

CURRICULUM
OF
CITY & REGIONAL PLANNING
BS & MS

(Revised 2017)



HIGHER EDUCATION COMMISSION
ISLAMABAD

CURRICULUM DIVISION, HEC

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PREFACE

The curriculum, with varying definitions, is said to be a plan of the teaching-learning process that students of an academic programme are required to undergo. It includes objectives & learning outcomes, course contents, scheme of studies, teaching methodologies and methods of assessment of learning. Since knowledge in all disciplines and fields is expanding at a fast pace and new disciplines are also emerging; it is imperative that curricula be developed and revised accordingly.

University Grants Commission (UGC) was designated as the competent authority to develop, review and revise curricula beyond Class-XII vide Section 3, Sub-Section 2 (ii), Act of Parliament No. X of 1976 titled "Supervision of Curricula and Textbooks and Maintenance of Standard of Education". With the repeal of UGC Act, the same function was assigned to the Higher Education Commission (HEC) under its Ordinance of 2002, Section 10, Sub-Section 1 (v).

In compliance with the above provisions, the Curriculum Division of HEC undertakes the revision of curricula after every three years through respective National Curriculum Revision Committees (NCRCs) which consist of eminent professors and researchers of relevant fields from public and private sector universities, R&D organizations, councils, industry and civil society by seeking nominations from their organizations.

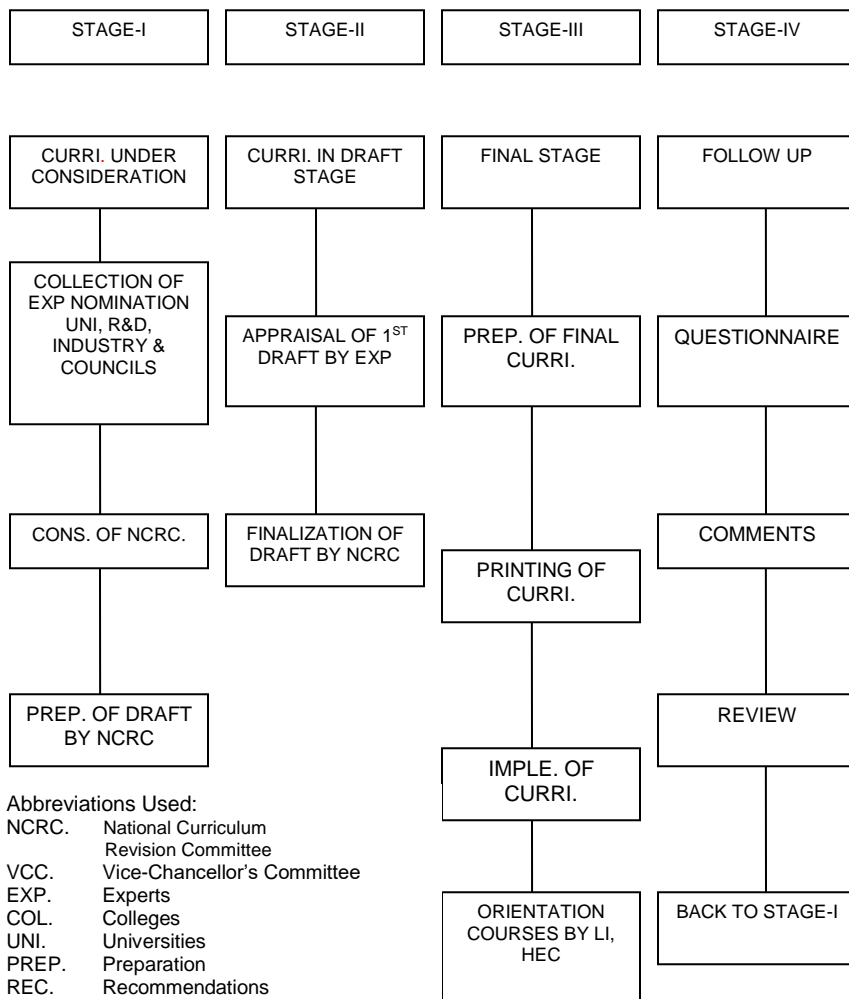
In order to impart quality education which is at par with international standards, HEC NCRCs have developed unified templates as guidelines for the development and revision of curricula in the disciplines of Basic Sciences, Applied Sciences, Social Sciences, Agriculture and Engineering in 2007 and 2009.

It is hoped that this curriculum document, prepared by the respective NCRC's, would serve the purpose of meeting our national, social and economic needs, and it would also provide the level of competency specified in Pakistan Qualification Framework to make it compatible with international educational standards. The curriculum is also placed on the website of HEC

<http://hec.gov.pk/english/services/universities/RevisedCurricula/Pages/default.aspx>

(Muhammad Raza Chohan)
Director General (Acad.)

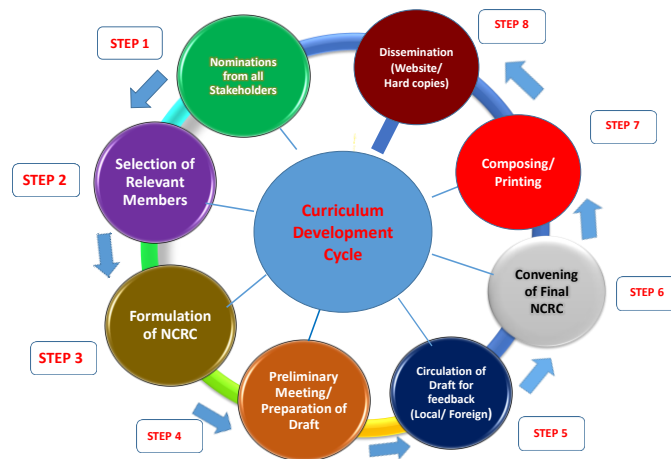
CURRICULUM DEVELOPMENT PROCESS



Abbreviations Used:

- NCRC. National Curriculum Revision Committee
- VCC. Vice-Chancellor's Committee
- EXP. Experts
- COL. Colleges
- UNI. Universities
- PREP. Preparation
- REC. Recommendations
- LI Learning Innovation
- R&D Research & Development Organization
- HEC Higher Education Commission

CURRICULUM DEVELOPMENT CYCLE



INTRODUCTION

The final meeting of National Curriculum Revision Committee (NCRC) in the discipline of City and Regional Planning (CRP) for BS & MS Programs was held from March 20-22, 2017 at Higher Education Commission (HEC), Regional Centre, Lahore. Earlier, a preliminary meeting was held from November 15-17, 2016 at the same venue. Experts from academia, industry, practicing town planners as well as entrepreneurs participated in the meeting. HEC representation was ensured by Dr. Muhammad Idrees (Director, Academics Division, HEC, Pakistan). The list of members who participated in the meetings is as below:

S.N	Name & Institution	Position	Preliminary Meeting	Final Meeting
1	Dr. Rizwan Hameed Professor/Chairman, Department of City & Regional Planning, University of Engineering & Technology, Lahore.	Convener	Present	Present
2	Mr. Mubushar Hussain General Manager (Urban Planning), Osmani & Company (Pvt) Ltd Karachi	Secretary	Present	Present
3	Meritorious Professor Amir Khan Ex-Director (Rtd), Institute of Geography, Urban & Regional Planning, University of Peshawar, Peshawar.	Member	Present	Present
4	Dr. Mohammad Atiq ur Rahman Professor/Head of Department, Department of City & Regional Planning, Lahore College for Women University (LCWU), Lahore.	Member	Present	Present
5	Ms. Fariha Amjad Ubaid Associate Professor, Department of	Member	Present	Present

	Architecture & Planning, NED University of Engineering & Technology, City Campus, Karachi.			
6	Ar./Plnr.T. Sadia Fazli Pakistan Council of Architects & Town Planners, 61-C, 4th Floor, 21st Commercial Street, Phase-II Extension, D.H.A, Karachi	Member	-	Present
7	Dr. Imtiaz Ahmed Chandio Associate Professor/Chairman, Department of City & Regional Planning, Mehran University of Engineering & Technology, Jamshoro, Sindh	Member	Present	Sent regrets
8	Dr. Mir Aftab Hussain Talpur Assistant Professor, Department of City & Regional Planning, Mehran University of Engineering & Technology, Jamshoro, Sindh	Member	Present	Sent regrets
9	Dr. Malik Asghar Naeem Assistant Professor/Head of Department, Department of Urban & Regional Planning, National University of Science & Technology, Islamabad.	Member	Present	Present
10	Dr. Akhtar Ali Shah Chairman, Department of Urban & Regional Planning	Member	-	Present

	University of Peshawar, Peshawar (Attended first day of the meeting)			
11	Dr. Muhammad Haroon Siddique Assistant Professor, Department of Architecture, NFC Institute of Engineering & Technology, Multan.	Member	Present	Sent regrets
12	Dr. Fariha Tariq Assistant Professor, School of Architecture & Planning, University of Management & Technology, Lahore.	Member	Present	Present
13	Mr. Mutahir Mehmood Awan Assistant Professor, School of Architecture & Planning, University of Management and Technology, Lahore.	Member	Present	Present
14	Mr. Muhammad Sohail Assistant Professor, Department of Architecture, BUIITEMS, Quetta.	Member	Present	Sent regrets
15	Mr. Khurram Farid Bargatt General Secretary, Institute of Planners Pakistan (IPP) Managing Director, SheherSaaz (Pvt) Ltd, Lahore	Member	Present	Present
16	Dr. Muhammad Idrees Director, Academics Division, Higher Education Commission, Islamabad	Coordinat or	Present	Present

NCRC Agenda

The agenda of NCRC for City and Regional Planning was as follows:

1. To revise/update the draft curriculum in the discipline of City and Regional Planning(BS & MS Programs) according to indigenous needs and to bring it at par with international standards.
2. To revise/update preface, mission, vision, preamble, and rationale of the subject.
3. To develop and revise objectives/learning outcomes, list of contents and assessment criteria (formative & summative) and align these with undergraduate programs (vertical approach) and other MS programs (horizontal approach).
4. To incorporate/suggest latest reading materials/references (local & international) for every course.
5. To revise/update course contents keeping in view the uniformity across other disciplines and avoiding overlapping.
6. To make recommendations for promotion/development of the discipline, keeping in view the futuristic needs of the society and international trends.

The preliminary meeting started with recitation from the Holy Quran. Mr. Muhammad Raza Chohan, Director General, Academics Division, HEC, Islamabad welcomed the participants. All the participants introduced themselves highlighting their qualification, experience and area of expertise. Keeping with the tradition, Dr. Muhammad Idrees, Director Academics Division, HEC, Islamabad offered the house to nominate the Convener and Secretary of the NCRC for smooth functioning. Prof. Dr. Rizwan Hameed, Chairman, Department of City & Regional Planning, University of Engineering & Technology, Lahore and Mr. Mubushar Hussain, General Manager (Urban Planning), Osmani& Company (Pvt) Ltd., Karachi were selected unanimously as Convener and Secretary respectively.

Dr. Muhammad Idrees presented the objectives of the NCRC. He highlighted the importance of this meeting and emphasized for adaptation of general rules of curriculum development and revision like scope of the subject/program, horizontal & vertical alignment, rule of flexibility and adaptability keeping in view the futuristic approach, market value/job market and societal needs. He also shared a template for revising/updating the curricula. The template was unanimously accepted to be followed. It was also agreed to add learning outcomes, teaching methodology and assessment segments in the curricula.

After thorough deliberation, the committee unanimously agreed on draft curriculum of the BS (4-year) and MS (2-year) City and Regional Planning degree programs. The draft was to be finalized in another meeting and keeping in view the comments from local and foreign experts in the field of city and regional planning as well as from NCRC members.

The final meeting again held at HEC Regional Centre at Lahore and started with recitation from the Holy Quran. Dr. Muhammad Idrees, Director, Academics Division, HEC, Islamabad again welcomed and refreshed the participant, particularly those attending the NCRC meeting for the first time, about the objectives of the NCRC. He highlighted the importance of this meeting and emphasized for adaptation of general rules of curriculum development and revision like scope of the subject / program, horizontal and vertical alignment, rule of flexibility and adaptability keeping in view the futuristic approach, market value / job market and societal needs.

After thorough deliberation, the committee unanimously agreed on the final draft curriculum of the BS (4-year) and MS (2-year) City and Regional Planning degree programs. This final draft would be shared with three foreign experts agreed with HEC for their input for review and further refinement.

In the end, Dr. Idrees thanked the Convener, Secretary and all members of the Committee for sparing their time and for their contribution to prepare the final draft of the curriculum. He further stated that their efforts will go a long way in developing workable, useful and market oriented comprehensive degree programs in City and Regional Planning. Prof. Dr. Rizwan, Convener of the NCRC, also thanked Dr. Idrees as well as the Secretary and all the members of NCRC for their inputs and valuable suggestions in revising / updating the City and Regional Planning curriculum to make it more practical, competitive, efficient and realistic. The committee highly appreciated the efforts made by the officials of HEC Regional Centre, Lahore for making arrangements to facilitate the committee and their accommodation at Lahore. The meeting ended with the vote of thanks to Dr. Idrees and his team from HEC for providing an ideal environment to complete the given agenda.

2. PART-I BS PROGRAM (4-YEAR) IN CITY AND REGIONAL PLANNING

Vision

Contribute towards enhancing the quality of life and environment of diverse populations from varied human settlements through participatory, equitable and inclusive sustainable development

Mission

1. Impart knowledge and skills to produce empowered, creative, values driven and motivated City and Regional Planners capable of meeting the challenges of contemporary and future human settlements thereby adding to knowledge economy within local and global context.
2. Develop ability to deal with the emerging planning problems and development issues at the urban and regional scales while considering ground realities.
3. Inculcate skills of leadership, entrepreneurial creativity, cost benefit analysis, planning and spatial data analysis, equity, ethics, decision making, advocacy and public involvement.
4. Equip the students with theoretical knowledge and field experience so that they can pursue career in planning and development sectors at national and international levels and promote sustainable development.

3. SCHEME OF STUDIES FOR BS IN CITY AND REGIONAL PLANNING

Sr.	Course Title	Credit Hours		Total Credit Hours
		Theory	Practical	
SN	FIRST SEMESTER			
1.	Introduction to City and Regional Planning	2	1	3
2.	Technical Drawing	1	1	2
3.	Mapping and Remote Sensing	2	1	3
4.	Sociology	2	0	2
5.	Computer Aided Design and Modeling	0	2	2
6.	Applied Mathematics	2	0	2
7.	English-I (Functional English)	3	0	3
		12	5	17
	SECOND SEMESTER			
8.	History of Cities and Urban Planning	3	0	3
9.	Transportation Engineering	2	1	3
10.	Surveying	1	2	3
11.	Introduction to GIS	2	1	3
12.	Development Economics	2	0	2
13.	Islamic Studies / Pakistan Studies / Ethics	2	0	2
14.	English-II (Communication Skills)	2	0	2
		14	4	18
	THIRD SEMESTER			
15.	Transportation Planning	2	1	3
16.	Planning Theory	2	0	2
17.	Applied Statistics	3	0	3

18.	Architectural Design	1	2	3
19.	Applied Geography	2	1	3
20.	English-III (Communication Skills and Report Writing)	1	2	3
		11	6	17
	FOURTH SEMESTER			
21.	Housing	2	1	3
22.	Planning Surveys and Data Analysis	1	2	3
23.	Environmental Planning and Management	2	1	3
24.	Information Technology and Database Management	1	2	3
25.	Climate Change and Disaster Management	2	1	3
26.	Islamic Studies / Pakistan Studies / Ethics	2	0	2
		10	7	17
	FIFTH SEMESTER			
27.	Site Planning and Landscape Design	2	1	3
28.	Urban Regeneration and Conservation	2	1	3
29.	Infrastructure Planning and Management	1	1	2
30.	GIS Analysis and Applications in Planning	1	2	3
31.	Planning Legislation	2	0	2
32.	Environmental Engineering	2	1	3
		10	6	16
	SIXTH SEMESTER			
33.	Urban Design	2	1	3
34.	Planning of New Towns	1	2	3
35.	Rural Planning	2	1	3
36.	Public Participation and Community Development	1	1	2
37.	Building Construction Technology	2	1	3
38.	Professional Planning Practice	1	1	2
		9	7	16

SEVENTH SEMESTER				
39.	Spatial Development Planning – I	2	2	4
40.	Land Use and Building Control	2	1	3
41.	Project Planning and Management	2	1	3
42.	Research Methods	2	1	3
43.	Disability and development	1	1	2
44.	Project (Part - I)	0	0	0
		9	6	15
EIGHTH SEMESTER				
45.	Spatial Development Planning – II	2	2	4
46.	Regional Planning	2	1	3
47.	Estate Management	1	1	2
48.	Entrepreneurship	2	0	2
49.	Project (Part- II)	0	6	6
		7	10	17
Total Credit Hours		82	51	133

NOTE: *The Bachelor (BS) degree course requires to be completed in 4 years or 8 semesters, and shall require minimum qualifying of 130 credit hours. Internship of 4-6 weeks with credit hours (0-0) is mandatory in the Second/Third Year during semester breaks/summer vacations to gain practical experience and to provide exposure to the students in the field of City and Regional Planning.*

4. DETAIL OF COURSES FOR BS CITY AND REGIONAL PLANNING

FIRST SEMESTER

1. INTRODUCTION TO CITY AND REGIONAL PLANNING

Credit hours: 3 (2+1)

Prerequisites: None

Specific Objectives

To Introduce the Basic Concepts in City & Regional Planning

Learning Outcomes

After studying this course, the learners will be able to:

1. Define and describe the terms of Planning, City, Regional and administrative units ranging from District, Town, Union Council in context of geographical and demographical parameters.
2. Understand the Planning Process, basic principles, elements and types of planning.
3. Understand the planning systems being practiced in Pakistan at Federal, Provincial and Local level.
4. Compare the advantages and disadvantages of planned and unplanned human settlements.

Content List

- Introduction to City and Regional Planning, Definitions and Terms.
- Justification and Aims of Planning.
- Planning Principles and Elements of Planning.
- Scope, Nature and Purpose of Physical Planning.
- Levels of Planning.
- Types of Plans and Planning.
- Planning and its Relationship with other Professions.
- Emerging Trends in Planning.
- The Planning Process.
- Overview of Old and New Towns Designed in the Developed and Developing Countries.
- Historical and Modern Cities of Pakistan.
- Characteristics of Planned and Unplanned Human Settlements.
- Introduction to Planning System in Pakistan.
- Functions of Professional Planners in Development Authorities, Towns and Districts.

Practical

- Field visits to study the characteristics of planned and unplanned areas.
- Visit to local planning institutions / organizations to understand the systems and scope of the planning profession.

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Interaction with senior planners working in different institutions
- Field Visits
- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc.

Final Term (60%)

- Written long/short questions, quizzes etc.

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc.

Recommended Books

1. Wade Graham (2017), *Dream Cities: Seven Urban Ideas That Shape the World* Paperback – January 24, 2017, Amazon.
2. Geddes, P. (2016), *Cities in Evolution: An introduction to the town planning movement and to the study of civics*, Amazon.
3. Le Gates, R.T., and Stout, F. (eds.) (2011), *The City Reader*, Routledge.
4. Hall, P., and Tewdwr-Jones, M. (2011), *Urban and Regional Planning*, Routledge.
5. Gosh, R., and Gupta, K.R. (2008), *Development Studies*.
6. Hall, P. (2002) *Cities of Tomorrow: An Intellectual History of Urban Planning and Design in the Twentieth Century*, Blackwell Publishing.
7. Greed, Clara (2000), *Introducing planning*, The Athlone press, London.
8. Allmendinger, Philip (2000), *Introduction to Planning Practice*, Wiley, New York.
9. Blowers, A., and Evans B. (eds.) (1997), *Town Planning into the 21st Century*, Routledge.
10. Government of Pakistan (1986) *National Reference Manual on Planning and Infrastructure Standards*, E&UA Div. Ministry of Housing and Works, Islamabad.
11. Ratcliff, J. (1981) *Introduction to Town and Country Planning*, London, Hutchinson.

