historical legacy of the moving the image, students render self-exploration, performance, social critique, and manipulation of raw experience into an aesthetic form. Emphasizes practical knowledge of lighting, video capturing and editing, and montage. Presentation and critique of student work, technical workshops, screenings, and reading discussions assist students with final project. Additional work required of students taking the graduate version. Lab fee required.
Consult A. Aksamija

4.355 Introduction to Video and Related Media
Subject meets with 4.354
Prereq: None
G (Fall)
Units arranged

Examines the technical and conceptual variables and strategies inherent in contemporary video art practice. Analyzes structural concepts of time, space, perspective, and sound within the art form. Building upon the historical legacy of film and other time-based image media, students render self-exploration, performance, social critique, and manipulation of raw experience into an aesthetic form. Emphasizes practical knowledge of lighting, video capturing and editing, and montage. Includes presentation and critique of student work, technical workshops, screenings, and readings with the objective of a final creative project. Additional work required of students taking the graduate version. Lab fee required.
Consult A. Aksamija

4.356 Cinematic Migrations
Subject meets with 4.357
Prereq: 4.301, 4.302, 4.354, or permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Fall)
3-3-6 units. HASS-A

Explores ideas and contexts behind moving images through a multifaceted look at cinema's transmutations, emergence on local and national levels, and global migrations. Examines the transformation caused by online video, television, spatial installations, performances, dance, and many formats and portable devices, as well as the theory and context of film's categorization, dissemination, and analysis. Presentations, screenings, field trips, readings, visiting artists, and experimental transdisciplinary projects broaden the perception of present cinema. Additional work required of students taking the graduate version. Lab fee required. Limited to 12.
R. Green

4.357 Cinematic Migrations
Subject meets with 4.356
Prereq: 4.355 or permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Fall)
Units arranged
Can be repeated for credit.

Explores ideas and contexts behind moving images through a multifaceted look at cinema's transmutations, emergence on local and national levels, and global migrations. Examines the transformation caused by online video, television, spatial installations, performances, dance, and many formats and portable devices, as well as the theory and context of film's categorization, dissemination, and analysis. Presentations, screenings, field trips, readings, visiting artists, and experimental transdisciplinary projects broaden the perception of present cinema. Additional work required of students taking the graduate version. Lab fee required. Limited to 12.
R. Green

4.359 Synchronizations of Senses
Prereq: None
G (Spring)
3-0-6 units

Focused on the practices of varied practitioners — film directors, artists, musicians, composers, architects, designers — whose writings relay a process of thinking and feeling integral to their forms of material production. Testing various ways aesthetic forms and their shifts — historic and contemporary — have relations to still emerging contemporary subjectivities (felt emotion in a human body), the class studies productions created by participants and case studies of varied producers, and generates new work individually and/or collaboratively via diverse media explorations. Includes reading, writing, drawing, and publishing, as well as photographic, cinematic, spatial, and audio operations and productions. Activities include screenings, listening assignments, and guest visits, in addition to readings, discussions, and presentations. Lab fee required. Limited to 12.
R. Green

4.361 Performance Art Workshop
Subject meets with 4.362
Prereq: 4.301, 4.302, or permission of instructor
U (Fall)
Not offered regularly; consult department
3-3-6 units. HASS-A

Explores performance in relation to the body as a space of
resistance, the collective body and its powers, and performative acts
that blur boundaries between art and life. Students trace gestures
of care and conviviality by enacting scores and poetry, altering
screens and other walls that divide and separate us, reclaiming
time and undoing categories that alienate our bodies from life itself.
Activities include contact improvisation, walking, reading, screening,
and discussing theoretical, historical, and contemporary issues
in relation to performance art. Several small performance-based
projects, both collective and individual, assigned throughout the
semester. Additional work required of students taking graduate
version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.362 Performance Art Workshop
Subject meets with 4.361
Prereq: None
G (Fall)
Not offered regularly; consult department
Units arranged

Explores performance in relation to the body as a space of
resistance, the collective body and its powers, and performative acts
that blur boundaries between art and life. Students trace gestures of
care and conviviality by enacting scores and poetry, altering screens
and other walls that divide and separate us, reclaiming time and
undoing categories that alienate our bodies from life itself. Activities
include contact improvisation, walking, reading, screening, and
discussing theoretical, historical and contemporary issues in relation
to performance art. Several small performance-based projects,
both collective and individual, assigned throughout the semester.
Additional work required of students taking graduate version. Lab
fee required. Limited to 20.
Consult A. Aksamija

4.368 Studio Seminar in Art and the Public Sphere
Subject meets with 4.369
Prereq: 4.301 or 4.302
U (Spring)
3-3-6 units. HASS-A

Focuses on the production of artistic interventions in public space.
Explores ideas, situations, objects, and materials that shape public
space and inform the notion of public and publicness, with an
emphasis on co-production and cooperative ethics. Examines
forms of environmental art in comparison to temporal and critical
forms of art and action in the public sphere. Historical models
include the Russian Constructivists, the Situationists International,
system aesthetics, participatory and conceptual art, contemporary
interventionist tactics and artistic strategies, and methods of
public engagement. Students develop an initial concept for a
publicly-situated project. Includes guest lectures, visiting artist
presentations, and optional field trips. Additional work required of
students taking graduate version. Lab fee required. Limited to 12.
Consult G. Urbonas

4.369 Studio Seminar in Art and the Public Sphere
Subject meets with 4.368
Prereq: None
G (Spring)
Units arranged

Focuses on the production of artistic interventions in public space.
Explores ideas, situations, objects, and materials that shape public
space and inform the notion of public and publicness, with an
emphasis on co-production and cooperative ethics. Examines
forms of environmental art in comparison to temporal and critical
forms of art and action in the public sphere. Historical models
include the Russian Constructivists, the Situationists International,
system aesthetics, participatory and conceptual art, contemporary
interventionist tactics and artistic strategies, and methods of
public engagement. Students develop an initial concept for a
publicly-situated project. Includes guest lectures, visiting artist
presentations, and optional field trips. Additional work required of
students taking graduate version. Lab fee required. Limited to 12.
Consult G. Urbonas

4.373 Advanced Projects in Art, Culture, and Technology
Subject meets with 4.374
Prereq: 4.301, 4.302, or permission of instructor
U (Fall)
3-3-6 units. HASS-A
Can be repeated for credit.

Investigates conceptual and formal issues in a variety of media. Explores representation, interpretation and meaning, and how these relate to historical, social and cultural contexts. Helps students develop an initial concept for a publicly situated project. Includes guest lectures and visiting artist presentations. Additional work required of students taking graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.374 Advanced Projects in Art, Culture, and Technology
Subject meets with 4.373
Prereq: Permission of instructor
G (Fall)
Units arranged
Can be repeated for credit.

Investigates conceptual and formal issues in a variety of media. Explores representation, interpretation and meaning, and how these relate to historical, social and cultural contexts. Helps students develop an initial concept for a publicly situated project. Includes guest lectures and visiting artist presentations. Additional work required of students taking graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.376[J] Transmedia Art, Extraction, and Environmental Justice
Same subject as CMS.374[J]
Subject meets with CMS.877
Prereq: None
U (Spring)
Not offered regularly; consult department
2-3-7 units. HASS-A

See description under subject CMS.374[J].
J. Paradis, J. Barry

4.378 Future Heritage Workshop (New)
Subject meets with 4.379
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Fall, Spring)
3-0-9 units
Can be repeated for credit.

Probes the ethics and aesthetics of historic preservation through an artistic lens. Introduces a range of themes related to politics of heritage, memory and commemoration, trauma, iconoclasm, and more. Explores the agency of monuments in relation to colonialism, nationalism, social justice, and democracy. Research is conducted in groups, through which students analyze contested heritage sites through critical artistic and spatial practices addressing traumatic, troubling, or toxic memory. Lectures, screenings, readings, and discussions inform the development of individual projects. At the end of the semester, students create projects that may involve artistic tools, collective learning experiences, creative processes, and transdisciplinary knowledge exchanges that demonstrate a new way of capturing, sustaining, and developing future heritage. Additional work required of students taking the graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.379 Future Heritage Workshop (New)
Subject meets with 4.378
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Fall, Spring)
Units arranged
Can be repeated for credit.

