



ARCHITECTURAL DESIGN

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M.ARCH PROGRAM COURSES

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M.ARCH TRACK I PRE-PROFESSIONAL REQUIRED COURSES

M.ARCH TRACK II PREREQUISITE COURSES

EDAD 502 METHODS AND MATERIALS

This course introduces students to the origins, properties, working methods, and assembly techniques of the major materials that comprise the built environment with a focus on the development of woodshop skills and wood frame construction.

EDAD 510 ARCHITECTURAL DESIGN I

As a first architectural design studio designed to provide a basis in architecture and interior architecture, students are introduced to program and layout, access systems, siting, and elementary building systems including foundations, stick frame construction, and roof framing. Through a series of projects of increasing complexity, students work on designs that include small scale private and public programs.

EDAD 516 HISTORY OF ARCHITECTURE AND URBAN PLANNING I

The course examines building cultures from different periods and places, beginning with pre-history and ancient civilizations from more than 5000 years ago that kept the first written records, through the era of medievalism up to the dawn of modernity. Emphasis is given to different aspects of the built domain: selected individual buildings, their symbolical significance, layouts, spatial organization, construction, building materials and technologies, along with buildings' sites and city plans within the broader urban and cultural landscapes. Each lecture is based on a variety of case studies of buildings and settlements explored within their specific geographies and historical settings. Rather than asking for simple memorizing of particular data or dates, students develop skills of analyzing, comparing, and getting oriented within distinct historical spaces and periods.

EDAD 517 ARCHITECTURAL STRUCTURES I

Introduces construction at a domestic scale through lectures, slides, and field trips. Structural calculations include safe selection of building parts by stress analysis, beam equations, and column computations. Students learn sufficient wood and masonry building techniques to design a small wood frame building. Assignments include

structural models and calculations.

EDAD 511 DIGITAL TOOLS

Students are introduced to 2D/3D drawing and modeling software with an emphasis on architectural design in digital space. In-class demonstrations occur throughout the semester and address how to use digital tools at various stages of the design process at various scales. Students apply skills taught in class to small design projects as part of the course.

EDAD 520 ARCHITECTURAL DESIGN II

The studio focuses on the development of tools and fundamental skills for primary competence in design leading to an emerging ability to integrate design explorations—the ability to think critically about and integrate research and precedents, climate and site, program, use and structural building propositions.

EDAD 526 HISTORY OF ARCHITECTURE AND URBAN PLANNING II

Students examine the idea of man-centered built environments, concepts, understanding, and architectural manifestations, from Renaissance through the mid-20th Century through case studies and comparative analysis.

EDAD 527 ARCHITECTURAL STRUCTURES II

This course continues structural design of wooden buildings and computations for generic or special extra load applications requiring compound wood sections. The course introduces steel construction and calculation for steel beams and columns and environmental systems of plumbing, heating, and insulation. Students will design a domestic plumbing system.

EDAD 530 ARCHITECTURAL DESIGN III

Students are exposed to a design project of increasing complexity and scale including an investigation of mixed use programming within the same or related buildings, experimentation with the design and selection of their own structural systems, and application of sustainable principles to their design concepts and details.

EDAD 532 SUSTAINABLE ARCHITECTURE

Providing a broad overview of ecology and landscape as a basis for understanding sustainable principles, the course follows research focusing on “deep retrofit” detailing for new and existing wood frame housing in various climates, with an emphasis on cold climates similar to New England. Lectures include siting, water and waste, trash and recycling, conservation and energy production, air, environment and health, materials and methods in construction, transportation, food production, native landscape design, and the broader issues of building community. Sustainable construction principles centered in wood frame construction for both new and existing housing presented and researched including the current developments in details, environmental, and energy systems alternatives. Individually and in groups, students are required to develop details for existing construction approaching zero-energy use in various climates, associated with an outline specification indicating materials, systems, and energy sources. Each student will complete a drawn presentation, an individual outline specification, and a short presentation on a focused area of interest.

EDAD 535 PROFESSIONAL PRACTICE I

Students are introduced to the issues of architectural practice through social and community design issues, fiduciary responsibility, design and construction contracts and contract law, regulations and codes governing design and construction, ethics, sustainability and environmental issues and requirements for planning, site design, and building design, and construction.

EDAD 567 BUILDING OPERATING SYSTEMS

Mechanical/electrical/plumbing/communication systems for domestic to tall buildings are introduced in the context of declining energy supplies and increasing global pollution. Lower energy systems for heating, ventilating, air conditioning, plumbing, and lighting for new and retro-fit applications are contrasted with traditional systems, and selections of architectural design and landscape elements which support more sustainable systems are covered. Students estimate heating, cooling, ventilating, lighting, electrical, elevator, sewage and pure water loads and gain some understanding of how handling these loads affects the space and layout of buildings and what sort of collaboration with engineers is to be expected. The principles of operation and code standards for the various environmental control systems are explained, together with relative costs and expected maintenance requirements. Issues of energy source availability, safety, pollution, storage and delivery are discussed from a local and global perspective. Field trips to local “green” buildings demonstrate the use of currently available lower energy systems.

M.ARCH TRACK I AND TRACK II REQUIRED PROFESSIONAL COURSES

EDAD 605 COMMUNITY BUILD STUDIO

This studio is a design/build intensive focusing on a design problem with a community partner to provide the opportunity for students to design and construct a project as a full time experience in a single summer. This includes developing empathy for and sensitivity to the requirements of a community client through interviews, site observation, and measuring, programming, and presentation, while being exposed to specifications, budgeting, cost-control strategies, scheduling of a project from design through construction, and developing construction documents. The studio is set up as a collaborative experience in which the students direct a design and construction process with engineers, landscape architects, and other professionals in the community. Students design systems of assembly in wood, metal, and concrete, in a context that encourages a thoughtful approach to sustainable materials selection and reuse. As the work progresses through construction, students develop design and artisanry skills and are exposed to community building and leadership, with the hands-on experience of engineering and building systems.