2. TECHNICAL DRAWING

Credit hours: 2 (1+1)

Prerequisites: None

Specific Objectives

To impart skills in technical drawings with understanding of scale through manual and computer aided designs.

Learning Outcomes

After studying this course, the learners will be able to:

1. Prepare technical drawings utilizing traditional and computer aided drafting tools, scales and techniques.
2. Apply computer applications in planning, building and geometric construction.

3. Apply and display graphic representation of building and planning drawings through various rendering techniques.
4. Create multi-view orthographic, orthogonal, isometric and pictorial projections of objects, geometric constructions and apply rendering techniques.
5. Organize and display land use, density and sub-division maps as per international coding standards.

Content List

- Introduction to:
 - a. Drawing instruments & scales
 - b. Drafting techniques
- Geometric Construction
 - a. Drawing various solid geometric objects
 - b. Introduction to Auto Cad application and use of its tools for geometric construction.
- Orthographic Projection
 - a. Orthogonal projections of simple solids in simple position, oblique and auxiliary planes.
 - b. Free hand sketches from solid objects and from orthographic projections.
 - c. Application of various tools of Auto Cad for drawing orthographic projections
- Building Drawing
 - a. Understanding of basic stages and elements of architectural drawing
 - b. Practicing to draw measured building drawings including plan, elevation and section of buildings.
 - c. Application of various tools of Auto Cad for building drawing.
- Perspective & Rendering
 - a. Introduction to Perspective drawing and rendering techniques.
 - b. Perspective of a building and group of buildings.
- Graphic Representation of Planning Maps/Drawings
 - a. Preparation of land use, density and sub-division maps.
 - b. Colour coding and representation of planning standards.

Proposed Teaching Methodology

- Lecturing
- Drawing and drafting Assignments

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written short questions, quizzes etc.

Final Term (60%)

- Written short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, drawing and drafting assignments, report writing, viva voce, field visits etc

Recommended Books

1. Jepson (2016), *Fundamental of Plan Making*, Routledge.
2. Abrams, (2014), *The Art Of City Sketching: A Field Manual*.
3. Michael O' Rourke (2014), *Architectural Drafting Simplified*.
4. Ching, Francis D. K. (2011), *A Visual Dictionary of Architecture*, New Jersey, John Wiley & Sons Inc.
5. Unwin, Simon (2009), *Analyzing Architecture*, Routledge.
6. Ching, Francis D. K. (2007), *Form, Space and Order*, New Jersey, John Wiley & Sons Inc.
7. Francis D.K., Ching & Steven P. Juroszek, (1997), *Design Drawing*, New York, Van Nostrand Reinhold.

3. MAPPING AND REMOTE SENSING

Credit hours: 3 (2+1)

Prerequisites: None

Specific Objectives

To impart skills and techniques for mapping and use of emerging technologies like Remote Sensing (RS) and Global Position System (GPS) for planning

Learning Outcomes

After studying this course, the learners will be able to:

1. Define and describe various type of maps, remote sensing and global positioning system.
2. Understand the basic principles, elements and types of mapping, photogrammetry and remote sensing
3. Apply various types of map for urban and regional planning.
4. Apply remote sensing and mapping techniques for the preparation of thematic maps to be used for spatial development planning.
5. Apply the knowledge of mapping and remote sensing in their professions and daily life experiences.
6. Compile maps and build models by using General Topographical Sheet RS and GPS for points data, arc and polygon data on map.

Content List

- Basic concepts in the field of Cartography and its use in Planning
- Essentials of mapping: Co-ordinate system, Plane Spherical; Rectangular, Latitude and Longitude; Scales: Representative Fraction (RF), graphic and area scale; scale of factor determination and change of map scale.
- Map types with respect to scale and use such as Survey of Pakistan (SOP) General Topographical Sheet and revenue department cadastral Maps.
- Content and presentation techniques; Map Symbols.
- Thematic maps.
- Photogrammetry: Characteristics of Aerial Photographs Interpretation of Mosaics.
- Introduction to Remote Sensing (RS) and Global Positioning System (GPS): Definition and History, Physical Basis; Spatial, temporal and spectral aspects; Sensor Systems (Space and airborne); Platforms (Types and Orbital Characteristics); Thermal Infrared; Introduction to Microwave (Importance and applications); Digital Image Processing (Over view of computer based image processing).

Practical

- Assignments on graphic scales
Map compilation; Scale enlargement and reduction.
- Study and interpretation of topographic sheets; Cadastral Maps (*Massavies and Khasra* plans etc.).
- Image interpretation, False color composite, Visual Interpretation of satellite images and aerial photographs.
- Various sensors data comparison; Thermal Infrared Image interpretation.
- Introduction to image processing software e.g. ERDAS Imagine (display, Geo-linking, Zooming, Identification of targets etc.).
- Use of GPS in the field to locate points, polygons or lines.

Proposed Teaching Methodology

- Lecturing
- Demonstration
- Use of related software

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc.

Final Term (60%)

- Written long/short questions, quizzes etc.

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc.

Recommended Books

1. Xian, George (2016), *Remote Sensing Applications for the Urban Environment*, CRC Press.
2. Gretchen, N. P. (2014), *GIS Cartography: A Guide to Effective Map Design*, CRC Press; ISBN-13: 978-148222067
3. Elliott D. K. (2006), *Understanding GPS: Principles and Applications*, Artech house, ISBN-10: 1-5 8053-894-0
4. Lillesand, T. M. and Kiefer, R. W. (2004), *Remote Sensing and Image Interpretation*, John Wiley and Sons, ISBN 0-471-15227-7
5. Mather, P. M. (2004), *Computer Processing of Remotely Sensed Images*, John Wiley and Sons, ISBN 0-470-84919-3
6. Campbell, J. B. (2002), *Introduction to Remote Sensing*, The Guilford Press, ISBN 0-7484-0663-8
7. Gibson, P. J. (2000), *Introductory Remote Sensing: Principles and Concepts*, Routledge, ISBN 0-415-19646-9.
8. Robinson, H., *Elements of Cartography*, John Wiley & Sons, New York, (Latest Edition)

4. SOCIOLOGY

Credit hours: 2 (2+0)

Prerequisites: None

Specific Objectives

To abreast with basic concepts and theories of sociology and its relation with planning.

Learning Outcomes

After studying this course, the learners will be able to:

1. Define and describe the basic terms of sociology.
2. Understand the cultural differences and social strata classification.
3. Compare social and cultural problems in rural and urban areas.
4. Understand the significance of family and household as bases of collective social empowerment.
5. Understand the vicious circle of social distrust and underdevelopment.
6. Apply Social Learning Theory to solve community problems.
7. Apply approaches to generate social trust for participatory development.
8. Analyze social issues related to city and regional planning.

Content List

- Basic Terms and Definitions of Sociology

- Social groups, Typology, Nature, Patterns of interaction, social and cultural values. Social control, Attitude, perception and Behavior symbols.
- Prejudices and taboos, Collective behavior, Group expectations, Social structures, Status, Class, Role, Social stratification.
- Age, Sex, Marital Composition, Fertility, Mortality, components of demographic change, Urban society, Behavior and personality, Formal and informal association.
- Kinship relations, Institution, Social processes and values and norms. Rural culture.
- Significance of family; Household and social institutions in Urban planning. Household, Income, Dependency ratio and Employment pattern.
- Social processes and social change in population. Viz. transformation and natural increase, characteristics and effect of growth trend on housing, utilities and community facilities.
- Relationship of Social Trust and Development.
- Social Learning Theory and its relation to City and Regional Planning.
- Disadvantages of bureaucratic approaches to solve social problems.
- Vicious circle of Distrust and Underdevelopment.
- Possibilities to break vicious circle of distrust and underdevelopment by applying concepts and theories of sociology.

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Guest Speaker
- Field Visits

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc.

Final Term (60%)

- Written long/short questions, quizzes etc.

Recommended Books

1. DK. (2015), *The Sociology Book (Big Ideas Simply Explained)*,
2. Peet, Richard (2015), *Theories of Development*, Guilford press.
3. Charles H. Z., Karen K. Kirst-A. (2012), *Understanding Human Behavior and the Social Environment (Empowerment)*.
4. Garth M. (2011), *Readings for Sociology*, ISBN-10: 0393912701.

5. Anthony G., Mitchell D., Richard P. A., Deborah C. (2010), *Essentials of Sociology*, ISBN-10: 0393932370.
6. Judith A. B. L. (2001), *The Empowerment Approach to Social Work Practice*.
7. Friedmann, J. (1992), *Empowerment: The Politics of Alternative Development* 1st Edition..
8. Worsley, P. (ed.), *Introducing Sociology*, latest edition, England, Penguin.

5. COMPUTER AIDED DESIGN AND MODELING

Credit hours: 2 (0+2)

Prerequisites: None

Specific Objectives

To impart skills in technical drawings with understanding of scale through computer aided designs.

Learning Outcomes

After studying this course, the learners will be able to:

1. Create objects in AutoCAD
2. Draw basic 2D and 3D drawings in AutoCAD
3. Use AutoCAD in planning and designing of houses and housing schemes
4. Prepare technical drawings by utilizing the tools of AutoCAD

Practical

- Introduction to Computer Aided Design (CAD) for Planners.
- Basic concepts of computer use in town planning.
- Introduction to operating systems like DOS and Windows.
- Concepts of electronic drafting.
- Using the AutoCAD interface.
- Accessing AutoCAD commands.
- Units, Scale and Limits. Drawing tools.
- Drawing different objects accurately.
- Polylines, fills and hatching.
- Editing and modifying drawings.
- Dimensions and text in a drawing.
- Viewing drawing. 3D Modeling, shading and rendering.
- Printing or plotting a drawing.

Proposed Teaching Methodology

- Demonstration
- Drawing and drafting Assignments
- Use of related software

Proposed Assessment (practical, 100%)

- Presentations, assignments, viva voce, etc.

Recommended Books

1. Omura. G., & Benton, B. (2017), *Mastering Auto CAD 2017*, John Willey & Sons Inc., Indiana.
2. CADArtifex (2016), *Auto CAD 2017: A Power Guide for Beginners and Intermediate Users*.
3. Stolins, F., Mardar, C., Marotti & Murphy, *Essentials of Computer Designs*, Labyrinth Publication, ISBN:1-59136-027-7

6. APPLIED MATHEMATICS

Credit hours: 2 (2+0)

Prerequisites: None

Specific Objectives

To abreast with basic concepts of Mathematics to prepare the students for carrying out planning data analysis and mathematical modeling.

Learning Outcomes

After studying this course, the learners will be able to:

1. Apply derivatives to find rates of change, asymptotes, curvature, and carry out optimization of single and multi-variables.
2. Compute integrals by using techniques, applications of definite integrals and develop understanding of analytic geometry.
3. Use matrices to solve linear equations and build concepts of complex numbers.

Content List

- Pre-requisite: Algebra of complex numbers; Polar form of complex numbers; Algebra of matrices; Determinants and their properties; Crammer's rule. Algebra of vectors; Scalar and vector products; Rules of differentiation; Techniques of integration
- Contents: Product and quotient of complex numbers in polar form; Properties of complex numbers; Logarithm of a complex number; De Moivres Theorem, The nth roots of a number; Solution of equations.

- A review of matrices, determinants and Cramer's rule: Inverse of a matrix through elementary row operations; Solution of the system of linear equations; Eigenvalues and eigenvectors.
- Function and its different kinds; Inverse of a function; Graphs of some well-known functions; Continuous functions;
- A review of differentiation: Geometrical interpretation of a derivative; Infinitesimal; Differential coefficient; Derivatives of higher order; Indeterminate forms and L. Hopital's rule; Asymptotes; Increasing and decreasing functions; Maxima and minima of a function; Directional derivatives.
- Further techniques of Integration; Integration by reduction formula; Fundamental Theorem of Integral Calculus; Definite integral and its properties; Area enclosed between curves; Arc length;
- Scalar and vector triple products. Scalar and vector point functions; Differentiation and integration of vector point functions.
- Formation of differential equations and solution of various types of first order differential equations.
- Cartesian, cylindrical and spherical coordinates; The ratio formula; Equations of a straight line in R^3 ; Direction ratios and direction cosines; Angle between two straight lines, Distance of a point from a line; Equations of a plane; Angle between two planes; The sphere.

Proposed Teaching Methodology

- Lecturing
- Demonstration
- Use of related software

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Recommended Books

1. Wilson, A. G, *Mathematics for Geographers and Planners*, Oxford, Clarendon, (Latest Edition)
2. Washington, J. Allyn, *Basic Technical Mathematics*, London; Banjamin, (Latest Edition).
3. Bhatti, M.I. and Nasir, M., *Mathematics for Engineers and Scientists*, Allied Book Centre, Urdu Bazar Lahore.

4. Kreyszig, E., *Advanced Engineering Mathematics*, John Wiley & Sons.
Spiegel. M.R., *Vector Analysis*, McGraw – Hill Book Company.

7. ENGLISH-I (Functional English)

Credit hours: 3 (3+0)

Prerequisites: None

Specific Objectives

To enhance language skills and develop critical thinking.

Learning Outcomes

After studying this course, the learners will be able to:

1. Provide English language support to students whose first language is not English to be well prepared to participate effectively in their university studies
2. Inculcate English language skills so that foreign/indigenous students graduate with strong English language competency

Content List

- Use of grammar in context
 - Tenses: meaning & use
 - Use of active and passive voice
 - Use of articles and prepositions
 - Different sentence patterns
 - Combining sentences
- Oral Communication Skills (Listening and Speaking)
 - Express ideas/opinions on topics related to students' lives and experiences
 - Participate in classroom discussions on contemporary issues
- Reading and Writing Skills
 - Skimming
 - Scanning
 - Identifying main idea/topic sentence
 - Inference and prediction
 - Recognizing and interpreting cohesive devices
 - Note taking and note making
 - Generating ideas using a variety of strategies e.g. brainstorming
 - Developing a paragraph outline (topic sentence and supporting details)
 - Vocabulary building skills
- To develop the ability to use a dictionary

Proposed Teaching Methodology

- Lecturing
- Demonstration

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Recommended Books

1. Collins, Cobuild, *Students' Grammar*. London: Longman (Latest Edition).
2. Eastwood, J. (2004), *Oxford Practice Grammar with Tests and Answers*. OUP
3. Fisher, A. (2001), *Critical Thinking*, CUP
4. Goatly, A. (2000), *Critical Reading and Writing: An Introductory Course*. London: Taylor & Francis.
5. Hacker, D. (1992), *A Writer's Reference*, Boston, St. Martin's.
6. Hewing, M. *Advanced Grammar in Use*, New Ed, CUP.
7. Murphy, Raymond. *Grammar in Use*, CUP, (Latest Edition).
8. Swan, M. and Walter C. *How English Works*, Oxford, OUP, (Latest Edition).
9. Thomson & Martinet. *Practical English Grammar*, OUP (Latest Edition).

SECOND SEMESTER

8. HISTORY OF CITIES AND URBAN PLANNING

Credit hours: 3 (3+0)

Prerequisites: None

Specific Objectives

To understand the evolution of cities and urban planning from antiquity to present times.

Learning Outcomes

After studying this course, the learners will be able to,

1. Understand historical evolution of cities and urban planning.
2. Identify traits of cities in different historical periods.
3. Recognize elements and principles of cities from different ages.
4. Be acquainted with the historical development of planning profession.
5. Describe the development of cities in Pakistan.

Content List

- The evolution of cities and urban planning profession through ages in light of changes in conditions of the times including social, political, cultural, religious, economic, technological etc. developments.
- Origin of cities and Neolithic settlements
- Mesopotamian Cities in Fertile Crescent, Indus Civilization, Egypt, China and Meso America
- Classical cities in Greek and Roman times
- Medieval Cities in Europe
- Cities and urban planning during Islamic rule
- Renaissance and Baroque Urban Planning
- Industrialization, its effect on urban growth and early modern cities
- Modern city movements and masters
- Postmodern cities and urban planning
- Evolution and history of urban planning profession internationally and in Pakistan
- History of cities and urban planning profession in Pakistan including pre and post-independence eras.

Proposed Teaching Methodology

- Lectures
- Presentations
- Discussions

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Recommended Books

1. Kostoff, S. (2012) *The City Assembled; Elements of Urban Form through History*, Bullfinch Press.
2. Stanley D. Brunn, Zeigler j. Donald Hays-Mitchell Maureen (2012), *Cities of the World*, Rowmann and Littlefield.
3. Nan Ellin, (2009), *Postmodern Urbanism*, Princeton Architectural Press, New York.
4. Richard T. Le Gates Stout Frederic (2009), *The City Reader*, Routledge London
5. Spiro Kostoff, (2004) *The City Shaped; Urban Patterns and Meanings through History*, Bullfinch Press.
6. Patrick Karl o Brien, (2002) *Atlas of World History*, Oxford University Press, London.

7. Peter, Hall, *Cities of Tomorrow*, (2002) Blackwell Publishing Ltd.
8. Blowers, A., and Evans B. (eds.) (1997), *Town Planning into the 21st Century*, Routledge.
9. A. E. J. Morris, (1994) *History of Urban Form before the Industrial Revolution*, Routledge, New York.
10. S. Ahmed Ali, (1970) *History of Town Planning in India and Pakistan*.

9. TRANSPORTATION ENGINEERING

Credit hours: 3 (2+1)

Prerequisites: None

Specific Objectives

To Introduce Basic Concepts in Transportation Engineering

Learning Outcomes

After studying this course, the learners will be able to:

1. Describe the criterion for site selection for development of new roads
2. Classify urban road network
3. Understand the importance of road characteristics, vehicle characteristics, human behavior, and traffic flow characteristics for geometric design of highways
4. Conceptualize the planning, designing and configuration of airports, railways, harbors and sea-ports

Content List

- Roads:
 - Classification of Roads
 - Road Characteristics: Road Location; Reconnaissance Survey for New Roads; Surface Condition; Slopes & Curves.
 - Vehicle and Human Characteristics: Characteristics of Vehicle (size, weight, axle configuration and power-to-weight ratio, turning radius and turning path), Human Behavior; Perception-Reaction Process; Comfort, Vision, Design Driver
 - Traffic flow Characteristics: Road Capacities, Analysis of Speed, Flow and Density Relationship, Highway Capacity and Level of Service
 - Bridge Heights and Clearances for Road and Rail Crossing, Gradient on Bridge Approaches and Road Alignment.