Probes the ethics and aesthetics of historic preservation through an artistic lens. Introduces a range of themes related to politics of heritage, memory and commemoration, trauma, iconoclasm, and more. Explores the agency of monuments in relation to colonialism, nationalism, social justice, and democracy. Research is conducted in groups, through which students analyze contested heritage sites through critical artistic and spatial practices addressing traumatic, troubling, or toxic memory. Lectures, screenings, readings, and discussions inform the development of individual projects. At the end of the semester, students create projects that may involve artistic tools, collective learning experiences, creative processes, and transdisciplinary knowledge exchanges that demonstrate a new way of capturing, sustaining, and developing future heritage. Additional work required of students taking the graduate version. Lab fee required. Limited to 20.
Consult A. Aksamija

4.387 Thesis I: Art, Culture, and Technology Theory and Criticism Colloquium
Prereq: None
G (Fall, IAP)
3-0-6 units
Can be repeated for credit.

Introduces foundational texts in contemporary theory and criticism at the intersection of art, culture, and technology. Through presentations and discussions, students explore the necessary methodological perspectives required of an interdisciplinary approach to artistic practices. Subject spans fall and IAP terms. Limited to SMACT students.
Consult A. Aksamija

4.388 Thesis II: SMACT Thesis Preparation
Prereq: Permission of instructor
G (Spring, Summer)
3-0-6 units
Can be repeated for credit.

Aids students in the selection of a thesis topic, development of an approach method, preparation of a proposal that includes an outline for their thesis. Explores artistic practice as a method of critical inquiry and knowledge production/dissemination. Students examine artist writings and consider academic formats and standards. Regular group meetings, including peer reviews, are supplemented by independent study and individual conferences with faculty. Restricted to first-year SMACT students.
Consult A. Aksamija

4.389 Thesis III: SMACT Thesis Tutorial
Prereq: 4.388
G (Fall)
3-0-6 units
Can be repeated for credit.

Series of tutorials that includes regular presentations of student writing in group critiques and supports independent thesis research and development by providing guidance on research strategy and written presentation. Sessions supplemented by regular individual conferences with thesis committee members. Restricted to second-year SMACT students.
Consult A. Aksamija

4.390 Art, Culture, and Technology Studio
Prereq: Permission of instructor
G (Fall, Spring)
3-3-12 units
Can be repeated for credit.

Explores the theory and criticism of intersections between art, culture, and technology in relation to contemporary artistic practice, critical design, and media. Students consider methods of investigation, documentation, and display and explore modes of communication across disciplines. Students develop projects in which they organize research methods and goals, engage in production, cultivate a context for their practice, and explore how to compellingly communicate, display, and document their work. Regular presentation and peer-critique sessions, as well as reviews involving ACT faculty and fellows, and external guest reviewers provide students with ample feedback as their projects develop. Restricted to SMACT students.
Consult A. Aksamija

4.391 Independent Study in Art, Culture, and Technology
Prereq: Permission of instructor
U (Fall, IAP, Spring)
Units arranged
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Art, Culture, and Technology Staff

4.392 Independent Study in Art, Culture, and Technology
Prereq: Permission of instructor
U (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Art, Culture, and Technology Staff

4.393 Independent Study in Art, Culture, and Technology
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged
Can be repeated for credit.

Supplementary work on individual basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Art, Culture, and Technology Staff

4.394 Independent Study in Art, Culture, and Technology
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Supplementary work on individual basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Art, Culture, and Technology Staff

4.S30 Special Subject: Art, Culture, and Technology
Prereq: None
U (Fall)
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in visual arts that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Art, Culture, and Technology Staff

4.S31 Special Subject: Art, Culture, and Technology
Prereq: None
U (Fall)
Not offered regularly; consult department
Units arranged [P/D/F]
Can be repeated for credit.

Seminar or lecture on a topic in visual arts that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Art, Culture, and Technology Staff

4.S32 Special Subject: Art, Culture, and Technology
Prereq: Permission of instructor
G (Fall)
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in visual arts that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Consult Art, Culture, and Technology Staff

4.S33 Special Subject: Art, Culture, and Technology
Prereq: Permission of instructor
G (Fall)
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in visual arts that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Consult Art, Culture, and Technology Staff

4.S34 Special Subject: Art, Culture, and Technology
Prereq: Permission of instructor
G (Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in visual arts that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Consult Art, Culture, and Technology Staff

4.S35 Special Subject: Art, Culture, and Technology (New)
Prereq: Permission of instructor
G (Fall)
Not offered regularly; consult department
Units arranged [P/D/F]
Can be repeated for credit.

Seminar or lecture on a topic in visual arts that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Consult A. Aksamija

4.S36 Special Subject: Art, Culture and Technology (New)
Prereq: Permission of instructor
G (Fall)
Units arranged [P/D/F]
Can be repeated for credit.

Seminar or lecture on a topic in visual arts that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Consult A. Aksamija

4.S37 Special Subject: Art, Culture, and Technology (New)
Prereq: None
U (Fall)
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in visual arts that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Art, Culture, and Technology Staff

4.S38 Special Subject: Art, Culture and Technology (New)
Prereq: None
G (Fall)
Units arranged [P/D/F]
Can be repeated for credit.

Seminar or lecture on a topic in visual arts that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Staff

Building Technology

4.401 Environmental Technologies in Buildings
Subject meets with 1.564[J], 4.464[J]
Prereq: None
U (Fall)
3-2-7 units

Introduction to the study of the thermal and luminous behavior of buildings. Examines the basic scientific principles underlying these phenomena and introduces students to a range of technologies and analysis techniques for designing comfortable indoor environments. Challenges students to apply these techniques and explore the role energy and light can play in shaping architecture. Additional work required of students taking the graduate version.
C. Reinhart

4.411[J] D-Lab Schools: Building Technology Laboratory
Same subject as EC.713[J]
Subject meets with 4.412
Prereq: Calculus I (GIR) and Physics I (GIR)
U (Fall)
2-3-7 units. Institute LAB

Focuses on the design, analysis, and application of technologies that support the construction of less expensive and better performing schools in developing countries. Prepares students to design or retrofit school buildings in partnership with local communities and NGOs. Strategies covered include daylighting, passive heating and cooling, improved indoor air quality via natural ventilation, appropriate material selection, and structural design. Investigations are based on application of engineering fundamentals, experiments and simulations. Case studies illustrate the role of technologies in reducing barriers to improved education. Additional work required of students taking the graduate version. Limited to 20 total for versions meeting together.
L. K. Norford

4.412 D-Lab Schools: Building Technology Laboratory
Subject meets with 4.411[J], EC.713[J]
Prereq: Permission of instructor
G (Fall)
Units arranged

Focuses on the design, analysis, and application of technologies that support the construction of less expensive and better performing schools in developing countries. Prepares students to design or retrofit school buildings in partnership with local communities and NGOs. Strategies covered include daylighting, passive heating and cooling, improved indoor air quality via natural ventilation, appropriate material selection, and structural design. Investigations are based on application of engineering fundamentals, experiments and simulations. Case studies illustrate the role of technologies in reducing barriers to improved education. Additional work required of students taking the graduate version. Limited to 20 total for versions meeting together.
Consult L. K. Norford

4.421 Space-Conditioning Systems for Low-Carbon Buildings
Prereq: None
G (Spring)
Not offered regularly; consult department
Units arranged

