

DEPARTMENT OF ARCHITECTURE
ANNA UNIVERSITY, CHENNAI

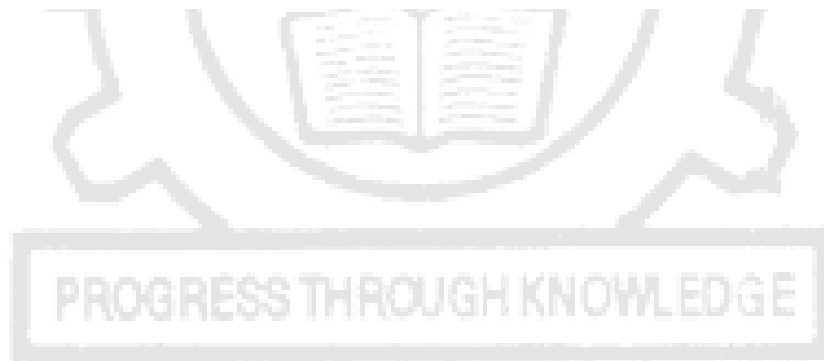
VISION OF DEPARTMENT OF ARCHITECTURE

The Department of Architecture is committed to excellence in the field of architectural education and the discipline of architecture through its pedagogical, research, extension and outreach activities, directed towards the betterment of the world that we inhabit, in all realms shaped by architecture. It shall uphold universal moral and ethical values in all endeavours that it undertakes and be exemplary in creating positive transformations.

MISSION OF DEPARTMENT OF ARCHITECTURE

The Mission of the Department of Architecture is

- To tap and strengthen the innate potential of each student and deepen their knowledge/skills in order to enable them to self-actualise as well as become catalysts for positive change.
- To contribute to immediate context, larger society and the world through knowledge creation and dissemination.
- To engage and extend the expertise of the department in addressing and solving of issues/problems related to the built environment.
- To actively interact and collaborate with professionals, educational institutions and other related organisations at all scales in order to collectively further the cause of appropriate architecture.



ANNAUNIVERSITY, CHENNAI - 600 025
UNIVERSITY DEPARTMENTS

REGULATIONS 2023

CHOICE BASED CREDIT SYSTEM

M.Arch (Landscape) Full-Time Programme

1. PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

- I. Become a landscape architect with ability to design open spaces, find environmentally suitable solutions and become a landscape planner capable of promoting sustainable development of natural resources.
- II. Find gainful employment in landscape architectural firms / infrastructure firms / environmental solutions providers through offering of specialised knowledge.
- III. Be a part of organizations that influence policy and decision making through contributing in-depth knowledge in relevant fields of study.
- IV. Become a teacher/researcher with ability to apply critical, investigative and analytical thinking towards future society.
- V. Become a thinker and entrepreneur who can anticipate and project future transformations in the environment.

2. PROGRAMME OUTCOMES (POs)

After going through two years of study, our M.Arch (Landscape) graduates will exhibit ability to:

PO#

Programme Outcome

1. An ability to independently carry out research /investigation and landscape design to solve practical problems
2. An ability to write and present a substantial technical report/document.
3. An ability to design outdoor environments for people and an ability to plan for the effective management of natural resources for use by people.
4. Students will be able to resolve landscape architectural problems with due consideration to environmental and urban issues.
5. Students will be able to bring contemporary tools/ methods/ approaches to analyse situations and explore design.
6. The students will develop skill to identify, decipher and interpret the issues relating to Landscape Architecture and will also be trained in collecting, critically analysing and presenting information in a logical and clear manner.

PEO / PO Mapping

PROGRAMME EDUCATIONAL OBJECTIVES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
I			3	3	1	2
II			3	3	1	
III	1	3	3			
IV	2	3				3
V	1		3			3

3- High 2-Moderate 1-Low

Mapping of Course Outcome and Programme Outcome

Year	Sem ester	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	
I	1	Geology and Watershed Management				3		2	
		Planting and Horticultural Practices				3		2	
		Theory of Landscape Architecture		2					3
		Landscape Construction Detailing	3		3	1			
		Site Planning and Design Studio	3		3	1	1	1	
		Professional Elective I							
	2	Research Methodologies for Human Environment		3					3
		Planting Design				3	3		
		Urban Landscape Design				3	3		
		Professional Elective II							
		Application of GIS in Landscape Planning				2	3	3	
		Urban Landscape Design Studio	3		3	3	1	1	
II	3	Professional Practice of Landscape Architecture	3				1	1	
		Professional Elective III							
		Professional Elective IV							
		Internship Training	3		1	1	2		
		Pre-Thesis	3	2	1			1	
		Regional Landscape Planning Studio	3		1	2	3	3	
	4	Thesis	2	1	3	1	2	3	

3- High 2-Moderate 1-Low

PROGRESS THROUGH KNOWLEDGE

ANNA UNIVERSITY, CHENNAI
UNIVERSITY DEPARTMENTS
M.ARCH (LANDSCAPE) FULL-TIME PROGRAMME
REGULATIONS 2023
CHOICE BASED CREDIT SYSTEM
I TO IV SEMESTERS CURRICULA AND SYLLABUS
SEMESTER I

S. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PERWEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
THEORY								
1.	LN3101	Geology and Watershed Management	PCC	3	0	0	3	3
2.	LN3102	Planting and Horticultural Practices	PCC	3	0	0	3	3
3.	LN3103	Theory of Landscape Architecture	PCC	3	0	0	3	3
THEORY CUM STUDIO								
4.	LN3111	Landscape Construction Detailing	PCC	1	0	3	4	4
STUDIO								
5.	LN3121	Site Planning and Design Studio	PCC	0	0	10	10	10
TOTAL				10	0	13	23	23
PROFESSIONAL ELECTIVE								
6.		Professional Elective I	PEC	X	X	X	3	3
TOTAL							26	26

SEMESTER II
(Prerequisite - Pass in Site Planning and Design Studio)

S. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PERWEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
THEORY								
1.	LN3201	Research Methodologies for Human Environment	RMC	3	0	0	3	3
2.	LN3202	Planting Design	PCC	3	0	0	3	3
3.	LN3203	Urban Landscape Design	PCC	3	0	0	3	3
THEORY CUM STUDIO								
4.	LN3211	Application of GIS in Landscape Planning	EEC	1	0	3	4	4
STUDIO								
5.	LN3221	Urban Landscape Design Studio	PCC	0	0	10	10	10
TOTAL				10	0	13	23	23
PROFESSIONAL ELECTIVE								
6.		Professional Elective II	PEC	X	X	X	3	3
TOTAL							26	26

