UNIVERSITY OF NAIROBI

FACULTY OF ARCHITECTURE, DESIGN AND DEVELOPMENT

DEPARTMENT OF ARCHITECTURE

REGULATIONS, CURRICULUM AND SYLLABI FOR THE

MASTER OF ARCHITECTURE DEGREE

(M. ARCH)
The Department of Architecture offers a two year Postgraduate Master of Architecture Programme. The programme comprises coursework, studio projects, examination and thesis.

A. COURSE OBJECTIVES

The objectives of the Course is the advancement of the discipline of Architecture in order to create a physical environment that enhances the quality of and harmony of human habitat.

The programme will offer qualified graduates the opportunity to gain further education and experience in design and research in the selected areas of specialization in Architecture. Specialization will be offered in the following areas.

1. Architectural Design
2. Environmental Building Science
3. Building Technology
4. Landscape Design.
5. Urban Design.

B. ENTRY REQUIREMENTS.

The common regulations for the Masters’ Degrees in All Faculties of the University of Nairobi shall be applicable. The following shall be eligible for registration for the degree of Master of Architecture.

- a holder of a first degree in Architecture of at least Upper Second Class standing, or its equivalent, conferred from the University of Nairobi or any other recognised University.

C. COURSE STRUCTURE AND DURATION

The curriculum comprises a two year course leading to the award of a “Master of Architecture” degree, with a specific area of specialization.

The curriculum shall consist, in the First Year, of project based studio units dealing with design topics of an advanced nature, supported by input lectures, seminars and field work. In the First Semester each candidate will attend four common theory courses and during the Second Semester five common theory courses selected from any of the areas of an applied studio design drawn from the selected area of specialization.

In the First Year, theory courses shall be examined by written examination papers and coursework, while Applied Design Studio shall be examined by coursework. The Curriculum will be concluded in the Second year, with a Design Project or
with a written Thesis related to the selected area of specialisation, according to the curriculum.

The purpose of the DESIGN PROJECT is to give the student an opportunity to demonstrate capacity to master advanced design techniques in the selected area of specialization. The student must demonstrate full awareness of the current “state of the art” and advanced professional skills in the selected area of specialization.

Work on the Design project will start at the end of the First Year of study and will last 12 months. In evaluating the Design Project, primary emphasis will be placed on quality of design thinking and depth of solution to specific aspects of the design, rather than on quantity of materials produced.

However the Design Project must be well documented and shall consist of drawings at least one complete model, a Project report and any other relevant illustrations which is necessary for the presentation and the comprehension of the design.

The purpose of the THESIS is to give the student an opportunity to demonstrate capacity to pursue issues and to reason coherently about the selected area of specialization’s matters with a clear mastery of the scientific procedures. The student must demonstrate full awareness of the current “state of art” in the selected area of specialization and proficiency for independent research in the writing of his/her Thesis.

Work on the Thesis will start at the end of the First Year of Study.

In evaluating the Thesis, primary emphasis will be placed on quality and originality, rather than on length. In fact, the candidate will be required to produce a well documented thesis of not more that 50,000 words in length, which must be original and must offer some contribution to the current knowledge in the selected area of specialization.

Students will be required to participate in seminars.

D. EXAMINATION REGULATIONS

D.1 General

Candidates must attend in full all the courses, both the compulsory ones in the First Semester and the selected ones in the Second Semester, to be allowed to sit for the respective examinations. In the First Year, every candidate must choose the selected area of specialization within the first month from the commencement of the degree programme.
Every candidate must choose whether to pursue, in the Second Year, a Design Project or a Thesis 3 months before the end of the Second Semester of the First Year.

(a) Each First Year student shall be assigned a supervisor for the Design Project or for the Thesis by the Department of Architecture before the end of the First Year of Study.

D.2 First Year Examinations

(a) The First Semester examinations shall consist of an applied studio and 4 subjects. Each subject shall be examined by means of a 2 hour paper. In addition, continuous assessment specified in regulation (h) below shall form a part of the First Semester Examinations. Applied Design Studio will be examined by the assessment of all the student’s design work at the end of First Semester.

(b) The Second Semester examination shall consist of an applied design studio and 5 subjects. Each subject shall be examined by means of a 2 hour paper. In addition, continuous assessment specified in regulation (h) below shall form a part of the Second Semester Examinations. Applied Design studio will be examined by the assessment of all the student’s design work at the end of the second semester.

(c) Applied design studio shall be equivalent to three theory subjects in a semester.

(d) The pass mark for each paper shall be 50% and shall include continuous assessment as in regulation (h) below.