Studies the physical principles of, and design strategies for, natural and mechanical systems for conditioning high-performance buildings that are needed to reduce anthropogenic emissions of greenhouse gases in coming decades. Topics include the dynamics of airflow in buildings in urban areas and the design of natural and mixed-mode ventilation systems, low-energy strategies and systems for dehumidification and sensible cooling, thermal storage at diurnal and seasonal time scales, and district heating and cooling systems. System design in leading commercial practice is presented and critiqued by invited practitioners and students. Through a group project, students assess climate- and building-specific systems on the basis of energy consumption, carbon emissions, and resilience to climate change.
L. K. Norford

4.424[J] Modeling and Approximation of Thermal Processes
Same subject as 2.52[J]
Prereq: 2.51
G (Fall)
Not offered regularly; consult department
3-0-9 units

See description under subject 2.52[J].
L. R. Glicksman

4.431 Architectural Acoustics
Prereq: Permission of instructor
Acad Year 2023-2024: G (Spring)
Acad Year 2024-2025: Not offered
Units arranged

Describes interactions between people and sound, indoors and outdoors, and uses this information to develop acoustical design criteria for architecture and planning. Principles of sound generation, propagation, and reception. Properties of materials for sound absorption, reflection, and transmission. Design implications for performance and gathering spaces. Use of computer modeling techniques.
Building Technology Staff

4.432 Modeling Urban Energy Flows for Sustainable Cities and Neighborhoods
Subject meets with 4.433
Prereq: Permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Spring)
3-2-7 units

Studies energy flows in and around groups of buildings from individual buildings to complete large-scale neighborhoods. Students use emerging digital techniques to analyze and influence building design interventions in relation to energy use for construction (embodied energy) and operation, access to daylight, and assessing walkability and outdoor comfort at the neighborhood scale. Additional work required of students taking the graduate version.
Consult C. Reinhart

4.433 Modeling Urban Energy Flows for Sustainable Cities and Neighborhoods
Subject meets with 4.432
Prereq: Permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Spring)
3-2-4 units

Studies energy flows in and around groups of buildings from individual buildings to complete large-scale neighborhoods. Students use emerging digital techniques to analyze and influence building design interventions in relation to energy use for construction (embodied energy) and operation, access to daylight, and assessing walkability and outdoor comfort at the neighborhood scale. Additional work required of students taking the graduate version.
Consult C. Reinhart

4.440[J] Introduction to Structural Design
Same subject as 1.056[J]
Subject meets with 4.462
Prereq: Calculus II (GIR)
U (Spring)
3-3-6 units. REST

Introduces the design and behavior of large-scale structures and structural materials. Emphasizes the development of structural form and the principles of structural design. Presents design methods for timber, masonry, concrete and steel applied to long-span roof systems, bridges, and high-rise buildings. Includes environmental assessment of structural systems and materials. In laboratory sessions, students solve structural problems by building and testing simple models. Graduate and undergraduate students have separate lab sections.
Consult J. Carstensen

4.441 From the Solar House to Net Zero Buildings

Subject meets with 4.442
Prereq: 4.401 or permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Spring)
3-2-7 units

Provides necessary historic awareness and technical skills for becoming agents of change for a carbon neutral building sector by further merging the fields of architectural design and environmental performance analysis. Students are presented with a "typical" building and explore various interventions, from envelope improvements to reduced internal lighting and equipment loads, ventilation and HVAC upgrades as well as onsite deployment of photovoltaics. Discusses which energy flows to pay attention to for different building types and how to productively work with the local microclimate, knowledge which can later promote elevated discussions between architect and environmental consultant. Students taking graduate version complete additional assignments.
C. Reinhart

4.442 From the Solar House to Net Zero Buildings

Subject meets with 4.441
Prereq: 4.464[J] or permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Spring)
3-2-4 units

Provides necessary historic awareness and technical skills for becoming agents of change for a carbon neutral building sector by further merging the fields of architectural design and environmental performance analysis. Students are presented with a "typical" building and explore various interventions, from envelope improvements to reduced internal lighting and equipment loads, ventilation and HVAC upgrades as well as onsite deployment of photovoltaics. Discusses which energy flows to pay attention to for different building types and how to productively work with the local microclimate, knowledge which can later promote elevated discussions between architect and environmental consultant. Students taking graduate version complete additional assignments.
C. Reinhart

4.450[J] Computational Structural Design and Optimization

Same subject as 1.575[J]
Subject meets with 4.451
Prereq: ((1.000 or (6.100A and 6.100B)) and (1.050, 2.001, or 4.462)) or permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Fall)
Units arranged

Research seminar focusing on emerging applications of computation for creative, early-stage structural design and optimization for architecture. Incorporates computational design fundamentals, including problem parameterization and formulation; design space exploration strategies, including interactive, heuristic, and gradient-based optimization; and computational structural analysis methods, including the finite element method, graphic statics, and approximation techniques. Programing experience and familiarity with structural mechanics necessary. Additional work required of students taking graduate version. Limited to 25 total for versions meeting together.
Consult C. Mueller

4.451 Computational Structural Design and Optimization

Subject meets with 1.575[J], 4.450[J]
Prereq: ((1.000 or (6.100A and 6.100B)) and (1.050, 2.001, or 4.440[J])) or permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Fall)
3-0-9 units

Research seminar focusing on emerging applications of computation for creative, early-stage structural design and optimization for architecture. Incorporates computational design fundamentals, including problem parameterization and formulation; design space exploration strategies, including interactive, heuristic, and gradient-based optimization; and computational structural analysis methods, including the finite element method, graphic statics, and approximation techniques. Programing experience and familiarity with structural mechanics necessary. Additional work required of students taking graduate version. Limited to 25 total for versions meeting together.
Consult C. Mueller

4.453 Creative Machine Learning for Design
Prereq: 6.1010 or permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Spring)
3-0-9 units

Focuses on applications of machine learning (ML) for creative design generation and data-informed design exploration, with an emphasis on visual and 3-D generative systems. Explores how recent advances in artificial intelligence, and specifically machine learning, can offer humans more natural, performance-driven design processes. Covers a wide range of machine learning algorithms and their applications to design, with topics including neural networks, generative adversarial networks, variational autoencoders, dimensionality reduction, geometric deep learning, and other ML techniques. Includes an open-ended, applied research or design project demonstrating an original, creative use of machine learning for design, architecture, engineering, or art. Limited to 20.
C. Müeller

4.462 Introduction to Structural Design
Subject meets with 1.056[J], 4.440[J]
Prereq: Permission of instructor
G (Spring)
3-2-4 units

Introduces the design and behavior of large-scale structures and structural materials. Emphasizes the development of structural form and the principles of structural design. Introduces design methods for timber, masonry, concrete, and steel applied to long-span roof systems, bridges, and high-rise buildings. Includes environmental assessment of structural systems and materials. Laboratory to solve structural problems by building and testing simple models. Graduate and undergraduate students have separate lab sections.
Consult J. Ochsendorf

4.463 Building Technology Systems: Structures and Envelopes
Prereq: 4.440[J], 4.462, or permission of instructor
G (Fall)
3-2-4 units

Addresses advanced structures, exterior envelopes, and contemporary production technologies. Continues the exploration of structural elements and systems, expanding to include more complex determinate, indeterminate, long-span, and high-rise systems. Topics include reinforced concrete, steel and engineered-wood design, and an introduction to tensile systems. The contemporary exterior envelope is discussed with an emphasis on the classification of systems, performance attributes, and analysis techniques, material specifications and novel construction technologies.
C. Mueller

4.464[J] Environmental Technologies in Buildings
Same subject as 1.564[J]
Subject meets with 4.401
Prereq: None
G (Fall)
3-2-4 units

Introduction to the study of the thermal and luminous behavior of buildings. Examines the basic scientific principles underlying these phenomena and introduces students to a range of technologies and analysis techniques for designing comfortable indoor environments. Challenges students to apply these techniques and explore the role energy and light can play in shaping architecture. Additional work required of students taking the graduate version.
C. Reinhart