SEMESTER III
(Prerequisite - Pass in Urban Landscape Design Studio)

S. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
THEORY								
1.	LN3301	Professional Practice of Landscape Architecture	PCC	3	0	0	3	3
STUDIO								
2.	LN3321	Pre-Thesis	PCC	0	0	6	6	6
3.	LN3322	Regional Landscape Planning Studio	PCC	0	0	10	10	10
TOTAL				3	0	16	19	19
PROFESSIONAL ELECTIVE								
4.		Professional Elective III	PEC	x	x	x	3	3
5.		Professional Elective IV	PEC	x	x	x	3	3
INTERNSHIP TRAINING								
6.	LN3311	Internship Training	EEC	X	X	X	X	2
TOTAL							27	

* 4weeks in Summer Vacation between II and III Semesters

SEMESTER IV
(Prerequisite- Pass in Regional Landscape Planning Studio & Pre-Thesis, 40 Credits)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
STUDIO								
1.	LN3421	Thesis	PCC	0	0	16	16	16
TOTAL							16	16

TOTAL NO. OF CREDITS: 95

PROFESSIONAL CORE COURSES (PCC)

S NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	LN3101	Geology and Watershed Management	PCC	3	0	0	3	3
2.	LN3102	Planting and Horticultural Practices	PCC	3	0	0	3	3
3.	LN3103	Theory of Landscape Architecture	PCC	3	0	0	3	3
4.	LN3111	Landscape Construction Detailing	PCC	1	0	3	4	4
5.	LN3121	Site Planning and Design Studio	PCC	0	0	10	10	10
6.	LN3201	Research Methodologies for Human Environment	RMC	3	0	0	3	3
7.	LN3202	Planting Design	PCC	3	0	0	3	3

8.	LN3203	Urban Landscape Design	PCC	3	0	0	3	3
9.	LN3221	Urban Landscape Design Studio	PCC	0	0	10	10	10
10.	LN3301	Professional Practice of Landscape Architecture	PCC	3	0	0	3	3
11.	LN3321	Pre-Thesis	PCC	0	0	6	6	6
12.	LN3322	Regional Landscape Planning Studio	PCC	0	0	10	10	10

PROFESSIONAL ELECTIVE COURSES (PEC)

SEMESTER I, ELECTIVE I

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	LN3001	Sustainability and Energy Conservation in Landscape Architecture	PEC	3	0	0	3	3
2.	LN3002	Universal Design	PEC	3	0	0	3	3
3.	LN3003	Traditional and Contemporary Landscapes	PEC	3	0	0	3	3

SEMESTER II, ELECTIVE II

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	LN3004	Environmental Planning and Legislation	PEC	3	0	0	3	3
2.	LN3005	Landscape Resources	PEC	3	0	0	3	3
3.	LN3006	Energy, Climate Change and Urban Development	PEC	3	0	0	3	3

SEMESTER III, ELECTIVE III

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	LN3007	Landscape Assessment	PEC	3	0	0	3	3
2.	LN3051	Landscape Urbanism	PEC	3	0	0	3	3
3.	LN3008	Cultural Landscapes and Landscape Conservation	PEC	3	0	0	3	3
4.	LN3009	Environment, Development and Disaster Management	PEC	3	0	0	3	3

SEMESTER III, ELECTIVE IV

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	LN3010	Landscape Management	PEC	3	0	0	3	3
2.	LN3011	Landscape Ecology and Planning	PEC	3	0	0	3	3
3.	LN3012	Environmental Impact Assessment	PEC	2	0	2	4	3

EMPLOYMENT ENHANCEMENT COURES (EEC)

S No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	LN3211	Application of GIS in Landscape Planning	EEC	1	0	3	4	4
2.	LN3311	Internship Training	EEC	X	X	X	X	2

SUMMARY

S. No	Subject Area	Credits per Semester				Credits Total
		I	II	III	IV	
1	PCC	23	16	19	16	74
2	PEC	3	3	6		12
3	RMC		3			03
4	EEC		4	2		06
Total		26	26	27	16	95

OBJECTIVES

- To give introduction to soil formation, characteristics of land formation and its influence on landscape.
- To give detailed knowledge on the formation of landforms.
- To introduce basic hydrology and its link with various landscape elements.

UNIT I INTRODUCTION 6

Geomorphic process: Epigenic or Exogenic process – Weathering, Erosion, Mass wasting, Fluvial cycle, Groundwater, Wind, Seas and Oceans, Glaciers. Major processes and associated landforms: Tectonic, fluvial, Aeolian, coastal, karst, and glacial topography.

UNIT II GEOMORPHOLOGY 7

Evolution of land forms: Land forms produced by geomorphic process and theories of Plate tectonics.

Stratigraphy: principles, stratigraphy and geology of India. Man's intervention into Ecology and Environment case studies in India, Suitability of land for various developments.

UNIT III SOIL CHARACTERISTICS & ANALYSIS 10

Soil properties soil classification, soils of India.

Soil use and Management: A) Soil survey and field mapping. Basics of Soil Testing and Analysis. B) land capability classifications (a) Soil evaluation and land-use planning. (b) Soil and water conservation. (c) Soil fertility and plant nutrition. (d) Soil degradation control, remedial actions and reclamation techniques, Role of remote sensing in soil mapping.

UNIT IV HYDROLOGY 10

Rainfall regime with specific reference to the Indian region. Characteristics and management of drainage basins: Introduction to watersheds. Types of Flow: channel and over-land. Occurrence and movement of ground water. Water bearing properties of geological formation. Sea water intrusion in Coastal areas. Rainwater Harvesting for urban agglomerations.

UNIT V WATER MANAGEMENT 12

Application of geological information in the interpretation of landscapes on maps and in the field. Identifying land forms and land use through remote sensing for Landscape Applications.

The relationships between geology, soil, hydrology and vegetation: Practical examples.

