Curriculum for Master of Architecture (M. Arch)

MASTER OF ARCHITECTURE

PROGRAM OVERVIEW

The program, offering both specialized and general studies options, is a strategic response to the multifaceted needs and aspirations of architecture students and the evolving dynamics of the profession. Both options are designed to equip graduates with advanced knowledge and research skills in architecture. In the specialized option, the candidates have great flexibility to select the area of their own choice for in-depth studies. This option strengthens the graduates in their chosen architectural careers, while also contributing to the advancement of the architectural discipline in Pakistan and on the global stage. The M. Arch (General) option covers some important areas but not any specific or specialized area. It provides a broad-based understanding of the field and its connections to other disciplines, enhancing the versatility and adaptability of an evolving professional. In both options, the program structure includes a combination of four core courses and four elective courses with a thesis. In M. Arch (specialized), the core courses, elective courses, and thesis are aligned with the specialization area. In the general option of M. Arch, the core courses are diversified, and elective courses contribute to these areas. In this option, the thesis must address one of the core areas. Both options are designed for 30 credit hours and shall be considered equivalent for all practical purposes. The architecture schools can start multiple specialized programs subject to the availability of relevant faculty and approval of the HEC in each case. One NOC from HEC will be considered as the requirement to start the M. Arch program.

M. ARCH (SPECIALIZATION) RESEARCH TRACK

M. Arch (specialized) is an option where graduates have an opportunity to excel in a particular area of architecture. In this option, four streams are initially allowed and are in no way restricted. The schools may consider other options considering the availability of faculty and other resources. Students will select a specialized area from the options offered by the department. The total credit hours requirement is 30. The minimum and maximum duration for degree completion is 18 and 48 months. The research tracks/streams are:

1. Architectural Heritage and Conservation (AHC)
2. Responsive Architecture (RA)
3. Energy Efficient Architecture (EEA)
4. Building Technology (BT)

M. ARCH SPECIALIZATION STREAMS AND CORE COURSES

Stream I (30 Credits) Architectural Heritage and Conservation (AHC)	Stream II (30 Credits) Responsive Architecture (RA)	Stream III (30 Credits) Energy Efficient Architecture (EEA)	Stream IV (30 Credits) Building Technology (BT)
Core Courses (12 Credits)	Core Courses (12 Credits)	Core Courses (12 Credits)	Core Courses (12 Credits)
1. Architectural Heritage and Conservation	1. Climate Responsive Architecture	1. Building Performance & Monitoring Techniques	1. Building Information Modeling (BIM
2. Conservation Theory, History & Technology	2. Human Centric Design	2. Sustainable Building Design	2. Advanced Technology in Architecture
3. Heritage Legislation and Policies	3. Responsive Design & Built Environment	3. Building and Urban Energy Modeling	3.Building Systems Integration
4. Architectural Research Methods	4. Architectural Research Methods	4. Architectural Research Methods	4. Architectural Research Methods

COURSE REQUIREMENTS AND CREDIT HOURS

- Four (04) core courses of 12 credits related to area of specialization.
- Four (04) elective courses of 12 credits from the elective list of respective specialization.
- A thesis of six (06) credit hours aligned with the area of specialization.

CORE COURSES (12 CREDITS)

- Students are required to take four (04) core courses offered by the department.
- The department may add a maximum of four (04) more core courses to the list given above according to the specialized area of the faculty.

ELECTIVE COURSES (12 CREDITS)

- Four (04) elective courses from the list of the respective specialization. Students can choose four (04) elective courses from a range of elective courses offered by the department.
- The list of the elective courses for each specialization is given below. The list of elective courses may be enhanced according to the availability of faculty.
- Elective courses must be offered according to the expertise available in the department, but these must synchronize with the core courses.

STREAM 1: ARCHITECTURAL HERITAGE AND CONSERVATION (AHC)

ELECTIVE COURSES

1. Conservation of Urban Built Heritage
2. Advanced Conservation Technology
3. Conservation Materials and Techniques
4. Art and Architecture of a Core City in Pakistan
5. Religious Architecture of a Historical Period in Pakistan
6. History and Architecture of Cantonments in Pakistan
7. Heritage of Forts in Pakistan
8. History and Development of Urban Form
9. Conservation and Adaptive Reuse
10. Colonial Architectural Heritage in Pakistan
11. Building Technology and Development during British India
12. Modern Technologies and Conservation

STREAM 2: RESPONSIVE ARCHITECTURE (RA)

ELECTIVE COURSES

1. Disaster Resilience & Risk Assessment Strategies
2. Dynamic Facades Design in a Specific Climate Zone
3. Smart Materials and Responsive Structures
4. Human Centred Design for Responsive Spaces
5. Responsive Urban Planning and Sustainable Cities
6. Responsive Interior Architecture
7. Daylighting and Natural Ventilation Strategies
8. Responsive Landscape Architecture
9. Acoustic Design for Responsive Environments
10. Urban Resilience and Climate Adaptation
11. Responsive Design for Cultural and Artistic Spaces
12. Responsive Design for Adaptive Reuses Projects
13. Responsive Design and Biophilic Architecture
14. Responsive Architecture Case Studies and Best Practices
15. Responsive Healthcare Facility Design

STREAM 3: ENERGY EFFICIENT ARCHITECTURE (EEA)

ELECTIVE COURSES

1. Net-Zero Energy Building Design
2. Advanced Building Envelope Technologies
3. Energy Modelling and Simulation
4. Daylighting and Electric Lighting Design
5. Building Commissioning for Energy Efficiency
6. Advanced Thermal Comfort and Indoor Air Quality