(e) A candidate who fails to score not less than 40% in each of the papers shall be allowed to take supplementary examinations in those papers before the next academic year.

(f) A candidate who fails in 4 or more papers or in a subject with a mark of less than 40% or in a supplementary examination shall be discontinued.

(g) To be allowed to proceed to the Second Year, a candidate must pass in all compulsory and selected courses in the first year curriculum either during the ordinary University examinations or during the supplementary examinations.
(h) Assessment of the theory courses at the end of the First and Second Semester of study shall consist of:

i) The written examination on each subject specified in the examination regulations (a) and (b) above, which shall constitute 70% of the total marks.

ii) Examination by coursework in applied studio.

iii) Continuous assessment based on coursework shall constitute 30% of the overall marks, at the end of the semester assessment for each subject.

D.3 Second Year Examination

a) In preparation for the submission of the Design Project or of the thesis for examination, during the second year the “Common Regulations for the Master’s Degree in all Faculties of the University of Nairobi shall apply.”

b) All candidates who fulfill the coursework and examination requirements for both the First and Second Year of Study shall be awarded the degree of Master of Architecture in the specific areas of specialization.

E. OUTLINE OF COURSES

E.1 FIRST YEAR

<table>
<thead>
<tr>
<th>First Semester (Compulsory courses)</th>
<th>Hours</th>
<th>Exam. Hr</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAR 701 Introductory to Applied Design Studio</td>
<td>135</td>
<td></td>
<td></td>
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<tr>
<td>BAR 703 Theory of Design.</td>
<td>45</td>
<td>1 X 2</td>
<td></td>
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<tr>
<td>BAR 705 Research Methods</td>
<td>45</td>
<td>1 X 2</td>
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<tr>
<td>BAR 707 Human Settlements</td>
<td>45</td>
<td>1 X 2</td>
<td></td>
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<tr>
<td>BAR 709 The Human factor in Environmental Design</td>
<td>45</td>
<td>1 X 2</td>
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<tr>
<td>TOTAL</td>
<td>315</td>
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</tbody>
</table>

Second Semester (options to be chosen in block)
a) Architecture Design

| BAR 700 Applied Studio in Architectural design                 | 135   | Design work Evaluation |
| BAR 702 Building Types                                         | 45    | 1 X 2                 |

University of Nairobi
M.Arch Curriculum
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Hours per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAR 704</td>
<td>Community Design</td>
<td>45</td>
<td>1 X 2</td>
</tr>
<tr>
<td>BAR 706</td>
<td>Design for Conservation</td>
<td>45</td>
<td>1 X 2</td>
</tr>
<tr>
<td>BAR 708</td>
<td>History of Architecture &amp; Regional Design</td>
<td>45</td>
<td>1 X 2</td>
</tr>
<tr>
<td>BAR 710</td>
<td>Real Estate Studies</td>
<td>45</td>
<td>1 X 2</td>
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<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>360</strong></td>
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**b) Environmental Building Sciences**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Hours per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAR 720</td>
<td>Applied Design Studio in Environmental Design</td>
<td>135</td>
<td>Design Work Evaluation</td>
</tr>
<tr>
<td>BAR 722</td>
<td>Acoustic Environment</td>
<td>45</td>
<td>1 X 2</td>
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<tr>
<td>BAR 724</td>
<td>Thermal Environment</td>
<td>45</td>
<td>1 X 2</td>
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<tr>
<td>BAR 726</td>
<td>Luminous Environment</td>
<td>45</td>
<td>1 X 2</td>
</tr>
<tr>
<td>BAR 728</td>
<td>Regional Environmental Design History</td>
<td>45</td>
<td>1 X 2</td>
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<tr>
<td>BAR 730</td>
<td>Environmental Building Economics</td>
<td>45</td>
<td>1 X 2</td>
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<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>360</strong></td>
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**c) Building Technology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Hours per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAR 740</td>
<td>Applied Design Studio in Building Technology</td>
<td>135</td>
<td>Design Work Evaluation</td>
</tr>
<tr>
<td>BAR 742</td>
<td>Theory of Structures</td>
<td>45</td>
<td>1 X 2</td>
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<tr>
<td>BAR 744</td>
<td>Building Technologies &amp; Materials</td>
<td>45</td>
<td>1 X 2</td>
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<tr>
<td>BAR 746</td>
<td>Building Systems</td>
<td>45</td>
<td>1 X 2</td>
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<tr>
<td>BAR 748</td>
<td>History of Building Technology</td>
<td>45</td>
<td>1 X 2</td>
</tr>
<tr>
<td>BAR 750</td>
<td>Building Economics</td>
<td>45</td>
<td>1 X 2</td>
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<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>360</strong></td>
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**d) Landscape Design**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Hours per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAR 760</td>
<td>Applied Design Studio in Landscape Design</td>
<td>135</td>
<td>Design Work Evaluation</td>
</tr>
<tr>
<td>BAR 762</td>
<td>Site Planning</td>
<td>45</td>
<td>1 X 2</td>
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<tr>
<td>BAR 764</td>
<td>Landscape Plants and Horticulture</td>
<td>45</td>
<td>1 X 2</td>
</tr>
<tr>
<td>BAR 766</td>
<td>Structural Design &amp; Landscape Engineering</td>
<td>45</td>
<td>1 X 2</td>
</tr>
<tr>
<td>BAR 768</td>
<td>History and Theory of Landscape Architecture</td>
<td>45</td>
<td>1 X 2</td>
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<tr>
<td>BAR 770</td>
<td>Land Economics</td>
<td>45</td>
<td>1 X 2</td>
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<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>360</strong></td>
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</table>