TOTAL: 45 PERIODS**COURSE OUTCOMES:**

On completion of the course, the student is expected to be able to

- CO1** Familiarity with characteristics of landforms, causes and effects.
- CO2** Knowledge about soil characteristics, causes and effects and modifications.
- CO3** Knowledge about methods of analysis of soils.
- CO4** Knowledge about water management

REFERENCES

1. P.Abrol and V.V.DhruvaNarayana, 'Technologies for Wasteland Development', ICAR, New Delhi, 1990.
2. Arthur.V.Strahler, 'Physical Geography'-3rd Edition, John Wiley and Sons Inc, 2005.
3. William D. Thornbury, 'Principles of Geomorphology', John Wiley and Sons Inc, 1954.

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	-	-	-	3	-	2
2	-	-	-	3	-	2
3	-	-	-	3	-	2
4	-	-	-	3	-	2
Avg.	-	-	-	3	-	2

'1' = Low; '2' = Medium; '3' = High

LN3102

PLANTING AND HORTICULTURAL PRACTICES

L T P/S C

3 0 0 3

OBJECTIVES

- To give introduction to the characteristics of Plant materials, which are an important part of soft landscape, international nomenclature, used for plants and their associations.
- To promote understanding of the factors that regulate the growth and characteristics of plant.

UNIT I CHARACTERISTICS OF PLANT MATERIALS 9

Classification of plant kingdom, rules of nomenclature and identification. Plant processes, water relation, mineral nutrition, photosynthesis and respiration. Stem, root and leaf relationship, growth and flowering, response to stimuli and modification. Plant multiplication and adaptation.

UNIT II FLORISTIC REGIONS OF INDIA 9

Different floristic regions and forest types of India. Dominant, endemic, occasional, prevalent species in select types.

UNIT III PLANT PROPAGATION 9

Nursery establishment and plant propagation. Establishment and maintenance of grass, Shrubs and trees with respect to ground preparation, planting and transplanting, Protection of plants during and after planting.

UNIT IV HORTICULTURAL PRACTICE 9

Plant nutrition and supplements. Fertilizers and Manures- types, methods of applications, advantages and disadvantages. Common plant pests, diseases and their control, insecticides and their application, weed control. Sustainable practices in pest management and weed control. Water budgeting.

UNIT V LANDSCAPE MAINTENANCE 9

Maintenance methodology, maintenance economics and maintenance details for all soft landscape. Equipment for landscape maintenance.

TOTAL: 45 PERIODS

COURSE OUTCOMES:

On completion of the course, the student is expected to be able to

CO1 Knowledge of binomial nomenclature of plants.

CO2 Familiarity with aspects of plant growth and propagation, thereby having understanding of maintenance requirement of plants.

REFERENCES

1. Raunkier.C, 'The Life Forms of Plants and Statistical Plant Geography', Oxford Clarendon Press,1934.
2. Venkateswaralu.V.A, 'Textbook of Botany'-Vol III, Guntur.
3. Lawrence.H.M, 'Taxonomy of Vascular Plants', Oxford, IBH, 1964.
4. Rao.K.N.R. and Krishnamurthy.K.N, 'Angiosperms', S.Viswanathan Printers and Publishers.
5. G.S.Puri, 'Forest Types of India', The Indian forester, 1960.

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	-	-	-	3	-	2
2	-	-	-	3	-	2
Avg.	-	-	-	3	-	2

'1' = Low; '2' = Medium; '3' = High

LN3103

THEORY OF LANDSCAPE ARCHITECTURE

L T P/S C
3 0 0 3

OBJECTIVES

- To give understanding of a broad range of contemporary and historic theories that influence design and planning.
- To give outline of the chronology of development and evolution of landscape and garden design in relation to art, architecture and city planning from the earliest period to the present day.

UNIT I ATTITUDE TO NATURE AND WORLD VIEW

9

Changing perceptions of man's relationship with nature in various phases of history; responses and attitudes to nature and landscape resources as a function of this perception. Worldviews and their impact upon design (modernism and modernist design, postmodernism and its varied design manifestations)

UNIT II SOCIAL AND CULTURAL DIMENSIONS OF LANDSCAPE

9

Overview of social, behavioral, and cultural theories and writings as they are applied to. Environmental and Behavioral theories: Entropy, Prospect and Refuge, Defensible space etc. An introduction to social and cultural dimensions of landscape.

UNIT III FORM, SPACE AND ORDER

9

Place-making (sense of place theories, role of cultural geography research in design, regional issues). The comparative analysis of examples of landscape separated in time and space: siting, relationship to surroundings, use of landscape elements, function, scale, symbolism, etc. Illustrative range of examples from various geographic locations and periods, highlighting aspects of Form, Space and Order

UNIT IV INERT MEANING OF LANDSCAPE

9

Historic landscape preservation issues (cultural landscapes, adaptive reuse, restoration approaches, and management theories). Ancient traditions; siting of structures, complexes and cities; symbolic meanings and sacred value attributed to natural landscapes.

UNIT V DEVELOPMENT OF LANDSCAPE DESIGN**9**

Development of landscape design and gardens till the early 19th century, Influences and linkages across cultures and traditions.

TOTAL: 45 PERIODS**COURSE OUTCOMES:**

On completion of the course, the student is expected to be able to

CO1 Ability to engage analytical approach to the study of theory and developing an attitude towards critiquing and evaluating choices for design decisions in varied contexts.

CO2 An appreciation of scale in terms of landscape and nature.

REFERENCES

1. Pregill Philip and Nancy Volkman, 'Landscapes in History, Design and Planning in the Western Tradition', John Wiley and Sons Inc, New York, 1999.
2. Swaffield, Simon, 'Theory in Landscape Architecture', University of Pennsylvania Press, Philadelphia, 2002.
3. Birnbaum, Charles A and Robin Karson, 'Pioneers of American Landscape Design', McGraw Hill, New York, 2000.
4. Francis, Mark and Randolph T. Hester, Jr, 'The Meaning of Gardens'. The MIT Press, Cambridge, 1993.
5. Tishler, William H, 'American Landscape Architecture, Designers and Places', American Society of Landscape Architects, Preservation Press, 1999.
6. Boults, Elizabeth and Chip Sullivan, 'Illustrated History of Landscape Design', Hoboken, John Wiley and Sons, New Jersey, 2010.
7. Rogers, Elizabeth Barlow, 'Landscape Design: A Cultural and Architectural History', Harry N. Abrams, Inc, New York, 2001.
8. Geoffrey & Susan Jellicoe, 'The Landscape Of Man'-3rd Edition, Thames and Hudson, 1995.
9. Tobey George. 'History of Landscape Architecture, The Relation Of People To Environment', Elsevier And Co, New York, 1973.

