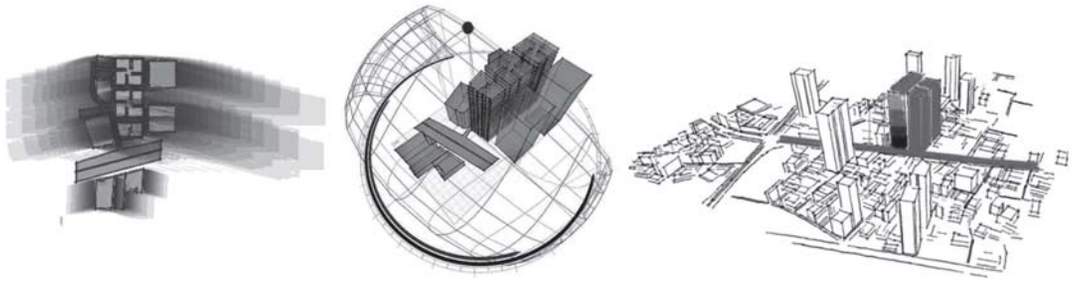
Human responses to the luminous environment. External vision factors; brightness, contrast/glare, colour, size, time etc. Day-lighting and the determinants of the daylight environment; Day-lighting measurement and calculations; Daylight design criteria under differing climatic conditions. Artificial lighting and the determinants of artificial lighting environment; measurements and calculations; Artificial lighting design criteria, permanent supplementary artificial lighting installation design; Creative lighting for different environments.

ARCH 6103
Luminous Environment and Built-Form
3.00 Credits. 5 Hrs/Wk

Introduction to bioclimatic design; designing with the natural elements and without the need for artificial environmental systems. The built-form and the ecosystem, interactions. Historical references to bioclimatic design: Shelter of the early man, shelter in different climates, extreme climates, in the sub continent. Contemporary approaches and innovations: rethinking energy, renewable energy, solar, wind, earth shelters, photo voltaic etc. The basis for bioclimatic design: Thermal Comfort Concepts. Questioning the comfort zone with reference to the tropics. Towards establishing a comfort zone for the tropics. Experimental methods and statistical analysis. Concepts in bioclimatic design. Building environment interactions. Thermal balance and heat flow. Thermal quantities and properties of building materials. Calculations for heat gain and losses in buildings. Passive cooling: Principles, applications and examples. Key concepts of passive cooling. Options for passive cooling and design considerations. Design for passive cooling, means and techniques. Examples with reference to Bangladesh. Environmental analysis of buildings. Environmental accounting. Monitoring of buildings (experimental). Assessments (computer modeling).

ARCH 6104
Bioclimatic Design
3.00 Credits. 5 Hrs/Wk



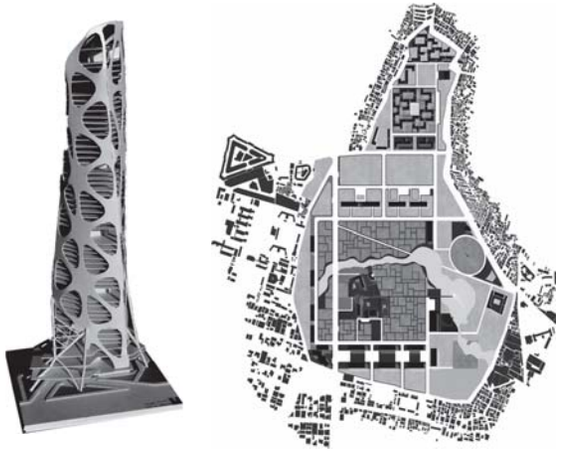
ARCH 6105
Environmental Design in Tropical Cities
3.00 Credits. 5 Hrs/Wk

Influence of buildings and other urban artefacts on ambient climate, climate modification having energy implications. Interaction of urban form and space with the processes of urban environment. Outdoor urban environment in the context of tropical areas with special reference to cities in Bangladesh. Conventional approaches to urban design and its impact on the environment and non-renewable energy resources. Concepts of sustainability, green design and energy conscious design. Thermal comfort outdoors; its perception and use as urban design criteria. Effects of urban from and geometry, built density and land use, open spaces and streets and urban greens on micro climates. Tools and techniques of urban environmental research, computer based simulation techniques and models as prediction tools. Role of changing technologies in search of new directions for environment conscious urban design and architecture.