- Road Junctions & Interchanges; Intersections Planning, Design and Control
- Mass Haul Diagrams (Earthwork Profile)
- Types of Pavement: Analysis of Bituminous Pavement Structure and Concrete Pavement Structure
- Geometric Design of Highways: Locational Design; Elements of Design: Sight Distance, Stopping Sight Distance, Passing Sight Distance, Design Vehicle, Driver Performance, Operational Speed, Design Speed, Free-Flow Speed, Design Data; Speed and Right of Way (ROW), Soil and Slope Stabilization, Elements of Road Curves: Supper Elevation, Transition Curves, Cross-Falls, Extra Width of Carriage, Sight Distances on Vertical and Horizontal Curves , Drainage, Camber, Crown
- Railways
 - Railways: Introduction to Railroad, Types of Rail Tracks and Gauges, Joints and Crossings, Yards and Stations, Right of Ways; Design of Railway Track; Grade Compensation, Design Components and Foundation; Introduction to Mono-rails; Mass-transit systems etc.
- Airports:
 - Airport Planning, Airport Approach Requirements, Factors Affecting the Location and Planning of Airports
 - Design and Configurations of Air Side Area: Principle Features; Landing Strip, Runways, Taxiways, Apron, Hangers, Over-run Strip. Approach Zone, Turning Zone, V.F.R. and I.F.R; Type of Air Traffic, Speed and Capacity; Design standards and Orientation. Site Requirements and Operational analysis. Physical Aspects and risk Assessment;
 - Design and Operation of Land Side Area: Air Terminal Building, Vehicular Circulation and Parking, Terminal Ground Access
- Water Ways:
 - Introduction to Water Ways and Sea-ports; Design and Configuration of Harbors and Ports, Cargo Handling and Carriers, Water Ways and their Potentials in Pakistan. Existing and Potential Seaports in Pakistan.

Practical

- Study of Engineering Design Parameters of Roads and Railways.
- Designing of Intersection (Plain, Midgrade)
- Visits and Preparation of Sketch Plan such as a Railway Station, Airport, Terminus, Harbors and Sea-ports, etc.

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Guest Speaker
- Field surveys
- Report Writing
- Poster Display

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc.

Final Term (60%)

- Written long/short questions, quizzes etc.

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc.

Recommended Books

1. ITE (Pande Anurog) (2016), *Traffic Engineering Handbook*, Wiley.
2. Dusan Teodorovic. (2016), *The Routledge handbook of transportation*, Routledge.
3. Government of Punjab (2008), *Punjab Traffic and Transport Manual*, Volume-1, Signs, Signal and Pavement Markings.
4. Chakroborty, P. &, Das, (2003), *A Principles of Transportation Engineering*, New Delhi, Prentice–Hall.
5. Khisty C. Jotin & Lall B. Kent, (2002), *Transportation Engineering An Introduction*, New Delhi, Prentice–Hall, (Third Edition).
6. Currin R. Thomas., (2001), *An Introduction to Traffic Engineering: A Manual for Data Collection and Analysis*
7. Jason, Y. C. (1982), *Transportation Engineering: Introduction to Planning, Design and Operations*, New York, Elsevier North Holland Inc. (Latest Edition).

10. SURVEYING

Credit hours: 3 (1+2)

Prerequisites: None

Specific Objectives

To impart basic skills and techniques for topographic / physical surveys using traditional and latest tools and equipment.

Learning Outcomes

After studying this course, the learners will be able to:

1. To describe various terms and equipment used in basic surveying
2. To calculate areas and volumes of regular and irregular objects
3. To prepare plane table and contour maps of small areas

Content List

- Introduction to small survey instruments, Optical square, Box sextant, Prismatic compass. Abney's clinometers. Tangent clinometer and planimeter,
- Leveling, Reduction of levels. Temporary and permanent adjustment of levels.
- Contouring, Plane table, Chain and tape and Theodolite surveys, traversing with Theodolites and Prismatic compass.
- Concept and use of Total Station.
- Earth work calculations. Computation of areas by D.M.D. method. Simpson's rule. Trapezoidal rule, Calculation of volumes.

Practical

Field surveys, Chain, Plane Table, Compass, Theodolite leveling and contouring assignments. Setting out of a public building and a small housing scheme. Use of total station.

Proposed Teaching Methodology:

- Lecturing
- Field surveys
- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc.

Final Term (60%)

- Written long/short questions, quizzes etc.

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc.

Recommended Books

1. Julia J. Quinlan (2012), *How to Use Maps*, Rosen Pub Group.
2. Charles D. Ghilani, Paul R. Wolf (2010), *Elementary Surveying: An Introduction to Geomatics*, Pearson Education Limited.
3. Barry F. Kavanagh (2003), *Surveying: Principles and applications*, Prentice-Hall.
4. Anderson, James, M. and Mikhail, M. Edward, *Introduction to Surveying*, McGraw-Hill Co., New York, (Latest Edition).
5. Nathornson, Jerry, A. and Kissam, Philips, *Surveying Practice*, McGraw-Hill Co., New York, (Latest Edition).
6. Kanetkar, T. P. and Kulkarni, S. V., *Surveying and Leveling-1*, Poona, Pune Vidyarathi Gridha Prakashana, (Latest Edition).
7. Agor, R., *Surveying*, Delhi, Khana Publishers, (Latest Edition).

11. INTRODUCTION TO GIS

Credit hours: 3 (2+1)

Prerequisites: None

Specific Objectives

- To introduce basic concepts, tools and techniques in GIS (Geographical Information Systems)

Learning Outcomes

After studying this course, the learners will be able to:

1. Understand terminologies, and scope of GIS
2. Know the techniques of data capturing, storing, basic analysis, and retrieval in map and report formats
3. Evaluate quality parameters of existing GIS data
4. Analyze GIS data for problems identification
5. Applying GIS applications for development plan implementation and monitoring

Content List

- Introduction, Definitions Components, Functional Subsystem, Raster Data Model, Vector Data Model, Attribute Data Model
- Data Acquisition Techniques, Data Resources, Data Capturing Techniques And Procedures
- Data Interoperability (Transferring Data to and From Different Software like ArcGIS, AutoCAD etc.)
- Remote Sensing as Data Source; Introduction to Remote Sensing and Image Processing
- Data Transformation, Visualization of Spatial Data in Desired Projections

- Cartography and Visualization: Map Elements, Symbols to Portray Points, Lines, Area and Volumes, Variables Visual Hierarchy, Map Scale And Spatial Details
- Introduction to Spatial Analysis: Overlay Functions, Neighborhood Functions, Triangular Irregular Network (TIN), Digital Elevation Model (DEM)
- Network And Overlay Analysis, Segmentation Analysis
- Spatial Data Quality, Data Accuracy and Precision

Practical

- Introduction to GIS lab (hardware/software)
- Practical demonstration of raster/vector/attribute data preparation, entry and display
- Data capturing through various means
- Digitization, vector/raster conversion, data layer integrations, data visualization, map layouts
- Data classification and thematic mapping, handling topological errors

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Field Visits for data capturing and verification
- Lab Work using GIS software

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc.

Recommended Books

1. Heywood, I., Cornelius, S. and Carver, S. (2006), *An introduction to Geographic Information System*, New York, Addison Wesley Longman.

2. Clarke, K. (2004), *Getting Started with Geographic Information System*, New York, Prentice Hall, ISBN – 1879102897.
3. Burrough, P., (2002), *Principles of Geographic Information Systems for Land Resources Management*, Oxford, Oxford University Press, ISBN – 0198233655.
4. Lo, C. P. and Yeung, A. K. W. (2002), *Concepts and Techniques of Geographic Information Systems*. Upper Saddle River, NJ, Prentice Hall.
5. Otto Huisman and Rolf A. de (2000), *Principles of Geographic Information Systems*, The Netherlands ITC, ISSN-978-90-6164-269-5.
6. ESRI, *Getting Started with ArcGIS*, Online Tutorial, USA.

12. DEVELOPMENT ECONOMICS

Credit hours: 2 (2+0)

Prerequisites: None

Specific Objectives

To introduce basic concepts of economics and their use in development planning.

Learning Outcomes

After studying this course, the learners will be able to:

1. Define and describe the basic concepts, ideas, and strategies employed in the pursuit of development economics in terms of city, regional and planning
2. Understand the basic principles that enable critical assessment of alternative development policies and programs
3. Reflect on the goals and objectives, implementation strategies, and successes and failures of economic development efforts
4. Reflect development plans at local, provincial and national level
5. Referring to CPEC and other important development treaties and accords

Content List

- Introduction to Basic Concepts of Economics and Defining Economic Development, Laws of Economics, Demand and Supply, Price Market Elasticity, Marginal Utility, Monopoly, Marginality, Income Distribution, Equality and Equity, Gross and Net National Product and Income, Per Capita Income, etc.
- Economic Base Theory (Such as Economic Base Theory and Regional Growth; Rastow Model, Classical and Keynesian

Equilibrium Models; Return to the Post-Keynesian Framework; Cumulative Causation)

- Political Context of Economic Development
- Economic Analysis of Why and Where Cities Develop
- Determination of Urban Land Use, Reasons for Suburbanization
- Location and Trade with Particular Reference to Current Scenario Like CPEC, and other such Agreements
- Investment in Inner Cities and Low-Income Communities, Small Businesses
- Technology and Technical Assistance, Economic Development Plans (e.g. Five Year Plans, Annual Development Plans, Economic Development Report, Perspective Plans etc.)
- Economic Infrastructure and Environment
- Globalization and Regionalism from Economics point of view

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Guest Speaker
- Student(s) Seminar
- Review of development plans

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc.

Recommended Books

1. Hartwick, John (2015), *Urban Economics*, Routledge.
2. Nancy Brooks, Kieran Donaghy, and Gerrit-Jan Knaap (eds.) (2012), *Teaching Urban Economics to Planners and the Role of Urban Planning to Economists, The Oxford Handbook of Urban Economics and Planning*, ISBN: 9780195380620.
3. Sloman, John. (2004), *Essentials of Economics*, Prentice Hall. ISBN 0-273-68382-9.
4. Sloman, John. (2003), *Economics*, Prentice Hall. ISBN 0-273-65574-Amsden, A. H. (2003), *The Rise of "The Rest": Challenges to the West from Late-Industrializing Economies*. New York, NY: Oxford University Press, ISBN: 9780195170597.

5. Amsden, A. H., and W. W. Chu. (2000), *The Maturation of an Emerging Economy: Taiwan's Transformation*.
6. *Journal of Development Economics*, Elsevier B.V.

13. ISLAMIC STUDIES /PAKISTAN STUDIES / ETHICS (COMPULSORY)

Credit hours: 2 (2+0)

Prerequisites: None

(See Annexure A)

14. ENGLISH-II (Communication Skills)

Credit hours: 2 (2+0)

Prerequisites: English-I

Specific Objectives

To enhance language skills and develop critical thinking

Learning Outcomes

After studying this course, the learners will be able to:

1. Improve communication skills required to be a competent communicator
2. Improve understanding of day to day functional use of language
3. Increase understanding of communication skills leading to successful behaviour in business setups
4. Apprise students with social and business etiquettes and manners
5. Acquaint students with importance of non-verbal communication

Content List

- Use of grammar in context; Phrase, clause and sentence structure; Reported speech; Modals
- Oral Communication Skills (Listening and Speaking); comprehend and use English inside and outside the classroom for social and academic purposes
- Reading and Writing Skills: Distinguishing between facts and opinions; Recognizing and interpreting the tone and attitude of the author; Recognizing and interpreting the rhetorical organization of a text; Generating ideas using a variety of strategies e.g. mind map; Developing an outline for an essay; Writing different kinds of essay (descriptive and narrative); Vocabulary building skills

- Importance of written and spoken words. Construction of sentences and paragraphs and the use of effective English composition.
- Preparation of short essays and speeches.
- Précis writing and letter writing.
- Building up of vocabulary.
- Grammar and logic of arguments.
- Qualities of a good report on a Town- Planning topic. Organization and format of a planning report: main parts, quotations, footnotes, use of headings, Bibliography etc.

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Recommended Books

1. *Collins COBUILD Students' Grammar*. London: Longman.
2. Eastwood, J. (2004), *Oxford Practice Grammar*, New Ed., with tests and answers, OUP.
3. Goatly, A. (2000), *Critical Reading and Writing: An Introductory Course*. London: Taylor & Francis.
4. Murphy, Raymond. *Grammar in Use*. Cambridge University Press.
5. Thomson & Martinet, *Practical English Grammar*, Oxford University Press.
6. Wallace, M. (1992), *Study Skills*, Cambridge University Press.
7. Yorky, R., *Study Skills*.
8. Debska-Ainta, *Upgrade your English*, Oxford University Press.
9. Cosmo, F. Ferrara, *Writing on the Job*.
10. Ketteley and Thompson, *English for Modern Business*.

THIRD SEMESTER

15. TRANSPORTATION PLANNING

Credit hours: 3 (2+1)

Prerequisites: None

Specific Objectives

To Impart Skills and Techniques for Transportation Planning Including Public Transport

Learning outcomes

After studying this course, the learners will be able to:

1. Design and conduct surveys to provide data required for transportation planning
2. Learn and understand zonal demand generation and attraction regression model
3. Learn and understand modal split for mode choice analysis
4. Learn calculating parking demand and parking efficiency
5. Learn concepts of Intelligent Transport System (ITS), its component and application
6. Familiarize with categories of public transportation, key terms of public transportation and how to calculate capacity of public transportation
7. Understand transportation project planning and development

Content List

- Transportation System and their Influence upon National, Regional and Local Development: Road Transportation, Water Transportation, Railroad Transportation, Truck Transportation, Pipeline Transportation, Air Transportation
- Traffic Management Measures
- Transportation Surveys: Traffic Analysis Zones, Turning Tendency Survey, Turning Movement Counts, Traffic Volume, Traffic Compliance, Vehicle Occupancy Study, Origin-Destination
- Parking and Service Areas: Appropriate Siting and Planning of Car Parks and Garages (including Mechanical Methods) above and below Ground; Petrol Filling Stations and Service Areas. Types of Parking (On-Street, Off-Street, Shared parking, Metered Parking, Mechanical Parking, Park and Ride etc.), Parking Efficiency, Parking Accumulation, Turn-over Rate, Volume, Probability Calculation
- Uniform Traffic Laws and Control Devices; Traffic Signs, Traffic Markings, Traffic Signal System, Traffic Island, Bus-Ways, Service Roads and Lay-Byes, Traffic Lanes, Channelization, Traffic Calming
- Trip Generation Modeling: Trip Production and Trip Attraction
- Trip Distribution Model: Gravity Model, Modal split
- Land use and transportation interaction: Accessibility Index; Land use Transportation Model, Traffic Assignment Models
- Urban Structure and Mobility: Centripetal, Grid Type & Linear Structure and their Effect on Mobility, Design of Roads in Relation to Different Types of Traffic and Buildings Including Road Width; Traffic Lanes and Means of Access; Service roads and lay-byes. ; Segregation of Vehicular and Pedestrian Traffic. Planning of Roads in Relation to Existing Features, Trees and Streams. Planning of Road Junctions and Intersections to

Facilitate Free Flow of Traffic With Safety and Comfort for all Users, Pedestrian and Bicycle Facilities Design, Planning of Transport Terminals

- Intelligent Transportation System: Objective, Classification of ITS, Merits and Demerits of ITS
- Urban Mass Transit Systems, Transit –Orient Development; Effects and Changing Trend along Transit Corridors w.r.t Current Transportation Paradigm Shift, Traffic Impact Assessment (TIA) of proposed land use on the surround road network.

Practical

- Traffic and Parking Surveys
- Travel Time and Delay Studies.
- Hotspot Surveys.
- Application of TAZ in Study Area
- Household Surveys for Trip Calculations of Residential Area
- Traffic Impact Analysis of a Proposed Commercial Plaza

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Guest Speaker
- Field Visits
- Report Writing
- Poster Display

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc.

Final Term (60%)

- Written long/short questions, quizzes etc.

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc.

Recommended Books

1. Buchanan, Colin (2015), *Traffic In Towns: A Study Of The Long Term Problems Of Traffic In Urban Areas*, Routledge
2. Dimitriou, Harry T. (2011), *Urban Transport Planning: a developmental approach*, Routledge.
3. Schiller, Preston. (2010), *An Introduction to sustainable Transportation: policy, planning and implementation*, Earth scan.
4. Chakroborty, P. & , Das, (2003), *A Principles of Transportation Engineering*, New Delhi, Prentice–Hall

5. Khisty C. Jotin & Lall B. Kent, (2002), *Transportation Engineering; An Introduction*, New Delhi, Prentice–Hall, (Third Edition).
6. Currin R. Thomas., (2001), *An Introduction to Traffic Engineering: A Manual for Data Collection and Analysis*
7. Jason, Y.C. (1982), *Transportation Engineering: Introduction to Planning, Design and Operations*, New York, Elsevier North Holland Inc. (Latest Edition).

16. PLANNING THEORY

Credit Hours: 2 (2+0)

Prerequisites: None

Specific Objectives

To make students understand planning theories.

Learning Outcomes

After studying this course, the learners will be able to:

1. Understand the theoretical aspect of policies and planning
2. Explore how the planning theories can be applied for spatial development plan making
3. Build planning model to test the economic and regional growth for the identification of suitable location for industries, human settlement including new towns, agriculture and alike.

Content List

- Theory of Planning: Evolution of planning theory, ends and means in Planning
- Choice theory of Planning
- Comprehensive planning: Goal and process, advantage and disadvantage
- Incremental planning
- Mixed scanning- a science of muddling through
- Advocacy and pluralism
- Community participation and decision behavior; social planning and public participation
- Theories in Planning: economic growth models, regional growth theories, growth pole and growth center
- Locational theories for example, human settlement location, industrial location and agricultural location

Proposed Teaching Methodology

- Lecturing
- Demonstration

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Recommended Books

1. Hall, P., and Tewdwr-Jones, M. (2011), *Urban and Regional Planning*, Routledge.
1. Greed, C. (ed.) (1999), *Social Town Planning*, Routledge.
2. John Glasson (1987), *An introduction to regional planning; Concepts, theory and practice*. Latest edition.
3. Andreas Faludi (1986) *A reader in Planning theory*, Edited/ reprint, Pergamon Press, Oxford, London.
4. Ratcliff, John (1981), *Introduction to Town and Country Planning*, London, Hutchinson.
5. Christopher Pollitt, Lew Lewis, Josephine (1979) *Public Policy In Theory And Practice: A Reader*, Hodder & Stoughton, Open University Press.
6. *Journal of RTPI*.
7. *American Journal of Planner*.

17. APPLIED STATISTICS

Credit hours: 3 (3+0)

Prerequisites: None

Specific Objectives

To introduce skills and techniques for analysis and interpretation of statistical data and its application in planning

Learning outcomes

After studying this course, the learners will be able to:

1. Apply numerical and graphical techniques to interpret descriptive statistics.
2. Select appropriate probabilistic methods for analyzing uncertainty, risk and reliability
3. Develop a mathematical relationship between two or more data sets, using regression analysis including strength of relation and forecasting

Content List

- The organization of data, data types
- Statistical tabulations; time series, presentation of data, bar chart; pie chart; plotting the frequency distribution; histogram; plotting time series; scatter diagram
- Descriptive statistics, arithmetic mean; median; mode; standard deviation; variability in sample data and their application in planning.
- Index numbers and their interpretation; using an index to deflate a series
- Time series, the components of a time series; calculation of the trends; exponential smoothing; calculation of seasonal variation; series with seasonal Variation eliminated; importance of residuals; forecasting from the time series; additive or multiplicative models
- Probability, measuring probability; three approaches to probability; the laws of probability and their applications; tree diagrams; conditional probability; independence and correlation. Probability distribution; normal distribution
- Binomial distribution; mean and standard deviation of a binomial distribution
- Poisson distribution
- Non-parametric statistics, Chi-square and its interpretation, etc.

Proposed Teaching Methodology

- Lecturing
- Demonstration
- Use of related software

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc.

Final Term (60%)

- Written long/short questions, quizzes etc.

Recommended Books

1. Joseph F. Healey (2012), *Statistics: A Tool for Social Research*; Cengage Learning.
2. Stanislav Kolenikov et al. (2010), *Statistics in the social sciences: current methodological developments*, John Wiley and Sons.
3. Jay A. Weinstein (2010), *Applying Social Statistics: An Introduction to Quantitative Reasoning in Sociology*, Rowman and Littlefield.
4. J. P. Marques de Sá (2003), *Applied Statistics: using SPSS, STATISTICA, and MATLAB*, Volume 1; Springer.