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	-	2	-	-	-	3
2	-	2	-	-	-	3
Avg.	-	2	-	-	-	3

1' = Low; '2' = Medium; '3' = High;

LN3111**LANDSCAPE CONSTRUCTION DETAILING****L T P/S C****1 0 3 4****OBJECTIVE**

- To train the students in the detailing and drawing of landscape elements – Hard and soft landscape elements

UNIT I HARD LANDSCAPES AND OUTDOOR FURNITURE**10**

Design and detail of hard landscapes – Roads, paving, barriers, edge conditions – functions, types, criteria for selection, design aspects, details.

Criteria for the selection of materials and specifications for the street furniture in various environments. Design of outdoor structures like pavilions, gazebos etc. Use of waste materials in

landscape, recycling and reuse of materials, their impact on landscape design. Preparation of working drawings for hard landscaping and services.

UNIT II OUTDOOR LIGHTING 10

Definition of technical terms, types of electrical lighting, types of fixtures, auxiliary fixtures. Principles of design for outdoor illumination, design and type of effects with electrical lighting. Solar energy and lighting. Preparation of electrical drawing for landscape area.

UNIT III LAND AND WATER FEATURES 25

Design of water features such as swimming pools, cascades, fountains etc., and their technical requirements. Consideration for design and detail, Water bodies.

Design of irrigation system. Landscape area types, objectives and design, water needs and sources, application, methods of installation. Control systems, scheduling and maintenance. Representation of land forms, slope analysis-uses and function, Grading – symbols and abbreviations, principles of earthwork- cut and fill calculations, precaution taken while performing cut and fill in relation to soil condition. Design of grading alignments for paths /roads.

UNIT IV PLAY AREA AND TERRACE LANDSCAPING 15

Design of play areas -Tot lots to play grounds. Design and detail of play equipments. Considerations, design and detail for terrace landscaping, concept of green roof - intensive and extensive- green walls.

TOTAL: 60 PERIODS

COURSE OUTCOMES:

On completion of the course, the student is expected to be able to

CO1 Detailing and drawing of landscape elements and features.

CO2 Water management through landscape design.

CO3 Detailing of site elements like earthwork, hard landscape and outdoor furniture

REFERENCES

1. David Sauter, Landscape Construction, Pelmer Thomson Learning, 2000.
2. Michael Little wood, Landscape Detailing Volume I-IV, Architectural Press, 1993.
3. Roger Narboni, Lighting the Landscapes- Art Design technologies, Birkhauser, Switzerland, 2004.
4. 2004.
5. Strom Steven, Site engineering for landscape Architects, John Wiley and sonsInc., 2004.
6. Charles.W.Harris& Nicholas T. Dines, Time saver Standards for Landscape Architecture,
7. Mc. Graw Hill.
8. Jack E. Ingels, Landscaping – Principles & Practices , Pelmer Publishers Inc., 1992

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	3	-	3	1	-	-
2	3	-	3	1	-	-
3	3	-	3	1	-	-
Avg.	3	-	3	1	-	-

'1' = Low; '2' = Medium; '3' = High;

OBJECTIVES

- To give introduction to landscape design.
- To give introductory exercises in art, architecture and landscape.
- To give knowledge about landscape analysis and site planning for medium sized sites.
- To enable landscape Design of small recreational or civic spaces.

CONTENT

Appreciation of basic landscape design issues and elements. Simple site planning, use of hard and soft landscape materials for defining and structuring the open spaces. Landscape design in relation to architecture.

COURSE OUTCOMES:

On completion of the course, the student is expected to be able to

CO1 Exposure to the process of site study and analysis.

CO2 Understanding of site planning process

CO3 Ability to undertake landscape design of small projects primarily involving site planning and design.

TOTAL:150 PERIODS

REFERENCES

1. Swaffield Simon, 'Theory in Landscape Architecture', University of Pennsylvania Press, Philadelphia, 2002.
2. Charles.W.Harris & Nicholas T. Dines, 'TimeSaver Standards for Landscape Architecture'-2nd Edition, Mc. Graw Hill, 1998.
3. Nick Robinson, 'The Planting Design Hand book' -3rd Edition, Gower Pub, Routledge, 2016.
4. Strom Steven, 'Site Engineering for Landscape Architects'-6th Edition, John Wiley and sons Inc, 2013.

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	3	-	3	-	-	2
2	3	-	3	-	-	2
3	3	-	3	2	1	-
Avg.	3	-	3	2	1	1

'1' = Low; '2' = Medium; '3' = High

OBJECTIVES

- To introduce the students to the importance of critical inquiry as a way of gaining knowledge and adding to it through research.
- To expose the students to the various forms of research and research methodologies/ processes.
- To engage this understanding in the specific field of human environment research.

UNIT I	INTRODUCTION	9
Basic research issues and concepts- orientation to research process- types of research: historical, qualitative, co-relational, experimental, simulation and modeling, logical argumentation, case study and mixed methods- illustration using research samples.		
UNIT II	RESEARCH PROCESS	9
Elements of Research process: finding a topic- writing an introduction- stating a purpose of study identifying key research questions and hypotheses- reviewing literature- using theory- defining, delimiting and stating the significance of the study, advanced methods and procedures for data collection and analysis- illustration using research samples		
UNIT III	RESEARCHING AND DATA COLLECTION	9
Library and archives. Internet: New information and the role of internet. Finding and evaluating sources. Misuse. Test for reliability. Ethics		
Methods of data collection- From primary sources: observation and recording, interviews structured and unstructured, questionnaire, open ended and close ended questions and the advantages, sampling- Problems encountered in collecting data from secondary sources.		
UNIT IV	REPORT WRITING	6
Research writing in general- Components: referencing- writing the bibliography - developing the outline - presentation; etc.		
UNIT V	CASE STUDIES	12
Case studies illustrating how good research can be used from project inception to completion- review of research publications.		

TOTAL: 45 PERIODS

COURSE OUTCOMES:

On completion of the course, the student is expected to be able to

- CO1** Skill to identify, decipher and interpret issues relating to architecture based on research enquiry methods.
- CO2** Knowledge of different methods of conducting research and research writing.