EDAD 702 ARCHITECTURAL DESIGN VII

Design studio with a complex, multi-storied program in an urban site, in which students integrate a site analysis with an historical context, public space and select structural systems and enclosure, and the development of sustainable systems integration relevant for planning neighborhoods and communities in the Boston area. Students analyze urban and historical site and building precedents, select and design steel and concrete frame systems that support their project concept, site and proposed uses, develop typical wall sections illustrating an understanding of fire separation assemblies, sustainable building envelope systems, and hone graphic design skills in their presentations.

EDAD 577 STRUCTURES OVERVIEW

Designed for students who require a comprehensive overview of current structural methods in the United States. Covers structural examples and calculations for reinforced concrete, steel, wood frame and cross laminated timber. Students accustomed to a masonry building tradition are introduced to the possibilities of wood and related calculation methods. Computations are presented in typical applied context.

EDAD 711 MAKING CITIES WORK

What design decisions lead to a more sustainable future and how are those decisions made? The space between buildings—a city's parks, urban gardens and greenways, and infrastructures of water, transportation, and communication are integral to the making of the urban places we inhabit. In this course we examine how the architecture and design of cities is dependent on the underlying urban fabric by looking carefully at the forces that shape great urban spaces - the designers, the political players and the everyday urban dwellers. Contemporary projects ranging from The High Line in Manhattan to Germany's Landschaftspark Duisburg-Nord are used as case-studies in conjunction with study of Boston's historical and contemporary urban landscape. Students' final projects for the course involve direct observation, analysis, and documentation of selected sites in Boston. Through the case studies and investigations in Boston, we critically assess the social, cultural, environmental, and economic factors that influence built and landscape fabric of cities and what the confluence of those underpinnings means for the future of the places where we live.

EDAD 720 INTEGRATED SYSTEMS

Students explore strategies for enclosing buildings and examine how to integrate the building enclosure with its surrounding environment including framing, climate modification, and building services systems. Using their design from a prior studio as the basis for developing building enclosure systems, students will research and explore multiple building service/ environmental systems that complement their design in a sustainable context. This exploration includes how to evaluate, select, and coordinate the structural framing and commonly used building service and environmental systems in association with the building envelope and its details. Students use their projects to gain knowledge of these systems as well as discover how to coordinate the interface between dissimilar enclosure systems.

EDAD 752 ARCHITECTURAL DESIGN VIII

Students investigate multiple aspects of various building systems and regulatory requirement integration in the design process including structure, enclosure, environmental systems, codes, and material choices.

EDAD 708 THESIS I

Completing a successful independent thesis is the culmination of the Master of Architecture degree at MassArt. In Thesis I students select an issue in the field of architectural design as the basis for their thesis project. The first half of the course is focused on developing well-structured research broadly based on the student's topics of interest and related areas that influence the program, approach to the site, technologies and other aspects relevant to the design. The goal is to develop the thesis proposal with a finalized site and a research agenda. In the second half of the course, the students zero in on their sharpened thesis topic, and work through the second round of more in-depth investigation and analysis of their earlier work, adding new components including interviewing experts, understanding current and historical precedents, and additional areas that may also support the social, cultural and philosophical issues for the design. By the end of the course, students have completed the research and analysis and have begun to test their concepts through preliminary design studies.

EDAD 805 PROFESSIONAL PRACTICE II

Professional Practice II is a continuation of Professional Practice I (EDAD-535) and covers topics essential to the business of architecture. Among the topics addressed are basic business concepts for the successful operation of an architectural firm and office, project finance including accounting fundamentals, forms of business organization, employer-employee relationships, business taxation, project management, and managing risk and professional liability. This material is then viewed through the lens of the architect's fiduciary responsibilities through design, on the jobsite, and in practice, and in relation to the issues of professional ethics and social and environmental responsibility.

EDAD 808 THESIS II

Thesis II is the second semester of the studio design work leading to the completion and final presentation of the thesis project. Based upon research development in the prior semester, students complete the design project, and convincingly argue their architectural question at a final review to the Thesis Committee including peers and professionals in the field of architecture, using analytical and architectural design tools in order to make a meaningful contribution to the architectural discipline.

ELECTIVE COURSES

The M.Arch Track I students take 5 professional electives and Track II students take 3, with 1 elective in each program specified as an elective on making.

Professional electives are taken in architecture, and with permission of the M.Arch Program Coordinator, in subjects offered by other departments and by the graduate program. Electives are graduate courses, or courses with mixed BFA and graduate enrollment offered by departments across the college.

In addition to regularly scheduled courses, students may pursue independent study with faculty or approved designers and professionals. The final summer term provides time for an optional internship, and one may be applied toward a student's program. Cross-registration is available at Massachusetts Institute of Technology and University of Massachusetts, Boston.

Selection of Architecture Department Elective Courses

EDAD 660 ARCHITECTURE INDEPENDENT STUDY

EDAD 698 ARCHITECTURE INTERNSHIP

EDAD 505 THEORY IN PRACTICE

EDAD 509 CITY: INTERVIEWS & INNOVATORS

EDAD 518 REVIT I & II

EDAD 533 MASSMAKER STUDIO

EDAD 534 ARCHITECTURAL COMMUNICATION

EDAD 545 ANIMALS, ARCHITECTS & ATTITUDE

EDAD 560 FURNITURE FABRICATION FOR A SUSTAINABLE FUTURE

EDAD 745 REAL ESTATE DEVELOPMENT