

**SYLLABUS FOR POSTGRADUATE PROGRAMS
LEADING TO THE AWARD OF MASTERS AND
POST GRADUATE DIPLOMA DEGREE UNDER
THE FACULTY OF ARCHITECTURE AND PLANNING**



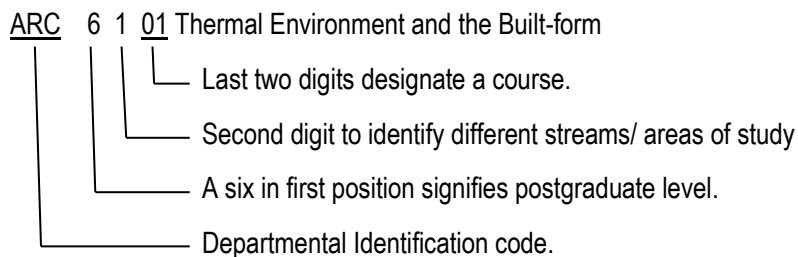
**FACULTY OF ARCHITECTURE AND PLANNING
AHSANULLAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
141-142 Love Road, Tejgaon Industrial Area, Dhaka-1208**

COURSE CONTENTS:

These courses are designed for postgraduate programs leading to the award of postgraduate degrees and diplomas including Masters Degree. Each course is designated by a three letter word identifying the department which offers it following by a four digit number with the following criteria:

- a. The first will correspond to the postgraduate level.
- b. The second digit will be used to identify different streams/ areas of study within the department such as Energy and Environment Stream, Research Methodology and Scientific Study, Design Studio etc.
- c. The last two digits will designate a course.

The course designation system is illustrated by the following example.



DIFFERENT STREAMS AND SUBJECT CHOICE REQUIREMENTS:

There will be four main streams namely;

1. Energy and Environment Stream,
2. Urban Design and Development Stream
3. Housing and Human Settlement Stream
4. Special Topics (e.g. Health Facilities Planning and Design, Architectural Conservation and Restoration, Inclusive design, Construction Management etc.)

A student has to take three core subjects from his/ her selected stream and two optional subjects from any other stream/ streams. Research methodology and Scientific Writing is a compulsory course for all the students of Masters Degree and PG. Dip which is to be completed by the 1st year including individual research synopsis.

The Streams and offered courses are briefly described below:

ENERGY AND ENVIRONMENT STREAM

ARC 6101: Thermal Environment and the Built-form

3.00 Credits

Thermal environment in the different climatic zones; climatic descriptors; their characteristics and assessment; their relative significance in relation to the thermal environment.

Thermal comfort in the built-form; its determinants; relative significance of the determinants and their design implications.

Assessing a given climate from thermal comfort viewpoint, formulating strategies for thermal design and developing the design details.

Designing buildings and built-forms in the warm humid tropics.

Designing buildings and built-forms in the hot-dry tropics.

Designing buildings and built-forms in cold climates.

ARC 6102: Acoustic Environment and the Built-form

3.00 Credits

Acoustic environment in buildings and built-forms; descriptors of the acoustic environment and their assessment; characteristic of the acoustic descriptors and their relative significance in relation to the acoustic environment.

Design criteria for the acoustic environment; NC-Curves and their use; formulating strategies for acoustic design and developing the design details.

Designing auditoriums, recording studios and television studios.

Noise and noise control in buildings and built forms.

ARC 6103: Luminous Environment and the Built-form

3.00 Credits

Luminous environment in buildings- natural and artificial; their descriptors; significance of the luminous environment in built-form design.

The relationships between light and space, light and surfaces and light and objects; Interactions between light and working area; interactions between light and color.

Criteria for lighting design; lighting design in schools, hospitals, offices and factories.

URBAN DESIGN AND DEVELOPMENT STREAM

ARC 6201: Urban Design Principles and Techniques

3.00 Credits

Principles of urban design; Context and theoretical basis of urban design; Post modernism and urban design theory, methods and techniques for inquiry. Understanding the context: Domain, elements and criterion of urban design; Urban structure and complexity of relationships: Space, scale, mass, activity, circulation and engagement levels; Aesthetics, ideology and urban form; History, memory and social logic of space creation. Connectivity, continuity, identity and conservation; Environment –behavior study, Structure and analogy – study of different models; the properties of space; concept of flexibility and adaptability; typological and morphological elements of the concepts of urban space.

ARC 6202: Advanced Urban Design

3.00 Credits

Analytical, urban form and procedural theories. Various models, nature of inquiry and debate in urban design. The social production of built-form; production of value, space and form – theory and practice; ideology, politics

and urban design; spatial manifestation of societal norms / values in various societies. Urban symbolic: Semiotics, Geomancy, Philosophy, aesthetics and memory associated with urban design; Mode of production and urban form. The technology of form; impact of industrialization, transportation, information and communication technology in the urban form and morphology; Context and sustainability issues in urban design.