4.481 Building Technology Seminar
Prereq: Permission of instructor
G (Fall)
2-0-1 units

Fundamental research methodologies and ongoing investigations in building tehnology to support the development of student research projects. Topics drawn from low energy building design and thermal comfort, building systems analysis and control, daylighting, structural design and analysis, novel building materials and construction techniques and resource dynamics. Organized as a series of two- and three-week sessions that consider topics through readings, discussions, design and analysis projects, and student presentations.
Consult L. R. Glicksman, C. Mueller, C. Reinhart, L. K. Norford, J. Ochsendorf

4.488 Preparation for S.M.B.T. Thesis
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit.

Selection of thesis topic, definition of method of approach, and preparation of thesis proposal. Independent study supplemented by individual conference with faculty.
Building Technology Staff

4.489 Preparation for Building Technology Ph.D. Thesis
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit.

Selection of thesis topic, definition of method of approach, and preparation of thesis proposal. Independent study supplemented by individual conference with faculty.
Building Technology Staff

4.491 Independent Study in Building Technology
Prereq: Permission of instructor
U (Fall, IAP, Spring)
Units arranged
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Building Technology Staff

4.492 Independent Study in Building Technology
Prereq: Permission of instructor
U (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Building Technology Staff

4.493 Independent Study in Building Technology
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged
Can be repeated for credit.

Supplementary work on individual basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Building Technology Staff

4.494 Independent Study in Building Technology
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Supplementary work on individual basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Building Technology Staff

4.S40 Special Subject: Building Technology
Prereq: None
U (IAP, Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in building technology that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Building Technology Staff

4.S41 Special Subject: Building Technology
Prereq: None
U (IAP, Spring)
Not offered regularly; consult department
Units arranged [P/D/F]
Can be repeated for credit.

Seminar or lecture on a topic in building technology that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Building Technology Staff

4.S42 Special Subject: Building Technology
Prereq: Permission of instructor
G (IAP)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in building technology that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Consult Building Technology Staff

4.S43 Special Subject: Building Technology
Prereq: Permission of instructor
G (IAP)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in building technology that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Architecture Building Technology Staff

4.S44 Special Subject: Building Technology
Prereq: Permission of instructor
G (Fall, IAP)
Not offered regularly; consult department
Units arranged [P/D/F]
Can be repeated for credit.

Seminar or lecture on a topic in building technology that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Building Technology Staff

4.S45 Special Subject: Building Construction
Prereq: Permission of instructor
G (IAP)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in building construction that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Building Technology Staff

4.S46 Special Subject: Energy in Buildings
Prereq: Permission of instructor
G (Fall)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in energy in buildings that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Building Technology Staff, L. K. Norford

4.S47 Special Subject: Architectural Lighting
Prereq: Permission of instructor
G (IAP, Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in architectural lighting that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Building Technology Staff

4.S48 Special Subject: Structural Design
Prereq: Permission of instructor
G (Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in structural design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Consult Building Technology Staff

Computation

4.500 Design Computation: Art, Objects and Space
Subject meets with 4.505
Prereq: None
U (Fall)
2-2-8 units

Introduces 3-D CAD modeling to students with little or no experience in design or computation. Teaches surface, solid and mesh modeling techniques combined with a variety of modeling applications, from 3D printing to CNC fabrication and 3D rendering. Includes weekly modeling assignments leading up to a final project. Students taking graduate version complete additional assignments.
Consult L. Sass

4.501 Tiny Fab: Advancements in Rapid Design and Fabrication of Small Homes
Subject meets with 4.511
Prereq: 4.500
U (Spring)
2-3-7 units

Introduces digital fabrication as a method of home, hut, and shelter delivery/construction. Explores the progression of industrial-based building production from prefab to digital fab. Examines new computational techniques for rapid construction, as well as the basics of tiny building design, 3D modeling systems, scalable ways to prototype, and computer numerical control (CNC) fabrication. Students use lab time to design a prototype of a small building as a single packaged product. Additional work required of students taking graduate version. Lab fee required. Enrollment limited; preference to Course 4 majors and minors.
Consult L. Sass

4.502 Advanced Visualization: Architecture in Motion Graphics
Subject meets with 4.562
Prereq: 4.500 or permission of instructor
U (Fall)
3-2-7 units

Advanced projects in architectural visualization with an emphasis on the use of computer graphics animation, interactive media, and video production tools. Introduces advanced visualization software and teaches exploration of spatial expressions in motion graphics format. Review and discussion of selected literature and video materials on architecture and film. Additional work required of students taking the graduate version. Preference to Course 4 and 4-B majors and Design and Architecture minors.
T. Nagakura

4.505 Design Computation: Art, Objects, and Space
Subject meets with 4.500
Prereq: None
G (Fall)
2-2-8 units

Introduces 3-D CAD modeling to students with little or no experience in design or computation. Teaches surface, solid, and mesh modeling techniques combined with a variety of modeling applications — from 3D printing to CNC fabrication and 3D rendering. Includes weekly modeling assignments leading up to a final project. Students taking graduate version complete additional assignments.
L. Sass

4.507 Introduction to Building Information Modeling in Architecture
Subject meets with 4.567
Prereq: None
U (Spring)
3-2-7 units

Addresses fundamental methods, theories, and practices that engage contemporary modeling tools in the context of architectural design. Introduces selected academic and professional topics through lectures, demonstrations, and assignments. Topics include parametric modeling, component types and assembly, prototyping, scripting, and simulations. Initiates intellectual explorations in the use of building information modeling in research projects and design practices. Additional work required of students taking graduate version.
T. Nagakura

4.511 Tiny Fab: Advancements in Rapid Design and Fabrication of Small Homes
Subject meets with 4.501
Prereq: 4.105 or permission of instructor
G (Spring)
Units arranged

Introduces digital fabrication as a method of home, hut, and shelter delivery/construction. Explores the progression of industrial-based building production from prefab to digital fab. Examines new computational techniques for rapid construction, as well as the basics of tiny building design, 3D modeling systems, scalable ways to prototype, and computer numerical control (CNC) fabrication. Students use lab time to design a prototype of a small building as a single packaged product. Additional work required of students taking graduate version. Lab fee required. Enrollment limited; preference to MArch students.
L. Sass

4.520 Visual Computing
Subject meets with 4.521
Prereq: None
U (Spring)
3-0-9 units

Introduces a visual-perceptual, rule-based approach to design using shape grammars. Covers grammar fundamentals through lectures and in-class exercises. Focuses on shape grammar applications, from stylistic analysis to creative design, through presentations of past applications and through short student exercises and projects. Presents computer programs for automating shape grammars. Additional work required of students taking graduate version. Enrollment limited; preference to Course 4 majors and minors.
Consult T. Knight

4.521 Visual Computing
Subject meets with 4.520
Prereq: None
G (Spring)
3-0-6 units

Introduces a visual-perceptual, rule-based approach to design using shape grammars. Covers grammar fundamentals through lectures and in-class, exercises. Focuses on shape grammar applications, from stylistic analysis to creative design, through presentations of past applications and through short student exercises and projects. Presents computer programs for automating shape grammars. Additional work required of students taking graduate version. Enrollment limited; preference to MArch students.
Consult T. Knight

4.540 Introduction to Shape Grammars I
Prereq: None
G (Fall)
3-0-6 units

An in-depth introduction to shape grammars and their applications in architecture and related areas of design. Shapes in the algebras Ui j, in the algebras Vi j and Wi j incorporating labels and weights, and in algebras formed as composites of these. Rules and computations, shape and structure, designs.
G. Stiny

4.541 Introduction to Shape Grammars II
Prereq: 4.540
G (Spring)
3-0-6 units

An in-depth introduction to shape grammars and their applications in architecture and related areas of design. Shapes in the algebras Ui j, in the algebras Vi j and Wi j incorporating labels and weights, and in algebras formed as composites of these. Rules and computations. Shape and structure. Designs.
Consult G. Stiny

4.542 Background to Shape Grammars
Prereq: 4.541 or permission of instructor
G (Spring)
3-0-6 units
Can be repeated for credit.