18. ARCHITECTURAL DESIGN

Credit hours: 3 (1+2)

Prerequisites: None

Specific Objectives

To develop basic understanding of architectural design especially vis-a-vis contextual relationships of buildings

Learning Outcomes

After studying this course, the learners will be able to:

1. Understand the processes of architectural design
2. Explain the architectural elements of buildings
3. Apply aspects of architectural design in planning
4. Grasp the impact of planning on architecture of the city

Content List

- Introduction to Building Forms and Functions.
- Introduction to Architectural Design Methodologies and Theories.
- Socio-Cultural, Economic, Religious and Political Aspects of Architectural Design.
- Terminology and Nomenclature of Basic Components of a Building Such As Walls, Floors, Roofs, Doors, Windows, Staircases, Arches etc.
- Parameters for Design of Residential, Educational, Commercial, Recreational and Public Buildings; Design Standards and Space Requirements;
- Siting and Contextual Analysis of Buildings.
- Building Orientation and Climatic Control.
- Introduction to Structures, Systems and Services Of Buildings
- Principles of Aesthetics in Architectural Design.
- Study And Development of Design Briefs And Project Programs;
- Survey of Past and Contemporary Key Monuments and Architectural Icons in the World and Pakistan.
- Introduction to Accessibility, Eco-Design and Green Buildings.

Practical

- Analytical exercises in architectural design.
- Solid void analysis of buildings within cities.
- Design of houses and apartments for various plot sizes.
- Design of commercial and institutional buildings.
- Study of architectural plans and working drawings for residential and commercial buildings.

- Exercises in architectural process documentation via visits to architectural offices and construction sites, interviews of architects, survey of architectural process drawings etc.

Proposed Teaching Methodology

- Lecturing
- Design Projects
- Visits
- Guest Speakers
- Seminar

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, viva voce/jurie, etc.

Recommended Books

1. Ching, Francis D K (2011), *A Visual Dictionary of Architecture*, John Wiley & Sons Inc, New Jersey.
2. Jefferies, Alan (2010), *Architectural Drafting and Design*, Dalman Cengage Learning
3. Unwin, Simon (2009), *Analyzing Architecture*, Routledge, London.
4. Davies, Nikolas and Erkil, Jokiniemi (2008), *Dictionary of Architecture and Building Construction*, Architectural Press, Oxford.
5. Ching, Francis D K (2007), *Form, Space and Order*, New Jersey, John Wiley & Sons Inc. London.
6. De chiara, Joseph de and Michael J. Crosbie (2001), *Time Saver Standards for Building Types*, McGraw-Hill Professional.
7. Calendar, John Hancock et al., (1997), *Time Saver Standards for Architectural Design Data*, McGraw-Hill Professional
8. Mumtaz, K. K. (1986), *Architecture in Pakistan*, Butterworth-Heinemann, Singapore.

19 APPLIED GEOGRAPHY

Credit hours: 3 (2+1)

Prerequisites: None

Specific Objectives

To impart geographical skills and techniques for city and regional planning.

Learning Outcomes

After studying this course, the learners will be able to:

1. Understand the nature and basic concepts of applied, physical and human geography
2. Apply the geographical data and local knowledge in urban and regional development planning
3. Understand the locational, ecological/climatic and physiographic aspects for urban and regional planning
4. Apply and evaluate various theories of applied geography such as, concentric zone, sector and multiple nuclei theory in urban and regional development planning

Content List

- Basic Concepts In Physical, Human And Applied Geography And Their Application In City And Regional Planning
- Impacts Of Physical Factors, such As Topography, Hydrology, Climate, Flora And Fauna, And Natural Hazards On The Growth And Expansion Of Human Settlement Including Mega Cities And Their Region
- Physical Factors in Development of Human Settlements in Pakistan.
- Physiographic And Climatic Regions Of Pakistan, Location And Geographical Space In The Distribution Of Cities
- Study of Spatial Distribution of Population and Economic Activities in Cities, Population Distribution and Demographic Structure of Cities, Day And Night Time Population and Their Significance in City Planning.
- Functional Classification Of Cities, Industrial, Commercial, Mining, Tourist And Religious Towns
- Cities As Central Places And Theories Of Urban Structure
- Basic And Non-Basic And Formal And Informal Functions And Their Role In Growth And Development Of Cities
- Urban Growth and Urban Sprawl, Causes, Affects and Control of Urban Sprawl.

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Guest Speaker
- Field Visits

- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc

Recommended Books

1. Rubenstein (2015), *Contemporary Human Geography*, Pearson.
2. Rodrigue, Jean-Paul (2013), *The Geography Of Transport Systems*. 3rd ed., Routledge.
3. Robert Stimson and Kingsley E. Haynes (2012), *Studies in Applied Geography and Spatial Analysis: Addressing Real World Issues*, UK, Edward Elgar. ISBN: 978 1 78100 712 9
4. Marsh, W. M. & Grossa, J. (2005), *Environmental Geography; Science, Land use Earth System*, John Wiley & sons, Hoboken.
5. Strahler, A. N. (2004), *Modern Physical Geography*, New York, John Wiley.
6. Levy, J. M. (2002), *Contemporary Urban Planning*. Prentice Hall.
7. Hugget, R. J. (2002), *Fundamentals of Geomorphology*, Rutledge.
8. Miller, A. (2001), *Climatology*, New York, Methuen.
9. Monk house, F. J. (1991), *Principles of Physical Geography*, London, Hodder & Stoughton.

20. ENGLISH-III (Communication Skills and Report Writing)

Credit hours: 3 (1+2)

Prerequisites: English I & II

Specific Objectives

To enhance language skills and develop critical thinking

Learning Outcomes

After studying this course, the learners will be able to:

1. Learn principles of effective writing
2. Recognize and adapt writing for a variety of audiences and situations
3. Apply effective writing strategies in order to produce concise, clear and meaningful documents ranging from technical definitions to technical proposals and reports

Content List

- Presentation skills
- Essay writing: Descriptive, narrative, discursive, argumentative
- Academic writing: How to write a proposal for research paper/term paper; How to write a research paper/term paper (emphasis on style, content, language, form, clarity, consistency)
- Technical Report writing
- Progress report writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Recommended Books

1. John Langan, (2004), *College Writing Skills*, McGraw-Hill Higher Education..
2. Laurie G. Kirszner and Stephen R. Mandell, *Patterns of College Writing (4th Edition)*, St. Martin's Press.
3. Janice Neulib; Kathleen Shine Cain; Stephen Ruffus and Maurice Scharton (ed). *The Mercury Reader*. A Custom Publication. Compiled by northern Illinois University.

FOURTH SEMESTER

21 - HOUSING

Credit hours: 3 (2+1)

Prerequisites: None

Specific Objectives

To familiarize with basic housing issues and their solutions in relation to urban planning and development

Learning Outcomes

1. Understand the traditional tools of housing policy and planning
2. Appraisal of housing issues in Pakistan as well as in other countries
3. Understand housing systems, policies and practices
4. Able to plan and design housing schemes

Content List

- Housing Problems in Developed and Developing Countries with Special Emphasis on Pakistan.

- Housing Supply and Demand, Evaluation of Housing Shortage and Need for the Future. Quantitative Aspects. Socio-Economic Aspects.
- Housing Data Collection Techniques. Looking and Listening Surveys etc.
- Slums and Squatter Settlements Improvement Programs such as Orangi Pilot Project. Low Income Housing Incremental Development Schemes, such as *Khuda Ki Basti*.
- Housing Standards and Residential Densities.
- Procedure for Planning and Design of Housing Including Site and Services Schemes and Vertical Housing; Layout Patterns, Housing Types and their Suitability for Various Climatic Regions.
- Housing Policies and Programs in Public and Private Sector.
- Housing Finance.
- Post Development Management and Maintenance of Housing Projects.

Practical

- Housing layout patterns
- Application of housing data collection techniques
- Designing of a housing scheme

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Guest Speaker
- Field Visits
- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc.

Final Term (60%)

- Written long/short questions, quizzes etc.

Proposed Assessment (practical, 100%)

- Presentations, assignments, viva voce, field visits etc.

Recommended Books

1. Bredenoord, Jan. ed (2014), *Affordable Housing In The Urban Global South: Seeking Sustainable Solutions*, Routledge, London.

2. Drakakis-Smith, D. (2013), *Urbanisation, Housing And The Development Process*, Routledge
3. Habitat, UN. (2005). *Financing urban shelter: global report on human settlements 2005*. London, Earth scan and UN Habitat.
4. Clapham, David Frederick (2005), *The meaning of housing: a pathways approach*. Bristol: The Policy Press.
5. Norbert Schoenauer(2003), *6,000 Years of Housing*, W. W. Norton & Company Library of Congress.
6. Pugh, C., Aldrich, B., & Sandhu, R. (1995), *Housing the urban poor: policy and practice in developing countries*.
7. Alvi, I. (1997). *The informal sector in urban economy: low income housing in Lahore*. Karachi, Oxford University Press.
8. Turner, J. F. C. (1977), *Housing by people: Towards autonomy in building environments*, New York, Pantheon Books.
9. Government of Pakistan, *National Housing Policy 2001 and 2017*.
10. Looking and Listening Surveys from <http://web.mit.edu/incrementalhousing/lookingListening/basicSurveyProtocol.html>

22. PLANNING SURVEYS AND DATA ANALYSIS

Credit hours: 3 (1+2)

Prerequisites: Introduction to city and regional planning

Specific Objectives

To impart skills and techniques for conducting various types of planning surveys

Learning Outcomes

After studying this course, the learners will be able to:

1. Define and describe the terms related to planning surveys
2. Understand the purposes of conducting various types of planning surveys
3. Discuss sampling methods
4. Conduct various types of planning surveys by applying tools for data collection
5. Perform data analysis
6. Make analytical reports

Content List

- Nature and Purposes of Planning Surveys
- Basic Concept of Variables, Traits and Indicators
- Identification of Goals and Objectives of Planning Surveys
- Nature, Contents of Various Types of Urban and Regional Surveys

- Sampling: Purpose, Types and Methods
- Sampling Errors and Measures to Control Sampling Errors.
- Tools for Data Collection; Questionnaires, Interview Schedule, Observation Sheet, Etc.
- Techniques for Conducting Various Planning Surveys Such as Land Use, Socio-Economic and Housing, Transport, Health, Education, Industry, Commerce, Public Facilities and Utility Services.

Practical

- Designing of Survey/Data Recording Instruments
- Conducting Various Surveys Such Land Use, Socio-Economic, and Housing, Industrial, Commercial, Education, Health, and Infrastructural Services
- Generating Land Use Plans and Preparing Analytical Reports Based on Survey Data

Proposed Teaching Methodology

- Lecturing
- Assignments
- Field Visits
- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc

Recommended Books

1. Fowler, F. J. (2014), *Survey Research Methods*, Sage Publications.
2. Zmud, J., Gosselin, M. L., Munizga, M., and Carrasco, J. A. (eds.) (2013), *Transport Survey Methods: Best Practice for Decision Making*, Emerald.
3. Valliant, R., Dever, J. A. and Kreuter, F. (2013), *Practical Tools for Designing and Weighing survey samples*, Springer.
4. Mutz, D. C. (2011). *Population-Based Survey Experiments*, Princeton University Press.
5. Bethlehem, J., Cobben, F., and Schouten, B. (2011), *Handbook of Nonresponse in Household Surveys*, John Willey and Sons.

6. Bulmer, M. (ed.) (2010), *Social Measurement through Social Surveys*, Ashgate.
7. Pauline, V. Y. (2009), *Scientific Social Surveys and Research*, Phi Learning.

23. ENVIRONMENTAL PLANNING AND MANAGEMENT

Credit hours: 3 (2+1)

Prerequisites: None

Specific Objectives

To develop understanding of environmental issues and familiarize the students with environmental planning and management approaches

Learning Outcomes

After studying this course the learner will be able to:

1. Understand the basic concepts in environmental planning and management
2. Discuss environmental issues at global, national and local level
3. Describe impacts of environmental issues on health
4. Understand the concept of sustainable development and its application in city and regional planning
5. Discuss and critically evaluate various existing environmental policies, rules, regulations, and institutional structures relating to environmental planning and management
6. Assess impacts of human activities on environment and ecology
7. Suggest policies and measures for environmental improvement and risk reduction in urban and rural areas

Content List

- Basic Concepts; Ecology, Ecosystem, Pollution, Waste and Hazards etc, Environmental Problems at Home, Workplace, and City, Relationship Between Environment and City & Regional Planning
- Environmental Issues at Global, National and Local Level and their Impacts on Cities and Regions, Impacts of Environmental Issues on Human Health, Regulating Industrial and Transport Pollution, Waste Management, Urban Sprawl and Compact Development
- Sustainable Development: Conceptual Issues. Cities and Sustainability.
- Importance of Environmental Policy, National Environmental Policies, Standards, Regulatory Institutions and Environmental Justice Delivering Mechanism
- Environmental Auditing, Environmental and Social Impact Assessment, Environmental Risk Reduction Strategies

- Introduction to Natural Resource Management
- Emerging Concepts in Environment Planning and Management.

Practical

- Field visits to observe and identify environmental issues in a city
- Conduct Environmental Impact Assessment of a certain project
- Conduct Environmental Auditing of a certain organization/business entity
- Prepare environmental management plan for commercial, industrial and residential areas of the city

Proposed Teaching Methodology

- Lecturing
- Field Visits
- Guest Speaker
- Project

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc

Recommended Books

1. Daniels, T. (2014), *The Environmental Planning Handbook for Sustainable Communities and Regions*, American Planning Association (ISBN 1611901510, 9781611901511).
2. Momtaz, S., Kabir S. M. Z. (2013), *Evaluating Environmental and Social Impact Assessment in Developing Countries*, Waltham, US, Elsevier Inc.
3. Rom, W. N. (2012), *Environmental Policy and Public Health: Air Pollution, Global Climate Change and Wilderness*, Jossey-Bass, San Francisco.
4. Miller, G. T. and Spoolman, S. (2012), *Living in the Environment: Principles, Connections, and Solutions*, Brooks/Cole, CENGAGE Learning.

5. UN-HABITAT (2011), *Cities and Climate Change: Global Report on Human Settlements 2011* (ISBN: 9781849713702).
6. Lehmann, S. (2010), *The Principles of Green Urbanism: Transforming the City for Sustainability*, Earthscan (ISBN: 9781844078172).
7. Imran, Muhammad (2010), *Institutional Barriers to Sustainable Urban Transport in Pakistan*, Pakistan Oxford University Press, (ISBN: 9780195476668).
8. Tinsley, S. and Pillai, I. (2006), *Environmental Management Systems: Understanding Organizational Drivers and Barriers*, EarthScan, Bath Press, UK.
9. Keizers, G. (2005), *Business, Government and Sustainable Development*. Routledge, (ISBN 0-415-33963-4).
10. Randolph, J. (2004), *Environmental land use planning and management*, Covelo, CA. Island Press.

24. INFORMATION TECHNOLOGY AND DATABASE MANAGEMENT

Credit hours: 3 (1+2)

Prerequisites: None

Specific Objectives

To impart basic skills and techniques in information technology and their use in database development and management

Learning Outcomes

After studying this course, the learners will be able to:

1. Define and describe the terms pertaining to IT and database management
2. Understand the basic principles, elements and types of information technology as well as databases
3. Develop data base using Access
4. Analyze, manipulate and organize data using SPSS and Excel
5. Make presentations using Power Point

Content List

- Basic Computing
- Use Of MS Office Package - Word, Excel, Access, Power Point
- Basic Concepts In Database Development And Management
- Entity Relationship Modeling
- Relational Data Model And Algebra

- Structured Query Language
- Database Design
- Functional Dependencies And Normal Forms
- Transaction Processing And Optimization Concepts
- Concurrency Control And Recovery Techniques
- Database Recovery Techniques
- Database Security And Authorization
- Introduction To Statistical Package For Social Sciences (SPSS)
- Questionnaire Coding And Data Preparation For Computerized Analysis
- Data Entry Into SPSS
- Editing Data Values And Controlling Data Display
- Defining Variables And Selection Of A Procedure From The Menus To Calculate Statistics
- Recoding Existing Variables And Computing New Variables
- Assigning Variable Labels And Value Labels
- Constructing Simple Frequency Tables And Cross-Tables
- Elementary Graphics
- Creating Statistical Diagrams And Charts
- Editing Results Display In The Output Navigator

Practical

- Hands-on practice in using a database system to create files, tables, forms and queries
- Enter and manipulate data and generate reports
- Statistical analysis survey data using SPSS and preparation of tables and cross tables and charts
- Small group project implementing a database

Proposed Teaching Methodology

- Lecturing
- Demonstration
- Guest Speaker
- Practice in Computer Lab
- Use of Related Software

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits, etc

Recommended Books

1. Lambert, J., and Frye, C. (2016), *Microsoft Office 2016: Step by step* (ISBN-9780735699236).
2. George, Darren (2014), *SPSS for Windows Step By Step: A Simple Guide and Reference 18.0 Update*, Pearson,
3. Jeffrey A. H., Ramesh V., Heikki T. (2010), *Modern Database Management* ISBN-10: 0136088392.
4. Carlos C., Steven M., Peter R. (2009), *Database Systems: Design, Implementation and Management*. ISBN-10: 0538748842.
5. Sikander, P. K. et al., *Computer Use in Planning and Urban Management*, New Delhi: Naosa Publishing House.
6. Mark L. Gillenson (2005), *Fundamentals of Database Management Systems*, John Wiley & Sons.
7. Cronk, B .C. *How to use SPSS Statistics: A Step-by-Step Guide to Analysis and Interpretation*, 7th Edition.
8. R. Connolly and P. Begg (2003), *Database Systems: A Practical Approach to Design, Implementation and Management*, Addison-Wesley Pub. Co. ISBN – 0321210255 34.
9. Les Kirkup (2002), *Data Analysis with Excel®: An Introduction for Physical Scientists*, Cambridge University Press.

25. CLIMATE CHANGE AND DISASTER MANAGEMENT

Credit hours: 3 (2+1)

Prerequisites: None

Specific Objectives

To familiarize with the basic concepts and skills about natural and human induced hazards and associated disaster, disaster management, and adaptation to climate change

Learning Outcomes

After studying this course, the learners will be able to:

1. Define the basics of natural and human-induced hazards and associated disasters
2. Understand and explain disaster management cycle (Pre-disaster, disaster, and post disaster scenario), and its relation to development

3. Outlining the hazard profile of Pakistan and its sub-regions
4. Define and describe the Climate change as a phenomenon, and its relation to potential disasters
5. Interpret analyze and map the likely impacts and required preparation to reduce the impact upon happening of disasters to achieve disaster resilience development
6. Mapping of hazard specific and overall vulnerability, capacity w.r.t. historical trends and current climate change scenario

Content List

- Introduction to Hazards and Disasters (concepts, definitions and types)
- Hazard Dimensions, Distributions, Patterns, Associated Processes & Historical Trends
- Disaster Management Cycle, Pre-Disaster Phase (Prevention, Mitigation & Preparedness), Disaster Phase (Response, relief and recovery), Post-Disaster Phase (Rehabilitation, Development)
- Social & Economic Aspects of Natural and Human-Induced Hazards
- Individual and Community Adjustments w.r.t. Perceptions, Attitudes and Behavior
- Hazard and Disaster Investigation, Hazard Vulnerability Assessment & Risk Mapping and Management
- Disaster Risk Management (DRM) and Disaster Risk Reduction (DRR) in Development Planning
- Damage and Need Assessment
- Climate Change scenario in Pakistan and its Adoptability
- Disaster Management Policies and Institutional Infrastructure from National to Local Level
- Pakistan: National Disaster Management Plan; National DRR Policy; National Climate Change Policy
- Case Studies (Local and International).