REFERENCES

1. Linda Groat and David Wang; Architectural Research Methods – 2nd edition ‘, John Wiley & Sons Inc, Hoboken, New Jersey, US , 2013.
2. Wayne C Booth; Joseph M Williams; Gregory G. Colomb; ‘The Craft of Research’ , 3rd Edition; Chicago guides to writing, editing and publishing;2008
3. Iain Borden and Kaaterina Ruedi Ray ; The Dissertation: An Architecture Student’s Handbook; Architectural Press; 2006
4. Ranjith Kumar; Research Methodology- A step by step guide for beginners-3rd Edition ; Sage Publications;2011
5. John W Creswell; Research design: Qualitative, Quantitative and Mixed Methods Approaches; Sage Publications; 2011.
6. JA Smith, P Flowers, M Larkin -Interpretative Phenomenological Analysis: Theory, Method and Research (English) FIR Edition- Sage Publication -2009.

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	-	3	-	-	-	3
2	-	3	-	-	-	3
Avg.	-	3	-	-	-	3

‘1’ = Low; ‘2’ = Medium; ‘3’ = High

OBJECTIVES

- To learn about the various aspects of designing plants.
- To learn in detail about the applications of planting design in practice.

UNIT I INTRODUCTION TO PLANTING DESIGN**9**

Introduction to planting design. Plants as living materials, landscape architect's view of plants. Plants as structural, functional and decorative elements. Structural characteristics of plants. Spatial functions of plants, ground level planting, below knee height, knee to eye level, above eye level planting, tree planting.

UNIT II CREATING SPACES WITH PLANTS**9**

Experience of spaces, use of planting to manipulate spatial experience, elements of spatial composition – enclosure, dynamics and focus. Plant associations. Plant communities, Designing with canopy layers – 3 layers, 2 layers and single layer. Plants as a part of integral habitats.

UNIT III VISUAL COMPOSITION IN PLANTING DESIGN**9**

Subjective and objective responses to plant material. A study on form, shape, colour, texture, growth characteristics and suitability to different environments. Principles of visual composition- harmony and contrast, Balance, Emphasis, Sequence, Scale, planting palette, Unity and variety in planting design.

UNIT IV PLANTING DESIGN FOR HABITAT CREATION**9**

Planting strategies and species for various types of habitats – wooded areas, grassland and meadows, wetlands, coastal edges, waterside and aquatic planting, slope retention, plants for restoration of disturbed habitats, Interior landscape, vertical wall and roof landscape.

UNIT V APPLICATIONS IN PRACTICE**9**

Study of local plant materials, their botanical, common and regional names, growth characteristics and application in design. Visit to nurseries. Introduction to soft landscape working drawings, planting plans, specifications and estimation.

TOTAL: 45 PERIODS**COURSE OUTCOMES:**

On completion of the course, the student is expected to be able to

CO1 Knowledge about basics of planting design

CO2 Knowledge about applications of planting design

REFERENCES

1. Nick Robinson, 'The Planting Design Hand book', 3rd Edition, Routledge, 2016.
2. Brian Hackett, 'Planting Design', McGraw Hill, 1979.
3. Bose. T. K. and Choudhary, 'Tropical Garden Plants in Colour', Horticulture and Allied Publishers, 1991.
4. Iyengar Gopaldaswamy, 'Complete Gardening in India', Gopaldaswamy Parthasarathy, 1991.
5. M.S. Randhawa, 'Flowering Trees of India', National Book Trust, India, 1983.

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	-	-	-	3	3	-
2	-	-	-	3	3	-
Avg.	-	-	-	3	3	-

'1' = Low; '2' = Medium; '3' = High

OBJECTIVE:

- To expand the student's knowledge on landscape within urban areas and open spaces in urban context.

UNIT I INTRODUCTION**6**

City and pattern – hierarchy of streets and squares – spatial organization and land use – road network and basic services. Open spaces within urban environment.

UNIT II URBAN SPACES**9**

Cultural, social and aesthetic value of urban spaces and its perception, Imageability, Townscape elements. Urban space enhancement.

UNIT III OPEN SPACE SYSTEM**9**

Open space development in urban design context. Evolution of public park as a major component of urban landscape. Open space development in new towns. Park systems, water fronts. Green infrastructure. Urban ecology, urban water sheds.

UNIT IV ELEMENTS IN URBAN LANDSCAPE**12**

Design of public parks, roads, green ways, parkways, promenade and plaza. Public art. Plant selection criteria, furnishings and lighting of public space, maintenance and management of public spaces and parks,

UNIT V CASE STUDIES**9**

Contemporary urban landscape issues. Case studies-Study, understanding and analysis of known examples at the national and international levels.

TOTAL: 45 PERIODS**COURSE OUTCOMES:**

On completion of the course, the student is expected to be able to

CO1 Knowledge about the types, characteristics and elements of urban open spaces.

CO2 Understanding of issues related to and design of urban landscape design.

REFERENCES

- Gorden Cullen, 'The Concise Townscape', Architectural Press, London, 1961
- Kevin Lynch, 'Image of City', MIT Press, Cambridge, 1961.
- Henry F. Arnold, 'Trees in Urban Design', Van Nostrand Reinhold Company, 1980
- Matthew Carmona, Tim Heath, 'Public Places – Urban Spaces', Routledge, 2012.
- Michael Hough, 'Cities and Natural Process', Routledge, 1995.
- Donald Watson, Alan Platts, Robert Shibley, 'Time Savers Standards for Urban Design', McGraw Hill Education, 2003.
- Graphic-sha, Ed 'Elements and Total Concept of Urban Landscape Design', Graphic-Sha Publishing Co, 2001.
- Tom Turner, 'City as Landscape', E & FN Spon, 1996.
- Cliff Tandy, 'Handbook of Urban Landscape'-2nd Edition, Architectural Press, 1971.

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	-	-	-	2	2	-
2	-	-	-	3	3	-
Avg.	-	-	-	3	3	-

'1' = Low; '2' = Medium; '3' = High

OBJECTIVES:

- To introduce concept of GIS as the platform being increasingly used worldwide for landscape planning and restoration projects.
- To train the students in the application of GIS in Landscape design.

