



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 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 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 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

COMMUNITY BUILD WAS FORMERLY OFFERED AS EDAD 605 FOR 12 CREDITS

EDAD 608 COMMUNITY BUILD I - DESIGN

The Community Build studio engages Architecture, Building, and Community in the essential process to bring relevant ideas into reality (the A, B, C's). Meeting the goals of real clients and users, understanding the constraints of structure and material, and constructing details with a methodology toward negotiating the delivery and scheduling of work. This design and build course provides a perspective on the process of making, the craftsmanship in using materials, and a clear understanding of the objects, tools, and working processes that are represented in dimensional architectural drawings.

EDAD 609 COMMUNITY BUILD II - BUILD

Part II engages the students who have completed Part I "DESIGN", and is the onsite portion of this two-part course. This part engages students in the construction for the project(s), bringing them to reality. Key to this component of the Community Build experience is the opportunity for each student to express leadership utilizing the collective resources, knowledge and skills of the class. Work items include: budgeting, line item take offs, purchasing materials; negotiating delivery, scheduling the work and building the project from foundation to completion.

Communication continues as critical to success with peers in the class, the faculty member(s) acting as a mentor in the construction process, teaching assistants, who support the students in the work, and the client. By working together, students gain confidence in the collective process, commitment to the whole, while contributing to the building of the project. We deal with design issues as they arise during construction in a practical way that includes building techniques and detailing, addressing motivation, self-reliance, teamwork, and service to others.

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 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 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 Director 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 (MIT).

Selection of Architecture Department Elective Courses

EDAD 660 ARCHITECTURE INDEPENDENT STUDY

EDAD 698 ARCHITECTURE INTERNSHIP

EDAD 505 THEORY IN PRACTICE (TOPIC CHANGES EACH YEAR)

EDAD 506 DIGITAL ALCHEMY

EDAD 509 CITY: INTERVIEWS & INNOVATORS

EDAD 533 MASSMAKER STUDIO

EDAD 534 ARCHITECTURAL COMMUNICATION