Practical

- Hazards Identification and Mapping
- Risk / Vulnerability Assessment and Mapping
- Disaster Mitigation Strategies Development
- Analysis of any Natural or Human Induced Disaster with Field Investigation using GIS / Remote Sensing Techniques (Field investigation with selected area is highly encouraged)

Proposed Teaching Methodology

- Lecturing
- Written Assignments

- Guest Speaker
- Student(s) Seminar
- Group Field Assignment / Small Projects
- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc

Recommended Books

1. Edward Ng. (2015), *The Urban Climatic Map: A Methodology For Sustainable Urban Planning*, Routledge.
2. Nidhi Gauba Dhawan. (2014), *Disaster Management and Preparedness*, CBS Pub.
3. Bulkeley, Harriet (2013), *Cities and climate change*, Routledge.
4. Hamnett, Stephen (2011), *Planning Asian cities: risks and resilience*, Routledge.
5. ERRA (2010), *Urban Development Strategy* available at http://www.erra.pk/reports/Housing/UrbanHousing/270509Urban_Housing_Development_Strategy%20.pdf
6. ERRA (2009), *Annual Report of Earthquake Reconstruction and Rehabilitation Authority of Pakistan* available at: <http://www.erra.pk/Reports/Publications/Annual%20Review%202009%20-%202010.PDF>
7. Davidson, C. H., C. Johnson, et al. (2007), "Truths and Myths about Community Participation in Post-Disaster Housing Projects." *Habitat International* 31(1): 100-115.
8. Dilley, M. (2005), *Natural Disaster Hotspots: A Global Risk Analysis*, World Bank Publications.
9. Aloysius J. Rego (2003), *The Primer on Disaster Risk Management in Asia; Bangkok*, Asian Disaster Preparedness Center.
10. Sharma, A., M. Gupta, et al. (2003), "From Disaster to Sustainable Community Recovery." *Regional Development Dialogue*, 24(1), 53-61.
11. *Town Planning Instruments as a Strategy for Disaster Risk Reduction* available at https://www.fig.net/pub/accra/papers/ts07/ts07_01_adeleye_olayiwola.pdf

26. ISLAMIC STUDIES/PAKISTAN STUDIES/ETHICS

Credit hours: 2 (2+0)

Prerequisites: None

(See Annexure A)

FIFTH SEMESTER

27. SITE PLANNING AND LANDSCAPE DESIGN

Credit hours: 3 (2+1)

Prerequisites: None

Specific Objectives

To develop skills for site analysis and landscape design.

Learning Outcomes

After studying this course, the learners will be able to,

1. Develop skills in site planning and landscape design
2. Understand impact of site planning and landscape design on urban and regional planning
3. Plan sites of medium scale
4. Design and document natural and man-made features on planning sites

Content List

- Site Planning Overview, Definitions, Professional Roles, Resources, Process, Techniques and Technology.
- Site Analysis Parameters; Climate, Views, Landscape, Infrastructure, Location, Neighborhood, Density, Urban Scape, Byelaws Etc.
- Development Program Elements: User/Client Input. Functions, Uses, Clients, Visitors, Access, Circulation, Scale, Context, Grading, Drainage, Views, Orientation, Sequence Of Arrival, Hierarchy And Definition Of Spaces, Parking, Landscaping, Lighting, Safety, Defensible Space/Deliveries, Utilities, Storm Water And Drainage, Snow Storage, Architecture, Building Orientation, Trash, Budget, Sustainability, Politics And Neighbors Etc.
- Physical, Environmental, Social, and External Influences on Sites and Their Regional Settings and Contexts.
- Impact of Zoning, Regulations & Performance Standards on Site and Landscape Design.
- Concept Planning For Sites through Relationship Diagrams, Overlay Drawing Techniques, Design Process Charts Etc.

- Contemporary Trends and Influences on Site and Landscape Designing.
- Techniques in Review of Site and Landscape Plans.
- Design Elements and Principles for Landscape Planning Of Open Spaces and Parks.

Practical

- Site Analysis (research, diagrams and report).
- Site plan review checklist.
- Exercises in review and selection of site for a new town and its civic components.
- Landscape plans for medium scale sites

Proposed Teaching Methodology

- Lecturing
- Field Visits
- Assignments

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc

Recommended Books

1. Blake (2015), *An Introduction To Landscape And Garden Design*, Routledge.
2. James A. LaGro Jr. (2013), *Site Analysis: Informing Context-Sensitive and Sustainable Site Planning and Design*, 3rd Edition, John Wiley and Sons, New Jersey.
3. Stern (2013), *Paradise Planned: The Garden Suburban And The Modern City*, Monacelli Press.
4. Lynch, Gary and Hack, David (2012), *Site Planning*, 3rd Edition, MIT Press, Massachusetts.
5. Thomas Russ (2009), *Site Planning and Design Handbook*, The Mc-Graw Hill Companies, Inc., New York.
6. Leonard J. Hopper D. (2007), *Landscape Architectural Graphic Standards*, John Wiley and Sons Inc., New Jersey.
7. Watson, D. (2003), *Time-Saver Standards for Urban Design*, McGraw-Hill Professional.
8. Edward T. White (1983), *Site Analysis*, Architectural Media Ltd.

28. URBAN REGENERATION AND CONSERVATION

Credit hours: 3 (2+1)

Prerequisites: Introduction to city and regional planning

Specific Objectives

To familiarize the students with the concepts and techniques of urban regeneration as well as conservation of areas of historical significance

Learning Outcomes

After studying this course, the learners will be able to:

1. Understand restoring and rebuilding the physical fabric of cities
2. Understand the relationship between urban regeneration policy and changing economic, social and political circumstances
3. Show core knowledge of the key features and impacts of recent urban regeneration policies in worldwide
4. Show awareness of the procedural and management consideration involved in the delivery of urban regeneration initiatives
5. Demonstrate an understanding of the principal social, economic and physical challenges confronting cities and regions in Pakistan

Content List

- Urban growth, slums and squatter settlements; definitions, Identification, causes and potentials for improvement.
- Urban Regeneration and urban renewal; Concepts, Approach and Processes.
- Urban Regeneration Goals, Objectives and Targets for Regeneration of Residential, Commercial, Industrial and other Urban Areas.
- Impediments to Regeneration Efforts and Their Implications, Tools, Programmes and Overall Policies for Urban Regeneration and Conservation.
- Case Studies of City Centre Dynamics and Historic Evolutions. Urban Regeneration and Integrated Development Projects in Central Cities Areas.
- Methodological Approach to Direct Observation of Central City Areas
- Treatment Mechanism; Clearance and Redevelopment, Conservation and Rehabilitation, Environmental Improvement and Maintenance; Policy and Strategies.

- Conservation and Preservation Of Culturally and Historically Valuable Buildings, Spaces and Objects
- Conservation Charters and Conventions
- Peoples' Participation in Urban Regeneration and Conservation Programmes.
- Urban Regeneration as a Participatory Process; Examples and Case Studies. Involving Local Communities and Institutional Building.
- Institutional Framework and Mechanism for Urban Regeneration Projects and Programmes.
- Working With the Private Sector in Sustainable Urban Regeneration: Towards Win-Win Solutions

Practical

- Urban Regeneration workshop with an objective to prepare an urban regeneration and conservation project for a part of a city or a slum area
- Study of a city neighborhood, city Centre, slums/katchi abadies etc .
- Application of Urban Regeneration and conservation on selected study area

Proposed Teaching Methodology

- Lecturing
- Readings
- Written Assignments
- Guest Speakers
- Field Visits
- Project/assignment

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc

Recommended Books

1. Kam, Y. Y. (2017) *Area-based Conservation and Urban Regeneration: a Case Study of Nga Tsin Wai Village Redevelopment Project*

2. Yik, T. E. T. (2017) *Agenda Setting in Urban Regeneration and Heritage Conservation*
3. Usai, A. (2016), *The Creative City: Cultural Politics and Urban Regeneration between Conservation and Development (Cultural Management and Cultural Policy Education)* New edition
4. Sajjad Ali Bhayo (2015), *Urban Densification As A Strategy To Manage Urban Sprawl: The Case Of Kariakoo & Sinza In Dar Es Salaam City*, LAMBERT Academic Publishing, Deutschland, Germany.
5. Shand, Rory. (2013), *Governing Sustainable Urban Renewal: Partnerships In Action*, Routledge.
6. Levy, J. M. (2009), *Contemporary Urban Planning*, Pearson Prentice Hall.
7. Roberts, P. and Sykes, H. (2008), *Urban Regeneration – A Handbook*. Sage, London.
8. Leunig, T. and Swaffield, J. (2008), *Cities Unlimited - Making urban regeneration work*,
9. Hall, P. (2002), *Cities of Tomorrow: An Intellectual History of Urban Planning and Design in the Twentieth Century*, Blackwell Publishing.

29. INFRASTRUCTURE PLANNING AND MANAGEMENT

Credit hours: 2 (1+1)

Prerequisites: None

Specific Objectives

To introduce knowledge and skills related to physical and socio-economic infrastructure planning and management issues.

Learning Outcomes

After studying this course, the learners will be able to:

1. Identify infrastructure requirements for dwellers
2. Understand the conceptual basis of Infrastructure Planning
3. Understand government and private sector roles in basic infrastructure provision
4. Point out political and legal aspects in the process of infrastructure provision
5. Analyze various categories of Infrastructural development plans
6. Evaluate mega infrastructure projects in Pakistan

Content List

- Conceptual Basis of Infrastructure Planning
- General Considerations for the Infrastructure Planning
- Categories of Infrastructure
- Principles and Practices of Infrastructure Planning at Local, Regional and National Levels (Transportation, Utility Services, Communications etc.).
- The Role of Government and Private Interest Groups in the Infrastructure Development Process.
- The Use of Demand Modeling (Infrastructure Requirements with Respect to Population Density).
- Political, Financial, Public Relations, Legal and Environmental Concerns of Various Stakeholders
- Public-Private Partnership in Infrastructure Development Projects.
- An Introduction of Mega Infrastructure Projects in Pakistan and their Benefits

Practical

- Study on Physical Infrastructure Planning Standards and Implementation.
- Planning and designing of suitable infrastructure for urban and rural dwellers.
- Infrastructure requirements for Residential, Commercial and Industrial Uses.
- In-depth analysis of mega infrastructure planning projects (Case Studies)

Proposed Teaching Methodology

- Lecturing
- Tutorial Assignments
- Field Visits
- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc.

Recommended Books

1. Beatley (2014), *Blue Urbanism*, Island press.
2. Tim Marshall (2012), *Planning Major Infrastructure (A Critical Analysis)*, Print ISBN: 9780415669542, eBook ISBN: 9780203112120, Adobe ISBN: 9781136281150, 10.4324/9780203112120.
3. Alvin S. Goodman, Makarand Hastak (2006), *Infrastructure Planning Handbook (Planning, Engineering and Economics)*, McGraw-Hill Professional, ASIN: B00F0LCU8Y.
4. Vicki Elmer and Adam Leigland, *Infrastructure Planning and Finance (A Smart and Sustainable Guide)*, Print publication Print ISBN: 9780415693189; eBook ISBN: 9780203552391; Adobe ISBN: 9781135906412 10.4324/9780203552391
5. *Infrastructure Planning Review*, Online ISSN: 1884-8303, Print ISSN: 0913-4034, Japan Society of Civil Engineers, J-Stage Publisher.
6. *Journal of Infrastructure Systems*, ISSN (print): 1076-0342, ISSN (online): 1943-555X, American Society of Civil Engineers.

30. GIS ANALYSIS AND APPLICATIONS IN PLANNING

Credit hours: 3 (1+2)

Prerequisites: Introduction to GIS

Specific Objectives

To introduce advanced tools, techniques and applications of GIS in City and Regional Planning

Learning Outcomes

After studying this course, the learners will be able to:

1. Introduce advanced tools, techniques and applications of GIS in City and Regional Planning
2. Understand and review of existing GIS applications for problems identification
3. Use of GIS applications for plan implementation and monitoring.

Content List

- GIS And Related Applications With Particular Focus On Advance Spatial Analysis And Their Use In Solving Planning Problems
- Multi-Criteria Decision Analysis/Making (MCDA/MCDM)
- Review Of Existing GIS Applications In Planning, Such As Master Plan Monitoring And Implementation, Housing And Socioeconomic Analysis, Utilities, Facilities And Infrastructure Management, Transportation And Traffic Management Etc.
- Spatial Decision Support Systems (SDSS)

Practical

- GIS applications for projects in Urban and Regional Planning
- Analysis of Case Studies of master planning, housing projects and site development schemes etc through GIS.

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Guest Speaker
- Field Visits

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc.

Recommended Books

1. Jacek Malczewski, Claus Rinner (2015), *Multi-criteria Decision Analysis in Geographic Information Science*, ISBN 978-3-540-74757-4.
2. Chang, Kang (2015), *Introduction Geographic Information Systems*, McGraw Hill.
3. Belton, Valerie, Stewart, Theo (2002), *Multiple Criteria Decision Analysis. An Integrated Approach*, Kluwer Academic Publishers / Springer ISBN 978-1-4615-1495-4.
4. Lo, C. P. and Yeung, A. K. W. (2002), *Concepts and Techniques of Geographic Information Systems*. Upper Saddle River, NJ, Prentice Hall.
5. *Arabian Journal of Geosciences*, ISSN: 1866-7511, Springer Link.

6. *International Journal of Geographical Information Science*, Taylor and Francis, Print ISSN: 1365-8816 Online ISSN: 1362-3087.
7. Lo, C. P. and Yeung, A. K. W. (2002), *Concepts and Techniques of Geographic Information Systems*. Upper Saddle River, NJ, Prentice Hall.

31. PLANNING LEGISLATION

Credit hours: 2 (2+0)

Prerequisites: Introduction to city & regional planning

Specific Objectives

To familiarize the students with laws, rules and regulations concerning planning.

Learning Outcomes

After studying this course, the learners will be able to:

1. Define and describe the terms related to planning legislation
2. Understand the significance and implications of planning law
3. Understand local planning legislation
4. Discuss and compare planning law in developed countries like USA, UK with that in Pakistan.
5. Decide sample planning applications for development in the light of planning legislation.
6. Evaluate sample court cases related with planning issues.

Content List

- Significance Of Law In Planning
- Outline Of Planning Legislation, Evolution, And Understanding Factors Which Stimulated The Enactment Of Such Legislation In U.K And U.S.A
- Concepts, Definitions And Objective Of Zoning And Land Sub-Division Regulations
- The Legislative Basis For Planning And Implementation Of Plans
- The Relationship Of Central And Local Government
- Legislation Relating To City And Regional Planning In Pakistan Including Various Acts, Orders, Ordinances And Bylaws Concerning Master Planning, Area Development Schemes, Land Acquisition, Housing And Land Sub-Division, Building Control, Land Use Control, Transport, Public Health And Environmental Protection
- Process Of Enacting Planning Related Laws And Regulations In Pakistan

Proposed Teaching Methodology

- Lecturing
- Analysis of selected law cases
- Presentations and report writing
- Guest Speaker

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Recommended Books

1. Jepson. (2016), *Fundamentals of plan making*, Routledge.
2. Brunner, J. (2015), *Contemporary issues in Australian Urban and Regional Planning*, Routledge.
3. Denyer, G. (2013), *Development and Planning Law*, Routledge.
4. Cullingworth, J. B., and Caves, R. W. (2008), *Planning in the USA: Policies, issues and Processes*, Routledge.
5. Cullingworth, B., and Nadin, V. (latest edition), *Town and Country Planning in the UK*, Routledge.
6. Blackhall, J. C. (2005), *Planning Law and Practice*, Amazon.
7. Heap, D. (latest edition), *An Outline of Planning Law*, London, Maxwell.
8. *Provincial Local Government Ordinances and Rules*
9. Government of Punjab (2010), *Punjab Land Sub-division and Private Housing Schemes Regulations 2010*.
10. Government of Sindh (2010), *Sindh Building and Planning Control Ordinance 2010*.
11. *Lahore Development Authority (Amendment) Act 2013*.

32. ENVIRONMENTAL ENGINEERING

Credit hours: 3 (2+1)

Prerequisites: Environmental Planning and Management

Specific Objectives

To impart engineering skills and techniques in environmental infrastructure design and management

Learning Outcomes

After studying this course the learner will be able to:

1. Define the basic concepts relating to environmental engineering
2. Describe various sources of air pollution
3. Describe types of solid waste

4. Describe water supply sources
5. Measure water quality
6. selection and design of landfill sites
7. Apply existing technologies to control air pollution
8. Design water supply schemes of a neighborhood/new city
9. Design water treatment plant

Content List

- **Basic concepts and terminologies related to environmental engineering**
 - Air Pollution
 - Various sources of air pollution
 - Air pollution measurement
 - Air pollution control technologies
- **Water Resources and Water Pollution Control**
 - Measures of Water Quality (Dissolved oxygen, oxygen demand, solids, nitrogen, Bacteriological measurement)
 - Water Quality Standards
 - Solutions to Water Pollution Problems
 - Design of urban water supply schemes
 - Drinking Water Treatment Plant Design
- **Municipal and Industrial waste water**
 - Calculation of waste water flow and BOD load
 - Appropriate methods and technologies to treat municipal and industrial waste Solid and
- **Hazardous Waste**
 - Solid Waste generation, reuse, recycling
 - Incinerating and Land Filling Solid Wastes
 - Hazardous Waste Management
 - Toxic Metals
 - Achieving Low-Waste Society

Practical

- Lab work for measuring water quality, field visits to know about technologies in use for controlling air pollution, waste water treatment plants, landfill sites and incineration plants.
 - Design of innovative technologies/methods relating to air pollution control, waste water treatment and solid waste management.

Teaching Methodology

- Lecturing
- Field Visits
- Guest Speaker
- Assignment relating to designing of pollution control technologies/methods

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc

Recommended Books

1. Hunton (2015), *Clean Air Handbook*, Bernan Press.
2. Pichtel, John (2014), *Waste Management Practices: Municipal, Hazardous and Industrial*. 2nd ed., CRC Press
3. David, M.L., and Masten, S.J. (2014) *Principles of Environmental Engineering and Science*, Third Edition. McGraw Hill. (ISBN 978-0-07-339790-0)
4. Masters, G. M., and Ela, W.P. (2008) *Introduction to Environmental Engineering and Science*, Third Edition. Prentice Hall, (ISBN 9780131481930)
5. PEPA, (1997) *Environmental Guidelines by PEPA*, Ministry of Education, Govt. of Pakistan.
6. Salvata, (1992) *Environmental Engineering & Sanitation*, Wiley Inter-Services.
7. Kumar, Santosh, *Water Supply Engineering*, Khanna Publishing, (Latest Edition)
8. Kumar, Santosh, *Waste Water Engineering*, Khanna Publishing, (Latest Edition)
9. Marsh, W. M. & Gross, A. J. (2005), *Environmental Geography: Science, Land Use & Earth System*, John Wiley & Sons, Hoboken.

SIXTH SEMESTER

33. URBAN DESIGN

Credit hours: 3 (2+1)

Prerequisites: Site Planning and Landscape Design

Specific Objectives

Demonstrate creativity, critical thinking and innovation when identifying and solving built environment problems in diverse contexts and assessing implications of decisions and actions.