UNIT I INTRODUCTION TO MAPS**10**

Introduction to Maps, Cartography and Digital Cartography. Types of Maps –Large, Medium and Small Scale. Map Furniture's. Introduction to Map Projection System and Datum. Polyconic and UTM (Universal Transverse Mercator).

UNIT II INTRODUCTION TO G.I.S, G.P.S AND REMOTE SENSING**10**

Introduction to Geographical Information System (GIS). Data and Data types –Spatial(point, line & Area)&Non – Spatial. Data Model – Raster & Vector. Dimensions in Data representing. Topology. Introduction to GPS & DGPS. Remote Sensing

UNIT III CAPTURING AND GENERATING SPATIAL AND NON SPATIAL DATA AND DISPLAY**16**

Capturing Spatial& Non Spatial Data. Using Total Station. Integrating DGPS / GPS. Using Mobile / Tablet. Different modes of Conversion of Spatial Data – Scanning, Digitization, onscreen. Semi auto vectorization. Integrating Spatial & Non Spatial Data

UNIT IV SPATIAL ANALYSIS AND APPLICATION OF G.I.S**24**

Introduction to Spatial Analysis. Raster and Vector Data Analysis. Classification & Re-classification. Union, Clipping, Intersect & Buffer. Introduction to Surface Data Creation. DEM (Digital Elevation Model), DTM (Digital Terrain Model)& TIN (Triangulated Irregular Network). Introduction to site suitability analysis. Application of GIS in Landscape designing and site suitability.

TOTAL: 60 PERIODS**COURSE OUTCOMES:**

On completion of the course, the student is expected to be able to

CO1 Knowledge about the techniques of Map preparation and analysis using maps.

CO2 Knowledge about application of GIS in Landscape Architecture.

REFERENCES:

1. Brail K.R, 'Integrating GIS into Urban Regional Planning, Alternative approaches for developing countries, regional development Dialogue' - Volume-11, No.3 UNCRD, Japan, 1990.
2. Karen C.Hanna, 'GIS for Landscape Architects', ESRI press, 1999.
3. Andy Mitchell, 'The ESRI Guide to GIS Analysis Volume 1: Geographic patterns and Relationships', ESRI Press, 1999.
4. David Maquire, Michael Batty and Michael F.Goodchild, 'GIS, Spatial Analysis and Modeling', ESRI Press, 2005.
5. Cynthia A. Brewer, 'Designing Better Maps: A Guide for GIS Users' – 2nd Edition, ESRI Press, 2015.

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	-	-	-	2	3	3
2	-	-	-	2	3	3
Avg.	-	-	-	2	3	3

'1' = Low; '2' = Medium; '3' = High

OBJECTIVE:

- To train students in landscape design in relatively large-scale urban areas through exercise of analysis and proposals

CONTENT

Understanding the function and structuring of outdoor spaces in an urban context. Design in relation to existing context. Integration of various infrastructure and services such as traffic, irrigation and lighting in landscape design. Training in master plan development for complex spaces such as Campus landscape, transportation infrastructure, large parks and public recreational spaces.

TOTAL:150 PERIODS**COURSE OUTCOMES:**

On completion of the course, the student is expected to be able to

CO1 An understanding of the function and structuring of outdoor spaces.

CO2 Ability to design urban landscape.

REFERENCES

- Swaffield, Simon, 'Theory in Landscape Architecture', University of Pennsylvania Press, 2002.
- Charles. W.Harris& Nicholas T. Dines, 'Time Saver Standards for Landscape Architecture'- 2nd Edition, McGraw-Hill Education, 1997.
- Nick Robinson, 'The Planting Design Handbook'-3rd Edition, Routledge, 2016
- Donald Watson, Alan Platts, Robert Shibley,'Time Savers Standards for Urban Design', McGraw Hill Education, 2003.
- Jack E. Ingles, 'Landscaping - Principles & Practices'-7th Edition, Delmar Cengage Learning, 2009.

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	3	-	3	3	-	1
2	3	-	3	3	1	-
Avg.	3	-	3	3	1	1

1' = Low; '2' = Medium; '3' = High;

OBJECTIVE

- To educate the students on the various aspects of a Landscape design practice.

UNIT I THE PROFESSION OF LANDSCAPE ARCHITECTURE**6**

Brief history of profession, Professional career tracks, Registration and License, professional ethics and code of professional conduct.

UNIT II PRINCIPLES OF PROFESSIONAL PRACTICE**9**

The client- different kinds of clients and projects, general concept for engaging the services of landscape architect. The extent and variety of services performed by landscape architect, terms and conditions.

UNIT III PROFESSIONAL RELATIONSHIPS 9

Interface with other consultants and contracting agencies. Prime consulting, Multiple direct-consulting, Sub consulting relationships. Relationship between the Landscape architect and Clients, Allied professional, contractor, General public.

UNIT IV PROFESSIONAL APPROACH 12

Methods of working – surveys, preparation of policy and design proposals. Reports, contents and production techniques. Types and contents of Drawings prepared in a landscape architect’s office. Contracts- Definition and terminologies, Contract documents. Preparation of tender documents. Different types of tender.

UNIT V PROJECT MANAGEMENT 9

Planning, and organizing the project. PERT and CPM. Project supervision, coordination between different agencies, monitoring a project during execution and preparation of site reports.

TOTAL: 45 PERIODS

COURSE OUTCOMES:

On completion of the course, the student is expected to be able to

- CO1** Knowledge about landscape consultancy practice.
- CO2** Understanding about the code of conduct
- CO3** Understanding of the process and role of an architect in project execution.

REFERENCES

1. Walter Rogers, ‘The Professional Practice of Landscape Architecture’, Van Nostrand Reinhold, 1997.
2. JohnL.Motloch, ‘Introduction to Landscape Design’, Second edition, 2001.
3. Jack.E.Ingels, ‘Landscaping, Principles and Practices’ ,7th edition, Delmar Publishers inc, 2009.
4. W.F.Hill, ‘Landscape Handbook for the Tropics’, Garden Art Press, 2003.

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	3	-	-	-	1	-
2	3	-	-	-	1	-
3	3	-	-	-	1	2
Avg.	3	-	-	-	1	2

1’ = Low; ‘2’ = Medium; ‘3’ = High

LN3321

PRE-THESIS

**L T P/S C
0 0 6 6**

OBJECTIVE:

- To enable preparation for Thesis.
- To promote research in landscape architecture.
- To impart training in collecting, critically analysing and presenting information in a logical sequence.