ARC 6203: Urban Systems Analysis and Design

3.00 Credits

Urban systems and sub-systems (Economic, Political, Ideological) in the production of urban space. Analysis of the activity systems and the resultant built form. System of Practices: Development of business, commerce and industry and their effects on urban pattern. Analysis and understanding of the city as a social system. Inter-relationship of urban planning and design and the political setup, urban planning and design institutions and coordination of their activities, project programming, implementation, management etc. Urban locational decisions and transportation; understanding of infrastructure system and sub-systems. Principles and practices of urban controls, proscriptive and prescriptive modes, land value and urban form, land use guidance tools and techniques. Developmental planning, management, controls and legal framework. Implementation and delivery.

ARC 6204: Urban Development, Preservation and Renewal

3.00 Credits

Context, Meaning, nature and scope of urban development, conservation and renewal. Design principles and considerations of Urban brown and grey field adaptations; Decay and densification: Analysis of growing population, uncontrolled urbanization, pollution, mono-functional areas and abandoned. Mismatch of land use and traffic and transpiration. System restoration, heritage conservation and integration, housing, transport, energy, environment, health and social inclusion; A holistic approach based on improving beneficiaries' competences; Sustainable interventions in terms of design, communication, building and management of the contemporary city. Complexity of relationships and resource management.

ARC 6205: Spatial Analysis in Urban Design

3.00 Credits

Tools and methods of spatial analysis; urban and regional planning, urban design and geographical data collection and processing; basic vocabulary for examining physical urban form; place making theories and urban space / place analysis in two and three dimension; application of multidimensional and multilayered analytic tools. (Theory of Space Syntax and a range of techniques of urban mapping as a creative tool for urban design; Application of spatial analysis in real life projects and understanding the role of mapping in urban design.)

HOUSING AND HUMAN SETTLEMENT STREAM

ARC 6301: Housing Theories and Housing Policies

3.00 Credits

Housing theory: Overview of theoretical paradigms, Housing Policy: National and International levels, Process of Policy formulation, Mechanism of Implementation, Functioning and management of the housing sector: meaning and relevance of the housing sector and the sector's economic linkages, Housing Profile, Housing Need and its Assessment, Housing Strategies, Formulation of Standards, Threshold Analysis.

ARC 6302: Housing Finance

3.00 Credits

Finance for Housing; Analysis of aspects like Income from and Expenditure for Housing, Affordability of the users; Needs for Housing, Demand and Supply of Housing; Economics of Housing involving cost, benefit and return, Scope and limitations of Investment in Housing. Policies for Housing for the people, Public finance for Housing, Financial Institutions and their contributions in Housing; Housing project of Grameen Bank; Investment and finance in Housing; Financial Parameters of Housing; Savings and investment in housing; Improving Private-Public Finance and Affordability condition in Housing.

ARC 6303: Multi-ownership Housing

3.00 Credits

Study of the Planning and Design of multi-ownership housing; Economics in housing project; Evolution of multi ownership housing; Apartment housing, Construction and maintenance cost of housing and affordability; Investment in housing, Modes of repayment and rate of interest; Sources of housing finance; Financing cost; Savings; Non-conventional means of housing finance and construction; Impact of Land policy on housing; Land Value; Role played by the public and private institutions in providing suitable land for housing. Role of Housing co-operatives in supplying built flats/ apartment. Developer-built housing versus owner-built housing - comparison of cost and quality. Ownership pattern and the legal issues in housing. Post-occupancy evaluation (POE) in housing; Building Maintenance and Repair (BMR) : The assessment of user satisfaction level in developer and cooperative built housing.

ARC 6304: Informal Sector Housing

3.00 Credits

Urbanization characteristic, Rural-urban and intra urban migration; Urban housing question in the informal sector, (slum, squatters, etc.); Study of level of poverty and urban housing. The socioeconomic impact/ implication of poverty in the context of Bangladesh. Various Poverty alleviation policies and their evaluations; Income distribution pattern of the people in need of housing. The household expenditure and affordability of lower income population. Urban growth and limitations in meeting the housing needs of the lower population. Policies for providing urban land for housing development. Activities of the urban development institutions in housing.

ARC 6305: Human Settlement and Development Issues

3.00 Credits

Human settlement in the global perspective; Demographic issues and human settlement issues in the third world countries; Process of urbanization and rural to urban migration and the consequences.

Social structure and its impact on housing; urban poor and their housing; urban squatters; Role of housing in poverty alleviation.