An advanced examination of the shape grammar formalism and its relationship to some key issues in a variety of other fields, including art and design, philosophy, history and philosophy of science, linguistics and psychology, literature and literary studies, logic and mathematics, and artificial intelligence. Student presentations and discussion of selected readings are encouraged. Topics vary from year to year. Can be repeated with permission of instructor.
Consult G. Stiny

4.550 Computational Design Lab
Subject meets with 4.570
Prereq: Permission of instructor
U (Spring)
Units arranged
Can be repeated for credit.

Provides students with an opportunity to explore projects that engage real world problems concerning spatial design, technology, media, and society. In collaboration with industry partners and public institutions, students identify topical issues and problems, and also explore and propose solutions through the development of new ideas, theories, tools, and prototypes. Industry and academic collaborators act as a source of expertise, and as clients and critics of projects developed during the term. General theme of workshop varies by semester or year. Open to students from diverse backgrounds in architecture and other design-related areas. Additional work required of students taking graduate version.
T. Nagakura

4.557[J] City Science
Same subject as MAS.552[J]
Prereq: Permission of instructor
G (Spring)
Not offered regularly; consult department
3-0-9 units
Can be repeated for credit.

See description under subject MAS.552[J].
K. Larson, R. Chin

4.562 Advanced Visualization: Architecture in Motion Graphics
Subject meets with 4.502
Prereq: Permission of instructor
G (Fall)
3-2-7 units

Advanced projects in architectural visualization with an emphasis on the use of computer graphics animation, interactive media, and video production tools. Introduces advanced visualization software and teaches exploration of spatial expressions in motion graphics format. Review and discussion of selected literature and video materials on architecture and film. Additional work required of students taking the graduate version. Preference to Course 4 and 4-B majors and Design and Architecture minors.
Consult T. Nagakura

4.566 Advanced Projects in Digital Media
Prereq: 4.562 or permission of instructor
G (Fall)
Units arranged
Can be repeated for credit.

Develop independent projects in the study of digital media as it relates to architectural design. Students propose a project topic such as digital design tool, modeling and visualization, motion graphics, interactive design, design knowledge representation and media interface. Limited to 5.
T. Nagakura

4.567 Introduction to Building Information Modeling in Architecture
Subject meets with 4.507
Prereq: None
G (Spring)
Units arranged

Addresses fundamental methods, theories, and practices that engage contemporary modeling tools in the context of architectural design. Introduces selected academic and professional topics through lectures, demonstrations, and assignments. Topics include parametric modeling, component types and assembly, prototyping, scripting, and simulations. Initiates intellectual explorations in the use of building information modeling in research projects and design practices. Additional work required of students taking graduate version. Preference given to MArch students.
T. Nagakura

4.569[J] Designing Interactions
Same subject as CMS.834[J]
Subject meets with CMS.634
Prereq: None
G (Spring)
Not offered regularly; consult department
3-3-6 units
Can be repeated for credit.

See description under subject CMS.834[J]. Limited to 12.
F. Casalegno, T. Nagakura

4.570 Computational Design Lab
Subject meets with 4.550
Prereq: Permission of instructor
G (Spring)
Units arranged
Can be repeated for credit.

Provides students with an opportunity to explore projects that engage real world problems concerning spatial design, technology, media, and society. In collaboration with industry partners and public institutions, students identify topical issues and problems, and also explore and propose solutions through the development of new ideas, theories, tools, and prototypes. Industry and academic collaborators act as a source of expertise, and as clients and critics of projects developed during the term. General theme of workshop varies by semester or year. Open to students from diverse backgrounds in architecture and other design-related areas. Additional work required of students taking graduate version.
T. Nagakura

4.580 Inquiry into Computation and Design
Prereq: Permission of instructor
G (Fall)
3-0-9 units

Explores the varied nature, history and practice of computation in design through lectures, readings, small projects, discussions, and guest visits by Computation group faculty and others. Topics may vary from year to year. Aims to help students develop a critical awareness of different approaches to and assumptions about computation in design beyond the specifics of techniques and tools, and to open avenues for further research.
Consult T. Knight

4.581 Proseminar in Computation
Prereq: Permission of instructor
G (Fall)
3-0-9 units
Can be repeated for credit.

Introduction to traditions of research in design and computation scholarship.
G. Stiny

4.582 Research Seminar in Computation
Prereq: 4.580 or permission of instructor
G (Fall, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

In-depth presentations of current research in design and computation.
G. Stiny

4.583 Forum in Computation
Prereq: Permission of instructor
G (Fall)
3-0-0 units
Can be repeated for credit.

Group discussions and presentation of ongoing graduate student research in the Computation program.
T. Knight

4.587 SMArchS Computation Pre-Thesis Preparation
Prereq: 4.221 or permission of instructor
G (Spring)
3-0-3 units

Preliminary study in preparation for the thesis for the SMArchS degree in Computation. Topics include literature search, precedents examination, thesis structure and typologies, and short writing exercise.
T. Knight, T. Nagakura

4.588 Preparation for SMArchS Computation Thesis (New)
Prereq: None
G (Fall, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit.

Students select thesis topic, define method of approach, and prepare thesis proposal for SMArchS Computation degree. Faculty supervision on a group basis. Intended for SMArchS Computation program students, prior to registration for 4.ThG. Limited to SMArchS Computation students.
Consult L. Sass

4.589 Preparation for Design and Computation PhD Thesis
Prereq: Permission of instructor
G (Fall, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit.

Selection of thesis topic, definition of method of approach, and preparation of thesis proposal in computation. Independent study supplemented by individual conference with faculty.
Computation Staff

4.591 Independent Study in Architectural Computation
Prereq: Permission of instructor
U (Fall, IAP, Spring)
Units arranged
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Computation Staff

4.592 Independent Study in Architectural Computation
Prereq: Permission of instructor
U (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Computation Staff

4.593 Independent Study in Architectural Computation
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged
Can be repeated for credit.

Supplementary work on individual basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Computation Staff

4.594 Independent Study in Architectural Computation
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Supplementary work on individual basis. Registration subject to prior arrangement for subject matter and supervision by staff.
Computation Staff

4.S50 Special Subject: Architectural Computation
Prereq: None
U (Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in computation and design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Computation Staff

4.S51 Special Subject: Architectural Computation
Prereq: None
U (IAP, Spring)
Not offered regularly; consult department
Units arranged [P/D/F]
Can be repeated for credit.

Seminar or lecture on a topic in computation and design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Computation Staff

4.S52 Special Subject: Architectural Computation
Prereq: Permission of instructor
G (Fall)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in computation and design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
T. Knight

4.S53 Special Subject: Architectural Computation
Prereq: Permission of instructor
G (Fall)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in computation and design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Computation Staff

4.S54 Special Subject: Architectural Computation
Prereq: Permission of instructor
G (Fall)
Not offered regularly; consult department
Units arranged [P/D/F]
Can be repeated for credit.