CONTENT

Preparing the basis for the thesis to be undertaken in the next semester. Training in collection, critical analysis and presenting of information in a logical sequence. To promote critical thinking and the ability of adding to theory, that can aid design applications in landscape architecture. Topics related to various aspects of Landscape Architecture could be chosen in consultation with faculty

members, comprehensively researched and findings presented. The progress of work will be reviewed periodically throughout the semester.

The materials would be documented/collated and formally presented as final submission for Pre-Thesis in the form of a Pre-Thesis report. The report will be presented in the viva-voce exam and defended. The Pre-Thesis report will form the basis to begin the Thesis project.

TOTAL: 90 PERIODS

COURSE OUTCOMES:

On completion of the course, the student is expected to be able to

CO1 Ability to research on a chosen topic.

CO2 Expertise in collecting, processing and presenting relevant information.

REFERENCES

1. Iain Borden and Kaaterina Ruedi Ray, 'The Dissertation: An Architecture Student's Handbook' - 2nd Edition, Architectural Press, 2006.
2. Ranjith Kumar, 'Research Methodology - A Step by Step Guide for Beginners' - 5th Edition, Sage Publications, 2019.

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	3	-	-	-	-	-
2	3	3	2	-	-	2
Avg.	3	2	1	-	-	1

1' = Low; '2' = Medium; '3' = High

LN3322

REGIONAL LANDSCAPE PLANNING STUDIO

L T P/S C
0 0 10 10

OBJECTIVE:

- The objective of this course is to train students in advanced landscape design involving complex situations that require handling of multiple information and contexts.

CONTENT

Dealing with larger regional issues in planning and design. Understanding and responding to the influence of physiographic and anthropometric factors in planning and design. Understanding of ecologically sustainable development would be the underlying theme.

TOTAL: 150 PERIODS

COURSE OUTCOMES:

On completion of the course, the student is expected to be able to

CO1 Ability to develop ecologically sustainable design.

CO2 Ability to collect, analyze and present environmental data for sustainable design.

REFERENCES

1. Swaffield, Simon. Theory in Landscape Architecture. Philadelphia: University of Pennsylvania Press.2002.
2. Charles. W. Harris& Nicholas T. Dines, Time saver Standards for Landscape Architecture, Mc. Graw Hill.
3. Nick Robinson, The Planting Design Hand book, Gower Pub., 1998
4. Richard T. T. Forman & Michel Godron, Landscape Ecology, John Wiley & Sons; 1986
5. Tom Turner, Landscape Planning and Environmental Impact Design, UCL Press, London, 1998.

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	3	-	2	3	3	2
2	3	-	-	-	3	3
Avg.	3	-	1	2	3	3

‘1’ = Low; ‘2’ = Medium; ‘3’ = High;

LN3311

INTERNSHIP TRAINING

LT P/S C
X X X 2

OBJECTIVES

- To help the students to have direct understanding of the practice of landscape architecture.
- To help the students to formally and informally interact with the officials engaged in landscape architecture to enhance employability of the students.

CONTENT

The students shall undertake the Internship Training, in an Organization engaged in activities relating to Landscape Architecture for a period of 4 weeks. The Internship Training expected to make familiar the practical demands and complexities of the profession of Landscape Architecture. It is also aimed at providing the necessary acumen and knowledge to enable them to become employable by any Landscape Architect and further to motivate them to start their practice. Alternatively, the Internship Training can also be in any Research Organisation/ University, etc., where the knowledge of Landscape Architecture is crucial. This could help the students direct a career in research too. The students may also utilise the Internship Training to strengthen the quality of their Thesis works.

The students are expected to complete the Internship Training before the commencement of the third semester and enroll for the same in the third semester. The students shall submit an Internship Training Report, on or before the last working day of the third semester. The students shall be evaluated on the basis of the Report submitted through a Viva-Voce Examination, as part of the End Semester Examinations of the third semester.

COURSE OUTCOMES:

On completion of the course, the student is expected to be able to

CO1 Preparedness of the students for employment in the Landscape Architecture Profession

CO2 Ability to pursue independent research in allied fields.

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	3	-	1	-	2	-
2	3	-	1	1	2	-
Avg.	3	-	1	1	2	-

‘1’ = Low; ‘2’ = Medium; ‘3’ = High

OBJECTIVES

- To give training to the students to work individually on landscape design projects.

CONTENT

Thesis will be an individual project dealing with complex problems of landscape architecture including site planning and landscape planning and seeks to develop concepts of landscape design as an interactive process of natural and man-made environment.

TOTAL: 240 PERIODS**COURSE OUTCOMES:**

On completion of the course, the student is expected to be able to

CO1 Ability to handle a major landscape design project independently.

CO2 Skill to prepare landscape design and detailing drawings

CO3 Skill to prepare a detailed project report

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	3	-	3	2	2	3
2	3	-	3	-	3	3
3	-	3	3	-	-	3
Avg.	2	1	3	1	2	3

'1' = Low; '2' = Medium; '3' = High

OBJECTIVES:

- To expose the students on the issues of sustainability at the global level.
- To give knowledge about energy conservation landscape and sustainability at the micro level.
- To learn about Sustainable landscape design for various climates of India.

UNIT I INTRODUCTION TO SUSTAINABILITY**10**

Need and concept of sustainability, Brundtland report, World Commission on environment and development, sustainable development, sustainable growth, sustainable economy and sustainable use. Visions of sustainability. Source and ethics of sustainability. Sustainability and Climate Change.

UNIT II SUSTAINABLE SITE**7**

Sustainable site – LEEDS, BREAM, rating erosion and sedimentation control, site selection, urban development, landscape and exterior design etc., Green Building in the context of sustainability. Ecology and sustainability. Eco-City.

UNIT III INTRODUCTION TO ENERGY CONSERVATION IN LANDSCAPE**9**

Energy conservation and sustainability, principles of energy systems, energy and global environment, scope for energy conservation in landscape.

UNIT IV ENERGY CONSERVATION METHODS IN LANDSCAPE ARCHITECTURE-CASE STUDIES 10

Various methods of energy conservation in landscape architecture, energy conservation techniques in various climates- hot and humid, hot dry, etc. Energy efficient site planning and landscape development. Energy efficient planting design.