Learning Outcomes

After studying this course, the learners will be able to:

1. Explore urban design principles, approaches, theories, and applications.
2. Practice basic skills of urban design analysis.
3. Gain visual, graphic and spatial literacy.
4. Ability to transform a problem or question into a solution plan.
5. Generate both the process and product of the design of the built environment.

Content List

- Definition and Explanation of Urban Design, Urban Design in the Context of Town Planning.
- Basic Elements of Urban Design Such As Land Forms, Climate, Shape, Size and Density, Pattern, Grain and Texture, Vistas, Skylines and Social Aspects.
- Principles of Urban Designs; Scale, Urban Mass, Activity and Circulation.
- Urban Design Process and Techniques.
- Examples of Urban Design from international and local context.
- Role of People, Participation, Culture and Traditions in Urban Design. Responsive Environment.
- Urban Aesthetics, Space, Street Furniture and Landscape Design.
- Urban Design Data Collection Techniques Like Behavior Mapping, Mental Mapping Etc.

Practical

- A project involving site observation through data collection techniques, analysis and graphic presentation of data, proposal preparation.
- Practicing the process of Urban Design through a site-specific urban scale project like Beautification of Public Square, an environmental uplift solution for Commercial Strip etc.

Proposed Teaching Methodology

- Lecturing
- Design Assignments
- Guest Speaker
- Field Visits
- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc.

Final Term (60%)

- Written long/short questions, quizzes etc.

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc.

Recommended Books

1. Moss, T., & Marvin, S. (2016), *Urban Infrastructure in Transition: Networks, Buildings and Plans*, Routledge.
2. LeGates, R. T., & Stout, F. (2015), *The City Reader*, Routledge.
3. Forsyth, A. (2014), *The Urban Design Handbook: Techniques and Working Methods*, by Urban Design Associates, New York, NY: WW Norton. 240 pp." *Journal of the American Planning Association*, 80(4), 448-449.
4. King, A. (2014), *Responsive environments: A manual for designers*, Architectural Press, London.
5. Watson, Donald (2011), *Time Saver Standards For Urban Design*, Tata McGraw Hill.
6. Carmona, M. (2010), *Public places, Urban Spaces: The Dimensions of Urban Design*, Routledge.
7. Donald Watson et al., (2001), *Time Saver Standards for Urban Design*, McGraw Hill.
8. Whyte H. William, (1980), *Social Life of Small Urban Space*, Washington, Conservation Press.
9. Alexander, Christopher et al. (1977), *A Pattern Language; Towns, Buildings, Construction*, New York, Oxford University Press.
10. Lynch, Kevin (1960), *The Image of the City*, Cambridge, MA, The MIT Press.

34. PLANNING OF NEW TOWNS

Credit hours: 3 (1+2)

Prerequisites: Introduction to city and regional planning History of cities and urban planning

Specific Objectives

To impart skills and techniques for planning and designing of new towns

Learning Outcomes

After studying this course, the learners will be able to:

1. Able to examine new towns through the lens of historical context, political background, economic logic and sociology

2. Understand methods to appreciate social, political and economic developments and tendencies in new cities and how can they be evaluated
3. Explain the issues and potentials of the old New Towns
4. Argue what are the contemporary planning issues of new cities of the 21st century and explain these urban projects

Content List

- Understanding the Requirements of a Modern City as a Dynamic Organism
- The Need for Integrated Approach towards Planning of Various Components of a City.
- Examples of Modern Cities: Brasilia, Canberra, Islamabad, Chandigarh, New Delhi, Putrajaya etc.
- Process of Planning and Designing a New Town
- Space Standards and Requirements for Various Land Uses and Residential and Non-Residential Densities Etc. Projection and Growth Models.
- Application of Space Standards and Locational Criteria for Various Land Uses;
- Zoning Plan Planning and Design for Land Use, Layout of Roads and Streets;
- Neighborhood Planning, Layout Plan of Housing Blocks and Public Facilities and Services;
- Town Centre Plan, Planning of Civic, Administrative and Commercial Areas;
- Industrial Estate Plan, Layout and Placement of Various Types of Industries and Related Services and Facilities;
- Town Park, Elements of Design of a Town Park.

Practical

- Review of new cities practices report.
- Selection of a site for a new town.
- Preparation of a zoning plan and neighborhood plan.
- Planning of a town center, industrial estate and town park.
- Model making for various designs.

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Class Activities
- Guest Speaker
- Field Visits
- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

Presentations, assignments, report writing, viva voce, field visits etc

Recommended Books

1. Rosemary, W. (2016) *Practicing Utopia: An Intellectual History of the New Town Movement*
2. Levine (2016), *The Urbanism Of Frank Lloyd Wright*, Princeton University Press.
3. Barnett, Jonathan (2015), *Ecodesign for Cities and Suburbs*, Island press, London.
4. Friedman, Avi (2014), *Planning Small and Mid-Sized Towns: Designing And Retrofitting For Sustainability*, Routledge.
5. Anthony M. T. (2014) *Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia*
6. John, N. (2014) *New Ideals in the Planning of Cities, Towns and Villages (Studies in International Planning History)*
7. Hall, P. (2002), *Cities of Tomorrow: An Intellectual History of Urban Planning and Design in the Twentieth Century*, Blackwell Publishing.
8. Government of Pakistan (1986), *National Reference Manual on Planning and Infrastructure Standards*, Islamabad, E&UA Div. Ministry of Housing and Works.
9. Frederic, J. O. (1977), *New Towns; Their Organs, Achievements and Progress*, London, Leonard Hall.
10. B. Walter, (1972), *The Making of Cities*, London, Leonard Hall.

35. RURAL PLANNING

Credit hours: 3 (2+1)

Prerequisites: None

Specific Objectives

To impart skill and concepts about rural planning and rural and urban linkages

Learning Outcomes

After studying this course, the learners will be able to:

- 1 Define and describe the terms pertaining to rural planning
- 2 Understand the basic principles and elements of rural planning in Pakistan
- 3 Understand the theoretical knowledge and ground realities of rural areas of Pakistan
- 4 Discuss and evaluate the existing system of rural planning in Pakistan
- 5 Apply the principles of basic need, and sustainable development goal for rural planning
- 6 Evaluate different approaches adopted for rural development planning

Content List

- Elements Of The Conceptual Framework For Modern Rural Planning And Rural Development
- Historical Background To Rural Planning In Indo-Pak Sub-Continent
- Rural Settlement Patterns With Special Reference To Pakistan
- Characteristics Of Bar And Bet Lands In Rural Areas Of Pakistan
- Various Approaches To Rural Development, Role Of Rural Centers, Planning And Criticisms On Concepts Of Rural Planning
- Village As A Focal Point Of Rural Planning And Development
- Basic Needs And Sustainable Development Approaches For Rural Areas
- Rural Urban Linkages. Farm To Market Roads
- Structural Transformation Of Rural Areas As Sustainable Human Settlements

Practical

- Rural planning workshop involving identification of problems of rural area and basic needs
- Preparation of rural development projects.
- Evaluation of existing rural development plans.
- Evaluation of NRSP, AKRSP, Provincial RSP, Matching Grant Schemes etc.

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Guest Speaker
- Field Visits

- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc.

Final Term (60%)

- Written long/short questions, quizzes etc.

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc.

Recommended Books

1. Gallent, Nick (2015), *Introduction to Rural Planning*, Routledge.
2. UN-Habitat, (1985), *Guidelines for the Planning of Rural Settlements and Infrastructure*, Nairobi.
3. Dias, Hiran, D., (1983), *Manual for Training in Rural Development planning*, Bangkok, Asian Institute of Technology.
4. Ford, William, C., *A Theoretical Approach to Rural Land-use Planning*, Briton, Arrousmith, (Latest Edition).
5. Chambers, Robert, (1983), *Rural Development; putting the last first*, London, Longman.
6. Whitby, M.C, *Rural Resource Development*, London, Mathews, (Latest Edition).
7. Cherry, Gordon, E, *Rural Planning Problems*, London, Leonard, (Latest Edition).
8. Masley Malcolm, J., *Accessibility; The Rural Challenge*, London, Mathew, (Latest Edition).
9. Weber, Karl E., "*Rural Development Planning in Pakistan*". Bangkok, Asian Institute of Technology, (Latest Edition).

36. PUBLIC PARTICIPATION AND COMMUNITY DEVELOPMENT

Credit hours: 2 (1+1)

Prerequisites: None

Specific Objectives

To familiarize with the concepts of community development and role of public participation in planning and development

Learning Outcomes

After studying this course, the learners will be able to:

1. Explore community development principles, approaches, theories, and applications
2. Understand how communities and community organizations can be mobilized to achieve their goals

3. Develop and apply participatory theories useful for understanding and acting within the field of community development
4. Create skills to facilitate, strengthen, and improve less-advantaged communities, empower their residents to define and participate in the development process

Content List

- Introduction to Community Development, Empowerment and Participation.
- Principles of Community Planning and Public Participation.
- Benefits of Empowerment and Community Participation
- Community Participation Techniques and Methods.
- A Review of Public Participation & Empowerment in Development Projects – National and International Examples.
- Community Based Organizations (CBOs).
- Poverty Alleviation Strategies for Pakistan.
- Role of NGOs and Other Social Organizations in Community Development
- Participatory Planning for Less-Privileged Population: Disable, Women, Old, Children etc. Gender Issues, Role of Women in Community Development Activities.
- Scope of Community Participation in the Provision of Health, Education and other Civic Amenities in Rural and Urban Areas.

Practical

- Select a case study area, develop Problem & Solution Tree, apply relevant community empowerment technique, implement a scenario on case study area, and display findings.
- Preparation of improvement plans and implementation frameworks for the provision of education, health and recreational or infrastructure facilities in low-income communities/slums or villages on self-help basis.
- Organization of forums in urban/rural communities for community meeting / mobilization to achieve sustainable development.

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Guest Speaker
- Field Visits
- Report Writing

Proposed Assessment (theory, 100%) Mid Term (40%)

- Written long/short questions, quizzes etc.

Final Term (60%)

- Written long/short questions, quizzes etc.

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc.

Recommended Books

1. Shah, M. K. (2016), *The myth of community: Gender issues in participatory development*, ITGD Publishing.
2. Gilchrist, A., & Taylor, M. (2016), *The Short Guide To Community Development*, Policy Press.
3. Wates, N. (2016), *The Community Planning Handbook: How people can shape their cities, towns & villages in any part of the world*, Routledge.
4. Hyland, S (2005), *Community building in the twenty-first century: School for Advanced Research*.
5. Chawla, L. (2003), *Growing up in an urbanizing world. Children, Youth and Environments*.

37. BUILDING CONSTRUCTION TECHNOLOGY

Credit hours: 3 (2+1)

Prerequisites: None

Specific Objectives

To impart skill and techniques of construction technology as well as use of various construction materials

Learning Outcomes

After studying this course, the learners will be able to:

1. Identify stages of construction and their planning requirements
2. Understand construction methods, materials, techniques and process
3. Understand construction drawings
4. Illustrate stages of construction
5. Analyze quantitative aspects of construction drawings

Content List

- Introduction to Techniques of Construction Technology for RCC, Masonry, Stone, Mud and Pre-Fabricated Construction.
- Properties And Uses Of Various Construction And Building Materials Like Stone, Timber, Bricks, Blocks, Lime, Mud, Cement, Sand, Aggregate Etc.
- Construction Technologies For Various Types Of Buildings
- Terminology And Nomenclature Of Basic Components Of Sub And Super Structure Of A Building, For Example, Excavation,

Leveling, Compaction, Lean Concrete, Reinforced Concrete, Waterproofing, DPC, Plinth, Columns, Beams, Lintels, Slabs, Sunken Slabs, Screed, Roof Insulation Etc.

- Infrastructure Construction; Plumbing, Electricity and Gas Points, Insulation and Fire Protection.
- Basic Joinery Construction Details And Their Drawings With Execution In Wood, Aluminum, Steel Etc.
- External Development And Finishes Of Buildings Including Various Types Of Plaster (Plain, Textured, Pigmented Etc.), Paints, Cladding (Tiles, Concrete Panels, Aluminum Composite Panels Etc.), Pavement, Curbs, Drive-Ways, Hard Landscape, Steps, Ramps, Infrastructure Services, Waterproofing And Damp Proofing Etc.
- Construction Drawings And Shop Drawings Including Detail Drawings Of A Small Scale Project.
- Elementary Quantity Estimation Of Various Categories Of Building Elements Like Walls, Slab, Beams Etc.
- Conservation And Retrofitting Techniques For Existing Buildings
- Health, Safety, Disaster Response and Environmental Considerations of Construction Process and Sites.

Practical

- Drawing of various building components
- Charts of building construction process and characteristics of building materials
- Documentation of construction drawing sets
- Small exercise in construction project planning with quantity estimation.
- Market analysis of contemporary construction technologies.
- Risk assessment of existing structures
- Site visits to construction sites under construction to observe sub, super structure construction and finishing at various stages and preparation of report

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc

Recommended Books

1. Roy Chudley, Roger Greeno, (2016), *Building Construction Handbook*, Routledge.
2. Tymkow, Paul (2013) *Building Services Design for Energy Efficient Buildings*, Routledge.
3. Hyde, Richard. Ed. (2013), *Sustainable Retrofitting Of Commercial Buildings: Warm Climates*, Routledge.
4. Ching, Francis D K (2011), *Building Construction*, Illustrated, New Jersey, John Wiley & Sons Inc.
5. Edward Allen, Joseph Iano, (2011), *Fundamentals of Building Construction: Materials and Methods*, Wiley.
6. Arora, N. L and Gupta B. R, (1988), "*Building Construction*", Lahore, Malik Book Depot.
7. Barritt, C. M. H., *Advance Building Construction Vol. I & II*,
8. Surendra Singh, "*Engineering Materials*", Lahore, Prince Book Depot, (Latest Edition).

38. PROFESSIONAL PLANNING PRACTICE

Credit hours: 2 (1+1)

Prerequisites: Introduction to city and regional planning

Specific Objectives

To inculcate planning ethics and equip with tools for successful practice in planning profession

Learning Outcomes

After studying this course, the learners will be able to:

1. Understand in their ability to communicate by practicing and receiving feedback on business communication skills
2. Understand academic and workplace language proficiency are embedded in the course
3. Analyze and debate selected practice-related topics with senior professionals and your peers
4. Review professional codes of conduct for planners and reflect on their implications for your practice
5. Communicate ideas using diverse formats and strategies to academic and professional audiences within and external to the discipline of urban and regional planning
6. Work with others in a range of roles and contexts, demonstrating cultural and social sensitivity, environmental stewardship and ethical and reflective practice

7. Apply theoretical knowledge of planning and ethics to progressive planning practice

Content List

- Concepts and Need of Professional Ethics and Norms of Good Governance Including Accountability, Transparency, Rule of Law, Confidentiality Etc. Justification and Aims of Planning.
- Role and Responsibilities of Professional Bodies in Promoting Professional Ethics, PCATP Code of Conduct, Code of Conduct of Professional Bodies like RTPI, APA
- Entrepreneurship Skills and Professional Ethics.
- Interaction between Planners and Stakeholders in the City and Region Such as Politicians, Bureaucrats/ Administrators, Media, Judiciary, Academia, NGOs and Civil Society.
- Functions of Professional Planners.
- Resolution of Conflicts in the Implementation of Plans.
- Planning Contract Documents / Agreements, Fee Structure, Arbitration. Tenders, Contracts Etc. Procurement of Goods and Human Resources;
- Social and Ethical Audit of Development Plans and their Implementation.

Practical

- Visits to Public and private sector organization
- Visit to local planning institutions / organizations to understand the systems and scope of the planning profession
- Preparing report on functions of department/organization/professional planner within their scope of work.

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Guest Speaker
- Field Visits
- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc

Recommended Books

1. Levine (2015), *Urban Politics: Cities and Suburbs in a Global Age*, Routledge.
2. Hedley Smyth (2011), *Managing the Professional Practice in the Built Environment*, John Wiley Ltd. Sons, Wiley-Blackwell, US.
3. Stephen Pattison, Roisin Pill (2004), *Values In Professional Practice: Lessons For Health, Social Care, And Other Professionals*, UK, Radcliffe Publishing Ltd.
4. John Forester (1989), *Planning in the face of power*, US, University of California Press.
5. Government of Pakistan (1986), *National Reference Manual on Planning and Infrastructure Standards*, Islamabad, E&UA Div. Ministry of Housing and Works.
6. *PCATP Handbook* (Latest Edition).
7. *Journal of professional practice*, Volumes 89-93, American Society of Civil Engineers, Department of Conditions of practice, US.

SEVENTH SEMESTER

39. SPATIAL DEVELOPMENT PLANNING-I

Credit Hours: 4 (2+2)

Prerequisites: Core Courses (to be defined by individual institutions)

Specific Objectives

To impart knowledge and develop skills for preparation of development plans for human settlements

Learning Outcomes

1. Understand various levels of planning for preparing a comprehensive spatial development plan
2. Understand key spatial development planning issues and their resolution
3. Apply knowledge and skill to prepare spatial plans for human settlements
4. Formulation of development plan reports focusing key planning issues

Content List

- History, Theory, Concepts, Objectives and Needs of Development Plans.

- Emerging Issues Concerning Spatial Development Planning in Countries Like Pakistan Especially In The Light Of The Current Global/Economic Scenario
- A Comparative Overview Of Process And Methodology Involved For The Development Of Spatial Development Plans
- Spatial Development Planning Versus Master Planning, And Structure/Strategic Planning
- Local Development Plans; Subject, Area Development, Sectoral Plans etc
- The New Paradigm For Comprehensive Development Planning Of Urban And Rural Areas In Pakistan
- Review Of National Environmental Policies And Regional Strategies Related To The Land Development In Pakistan
- Spatial Development Plans And The Role Of Local Governments And Private Developers
- Development Planning Process Goals And Objectives Of Comprehensive Planning
- Interaction With Stakeholders; Planning Surveys And Studies Of Component Subjects As A Basis For Development Plans
- Data Collection And Analysis To Formulate Spatial Development Plan; The Essential Data Regarding Major Land-Using Activities Such As Employment, Housing, Shopping, Leisure And Transport
- The Key Actors and Institutions Who Shape the Content of Development Planning.
- Identification Of Problems and Issues in the Implementation Process of Spatial Development Plans
- Institutionalization and Financing of Spatial Development Plans

Practical

- Planning surveys and studies of the selected city as a class / group project with special emphasis on team work capability development..
- Review Case Studies: Students need to review existing development plans of the various cities of Pakistan and come-up with the findings to develop a report and present before the class.

Proposed Teaching Methodology

- Lecturing
- Tutorial Assignments
- Field Visits and Surveys

- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, surveys, report writing, viva voce, field visits etc

Recommended Books

1. Brunner, Julie (2015), *Contemporary Issue In Australian Urban And Regional Planning*, Routledge, London
2. Chapple (2015), *Planning Sustainable Cities And Regions*, Routledge.
3. Eric Firley and Katharina Groen (2013), *The Urban Master Planning Handbook (Latest Edition)*, Wiley, ISBN-13: 978-0470972250 ISBN-10: 0470972254.
4. Stan Geertman, John Stillwell, (2009) *Planning Support Systems Best Practice and New Methods*, Springer.
5. Rajagopal, Balakrishnan (2003), *International Law from Below: Development, Social Movements and Third World Resistance*. Cambridge University Press, UK
6. J. B. Cullingworth, Vincent Nadin, (2002), *Town And Country Planning In The UK*, Routledge
7. Margaret, R. *An Introduction to Town Planning techniques*, London, Hutchinson, (Latest Edition).