7. Building Energy Auditing and Retrofits
8. Renewable Energy Integration in Buildings
9. Sustainable Building Design
10. Sustainable Materials and Life Cycle Assessment
11. Building Resilience and Climate Adaptation
12. Advanced Building Controls and Automation
13. Sustainable Building Economics and Finance
14. High-Performance Energy Efficient Buildings
15. Sustainable Urban Planning and High-Performance Communities
16. Low-Income Housing and Energy Efficient Solutions
17. Building Energy Management Systems
18. Circular Economy and Sustainability

STREAM 4: BUILDING TECHNOLOGY (BT)

ELECTIVE COURSES

1. Smart Building Systems
2. Building Information Modeling (BIM) and its applications
3. Building Automation & Control Systems
4. Smart Materials
5. Accessibility Technologies
6. Virtual Reality and Augmented Reality
7. Advanced Construction Materials and Techniques
8. Sustainable Building Technologies
9. Digital Tools for Construction & Project Management
10. Construction Safety and Risk Management
11. Green Building Certifications and Sustainability
12. Innovations in Structural Engineering
13. Fire Protection and Life Safety Systems
14. Modular and Prefabricated Construction
15. Advanced Environmental Technologies
16. Building Maintenance and Facility Management
17. Building Systems Performance Analysis
18. Precast and Pre-Stressed Concrete Products for building
19. Green Materials and Construction

M. ARCH (GENERAL RESEARCH TRACK)

M. Arch (General) provides a broad understanding of various emerging areas in architecture and focuses on one of the areas in the research thesis. M. Arch (General), research track is designed for 30-40 credit hours with four core and four elective courses. The department must ensure that core courses are selected according to the available expertise. The elective courses are required to strengthen the core courses. After the completion of core and elective courses students are required to complete a thesis

aligned with one of the core areas. Architecture Schools may follow the core and elective courses given in the sections below or they may include other courses considering the expertise of available faculty while seeking NOC from HEC.

COURSE REQUIREMENTS

- Four (04) core courses of 12 credits.
- Four (04) elective courses of 12 credits.
- A thesis of six (06) credits.

CORE COURSES

1. Architectural Heritage and Conservation
2. Responsive Architecture
3. Research Methods
4. Energy Efficient Architecture

ELECTIVE COURSES

1. Heritage Legislation and Policies
2. Conservation Theory, History and Technology
3. Climate Responsive Architecture
4. Human Centric Design
5. Responsive Design & Built Environment
6. Building Performance Simulation and Monitoring Techniques
7. Sustainable Building, Codes and Certifications
8. Building and Urban Energy Modelling
9. Building Information Modelling
10. Advanced Technology in Architecture

SCHEME OF STUDIES FOR M. ARCH (GENERAL) AND M. ARCH (SPECIALIZATION)

Credit Hours	30-40
Four Core Courses	12 Credits
Four Elective Courses	12 Credits
Thesis	6 Credits
Program Duration	3 Semester (1.5 years), Maximum up to 4 years
Semester Duration	16-18 weeks (1-2 weeks for examination)
Course Load	As per HEC Semester Guidelines
Summer Semester Credit Hours	As per HEC Semester Guidelines
Summer Duration	8 – 10 weeks
Attendance	75%
Minimum GPA for the award of Degree	A minimum 2.0 CGPA on a scale of 4.0 is required for the award of M. Arch degree.

DEGREE TITLE

a. For M. Arch (Specialization): M. Arch (Complete name of the specialization)
b. For M. Arch (General): M. Arch

ADMISSION REQUIREMENTS

- A minimum 2.0 CGPA in B. Arch or equivalent qualification.
- Research proposal outlining the intended area of research. (If required by the institute)
- Clear the department admission test and interview with 60 and 50 percentage marks respectively.

A SUGGESTIVE SEMESTER TEMPLATE FOR M. ARCH (GENERAL) AND M. ARCH (SPECIALIZATION)

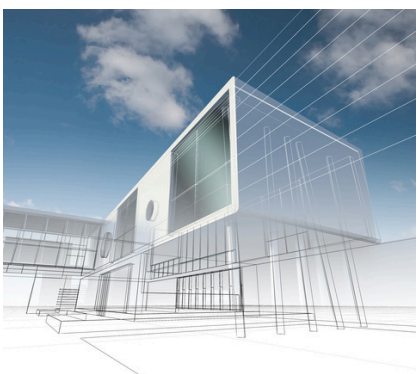
Semester 1		
Course Code	Core Courses M. Arch (specialization) (Architectural Heritage and Conservation)	Credits
As per Institution Format	Architectural Heritage and Conservation	03 (03, 0) 03
	Research Methods for Heritage Conservation	03 (03, 0) 03
	Heritage Legislation and Policies	03 (03, 0) 03
	Conservation Theory, History, and Technology	03 (03, 0) 03
Total Credit Hours		12

Semester 1		
Course Code	Core Courses M. Arch (General)	Credits
As per Institution Format	Architectural Heritage and Conservation	03 (03, 0) 03
	Responsive Architecture	03 (03, 0) 03
	Research Methods	03 (03, 0) 03
	Energy Efficient Architecture	03 (03, 0) 03
Total Credit Hours		12

Semester 2		
Course Code	Elective Courses M. Arch (General) or M. Arch (Specialization)	Credits
As per Institution Format	From elective list	03 (03, 0) 03
	From elective list	03 (03, 0) 03
	From elective list	03 (03, 0) 03
	From elective list	03 (03, 0) 03
Total Credit Hours		12

Semester 3		
Course Code	Thesis M. Arch or M. Arch (Specialization)	Credits
As per Institution Format	Thesis as per approval of the competent authority	06 (00, 12) 12
Total Credit Hours		06

Semester 4		
Course Code	Thesis M. Arch or M. Arch (Specialization)	Credits
As per Institution Format	Thesis (Continued)	06 (00, 12) 12
Total Credit Hours		06



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