Seminar or lecture on a topic in computation and design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Computation Staff

4.S55 Special Subject: Digital Fabrication
Prereq: Permission of instructor
G (IAP, Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in computation and design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Consult Computation Staff

4.S56 Special Subject: Shape Grammars
Prereq: Permission of instructor
G (Fall, Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in computation and design that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Computation Staff

History, Theory and Criticism of Architecture and Art

4.601 Introduction to Art History
Prereq: None
Acad Year 2023-2024: U (Spring)
Acad Year 2024-2025: Not offered
4-0-8 units. HASS-A

Introduction to the history and interpretation of western art in a global context that explores painting, graphic arts and sculpture from the 15th century to the present. Engages diverse methodological perspectives to examine changing conceptions of art and the artist, and to investigate the plural meaning of artworks within the larger contexts of culture and history.
Consult K. Smentek

4.602 Modern Art and Mass Culture
Subject meets with 4.652
Prereq: None
U (Fall)
4-0-8 units. HASS-A; CI-H

Introduction to theories of modernism and postmodernism and their related forms (roughly 18th century to present) in art and design. Focuses on how artists use the tension between fine art and mass culture to critique both. Examines visual art in a range of genres, from painting to design objects and "relational aesthetics." Works of art are viewed in their interaction with advertising, caricature, comics, graffiti, television, fashion, "primitive" art, propaganda, and networks on the internet. Additional work required of students taking graduate version.
Consult C. Jones

4.603 Understanding Modern Architecture
Subject meets with 4.604
Prereq: None
U (Fall)
3-0-9 units. HASS-A

Examines modern architecture, art, and design in the context of the political, economic, aesthetic, and cultural changes that occurred in the twentieth century. Presents foundational debates about social and technological aspects of modern architecture and the continuation of those debates into contemporary architecture. Incorporates varied techniques of historical and theoretical analysis to interpret exemplary objects, buildings, and cities of modernity. Additional work required of students taking the graduate version. Preference to Course 4 majors and minors.
T. Hyde

4.604 Understanding Modern Architecture
Subject meets with 4.603
Prereq: Permission of instructor
G (Fall)
Units arranged

Examines modern architecture, art, and design in the context of the political, economic, aesthetic, and cultural changes that occurred in the twentieth century. Presents foundational debates about social and technological aspects of modern architecture and the continuation of those debates into contemporary architecture. Incorporates varied techniques of historical and theoretical analysis to interpret exemplary objects, buildings, and cities of modernity. Additional work required of students taking the graduate version. Preference to Course 4 majors.
T. Hyde

4.605 A Global History of Architecture
Subject meets with 4.650
Prereq: None
U (Spring)
4-0-8 units. HASS-A

Provides an outline of the history of architecture and urbanism from ancient times to the early modern period. Analyzes buildings as the products of culture and in relation to the special problems of architectural design. Stresses the geopolitical context of buildings and in the process familiarizes students with buildings, sites and cities from around the world. Additional work required of graduate students.
Consult M. Jarzombek

4.607 Thinking About Architecture: In History and At Present
Prereq: 4.645 or permission of instructor
Acad Year 2023-2024: G (Fall)
Acad Year 2024-2025: Not offered
Units arranged

Studies the interrelationship of theory, history, and practice. Looks at theory not as specialized discourse relating only to architecture, but as touching on many issues, whether they be cultural, aesthetic, philosophical, or professional. Topics and examples are chosen from a wide range of materials, from classical antiquity to today.
M. Jarzombek

4.608 Seminar in the History of Art, Architecture, and Design
Subject meets with 4.609
Prereq: Permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Spring)
Units arranged

Examination of historical method in art, design, and/or architecture, focusing on periods and problems determined by the research interest of the faculty member leading the seminar. Emphasizes critical reading and viewing and direct tutorial guidance. Additional work required of students taking the graduate version. Limited to 15.
Consult HTC Staff

4.609 Seminar in the History of Art, Architecture, and Design
Subject meets with 4.608
Prereq: Permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Spring)
3-0-9 units. HASS-A

Examination of historical method in art, design, and/or architecture, focusing on periods and problems determined by the research interest of the faculty member leading the seminar. Emphasizes critical reading and viewing and direct tutorial guidance. Additional work required of students taking the graduate version. Limited to 15.
Consult HTC Staff

4.612 Islamic Architecture and the Environment
Prereq: Permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Spring)
Units arranged

Studies how Islamic architecture, landscape architecture, and urban planning reflect and transform environmental processes in various regions and climates of the Islamic world, from Andalusia to Southeast Asia, with an emphasis on South Asia, Central Asia, and the Middle East. Using systematic approaches to environmental data collection and analysis, examines strategies behind the design of selected architectural elements and landscape design types, ranging in scale from the fountain to the garden, courtyard, city, and agrarian region. Critically explores cultural interpretations of Islamic environmental design (e.g., paradise gardens), as they developed over time in ways that enrich, modify, or obscure their historical significance.
HTC Staff

4.614 Building Islam
Prereq: None
U (Fall)
3-0-9 units. HASS-A

Examines the history of Islamic architecture and culture spanning fifteen centuries on three continents - Asia, Africa, Europe. Students study a number of representative examples, from the 7th century House of the Prophet to the current high-rises of Dubai, in conjunction with their urban, social, political, and intellectual environments at the time of their construction. Limited to 15.
N. Rabbat

4.616 Culture and Architecture
Prereq: Permission of instructor
G (Spring)
Units arranged

Seminar on how culture interacts with architecture. Analyzes architecture as a conveyor of messages that transcend stylistic, formal, and iconographic concerns to include an assessment of disciplinary, political, ideological, social, and cultural factors. Critically reviews methodologies and theoretical premises of studies on culture and meaning. Focuses on examples from Islamic history and establishes historical and theoretical frameworks for investigation. Limited to 16.
Consult N. Rabbat

4.617 Advanced Study in Islamic Urban History
Prereq: Permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Spring)
Units arranged

Seminar on selected topics from the history of Islamic urbanism. Examines patterns of settlement, urbanization, development, and architectural production in various places and periods, ranging from the formative period in the 7th century to the new cities emerging today. Discusses the leading factors in shaping and transforming urban forms, design imperatives, cultural and economic structures, and social and civic attitudes. Critically analyzes the body of literature on Islamic urbanism. Research paper required.
N. Rabbat

4.619 Historiography of Islamic Art and Architecture
Prereq: Permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Fall)
3-0-9 units

Critical review of literature on Islamic art and architecture in the last two centuries. Analyzes the cultural, disciplinary, and theoretical contours of the field and highlights the major figures that have influenced its evolution. Challenges the tacit assumptions and biases of standard studies of Islamic art and architecture and addresses historiographic and critical questions concerning how knowledge of a field is defined, produced, and reproduced.
N. Rabbat

4.621 Orientalism, Colonialism, and Representation
Prereq: Permission of instructor
Acad Year 2023-2024: G (Fall)
Acad Year 2024-2025: Not offered
Units arranged

Seminar on the politics of representation with special focus on Orientalist traditions in architecture, art, literature, and scholarship. Critically analyzes pivotal texts, projects, and artworks that reflected the encounters between the West and the Orient from Antiquity to the present. Discusses how political, ideological, and religious attitudes informed the construction and reproduction of Western knowledge about the Islamic world as well as revisionist Eastern self-representations. Research paper required. Limited to 16.
Consult N. Rabbat

4.624 Dwelling & Building: Cities in the Global South (New)
Prereq: None
G (Fall)
Units arranged

Examines the contemporary challenges and history of city planning on three continents - Africa, Asia, and South America. Students study a number of city plans, from the 'informal' settlements of Delhi and Nairobi, the modernist master plans of Brasilia and Baghdad, to climate action plans in various cities. Explores the relationship between dwelling and building in the design of cities, in conjunction with the environmental, social, political, and intellectual environments at the time of their planning. Open to both undergraduate and graduate students. MArch students can register for 9 credits.
Consult H. Gupta

4.626[J] Documenting MIT Communities
Same subject as STS.051[J]
Prereq: None
U (Spring)
2-0-7 units. HASS-H

See description under subject STS.051[J].
E. Medina

4.634 Early Modern Architecture and Art
Subject meets with 4.635
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Spring)
Units arranged

Presents a history, from the 14th through the early 17th century, of architectural practice and design, as well as visual culture in Europe with an emphasis on Italy. Topics include the production and reception of buildings and artworks; the significance of a reinvigorated interest in antiquity; and representation of the individual, the state, and other institutions.Examines a variety of interpretive methods. Graduate students are expected to complete additional assignments.
HTC Staff

4.635 Early Modern Architecture and Art
Subject meets with 4.634
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Spring)
3-0-9 units. HASS-A