40. LAND USE AND BUILDING CONTROL

Credit Hours: 3 (2+1)

Prerequisites: Planning Legislation

Specific Objectives

To Introduce the Concepts of Land Use Development Control and Building Control System

Learning Outcomes

After studying this course, the learners will be able to:

1. Understand the methods and techniques for land use development control and building control
2. Understand the detailed methods of land use planning and building control system of planning agencies

Content List

- Concepts and Needs of Land Use and Building Control as a Tool for Implementation of Master Plan and other Local Plans, Zoning and Development Control.
- Processes and Procedures for Implementation of Building control. Procedural Checks such as Ownership Verification, Planning Application Forms, Drawings, Fees, No Objection Certification, Advertisements etc.
- Issue and Problems Regarding Control of Urban Land Use and Development Control. Conformity with the Development, Lands Use Zoning, Planning Criteria, Building Bye Laws, Design Guidelines, Building Line, Parking Spaces Per Business Center Jobs and Parking Spaces Per Residential Units, Chamfer Requirement, Construction over Culverts, Gross Floor Area (GFA), and Net Floor Area (NFA), Floor Area Ratio (FAR) , Open Space Ratio, Densification (Infilling; Redevelopment, Industrial Relocation) Vs Extensification (Contiguous Un- Channeled Peripheral Development, Corridor Development, Satellite Cities and New Town), Transfer of Development Rights (TDR), Guided Land Development (GLD), Land Use Classification and Coding System, Uses Classes, Opportunity Cost of Land
- Objectives and Problems of Land Use Regulation; Enforcement of Building Bye-Laws: Demarcation and Removal of Encroachments, Action Against Illegal Buildings
- Dangerous Buildings Identification, Management and/or Demolition
- Litigation Involved in Building Control.
- Commercialization Policy and Transformation of Land Uses, Land Conversions
- Private Development Schemes.

Practical

- Survey of Various Buildings, Markets and Plazas Regarding the Provision of Parking Space, Building Lines / Setbacks etc.
- Identification of Violation of 50 Planning Standards and Regulations.
- Evaluation of Building and Development Control Practices in the Development Authorities and Municipal Corporations.

- Enlisting Dangerous Building after Developing Parameters for Buildings to be Declared Dangerous

Teaching Methodology

- Lecturing
- Written Assignments
- Guest Speaker
- Field Visits/building Inspections
- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc.

Final Term (60%)

- Written long/short questions, quizzes etc.

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc.

Recommended Books

1. Gibbs, Robert J. (2012), *Principles of Urban Retail Planning and Development*, Wiley.
2. Short, Michael J. (2012), *Planning For Tall Buildings*, Routledge.
3. Stephenson, John, *Planning Procedures*, London, North Wood, (Latest Edition).
4. Telling, A. E., *Planning Law and Procedure*, Butter North & Co., London (Latest Edition).
5. LDA, Lahore, (2014) *Building Control Regulations 2014*, Lahore, LDA (Latest Edition).
6. LDA, *Lahore Land Use Rules 2014*, Lahore, LDA (Latest Edition).
7. LDA, *Lahore Master Planning Rules 2014*, Lahore, LDA (Latest Edition).
8. Levy M. J., (2003), *Contemporary Urban Planning*, Prentice Hall, (6th edition)
9. KBCA, (2002), *Karachi Building & Town Planning Regulation*, (Latest Edition)
10. Qadeer, M.A. (1983), *Lahore Urban Development in the Third Word*, Vanguard Books Ltd.1983
11. Chapin Jr. F.Stuart, (1972), *Urban Land Use Planning*, London University of Illinois Press,
12. CDA, DHA, *Byelaws for Building Control* (Latest Edition)

41. PROJECT PLANNING AND MANAGEMENT

Credit Hours: 3 (2+1)

Prerequisites: None

Specific Objectives

To Familiarize with the Methods and Techniques for Project Planning and Management and Financial Aspects of the Planning Projects

Learning Outcomes

After studying this course, the learners will be able to:

1. Understand the methods and techniques for project planning and management
2. Apply the knowledge to prepare PC-I and PC-II form for development project
3. Prioritize the projects by using CBR, NPV, IRR, Discounted Factor
4. Evaluate and monitor the existing project
5. Use Primavera /MS Project for the execution of development projects

Content List

- Process of Project Planning and Implementation in Pakistan
- Relationship among Policy, Plans, Program and Projects in Urban and Regional Development;
- Project Identification and Formulation. The PC-1 and PC-II Forms, Financial and Economic Appraisal and Selection of Projects, Net present Value, Internal Rate of Return
- Defining Project Management; what has to be managed? Scope, Time, Cost, Quality, Procurement, Planning and Progress, Risk, Project Success/Failure.
- Stages of Project Development: Inception to Completion, Hand-over; Audit and Review, Cost/Benefit Analysis, Work Breakdown Structure (WBS) , Critical Path Method (CPM), Schedule of Work, Gantt Chart, Statement of Work (SOW)
- Monitoring and Evaluation of Projects, Planning Evaluation and Review Technique (PERT).
- Procurement System, PPRA Rules etc.
- Social and Environmental Acceptability of Projects.
- Sanctioning Authority and Institutions for Approval of Projects.
- The Role of Project Execution Authority.
- Community Participation for Effective Implementation and Monitoring of Projects.

Practical

- Preparation of a PC-I and PC-II for a Development Project.
- Evaluation of an Existing Project.

- Use of Prima Vera, and MS Project Software. Management Information Systems in Project Management

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Guest Speaker (workshop, seminar)
- Field Visits
- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc.

Final Term (60%)

- Written long/short questions, quizzes etc.

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc.

Recommended Books

1. Project Management Institute (2013), *A Guide to the Project Management Body of Knowledge*, PMI, PMBOK Guide.
2. Nicholas M. John, Steyn Herman (2008), *Project Management for Business, Engineering and Technology: Principles and Practice*, Elsevier.
3. Orr Alan, (2004), *Advanced Project Management: A complete guide to the key processes models and techniques*, Kogan Page.

42. RESEARCH METHODS

Credit Hours: 3 (2+1)

Prerequisites: None

Specific Objectives

To develop skills for designing and conducting research

Learning Outcomes

After studying this course, the learners will be able to:

1. Understand the process, basic elements and methodology of research
2. Understand the knowledge of research methods and its application in the field of planning
3. Demonstrate ability to design research proposal
4. Demonstrate ability to apply appropriate research techniques and methods
5. Demonstrate ability to analyze and interpret the data

6. Demonstrate ability to synthesize and compile the research findings in report format

Content List

- Introduction To Research And Its Significance In Planning
- Characteristics of Scientific Research.
- Ethical Considerations In Research
- Types Of Research
- The Research Process: Abstract, Problem Formulation, Research Objectives, Literature Review, Research Design, Data Collection and Analysis, Report Writing.
- Theory and Research, Theoretical Framework and Testing Of Hypothesis.
- Research Design And Its Components: Measurements: Definition, Nature And Levels Of Measurements, Research Methodology: Collection And Analysis/Interpretation Of Data, Generalization, Types Of Observation, Laboratory And Field Experimentation, Personal Interviews: Questionnaire Construction: Content Of Questions, Types Of Questions, Question Format, Sequence Of Questions, Index Construction And Scaling Methods
- Sampling Techniques And Sample Design, Evaluation
- Organization and Format of Planning Report: Reference, Quotations, Bibliography, Paging, etc.
- Writing Up Of The Thesis And Dissemination Of Research Work
- Compilation of Research Proposals and Presentation

Practical

- Preparation of a research proposal
- Review of a Thesis
- Report Writing
- Presentation

Proposed Teaching Methodology

- Lecturing
- Written Assignments
 - Guest Speaker
 - Case Studies

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc.

Final Term (60%)

- Written long/short questions, quizzes etc.

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, case studies, field visits etc.

Recommended Books

1. Yin, Robert K (2016), *Qualitative Research*, Guilford press.
2. Wang, X., Hofe, R. (2007), *Research Methods in Urban and Regional Planning*, Springer.
3. Patten, M. L. (2005), *Understanding Research Methods: An Overview of the Essentials*, Pycszak Pub.
4. Berg, B. L. (2003), *Qualitative Research Methods for the Social Sciences*, Allyn & Bacon.
5. Nardi, P. M. (2002), *Doing Survey Research: A Guide to Quantitative Research Methods*, Allyn & Bacon.
6. Neuman, W. C. (2002), *Social Research Methods: Qualitative and Quantitative Approaches*, Allyn and Bacon.
7. Karl. E. Weber, Indra. P. Tiwari, *An Introduction: Research and Survey Format Design, Division of Human Settlements Development*, Bangkok, Asian Institute of Technology, (Latest Edition).
8. M. Iqbal Chaudary, *Social Theory, Research Problems*, Lahore, Aziz Book Depot, (Latest Edition).

43. DISABILITY AND DEVELOPMENT

Credit hours: 2 (1+1)

Prerequisites: None

Specific Objectives

To strengthen skills for barrier free planning and designing

Learning Outcomes

After studying this course, the learners will be able to:

1. Understand the terms and concepts of Disability and Development issues
2. Compare the national and global disabled population estimates
3. Discuss the issues of mainstreaming disability in the planning process
4. Strengthen skills as professional planners Specific Design Requirements of Persons with Disabilities (PWDs)

5. Apply knowledge of accessibility design for designing barrier free towns and housing projects

Content List

- Contemporary Disability Policy And Practice
- Disability Demographics
- National And Global Disabled Population Estimates
- Disability And Poverty Trap
- Estimates Of GDP Loss Due To Disability
- Development Oriented Disability Policy Framework
- Development Oriented Research On Disability Issues In Town Planning
- Millennium Declaration And The Millennium Development Goals (MDGs)
- Sustainable Development Goals (SDGs) and Development Rights of Persons with Disabilities (PWDs)
- Mainstreaming Disability in City and Regional Planning
- Specific Design Requirements in Housing Projects to Cater the Needs of PWDs
- Political Movements for Mainstreaming Disability in Development Planning
- Accessible Design Case Studies (Global Perspective)
- Accessible Design Case Studies (Pakistan Perspective)

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Field visits
- Interaction with the organizations working for the development rights of PWDs.
- Guest Speaker

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc.

Final Term (60%)

- Written long/short questions, quizzes etc.

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc.

Recommended Books

1. Tracey E. Hall, Anne Meyer and David H. Rose (2012), *Universal Design for Learning in the Classroom: Practical Applications (What Works for Special-Needs Learners)*, Amazon.
2. Edward Steinfeld and Jordana Maisel (2012), *Universal Design: Creating Inclusive Environments*, Amazon.
3. Doris Fleischer and Frieda Zames (2011). *The Disability Rights Movement: From Charity to Confrontation* Paperback, Amazon.
4. GTZ (2006), *Disability and Development: A contribution to promoting the interests of persons with disabilities in German Development Cooperation*, Policy Paper,.
5. Richard, D. (2004). *How Difficult Can This Be?* The F.A.T. City Workshop.
6. Robert Metts (2004), *Disability and Development*, Background Paper appeared for the Disability and Development Research Agenda Meeting, November 16, 2004, World Bank Headquarters, Washington, DC.
7. Rob Imrie (1996). *Disability and the City: International Perspectives*, Amazon. SAGE Publications.
8. Louisa Cook Moats (1995), *Development, Disabilities, and Instruction*, Amazon.

44. PROJECT (Part-I)

Credit Hours: 0 (0+0)

Prerequisites: Core Courses (to be decided by individual institutions)

Learning Outcomes

To Prepare a project proposal/synopsis in the backdrop of planning skills and research method techniques to be assessed and approved under research method practical.

EIGHTH SEMESTER

45. SPATIAL DEVELOPMENT PLANNING-II

Credit hours: 4 (2+2)

Prerequisites: Spatial Development Planning-I

Specific Objectives

Skill development and advanced techniques to prepare development plans for human settlements

Learning Outcomes

1. Understand the contents of various planning instruments, like development and execution
2. Understanding structure plan for cities and Local plan for smaller areas at rural or tehsil level etc.
3. Subdividing development plan preparation process for an area
4. Evaluating data to prepare appropriate and viable development plan
5. Evaluating Land use Maps using GIS in Spatial Development Planning Process
6. Building Skill to prepare development plans for human settlements

Content List

- Development Plans Process
- Policy planning: Need, Key Features, National Policy for Urban Growth and New Towns
- Spatial Development Plans; Zoning and Land use Policies to control Urban Sprawl/Haphazard Growth
- Policy Planning In The Light Of Existing Studies and Development Strategies
- Local Development Plans Such As Subject Plans and Action Area Plans
- Phasing And Programming: Planning, Programming And Budgeting System (PPBS)
- Development Plan Implementation: Financing and Legislating the Plan Provisions
- Administering the Development Plan (Administrative Requirements during Plan Development Process)
- Coordination between Various Line Departments and the Local Planning Agencies: (Coordination Tools and Methods)
- Public Participation as a Tool for Effective Formulation and Implementation of the Plans and Component Projects
- Development Plans Evaluation and Periodic Feedback

Practical

- Evaluation and Review of existing master plans
- Preparation of a spatial development plan for a town with digitized Land-use maps

Proposed Teaching Methodology

- Lecturing
- Tutorial Assignments
- Field Visits
- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc

Recommended Books

1. Joss, Simon (2015), *Sustainable Cities: Governing For Urban Innovation*. Palgrava.
2. Adama, David (2013), *Shaping Places: Urban Planning, Design And Development*, Routledge , London
3. Michael Bayer, Nancy Frank, Jason Valerius, (2010), *Becoming an Urban Planner: A Guide to Careers in Planning and Urban Design*, John Wiley and Sons, New Jersey, US.
4. Stan Geertman, John Stillwell, (2009), *Planning Support Systems Best Practice and New Methods*, Springer.
5. Anthony James Catanese, James C. Snyder, (1988), *Urban planning*, McGraw-Hill.
6. Department of Environment, *Development Plans Manuals*, HMSO, UK (Latest Edition).
7. Hoyle, S. B., *Spatial Aspects of Development*, Oxford, John Wiley, (Latest Edition).
8. Taylor, L. John, *Urban Planning Practice in Developing Countries*, Oxford, Pergamen. (Latest Edition).

46. REGIONAL PLANNING

Credit hours: 3 (2+1)

Prerequisites: None

Specific Objectives

To impart knowledge, skills and methodologies for district and regional planning

Learning Outcomes

After studying this course, the learners will be able to:

1. Define the regional planning
2. Explain the basic principles, elements and types of regions
3. Apply regional planning techniques for the preparation, presentation and implementation of regional plan
4. Understand the relationship between national and regional planning in Pakistan
5. Evaluate different theories of regional development planning like growth pole, growth center and central place theory

Content List

- Introduction To Regional Planning; Concept, Need And Objectives
- Formal, Functional and Planning Regions, Methods for the Delineation of Regions, Districts as Planning Region
- Inter And Intra-Regional Inequalities
- Overlapping Administrative Boundaries and Management Issues at Local and Regional Level
- Relationship between Regional and National Planning, Importance of Institutional Coordination. Guidelines for the District and Local Level Planning In Pakistan In Relation To Potential Resources
- District Level Spatial Plan And Local Plans For Sanitation, Development Of Health And Educational Institutions, And Service Centers
- Spatial Distribution Of Central Places - Hierarchy Of Settlements And Their Utility In Location Of Health, Education And Other Services
- Regional Development Theories, Spatial Flows, Rural-Urban Linkages, Growth Poles and Regional Growth
- Preparation and Presentation of Regional Plans and Their Implementation; Review Of Public Sector Programs with Particular Reference to Pakistan

Practical

- Critical evaluation of a Regional Plan, Identification of inter-regional and Intra-regional disparities
- Preparation of regional / district plan

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Guest Speaker
- Field Visits

- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc.

Final Term (60%)

- Written long/short questions, quizzes etc.

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc.

Recommended Books

1. Capello, Roberta (2016), *Regional Economics*, Routledge.
2. Glasson, John, (2007) *An Introduction to Regional Planning*, London, Hutchison, (Latest Edition).
3. Dickinson, E. Robert, *The City Region in Western Europe*, London, Routledge, (Latest Edition).
4. Hall, Peter, *Urban and Regional Planning*, England, Penguin, (Latest Edition).
5. Masely, Mald, J., *Growth Centre in Spatial Planning*, Oxford, Paragon, (Latest Edition).
6. Richardson, H. W., *Elements of Regional Economics*, England, Penguin, (Latest Edition).
7. Govt. of Pakistan/Housing and Physical Planning Department, *Regional Development Plan for Thal*.
8. J. Friedmann, *Regional Policy Readings; Theory and Applications*, London, IT, (Latest Edition).

47. ESTATE MANAGEMENT

Credit hours: 2 (1+1)

Prerequisites: None

Specific Objectives

To familiarize planners with the management skills for estate management

Learning Outcomes

After studying this course, the learners will be able to:

1. Understand the procedures of land record management
2. Understand and Compare the land prices mechanism
3. Discuss the property rights and land transfer procedure for sale and purchase of property
4. Understand the significance of urban land valuation table for its application in Estate Management

5. Evaluate land prices and market trends for investment in real estate
6. Strengthen skills as professional planners in property management and land marketing
7. Apply knowledge of land market system to establish social entrepreneurship in real estate and asset management

Content List

- Introduction to Definitions and Terms Used In Estate Management. Origin And Need For Estate Management
- Introduction to Land Management for Urban Expansion and Operation of Urban Land Prices
- Understanding Land and Property Right System in Pakistan
- Understanding of Land Valuation Table and Its Significance in Estate Management
- Land Development in Formal and Informal Sector
- Introduction to Land Revenue System. Land Titling and Registration Process, Property Transfer and Disputes, Property Sale, Values and Taxes
- Plot Allotment Criteria, Demarcation of Land and Plots, Land Management System
- Land Management Process For The New Town And Master Planning
- Business Development Planning for Real Estate Management

Practical

- Visit to land record management departments of government
- Visit to private housing projects
- Preparation of database of real estate management firms
- Preparation of land Valuation Sheets of an existing (e.g. housing) project

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Interaction with leading Estate Management firms.
- Field Visits
- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc

Final Term (60%)

- Written long/short questions, quizzes etc

Proposed Assessment (practical, 100%)

- Presentations, assignments, report writing, viva voce, field visits etc

Recommended Books

1. Wilkinson (2015), *Developing Property Sustainable*, Routledge.
2. Ken McElroy (2015), *The ABCs of Property Management: What You Need to Know to Maximize Your Money*.
3. Walt Huber (2014), *Property Management*, Amazon.
4. Robert S. Griswold (2013), *Property Management Kit for Dummies*.
5. IREM (2011), *Principles of Real Estate Management*, Amazon.
6. Richard Card, (2011), *Real Estate Management*, Law Publisher OUP Oxford.
7. Ratcliffe, J. (2009), *Urban Planning And Real Estate Development*, Routledge
8. Mike Beirne (2006), *The Property Management Tool Kit*, Amazon.
9. UN Habitat, *Land and property right in Pakistan: training manual*.