**e) Urban Design**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Hours per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAR 780</td>
<td>Applied Studio in Urban Design</td>
<td>135</td>
<td>Design Work Evaluation</td>
</tr>
<tr>
<td>BAR 782</td>
<td>Urban Planning</td>
<td>45</td>
<td>1 X 2</td>
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<tr>
<td>BAR 784</td>
<td>Theory of Urban Design</td>
<td>45</td>
<td>1 X 2</td>
</tr>
<tr>
<td>BAR 786</td>
<td>History of Urban Design</td>
<td>45</td>
<td>1 X 2</td>
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</tbody>
</table>
E.2 SECOND YEAR

First and Second Semester

During the second year, students will be required to undertake either a Design Project (BAR 801/800) or a Thesis (BAR 803/802), both of which will be evaluated at the end of the year.

BAR  801/800  Design Project 540 hours  Project Evaluation
BAR  803/802  Thesis 540 hours  Thesis Evaluation

F.  COURSE DESCRIPTION
F.1 COMPULSORY COURSES (1 Year, 1 Semester)

BAR  701  INTRODUCTORY APPLIED DESIGN STUDIO
The projects will involve the evaluation of brief, site and contextual analysis, conceptualization of the nature of the project, development of ordering principles suited to the project, and efficient response to environmental criteria. Effective communication of the project, if possible with the use of advanced design technologies, will be stressed.

BAR  703  THEORY OF DESIGN
Design as a process and its interaction with other arts and sciences. The role of the designer in society as synthesizer of socio-economic factors, functions and form. Contextual and user analysis, to design development and synthesis, evaluation of objectives and strategies, use of research materials and team work methods.

BAR  705  RESEARCH METHODS
Quantitative and qualitative research methods, up to Multiple Regression and corresponding test level. Mathematical and statistical methods, experimental and qualitative methods library and literature searches, field measurement, interviews and questionnaires. Comparative evaluation. Needs assessments management strategies, monitoring and evaluation of programme implementation and impact. Use of computer for data documentation and analysis as a research tool.

BAR  707  HUMAN SETTLEMENTS
Human settlements, historic evaluation, typology and infrastructure with emphasis on developments in Kenya. The traditional structure. Dynamics initiating change. The concept of environmental
management and recent international experience. Land use control and planning. Land use regulations, purposes and implementation. Local and regional land use objectives.

BAR 709 THE HUMAN FACTOR IN ENVIRONMENTAL DESIGN
Personal and societal environment values. The psychological functions of the urban and rural environments and theories of man environment relations. Relationship between social and institutional functions and environments. Environments for special populations, social form and housing form, personal and societal values in design and the impact of social policy on human settlements.

F.2 ELECTIVE BLOCKS OF COURSES (I YEARS, II SEMESTER)

F.2.1 Architectural Design

BAR 700 APPLIED DESIGN STUDIO
Advanced studio projects on: housing, mixed urban development, institutional building design, etc... Preparation of brief, development of concept, comprehensive design work, detailed building design. All scales of building design: from site planning to schematic design, to interior and detailed design. Presentation drawings, working drawing, models.

BAR 702 BUILDING TYPES
Functional and circulation principles, space dimensioning, relationships form/functions, technical systems in relationship to specific building types: commercial, industrial, health, educational and research, administrative, religious, cultural, recreational and sporting, residential.

BAR 704 COMMUNITY DESIGN
Outline of Community Design process: political sociological, economic and technological issues, environmental surveys, methods of community participation, problem identification, goal formulation, alternatives generation and implementation techniques. Public, co-operative and private housing and related facilities, origin of squatter and slum settlements clearance and up-grading. Case-studies both in urban and rural areas.