Presents a history, from the 14th through the early 17th century, of architectural practice and design, as well as visual culture in Europe with an emphasis on Italy. Topics include the production and reception of buildings and artworks; the significance of a reinvigorated interest in antiquity; and representation of the individual, the state, and other institutions.Examines a variety of interpretive methods. Graduate students are expected to complete additional assignments.
HTC Staff

4.636 Topics in European Medieval Architecture and Art
Subject meets with 4.637
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Spring)
3-0-9 units. HASS-A

Investigates architecture and art in medieval Europe, including significant monuments, art objects, themes, and developments from late antiquity through the rise of European cities in the 13th century. Considers a variety of media, ranging from stone- and metalwork to parchment and glass. Topics include sacred places and spaces; pilgrimage; relics and souvenirs; iconoclasm; questions of materiality, agency, and the power associated with objects; nature and magic; visions; medieval conceptions of temporality; and the construct of feudalism. Students taking graduate version complete additional assignments.
HTC Staff

4.637 Topics in European Medieval Architecture and Art
Subject meets with 4.636
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Spring)
Units arranged

Investigates architecture and art in medieval Europe, including significant monuments, art objects, themes, and developments from late antiquity through the rise of European cities in the 13th century. Considers a variety of media, ranging from stone- and metalwork to parchment and glass. Topics include sacred places and spaces; pilgrimage; relics and souvenirs; iconoclasm; questions of materiality, agency, and the power associated with objects; nature and magic; visions; medieval conceptions of temporality; and the construct of feudalism. Students taking graduate version complete additional assignments.
HTC Staff

4.640 Advanced Study in Critical Theory of Architecture
Prereq: Permission of instructor
G (Spring)
Units arranged
Can be repeated for credit.

Seminar on a selected topic in critical theory. Requires original research and presentation of oral and written report.
Consult A. Dutta

4.641 19th-Century Art: Painting in the Age of Steam
Subject meets with 4.644
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Fall)
3-0-9 units. HASS-A

Investigation of visual culture in the nineteenth century with an emphasis on Western Europe, the United States, and Japan. Topics include art and industry, artists and urban experience, empire and its image, and artistic responses to new technologies from the telegraph to the steam engine to the great refractor telescope. Strikes a balance between historical and contemporary critical perspectives to assess art's engagement with the social and political experience of modernity. Additional work required of students taking the graduate version. Limited to 15.
Consult K. Smentek

4.644 19th-Century Art: Painting in the Age of Steam
Subject meets with 4.641
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Fall)
Units arranged

Investigation of visual culture in the nineteenth century with an emphasis on Western Europe, the United States, and Japan. Topics include art and industry, artists and urban experience, empire and its image, and artistic responses to new technologies from the telegraph to the steam engine to the great refractor telescope. Strikes a balance between historical and contemporary critical perspectives to assess art's engagement with the social and political experience of modernity. Additional work required of students taking the graduate version. Limited to 15.
Consult K. Smentek

4.645 Selected Topics in Architecture: 1750 to the Present
Prereq: 4.210 or permission of instructor
G (Spring)
3-0-6 units

General study of modern architecture as a response to important technological, cultural, environmental, aesthetic, and theoretical challenges after the European Enlightenment. Focus on the theoretical, historiographic, and design approaches to architectural problems encountered in the age of industrial and post-industrial expansion across the globe, with specific attention to the dominance of European modernism in setting the agenda for the discourse of a global modernity at large. Explores modern architectural history through thematic exposition rather than as simple chronological succession of ideas.
A. Dutta

4.646 Advanced Study in the History of Modern Architecture and Urbanism
Prereq: Permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Spring)
Units arranged
Can be repeated for credit.

Seminar in a selected topic in the history of modern architecture and urbanism. Oral presentations and research paper required.
T. Hyde

4.647 Technopolitics, Culture, Intervention
Prereq: 4.645 or permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Fall)
Units arranged

Examines the manner in which key theories of technology have influenced architectural and art production in terms of their "humanizing" claims. Students test theories of technology on the grounds of whether technology is good or bad for humans. Limited to 15; preference to MArch students.
A. Dutta

4.648[J] Resonance: Sonic Experience, Science, and Art
Same subject as 21A.507[J]
Subject meets with 4.649[J], 21A.519[J]
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Fall)
3-0-9 units. HASS-A

Examines the sonic phenomena and experiences that motivate scientific, humanistic, and artistic practices. Explores the aesthetic and technical aspects of how we hear; measure or describe vibrations; record, compress, and distribute resonating materials; and how we ascertain what we know about the world through sound. Although the focus is on sound as an aesthetic, social, and scientific object, the subject also investigates how resonance is used in the analysis of acoustics, architecture, and music theory. Students make a sonic artifact or research project as a final requirement. Students taking graduate version complete additional assignments.
S. Helmreich, C. Jones

4.649[J] Resonance: Sonic Experience, Science, and Art
Same subject as 21A.519[J]
Subject meets with 4.648[J], 21A.507[J]
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Fall)
3-0-9 units

Examines the sonic phenomena and experiences that motivate scientific, humanistic, and artistic practices. Explores the aesthetic and technical aspects of how we hear; measure or describe vibrations; record, compress, and distribute resonating materials; and how we ascertain what we know about the world through sound. Although the focus is on sound as an aesthetic, social, and scientific object, the subject also investigates how resonance is used in the analysis of acoustics, architecture, and music theory. Students make a sonic artifact or research project as a final requirement. Students taking graduate version complete additional assignments.
S. Helmreich, C. Jones

4.650 A Global History of Architecture
Subject meets with 4.605
Prereq: None
G (Spring)
4-0-8 units

Provides an outline of the history of architecture and urbanism from ancient times to the early modern period. Analyzes buildings as the products of culture and in relation to the special problems of architectural design. Stresses the geopolitical context of buildings and in the process familiarizes students with buildings, sites and cities from around the world. Additional work required of graduate students.
M. Jarzombek

4.651 Art Since 1940
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Spring)
3-0-9 units. HASS-A

Critical examination of major developments in European, Asian, and American art from 1940 to the present. Surveys the mainstream of art production but also examines marginal phenomena (feminism, identity politics, AIDS activism, net art) that come to change the terms of art's engagements with civic culture. Visits to area art museums and writing assignments develop skills for visual analysis and critical writing.
Consult C. Jones

4.652 Modern Art and Mass Culture
Subject meets with 4.602
Prereq: None
Acad Year 2023-2024: G (Fall)
Acad Year 2024-2025: Not offered
Units arranged

Introduction to theories of modernism and postmodernism and their related forms (roughly 18th century to present) in art and design. Focuses on how artists use the tension between fine art and mass culture to critique both. Examines visual art in a range of genres, from painting to design objects and "relational aesthetics." Works of art are viewed in their interaction with advertising, caricature, comics, graffiti, television, fashion, "primitive" art, propaganda, and networks on the internet. Additional work required of students taking the graduate version.
C. Jones

4.654 Media Theory
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Spring)
Units arranged

Examines historical positions in what has been known as "media theory," engaging the tensions that vex current modes of production. Explores the broad panoply of bottom-up media content generation in its confrontation with proprietary media platforms, and measures contemporary digital narrative forms against the expanded cinematic theories of the past. Discussions focus on how the rich literature of media theory might accommodate gaming, XR, interactive immersive installations, and other contemporary phantasmagoria.
Consult C. Jones, E. Brinkema

4.657 Design: The History of Making Things
Prereq: None
U (Spring)
5-0-7 units. HASS-A; CI-H

Examines themes in the history of design, with emphasis on Euro-American theory and practice in their global contexts. Addresses the historical design of communications, objects, and environments as meaningful processes of decision-making, adaptation, and innovation. Critically assesses the dynamic interaction of design with politics, economics, technology, and culture in the past and at present. Limited to 36.
T. Hyde, K. Smentek

4.661 Theory and Method in the Study of Architecture and Art
Prereq: Permission of instructor
G (Fall)
3-0-9 units
Can be repeated for credit.