ARCH 6106
Ecosystem and Built-Environment Design
3.00 Credits. 5 Hrs/Wk

Theoretical Antecedents in Environmental Design, Law of interdependence, inseparable nature of environmental categories; Ecology & Ecosystem - Definition and Concepts, Community metabolism and biotic community concept, Ecology and its relationship with other branches of knowledge; Human Community and the Ecological crisis; Man and Environment; Geo-physical forces and Buiit-Environment, Concepts and application in environmental design; Eco-settlement Concepts, Passive means of built environmental controls. Analysis and Synthesis of Indigenous Built-Environments; Perception of Environmental qualities -environmental evaluation and preferences, Lessons from the failures. Crisis in the buiit-environment with case studies. Technological Developments and their applications in Environment friendly buildings and settlements; Appropriate Technology for sustainable built environment design - Models, Materials and Methods; Safer built environment with reference to Third World Cities with case studies; Built Environment Design in the local context.

Concepts of Green Architecture; definitions and theoretical background; Climate-change and ecological issues; Management of resources; Environment, Equity and Economy and relationships between them; Carbon foot-print, Life-cycle considerations; Social sustainability; Site sustainability, passive and low-energy architecture, architectural design responsive to issues of water efficiency and rainwater harvesting, solar water heating, embodied energy and environmentally preferable materials; day-lighting and ventilation; renewable energy use in buildings, energy and resource-saving options.



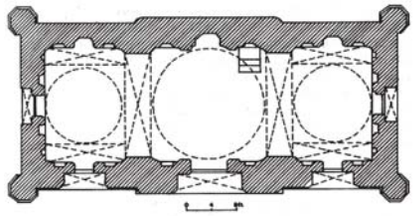
ARCH 6107
Green Architecture and Sustainability
3.00 Credits. 5 Hrs/Wk

Daylight Sources; photometry and the sensor; characteristics and controls of daylight across the globe; overheating and the challenges of day lighting in the tropics; measurements of light and energy from the sky; light transmission characteristics; visual and thermal aspects of daylight; non-visual effect of daylight; therapeutic and circadian effects of light; daylighting in practice; codes and standards; good practice methods; daylit buildings and technologies; daylight simulations; numerical procedures and tools used in daylight modeling; static and dynamic day lighting metrics; weather data; realistic and dynamic annual daylight assessment methods; state-of-the-art day lighting analysis; advanced use of simulation software; hands-on exercises and application of daylight modeling to architectural project.

ARCH 6108
Daylighting
3.00 Credits. 5 Hrs/Wk

HISTORY, THEORY AND CRITICISM STREAM

ARCH 6201
Architecture of Bengal
3.00 Credits. 5 Hrs/Wk



Architectural heritage: History of Architecture in the region of Bengal (from Gupta period). Buddhist, Hindu and Muslim structures, monuments, public buildings, palaces, mosques and monasteries. Spatial characteristics, proportion, use of materials, craftsmanship, constructions techniques, other architectural features. Survey/ documentation of historical structures of Bengal. Vernacular Characteristics; Investigation of the vernacular characteristics of the structures studied. Examination of the existence of the architectural elements with respect to the socio-cultural context: availability, application and use of building materials and other relevant aspects, Comparative analysis. Contemporary trend: Critical evaluation of the transformation reflection of the heritage question, vernacular features etc. on the contemporary architecture of the country.

ARCH 6202
Architecture: Theory and Criticism
3.00 Credits. 5 Hrs/Wk

A dialectic between a diachronic sequence of architectural theories and related architectural works. Theories of Vitruvius, Alberti, Perrault, Boullee, Quatremere de Quincy, Schinkle, Viollet-le Duc, Semper, Loos, Ruskin, Le Corbusier, Mies Van Der Rohe, Wright, Kahn, Venturi, Alexander, Rossi, Norberg Schultz. Concepts of architectural theoreticians with an emphasis on the prevailing social and intellectual situation. Related critical writings to clarify the different epistemological dimensions. Understanding of the formation of theories. Developing a critical awareness of architectural theories and the skill to apply theoretical knowledge in the comprehension, evaluation and criticism of architecture.