BAR 706 DESIGN FOR CONSERVATION
The notion of conservation: aesthetic, technical and historical aspects. Examples and experiences of conservation. The planning and design process for conservation. Details of the existing innovative zoning techniques. Laws and ordinances regarding the preservation of historic buildings, sites and districts. Short- and long-term implementation and funding implications. Regional case-studies.
BAR 708 HISTORY OF ARCHITECTURE AND REGIONAL DESIGN
African vernacular architecture in the rural and urban context, directions of contemporary world architecture. Notion of Regionalism in contemporary architecture, with particular reference to the East African context. Methodological approach to critical analysis of architectural form, structure, thought and ideas. Subject formulated around changes in architecture and society.

BAR 710 REAL ESTATE STUDIES

F.2.2. Environmental Building Science

BAR 720 APPLIED DESIGN STUDIO IN ENVIRONMENTAL BUILDING SCIENCE
Studio projects will emphasize the influence of environmental factors on the architectural design and they will seek the optimization of building characteristics from the thermal, acoustic and luminous points of view. Design topics will be selected also within extreme environmental conditions, with particular regard to climate.

BAR 722 THERMAL ENVIRONMENT
Solar radiation patterns in the yearly cycle and influence of cloud, wind orientation and occupants on the heat gain. Human comfort and health conditions and their active and passive control. Thermal characteristics of building materials, their choice and application for the best thermal performance in different climatic zones.

BAR 724 ACOUSTIC ENVIRONMENT

BAR 726 LUMINOUS ENVIRONMENT
Aspects of natural and artificial illumination. Incandescent and fluorescent light sources. Illumination levels reflections and apparent brightness. Integration of natural and artificial light. Psychological aspects of illumination.
BAR 728  HISTORY OF REGIONAL ENVIRONMENTAL DESIGN
Traditional methods of environmental control in various zones of East
Africa, the choice of materials, planning patterns, construction methods
and social response to the environment. The impact of modern
technology and life styles.

BAR 730  ENVIRONMENTAL BUILDING ECONOMICS
Relative cost and environmental performance of building materials.
Energy requirements in buildings and the relative economy of energy
sources such as wood, charcoal, coal, coke, petroleum, electricity,
solar and wind energy and bio-gas. Short term versus long term
economies.

F.2.3.   Building Technology

BAR 740  APPLIED DESIGN STUDIO IN BUILDING TECHNOLOGY
The studio projects will focus on the expressive and correct application
of materials and associated technologies to a given design problem.
The scope shall range from innovative use of traditional materials and
technologies to the adoption of latest global technologies to the East
African context.

BAR 742  THEORY OF STRUCTURES
Critical review of prevailing structural systems. Approximate analysis
of the structure as a whole, with emphasis on tall buildings. Innovative
technologies to increase efficiency and encourage self-help
construction. Standardization, prefabrication and the application of
space frame, tensile and shell design principles to concrete, timber and
steel structures.

BAR 744  BUILDING TECHNOLOGIES AND MATERIALS
Critical review of physical and chemical properties of traditional
building materials and related construction methods. Technical
requirements availability and quality control of contemporary materials,
the evolution of the construction industry in East Africa and its standard
of organization and technology.

BAR 746  BUILDING SYSTEMS
Prevailing building subsystems, industrially produced building
components, modularization and details of design. Integrated building
systems and prefabrication methods in timber, concrete and steel.

BAR 748  HISTORY OF BUILDING TECHNOLOGIES
The impact of technology on architecture. The development of
building science from traditional construction to scientific structural
design, the introduction of steel and concrete, new materials and the industrialization of building. Advanced environmental design.

BAR 750 BUILDING ECONOMICS
The various cost components operative in the building industry. The interaction of labour and material costs and methods of optimization of construction costs through the introduction of appropriate technologies based upon economic analysis. Factors governing productivity in building, introduction to cost-benefit analysis. Relationship between design parametres and costs, with regard to size, height, shape, perimeter and floor area of buildings. Choice of sites and their acquisition. Financial feasibility studies of proposed projects. The finance of building in the public and private sectors.

F.2.4. Landscape Design

BAR 760 APPLIED DESIGN STUDIO IN LANDSCAPE DESIGN
Advanced studio; design investigation, landscape design and construction detailing of projects ranging from residential to public scale. Problems related to plant selection, comprehensive analysis of programme, users characteristics, region, site construction details and form alternation. Studio project emphasizes planting design.