Studies theoretical and historiographical works pertaining to the fields of art and architectural history. Members of seminar pursue work designed to examine their own presuppositions and methods. Preference to PhD and other advanced students.
Consult HTC Staff

4.674[J] French Photography
Same subject as 21G.049[J], 21H.145[J]
Prereq: None
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: U (Fall)
3-0-9 units. HASS-A; CI-H

See description under subject 21H.145[J]. Enrollment limited.
C. Clark

4.675 Collect, Classify, Consume
Prereq: None
G (Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Historical study of collecting from the Renaissance to the present. Addresses the practices of collecting and display at the both the individual and institutional level, and analyzes their social, aesthetic, scientific, political and economic dimensions. Specific themes vary from year to year. Offered for 9 or 12 units. May be repeated for credit with permission of instructor. Limited to 15.
Consult K. Smentek

4.677 Advanced Study in the History of Art
Prereq: Permission of instructor
Acad Year 2023-2024: Not offered
Acad Year 2024-2025: G (Fall)
Units arranged
Can be repeated for credit.

Seminar in a selected topic in the history of art, with a particular emphasis on developments from the 18th century to the present. Includes short field trips to museums and collections. Oral presentations and research paper required. Offered for 9 or 12 units. Limited to 15.
Consult K. Smentek

4.684 Preparation for HTC Major Exam
Prereq: Permission of instructor
G (Fall, Spring)
1-0-26 units

Required of doctoral students in HTC as a prerequisite for work on the doctoral dissertation. The Major Exam covers a historically broad area of interest and includes components of history, historiography, and theory. Preparation for the exam will focus on four or five themes agreed upon in advance by the student and the examiner, and are defined by their area of teaching interest. Work is done in consultation with HTC faculty, in accordance with the HTC PhD Degree Program Guidelines. Restricted to HTC PhD students.
Information: HTC Staff

4.685 Preparation for HTC Minor Exam
Prereq: Permission of instructor
G (Fall, Spring)
1-0-14 units

Required of doctoral students in HTC as a prerequisite for work on the doctoral dissertation. The Minor Exam focuses on a specific area of specialization through which the student might develop their particular zone of expertise. Work is done in consultation with HTC faculty, in accordance with the HTC PhD Degree Program Guidelines. Restricted to HTC PhD students.
Information: HTC Staff

4.686 SMArchS AKPIA Pre-Thesis Preparation
Prereq: 4.221 and (4.619 or 4.621)
G (Spring)
0-1-2 units

Preliminary study in preparation for the thesis for the SMArchS degree in the Aga Khan Program for Islamic Architecture. Topics include literature search, precedents examination, thesis structure and typologies, and short writing exercise.
Consult N. Rabbat

4.687 SMArchS HTC Pre-Thesis Preparation
Prereq: 4.221 and 4.661
G (Spring)
0-1-2 units

Preliminary study in preparation for the thesis for the SMArchS degree in History, Theory and Criticism. Topics include literature search, precedents examination, thesis structure and typologies, and short writing exercise.
Consult K. Smentek

4.689 Preparation for History, Theory, and Criticism - Ph.D. Thesis
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit.

Required for doctoral students in HTC as a prerequisite for work on the doctoral dissertation. Prior to candidacy, doctoral students are required to write and orally defend a proposal laying out the scope of their thesis, its significance, a survey of existing research and literature, the methods of research to be adopted, a bibliography and plan of work. Work is done in consultation with HTC Faculty, in accordance with the HTC PhD Degree Program guidelines. Restricted to HTC PhD students.
Consult HTC Staff

4.691 Independent Study in the History, Theory, and Criticism of Architecture and Art
Prereq: Permission of instructor
U (Fall, IAP, Spring)
Units arranged
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
HTC Staff

4.692 Independent Study in the History, Theory, and Criticism of Architecture and Art
Prereq: Permission of instructor
U (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Supplementary work on individual or group basis. Registration subject to prior arrangement for subject matter and supervision by staff.
HTC Staff

4.693 Independent Study in the History, Theory, and Criticism of Architecture and Art
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged
Can be repeated for credit.

Supplementary work on individual basis. Registration subject to prior arrangement for subject matter and supervision by staff.
HTC Staff

4.694 Independent Study in the History, Theory, and Criticism of Architecture and Art
Prereq: Permission of instructor
G (Fall, IAP, Spring)
Units arranged [P/D/F]
Can be repeated for credit.

Supplementary work on individual basis. Registration subject to prior arrangement for subject matter and supervision by staff.
HTC Staff

4.S60 Special Subject: History, Theory and Criticism of Architecture and Art
Prereq: None
U (IAP, Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in the history, theory and criticism of architecture and art that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
HTC Staff

4.S61 Special Subject: History, Theory and Criticism of Architecture and Art
Prereq: None
U (IAP, Spring)
Not offered regularly; consult department
Units arranged [P/D/F]
Can be repeated for credit.

Seminar or lecture on a topic in the history, theory and criticism of architecture and art that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
HTC Staff

4.S62 Special Subject: History, Theory and Criticism of Architecture and Art
Prereq: Permission of instructor
G (Fall)
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in the history, theory and criticism of architecture and art that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
C. Jones

4.S63 Special Subject: History, Theory and Criticism of Architecture and Art
Prereq: Permission of instructor
G (Spring)
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in the history, theory and criticism of architecture and art that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
HTC Staff

4.S64 Special Subject: History, Theory and Criticism of Architecture and Art
Prereq: Permission of instructor
G (Fall)
Not offered regularly; consult department
Units arranged [P/D/F]
Can be repeated for credit.

Seminar or lecture on a topic in the history, theory and criticism of architecture and art that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
HTC Staff

4.S65 Special Subject: Advanced Study in Islamic Architecture
Prereq: Permission of instructor
G (Fall)
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in Islamic or non-western architecture that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports, varying at the discretion of the instructor.
HTC Staff

4.S66 Special Subject: History, Theory and Criticism of Art
Prereq: Permission of instructor
G (IAP, Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in the history, theory and criticism of art that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
HTC Staff

4.S67 Special Subject: Study in Modern Art
Prereq: Permission of instructor
G (Spring)
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in the history, theory and criticism of modern art that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Staff

4.S68 Special Subject: Study in Modern Architecture
Prereq: Permission of instructor
G (Fall)
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in the history, theory and criticism of modern architecture that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
Consult HTC Staff

4.S69 Special Subject: Advanced Study in the History of Urban Form
Prereq: Permission of instructor
G (Fall)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.

Seminar or lecture on a topic in the history, theory and criticism of urban form that is not covered in the regular curriculum. Requires original research and presentation of oral and written reports and/or design projects, varying at the discretion of the instructor.
HTC Staff

Thesis and UROP

Graduate Subjects

4.THG Graduate Thesis
Prereq: Permission of instructor
G (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit.

Program of research and writing of thesis; to be arranged by the student with supervising committee.
Staff

Undergraduate Subjects

4.THT[J] Thesis Research Design Seminar
Same subject as 11.THT[J]
Prereq: None
U (Fall)
3-0-9 units
Can be repeated for credit.

See description under subject 11.THT[J].
C. Abbanat

4.THU Undergraduate Thesis
Prereq: 11.THT[J]
U (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit.

Program of thesis research leading to the writing of an SB thesis, to be arranged by the student and an appropriate MIT faculty member. Intended for seniors. 12 units recommended.
Consult Architecture Staff

4.UR Undergraduate Research in Design
Prereq: Permission of instructor
U (Fall, IAP, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit.

Research and project activities, which cover the range represented by the various research interests and projects in the Department.
L. Sass

4.URG Undergraduate Research in Design
Prereq: None
U (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit.

Research and project activities, which cover the range represented by the various research interests and projects in the department. Students who wish a letter grade option for their work must register for 4.URG.
L. Sass