Housing and Settlement policies by the government; Government institutions for housing development and control; Role and responsibilities of the private sector in housing development.

Rural development issues.

ARC 6306: Human Settlement Planning

3.00 Credits

Background of human settlement development planning, Challenges in settlement Development planning, Urban Microclimate and outdoor thermal comfort, Climate conscious urban design, planning safe cities, Disaster risk management and reconstruction, Settlement typologies, Urban agriculture in Human Settlement Development, Integrated Human Settlement Development planning

ARC 6307: Transformation of Rural Housing

3.00 Credits

Rural housing as a field of study; Rural settlement patterns of Bangladesh; Spatial settings of the rural homestead; Factors effecting rural housing (environmental factors, socio-economic factors, diversities for the differences of land characteristics, climate and available construction materials, diversities for the differences of cultural factors, diversities for the differences of religious factors).

Poverty in global context and rural poverty in Bangladesh; rural non-farm economy in Bangladesh; livelihood resources of rural households; permanent and floating households.

Rural housing transformation in Bangladesh; Role of NGOs over the rural housing transformation in Bangladesh; Factors affecting rural housing transformation in Bangladesh (innovation in construction, home-based enterprises, impact of natural hazards, changing livelihood).

SPECIAL TOPICS

HEALTH FACILITIES PLANNING AND DESIGN

ARC 6411: Health Facility Planning and Design -I

3.00 Credits

Historical overview of health facilities planning and design in developed and developing countries including Bangladesh.

Area-wide planning, Regionalization, Health Resources, Co-ordination between facilities and Referral system. Strategic planning: Link between health policy, service model and facility. Multi-professional approach in planning and planning procedures.

Analysis of background information related to health care and facilities in Bangladesh.

Health care planning process and health care delivery system in Bangladesh.

Contemporary theory and policies in health care and facility planning.

Study of different types of health facilities in the health care delivery system.

Health care financing.

Planning and design strategies: e.g. Growth and change issues, Planning for safety and risk management, Therapeutic environment and infection control. Environmental issues.

Assignment on real life situation.

ARC 6412: Health Facility Planning and Design -II

3.00 Credits

Project briefing concepts, tools and techniques: need identification, organizational policies (whole hospital and departmental), user's requirement, work flow, functional suitability, space utilization and patient experience. Review the need of different care group and socio-cultural responses.

Master planning, forces influencing selection of forms. Standards and guidelines.

Building in-use evaluation/ post-occupancy evaluation and research methods, evidence based design. An understanding of the value of user and or public input into the planning process.

Detail study of different parts/departments of health facilities in the health care delivery system.

Sustainable development in health facility design- lessons learnt from case studies. Building performance study. The evidence on the contribution of the physical environment to healing through design, art and architecture.

Financial planning, selection of building and finish materials.

Assignment on real life situation

ARCHITECTURAL CONSERVATION AND RESTORATION

ARC 6421: Architectural Heritage Conservation

3.00 Credits

Introduction to Architectural Heritage identification and documentation, Valuation system; Skills and learning outcomes; Approach to historical heritage and conservation learning; Architectural and historic evaluation of buildings: Life and conservation of architecture; the issue of compatibility between activities. History of art and architecture: The cultural development, Architectural form and space, Analysis of historic architecture; evaluating architecture from the classical to the contemporary age. Construction materials and techniques: Architecture and regional tradition; Construction materials for conservation, Construction techniques for conservation. Introducing new services in old buildings; Conservation management of historic buildings.

ARC 6422: Diagnosis for Heritage Conservation

3.00 Credits

Introduction to construction pathology; Documentation and Dimension data; Quality clinical data; Historical data; the critical survey with respect to context. Visual descriptions and representation; Scientific survey. Nature of construction and damage. Diagnosis of building problems from foundation to roof slab; Structural/ electrical/ mechanical/ plumbing system failures and repairs; Crack analysis and structural pathologies, cracks, material disintegration and deformation causes and prevention; dampness and termites diagnosis and treatment; Noise and Heat insulation; Analysis and representation of surface pathologies: Identification of surface pathology; Use of standard recommendation; Pathology representation with BIM. Diagnostic Checklist, diagnosis and retrofitting.

ARC 6423: Conservation and Restoration Practice

3.00 Credits

Conservation technique: Detailed documentation, Product chemistry and physical compatibility; Restoration materials and products; Consolidation methods for historic walls; Conservation of steel and concrete structures; Conservation of wood structure; Building repair system and procedure: Ground and foundation preparation or repair procedure; General structure actions; Action on building enclosure. Restoration Project: Project management and work organization; Architectural type and project; the restoration of brick and clay architecture; Restoration and transformation; General problems and practice in Bangladesh.