48. ENTREPRENEURSHIP

Credit hours: 2 (2+0)

Prerequisites: None

Specific Objectives

To Familiarize the Concept of Enterprise Development and Entrepreneurial Skills

Learning Outcomes

After studying this course, the learners will be able to:

1. Understand the nature and importance of entrepreneurs
2. Ability to identify a business opportunity and explain corresponding proposed solutions
3. Discuss the impact of macro-environmental factors on business
4. Evaluate the feasibility of business ideas
5. Explain the role of marketing
6. Analyze direct and indirect competitors
7. Identify promotion techniques and evaluate the suitability of a promotion technique in a given situation
8. Apply the concepts of entrepreneurships to determine the final business description/market positioning

Content List

- Introduction: the Nature and Importance of Entrepreneurs, Characteristics of Successful Entrepreneurs, Development of Entrepreneurs, Entrepreneurial Decision Process, Role of Entrepreneurs in Economic Development, Ethics and Social Responsibility of Entrepreneurs. Starting a Business, Business Goal of a Company, Sources of Business Ideas
- Analyzing the Business Environment, the Impact of Major Macro-Environmental Factors, Namely Economic, Social, Cultural, Political, Legal and Technological Factors on a Business
- Development of Business Idea, Evaluating the Feasibility of Business Ideas Using a Structured Screening Process in the Areas of Product/Service, Market and Finance, Identifying and Meeting Customer Needs, Pricing Strategy for a Chosen Business
- Role of the Entrepreneur in the Local Community, Advantages and Disadvantages of Self-Employment, Prospects for Entrepreneurship, Market Segmentation, Market Targeting and Positioning, Market Coverage
- Strategies to Counter competitors' Strategies, Promotion Techniques, Role of Marketing, Importance of Branding, Innovation and Invention for a Business, Types of IT and How these Affect the Performance of a Business

Practical

- Identify a Business Opportunity and Corresponding Proposed Solutions
- List the Rewards and Challenges Facing a Business Owner
- Conduct an Industry Analysis of a Chosen Business in Relation to Suppliers, Buyers, Substitutes and Competitors
- Formulate a Strategy to Counter Competitors' Strategies.
- Evaluate the Suitability of a Promotion Technique in a given Situation.
- Develop the Appropriate Promotion Mix for a Chosen Business.

Proposed Teaching Methodology

- Lecturing
- Written Assignments
- Guest Speaker
- Field Visits
- Report Writing

Proposed Assessment (theory, 100%)

Mid Term (40%)

- Written long/short questions, quizzes etc.

Final Term (60%)

- Written long/short questions, quizzes etc. presentations, assignments, report writing.

Recommended Books

1. Shepherd, D.A. *Entrepreneurship*.
2. Burns. P., and Hurst, J.W. *Small Business and Entrepreneurship*.
3. Paulson, M. (2016) *Online Business from Scratch: Launch Your Own Seven-Figure Internet Business by Creating and Selling*.
4. Bygrave, W. D and Zacharakis (2014), *Entrepreneurship*,
5. Johnson, K. D. (2013) *The Entrepreneur Mind: 100 Essential Beliefs, Characteristics, and Habits of Elite Entrepreneurs*.

49. PROJECT (Part 2)

Credit hours: 6 (0 + 6)

Prerequisites: Project (Part 1) and Core Courses (to be decided by individual institution)

Specific Objectives

To implement an independent project on the topic / area / dimension of student's interest related to City and Regional Planning. The project will be a reflection of use of planning skills and previous learning. The project should promote skills and methodologies to undertake research related to city and regional planning. The project shall be a contribution to the existing body of knowledge in the profession.

The concerned university/institution is encouraged to place the final year project in PDF format in its digital library and on its website for wider publication and dissemination of knowledge.

5. PART-II MS PROGRAM (2-YEAR) IN CITY AND REGIONAL PLANNING**OBJECTIVES**

Following are the main objectives of the MS-CRP program:

1. To inculcate advanced knowledge and skills in the field of City and Regional Planning to meet the challenges of the contemporary and future epochs within our context.

2. To conduct research in order to contribute to the existing body of knowledge, skills and techniques in City and Regional Planning profession.
3. To augment professionals in various stream of specializations in City and Regional Planning.
4. To equip the CRP professionals with Climate Change adaptability and Disaster Risk Management concepts and techniques enhancing their role in achieving sustainable development in the country.
5. To develop entrepreneurial skills and advanced knowledge to the CRP graduates so that they can pursue career in development sectors at national and international levels.
6. To elevate the City and Regional Planning professionals to international standards.

6. SCHEME OF STUDIES FOR MS CITY & REGIONAL PLANNING

SPECIALIZATIONS

- | | | |
|-----|------------------------------------|-------|
| 1. | Community Empowerment | (CE) |
| 2. | Housing | (HS) |
| 3. | Urban Development Planning | (UD) |
| 4. | Regional Development Planning | (RP) |
| 5. | Transportation Planning | (TP) |
| 6. | Disaster Management | (DM) |
| 7. | Environmental Planning | (EP) |
| 8. | Land Use and Land Management | (LU) |
| 9. | Sustainable Development | (SD) |
| 10. | Urban Conservation | (UC) |
| 11. | Infrastructure Planning and Design | (IP) |
| 12. | Sustainable Tourism Planning | (STP) |
| 13. | Social Engineering | (SE) |
| 14. | Disability and Development | (DD) |
| 15. | Land Administration | (LA) |

Note: *University/Institution may introduce new or exclude existing specialization as per the needs.*

GROUP-A: Compulsory Courses

Compulsory for all			
Advanced Research Methods	2	1	3

Research Thesis	0	6	6
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GROUP-B: Core Courses (Three Courses to be selected from the following)

SN	Course Title	Credit Hours	
		Theory	Practical
1.	Advance Planning Techniques	2	1
2.	Comparative Urban Planning	3	0
3.	Planning Law and Practice	3	0
4.	Regional Development Planning	3	0
5.	Advanced Planning Theory	3	0
6.	Housing Policy and Practice	3	0
7.	Social Engineering	2	1
8.	Advanced Professional Practice		
9.	Environmental Planning	3	0
10.	Integrated Transportation Planning	3	0
11.	Implementation of policies and plans	2	1
12.	Urban Land Management	3	0
13.	Public Policy Analysis	3	0
14.	Sustainable Urban Land use Planning	3	0

GROUP-C: Elective Courses (Four Courses to be taken from the following)

SN	Course Title	Credit Hours	
		Theory	Practical
1.	Public Transport Planning	3	0
2.	Community Based Disaster Risk Management (CBDRM)	3	0
3.	Development Planning in Pakistan	3	0
4.	Disaster Resilience Recovery and Rehabilitation	3	0
5.	Local Planning Practice	2	1
6.	Environment, Resources and Development	3	0
7.	Legal and Regulatory Aspects in Planning	3	0
8.	Urban Finance Management	3	0
9.	Advanced Statistics	2	1

10.	Advanced Remote Sensing	2	1
11.	Rural Planning	3	0
12.	Advanced Geographical Information Systems	2	1
13.	Mathematical Models in Planning	2	1
14.	Urban Sociology	3	0
15.	Slum and Informal Housing	3	0
16.	Environmental Impact Assessment (EIA)	2	1
17.	Social Impact Assessment (SIA)	3	0
18.	Community Organization and Development	3	0
19.	Strategic Environmental Assessment	3	0
20.	Housing and Urban Development	3	0
21.	Advanced Urban Design	3	0
22.	Urbanism	3	0
23.	Industrial pollution regulation	3	0
24.	Project Appraisal	2	1
25.	Infrastructure development	3	0
26.	Climate Consideration in Urban Design	2	1
27.	Participatory approaches to waste management	3	0
28.	Urban Governance	3	0
29.	Urban Renewal and redevelopment	3	0
30.	Development Policies	3	0
31.	Negotiation and Conflict Resolution	3	0
32.	Energy Planning and Management	3	0
33.	Gender and Development	3	0
34.	Disaster and Development	3	0
35.	Monitoring and Auditing Urban Development	3	0
36.	Techniques for Damage and Need Assessment	2	1
37.	Transport and the Environment	3	0
38.	Guided individual studies in Urban & Regional Planning	3	0
39.	Climate change impacts and Adaptation	3	0
40.	Poverty Alleviation	3	0
41.	Urban Economics	3	0
42.	Sustainable Tourism Planning	3	0
43.	Urban Planning Studio	0	3
44.	Inclusive Development	3	0

45.	Urban Security and Terrorism	3	0
46.	Smart Cities	3	0
47.	Affordable Housing	3	0
48.	Energy Efficient Housing	3	0
49.	Urban Landscape	2	1
50.	Decision Support System	3	0
51.	Environmental Economics	3	0
52.	Industrial Development Planning	3	0
53.	Advanced Active Citizenship	3	0
54.	Corporate Social Responsibility	3	0
55.	Water Sanitation and Hygiene	2	1
56.	Migration Studies	3	0
57.	Heritage Conservation	3	0
58.	Access Auditing for Person with Disabilities	3	0
59.	Land Administration	3	0
60.	Healthy Cities	3	0
61.	Special Topics (to be selected by the university)	3	

Total Credit Hours for the MS-CRP Degree = 30

SPECIAL TOPICS

Students may study the topics of interest related to their research individually. However, the topics must be approved by the faculty supervisor / board of study prior to registration for this course.

RESEARCH THESIS

The thesis proposal shall be prepared by the students during the First Semester as a part of sessional work in the compulsory subject of Research Methods. The proposal may be considered by the Post Graduate Research Committee/Board of Studies during the first month of the Second Semester. The students are expected to work on data collection and literature review during the second Semester in their spare time. However, in the Final Semester, the students shall be required to concentrate wholly on their research thesis. A time table (weekly schedule) for the thesis may be prepared which will show two meeting days per week with the concerned supervisor. Other meetings may be arranged according to mutually agreed time between the supervisor and the supervisee. Full time students are strongly advised to submit their thesis at the end of the final semester.

7. RECOMMENDATIONS/SUGGESTIONS

The meeting made the following recommendations:

1. City and Regional Planning (CRP) should be included in the list of subjects/branches for all foreign and local MS/PhD scholarships awarded through HEC.
2. Special attention may be given to higher education in City and Regional Planning under HEC faculty development program.
3. In view of rapid urbanization and economic development, there is a need to rationalize/develop appropriate institutional framework for planning profession in the country.
4. In order to promote systematic city and regional planning in the country, it is recommended to develop planning legislation at federal and provincial levels to back up appropriate town planning system in Pakistan.
5. The profession of City and Regional Planning should be recognized at all levels so that a new cadre of technocrats be established at par with other professions.
6. Diploma and certificate courses in CRP may be introduced. This qualification must be made mandatory for building inspectors in local governments, development authorities and other relevant institutions.
7. HEC may facilitate Continuous Professional Development (CPD) program in collaboration with institutions like Pakistan Council of Architects and Town Planners (PCATP), Institute of Planners Pakistan (IPP), and International Society of City and Regional Planners (ISOCARP). Town planners working in the field may also be invited to join these programs to update their knowledge and keep themselves abreast with new technology.
8. BS in CRP degree may be initiated in all the provincial capitals and federal capital, particularly in Karachi, Quetta, Muzaffarabad, Gilgit and Islamabad to meet the dire need of this profession in the country.
9. Both the Pakistan Council of Architects and Town Planners (PCATP) and Institute of Planners Pakistan (IPP) should play active role in job creation for qualified town planners.
10. The criteria for admission in MS City and Regional Planning (CRP) must be BS CRP.

11. The faculty of Architecture and Planning should be independent in all public and private universities/institutions to facilitate accreditation of City and Regional Planning degree from PCATP. Moreover, the head of CRP Department should be from the same discipline.
10. Centre of Excellence in the field of City and Regional Planning may be established by academic institutions as well as public and private sector organizations.
11. Well-equipped GIS labs and urban planning studios at CRP departments may be established.
12. Departmental Libraries in existing CRP Departments may be strengthened. The PCATP may request HEC to include/enhance town planning related books, journals and data bases in Digital Library.
13. City and Regional Planning Departments should strive to launch research journals to encourage local publications and enhance local planning knowledge base. HEC may provide funds for this purpose.
14. To enhance the job market, non-planners working in the Government/Semi-government organizations, development authorities, TMAs (Tehsil/Town Municipal Administrations), Cantonment Boards etc. may be replaced by the qualified City and Regional Planners. Moreover, the capacity building of Local Government institutions should be done by provision of sufficient number of qualified City and Regional Planners in every TMA and District Governments throughout the country.
15. Any public or private organization while hiring town planners should clearly mention in the advertisement that applicants should have valid membership of PCATP
16. The NCRC recommends that all new programmes may be regularized following the accrediting authority's (PCATP) requirements.
17. All the faculty members of BS and MS programs currently being offered by public and private sector institutions must hold valid registration as town planners with PCATP.

ISLAMIC STUDIES (COMPULSORY)

OBJECTIVES

- 1 To provide Basic information about Islamic Studies
- 2 To enhance understanding of the students regarding Islamic Civilization
- 3 To improve Students skill to perform prayers and other worships
- 4 To enhance the skill of the students for understanding of issues related to faith and religious life.

COURSE OUTLINE

Introduction to Quranic Studies

- 1) Basic Concepts of Quran
- 2) History of Quran
- 3) Uloom-ul-Quran

Study of Selected Text of Holly Quran

- 1) Verses of Surah Al-Baqra Related to Faith (Verse No-284-286)
- 2) Verses of Surah Al-Hujrat Related to Adab Al-Nabi (Verse No-1-18)
- 3) Verses of Surah Al-Mumanoon Related to Characteristics of faithful (Verse No-1-11)
- 4) Verses of Surah al-Furqan Related to Social Ethics (Verse No.63-77)
- 5) Verses of Surah Al-Inam Related to Ihkam (Verse No-152-154)

Study Of Selected Text of Holly Quran

- 1) Verses of Surah Al-Ihzab Related to Adab al-Nabi (Verse No. 6, 21, 40, 56, 57, and 58.)
- 2) Verses of Surah Al-Hashar (18,19,20) Related to thinking, Day of Judgment
- 3) Verses of Surah Al-Saf Related to Tafakar, Tadabar (Verse No-1,14)

Seerat of Holy Prophet (SAW) I

- 1) Life of Muhammad Bin Abdullah (Before Prophet Hood)
- 2) Life of Holy Prophet (SAW) in Makkah
- 3) Important Lessons Derived from the life of Holy Prophet in Makkah

Seerat of Holy Prophet (SAW) II

- 1) Life of Holy Prophet (SAW) in Madina

- 2) Important Events of Life Holy Prophet in Madina
- 3) Important Lessons Derived from the life of Holy Prophet in Madina

Introduction to Sunnah

- 1) Basic Concepts of Hadith
- 2) History of Hadith
- 3) Kinds of Hadith
- 4) Uloom –ul-Hadith
- 5) Sunnah & Hadith
- 6) Legal Position of Sunnah

Selected Study from Text of Hadith

Introduction to Islamic Law & Jurisprudence

- 1) Basic Concepts of Islamic Law & Jurisprudence
- 2) History & Importance of Islamic Law & Jurisprudence
- 3) Sources of Islamic Law & Jurisprudence
- 4) Nature of Differences in Islamic Law
- 5) Islam and Sectarianism

Islamic Culture & Civilization

- 1) Basic Concepts of Islamic Culture & Civilization
- 2) Historical Development of Islamic Culture & Civilization
- 3) Characteristics of Islamic Culture & Civilization
- 4) Islamic Culture & Civilization and Contemporary Issues

Islam & Science

- 1) Basic Concepts of Islam & Science
- 2) Contributions of Muslims in the Development of Science
- 3) Quran & Science

Islamic Economic System

- 1) Basic Concepts of Islamic Economic System
- 2) Means of Distribution of wealth in Islamic Economics
- 3) Islamic Concept of Riba
- 4) Islamic Ways of Trade & Commerce

Political System of Islam

- 1) Basic Concepts of Islamic Political System
- 2) Islamic Concept of Sovereignty
- 3) Basic Institutions of Govt. in Islam

Islamic History

- 1) Period of Khlaft-e-Rashida

- 2) Period of Umayyads
- 3) Period of Abbasids

Social System of Islam

- 1) Basic concepts of Social System of Islam
- 2) Elements of Family
- 3) Ethical values of Islam

Recommended Books

- 1) Hameed ullah Muhammad, "Emergence of Islam", IRI, Islamabad
- 2) Hameed ullah Muhammad, "Muslim Conduct of State"
- 3) Hameed ullah Muhammad, "Introduction to Islam"
- 4) Mulana Muhammad YousafIslahi,"
- 5) Hussain Hamid Hassan, "An Introduction to the Study of Islamic Law" leaf Publication, Islamabad, Pakistan.
- 6) Ahmad Hasan, "Principles of Islamic Jurisprudence" Islamic Research Institute, International Islamic University, Islamabad (1993)
- 7) Mir Waliullah, "Muslim Jurisprudence and the Quranic Law of Crimes" Islamic Book Service (1982)
- 8) H.S. Bhatia, "Studies in Islamic Law, Religion and Society" Deep & Deep Publications New Delhi (1989)
- 9) Dr. Muhammad Zia-ul-Haq, "Introduction to Al Sharia Al Islamia"Allama Iqbal Open University, Islamabad (2001).

PAKISTAN STUDIES (COMPULSORY)

(As Compulsory Subject for Degree Students)

OBJECTIVES

- To develop vision of Historical Perspective, Government, Politics, Contemporary Pakistan, ideological background of Pakistan.
- To study the process of governance, national development, issues arising in the modern age and posing challenges to Pakistan.

COURSE OUTLINE

1. Historical Perspective

- a. Ideological rationale with special reference to Sir Syed Ahmed Khan, Allama Muhammad Iqbal and Quaid-e-Azam Muhammad Ali Jinnah.
- b. Factors leading to Muslim separatism
- c. People and Land
 - i. Indus Civilization

- ii. Muslim advent
 - iii. Location and Geo-Physical features.
- 2. Government and Politics in Pakistan**
Political and constitutional phases:
- a. 1947-58
 - b. 1958-71
 - c. 1971-77
 - d. 1977-88
 - e. 1988-99
 - f. 1999 onward
- 3. Contemporary Pakistan**
- a. Economic institutions and issues
 - b. Society and social structure
 - c. Ethnicity
 - d. Foreign policy of Pakistan and challenges
 - e. Futuristic outlook of Pakistan

Recommended Books

1. Burki, Shahid Javed. *State & Society in Pakistan*, The Macmillan Press Ltd 1980.
2. Akbar, S. Zaidi. *Issue in Pakistan's Economy*. Karachi: Oxford University Press, 2000.
3. S. M. Burke and Lawrence Ziring. *Pakistan's Foreign policy: An Historical analysis*. Karachi: Oxford University Press, 1993.
4. Mehmood, Safdar. *Pakistan Political Roots & Development*. Lahore, 1994.
5. Wilcox, Wayne. *The Emergence of Bangladesh*. Washington: American Enterprise, Institute of Public Policy Research, 1972.
6. Mehmood, Safdar. *Pakistan Kayyun Toota*, Lahore: Idara-e-Saqafat-e-Islamia, Club Road, nd.
7. Amin, Tahir. *Ethno-National Movement in Pakistan*, Islamabad: Institute of Policy Studies, Islamabad.
8. Ziring, Lawrence. *Enigma of Political Development*. Kent England: Wm Dawson & Sons Ltd, 1980.
9. Zahid, Ansar. *History & Culture of Sindh*. Karachi: Royal Book Company, 1980.
10. Afzal, M. Rafique. *Political Parties in Pakistan*, Vol. I, II & III. Islamabad: National Institute of Historical and Cultural Research, 1998.
11. Sayeed, Khalid Bin. *The Political System of Pakistan*. Boston: Houghton Mifflin, 1967.
12. Aziz, K. K. *Party, Politics in Pakistan*, Islamabad: National Commission on Historical and Cultural Research, 1976.
13. Muhammad Waseem, *Pakistan Under Martial Law*, Lahore: Vanguard, 1987.

14. Haq, Noor ul. *Making of Pakistan: The Military Perspective*. Islamabad: National Commission on Historical and Cultural Research, 1993.