BAR 762 SITE PLANNING
Site planning: basis of the site plan, information needed for preparation of site plan, site factors, users’ factors, costs, maintenance timing, elements of the plan and translation of basic information into landscape plan. Site survey and analysis: data collection, site survey, presentation and analysis of information. Environmental impact Assessment. Environmental policies.

BAR 764 LANDSCAPE PLANTS AND HORTICULTURE
Plant, design qualities and process of selecting plant materials. Identification of plants and their horticultural factors, including the structure and function of horticultural plants. Plant growth and form, site climate and soil. Other aspects include: preparation of ground for new planting; maintenance and care of plants; choice of species; herbicides and landscape maintenance; plant pests, diseases and conservation. Natural ecosystems.

BAR 766 STRUCTURAL DESIGN AND LANDSCAPE ENGINEERING
Structural and construction details of: walls for enclosure; fences and railings; bollards; seats and sitting areas; plant containers; lamps and lighting; litter bins; signs and signboards. Earthwork and ground modeling, natural factors in design and planning: ground shapes, site physiology and maintenance of vegetation; grading principles and methods, cut and fill, and surface drainage. General interpretation of
physical and natural processes in land planning; use of inventories in geology, soils and vegetation, hydrology. Climate and wildlife.

BAR 768  HISTORY & THEORY OF LANDSCAPE ARCHITECTURE
The origin of landscape architecture: Far Eastern landscape ideas, Islamic gardens and Renaissance gardens of Europe. Modern Landscape design: the English Landscape School and other contemporary experiences of landscape design. Principles of landscape planning, design and development; landscape design and development; landscape design of private and public open spaces and campuses. Kenyan landscape design.

BAR 770  LAND ECONOMICS
Urban and rural land values in a free market. Location theory, land values and land use. Land use control and public policies affecting the land market. Introduction to social cost-benefit analysis. Macroeconomics problems. Selected application of economic methods; theory of rural-urban migration; economics of land reform. Development economics, policy and planning.

F.2.5.  Urban Design

BAR 780  APPLIED DESIGN STUDIO IN URBAN DESIGN
Design within the existing urban fabric: Urban renewal, shopping centres, cultural and institutional centres, urban squares, market complexes, transport nodes and facilities, industrial estates. Projects within urban conservation areas.

Design of new urban entities: new towns, rural urban centres, new settlements, new neighbourhoods.

Design projects will include problem identification, goal formulation, alternatives generation, implementation techniques, design guidelines and review.

BAR 782  URBAN PLANNING

BAR 784  THEORY OF URBAN DESIGN
Comprehension of the city in perceptional terms: the overall “image of the city” as concretized by urban elements (paths, edges, districts, nodes landmarks). Patterns of urban form (linear, grid, concentric, radial satellite). Elements of urban form: streets, squares, monuments and urban fabric regarded in their historic development and utility significance (“the architecture of the city”). Theories of urban form: group-form, compositional form, megastructure. Visual analysis of urban form, town scape and aesthetics; aspects of urban design.

Regional case studies.
BAR 786  HISTORY OF URBAN DESIGN
Introduction to the concept of “city”, the Greek ‘Polis’. The city during the Hellenistic, Roman, Medieval, Renaissance, Baroque and Neoclassical age. The Islamic City. The colonial city, with particular regard to the African context. The contemporary metropolis.

BAR 788  URBAN SOCIOLOGY AND COMMUNITY DEVELOPMENT
Concepts of society, social structure, social systems, social institutions. Influence of traditional social and economic institutions on development and change. Social aspects of development, social policy, social services systems and their co-ordination in urban and metropolitan areas.

The community and its evolution, the community and its system; community location, spatial organization, rural-urban continuum. Demographic aspects, interpretation of census data, implication on housing and community facilities. Analysis of rural and urban social problems.

BAR 790  URBAN ECONOMICS
Economics of Urbanization; Location of Economic Activity and the location of cities, The system of cities and the urban hierarchy; Site Rent, Land-Use Pattern and the Form of the City-Residential, Commercial and Industrial Land Use. Externalities and zoning; Urban Economic Base and Economic Policy; Economic Policy; Economics of city size; Economics of Urban Transportation; Urbanization & Poverty; Problems of Urban Housing; The Metropolitan Public Sector - Functions, Growth. Revenues; Growth of Cities. Economics of urbanization. Location of economic activity and the cities. The system of the cities and the urban hierarchy. Site rent, land-use patterns and the form of the city.

F.3.  DESIGN PROJECT OR THESIS (II YEAR, I & II SEMESTER)

BAR 801/800 DESIGN PROJECT
BAR 803/802 THESIS