ARC 6424: Conservation Tools, Ethics and Conventions

3.00 Credits

Introduction to available tools, codes and Conventions – local and international. Building maintenance: Legal framework - local and international; Different kind of maintenance. BIM system in the restoration of monuments: Recording and surveying in restoration practice; Architectural and restoration documentation. Conservation and valorisation of Cultural Heritage: Theory and practice of legislative processes; Methods of managing and organizing design projects; Historical, Theoretical and methodological issues related to Cultural heritage.

ARC 6425: Conservation and Management of Historic Buildings

3.00 Credits

Introduction to policy, planning and tools for Conservation and Management of Historic Buildings. Institutional, technical, legal and financial frame work for architectural and area conservation. Valuation and ethical aspects. Conservation laws and practices; Governance, public participation and heritage movements; Documentation, risk assessment, repair and maintenance. Local and international case study on architectural and area conservation and compliance to standards and practices.

ARC 6431: Inclusive Design in the Built Environment

3.00 Credits

Inclusive design is currently used in the UK and many areas of Europe to describe "environments that promote human functioning" (Preiser and Ostroff, 2001). The course has a multi-disciplinary focus linking Architecture and the built environment design to health and wellbeing. It welcomes learners with all types of interest in Accessibility and Inclusive Design. Overall aim of the course is to develop a deep understanding of the worldwide ageing population scenario and related disability issues and expected design standards (inclusive design) in the built environment. The course is set within the context of international guidance and best practice and examines 'real world' issues using people-focused techniques. This course will enable students to undertake projects in their own area of interest / expertise, as well as widening their understanding of the needs of others, whether they clients, users, planners, designers or health professionals.

The key issues of the course are: Ageing population and Disability; Accessibility and inclusive design; Analysing and Responding to Functional Requirements; The Design Process, Design Theories, & Economic and Legal Influences; Disability Discrimination Act and the Building regulations; Analysing and responding to site and contextual influences; Using Technology to Innovate in Design; Aesthetics, Socio cultural factors and Appraisal

techniques; Inclusive design and international good practice; Inclusive design and health and wellbeing; Inclusive design in the context of Bangladesh.

ARC 6441: Architecture for Climate Change and Disaster

3.00 Credits

The overall aim of the course is to examine the role of Architecture and Human settlements in response to climate change, climate variability, disaster and extreme weather events. More specifically, it aims to offer an initial overview and comparison of various Architectural approaches under varying climate conditions. This course firstly introduces the key concepts and related effects of climate change and disaster. The interrelated key issues of the influence of Modern Urban Architecture on micro-climate change and urban heat Island; Emergency shelter for disaster resilience and inclusive design; Post disaster reconstruction for both urban and rural areas; Role of green architecture to reduce the impact of extreme weather events; Coping strategies based on the perception of vulnerable groups; Role of landscape architecture to reducing negative impact of climate change will then be explored in detail.

Students are encouraged to develop their own theoretical understanding through individual reading and private study as well as through group tutorial and workshop interaction.

ARC 6451: Construction Project Management

3.00 Credits

Introduction to building construction industry; Construction project planning; bids preparation, evaluation and contractors selection; construction site layout; materials handling operations; personnel and materials management; safety and security issues; architect's role on the construction site.

ARC 6501: Research Methodology and Scientific Writing

3.00 Credit

Science and Research; Formulating research problems, objectives and questions; Hypotheses and assumptions; Selecting research methods, finding and applicability of method; The design research proposal, modeling research proposal and social or organizational research proposal; Finding and evaluating information; Evaluation and analysis of scientific papers; Citations and referencing; Critical reading and abstracting; Structured technical writing and argumentation; Presentation techniques, peer review, publication and ethical consideration of research.

ARC 6601: Design Studio for M. Arch.

18.00 Credits

On Successful completion of the chosen theoretical subjects, each student of the post graduate program will chose a significant architectural design problem for in depth study. Each student will discuss his/her chosen architectural design problem in the design studio trying to understand the major determinants of the design and their architectural implications. Each student will have a critical look at the design decisions-----analyzing the merits and demerits of the particular design decisions and proposing alternatives, if any. These sessions will involve both oral and graphic presentations involving sketches and finished drawings. The final presentation under the course will be in the form of a dissertation.

Thus Design Studio for M.Arch will involve critical study and analysis of an architectural design problem and not undertaking a complete design exercise involving a set of given project requirements.

ARC 6701: Project/Dissertation/Report for P.G.Dip.Arc.

6.00 Credit

The course involves undertaking study of a well known architectural project and producing a report using field investigations and /or literature survey. The report will be the end product of visual presentations and discussions in the studio.