UNIT V SUSTAINABLE LANDSCAPE PRACTICES 9

Sustainable landscape maintenance and management, Sustainable planning and city form. Sustainable urban landscape, landscape sustainability at the national and regional level.

TOTAL: 45 PERIODS

COURSE OUTCOMES:

On completion of the course, the student is expected to be able to

CO1 Understanding of sustainability from macro to micro level.

CO2 Knowledge on energy conscious Landscape design

REFERENCES

1. John.F.Benson and Maggie.H.Roe, 'Landscape and Sustainability', John Wiley Publication, New York, 2000.
2. O.R.Gray, 'Landscape Planning for Energy Conservation', Van Nostrand Reinhold, 1983
3. Anne Simon Moffat and Marc Schiller, 'Landscape Design that saves Energy', William Monow and co.,Inc., New York, 1981.
4. Publications of Centre for Science and Environments, TERI, New Delhi.

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	-	-	-	3	3	-
2	-	-	-	3	3	-
Avg.	-	-	-	3	3	-

'1' = Low; '2' = Medium; '3' = High

LN3002 UNIVERSAL DESIGN L T P/S C 3 0 0 3

OBJECTIVES:

- To give understanding about the importance of design that is User-Aware.
- To give knowledge on how to design services and environments to include as many people as possible.
- To enable learning about design tools and strategies to minimise the difficulties of adaptation to particular users.

UNIT I BACKGROUND 6

Importance and significance. Difficulties and challenges faced by differently abled people in accessing and using open spaces. Definition and basic pretexts

UNIT II STATUTES OF UNIVERSAL DESIGN 9

International and national Laws, guidelines and best practices about universal design. Standards, statutes and other considerations.

UNIT III UNIVERSAL DESIGN AT MICRO LEVEL 9

Universal design of open spaces at site scale. Design of furniture, paving, signage and other hard landscape elements with reference to universal design. Plating design, Design of water elements and other soft landscape elements with reference to universal design

UNIT IV UNIVERSAL DESIGN AT MACRO LEVEL 9
 Design of transportation and other public facilities at urban and regional scales as per the requirements of universal design. Removal of social seclusion and stigma through design of public places.

UNIT V CASESTUDIES 12
 International, national and local case studies of projects which have been designed based on universal design principles

TOTAL– 45 PERIODS

COURSE OUTCOMES:

On completion of the course, the student is expected to be able to

- CO1** Knowledge and skill about designing universally accessible open spaces.
- CO2** Sensibility to challenges faced by differently abled people.

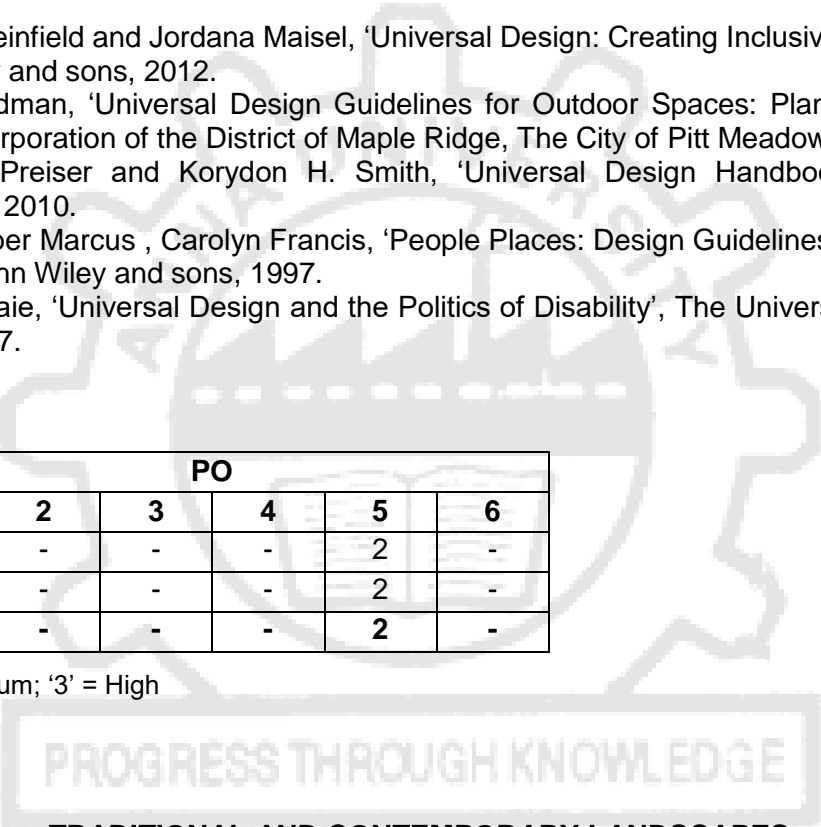
REFERENCES

1. Edward Steinfield and Jordana Maisel, ‘Universal Design: Creating Inclusive Environments’, John Wiley and sons, 2012.
2. Donna Rodman, ‘Universal Design Guidelines for Outdoor Spaces: Plan and Design for Choice’, Corporation of the District of Maple Ridge, The City of Pitt Meadows, 2009.
3. Wolfgang Preiser and Korydon H. Smith, ‘Universal Design Handbook’, McGraw-Hill Education, 2010.
4. Clare Cooper Marcus , Carolyn Francis, ‘People Places: Design Guidelines for Urban Open Space’, John Wiley and sons, 1997.
5. Aimi Hamraie, ‘Universal Design and the Politics of Disability’, The University of Minnesota Press, 2017.

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	3	-	-	-	2	-
2	3	-	-	-	2	-
Avg.	3	-	-	-	2	-

‘1’ = Low; ‘2’ = Medium; ‘3’ = High



LN3003 TRADITIONAL AND CONTEMPORARY LANDSCAPES L T P/S C 3 0 0 3

OBJECTIVES:

- To enable study of the social and cultural influences on traditional landscapes through analysis of form and space, sitting principles of each period with examples.
- To give knowledge about contemporary landscape and the manifestation in the western and Indian context.

UNIT I EASTERN TRADITIONS AND ISLAMIC LANDSCAPES 15
 Early traditions and beliefs about landscape and environment in east. Ancient Indian traditions – Vedic, Jainism, Buddhism and later Hindu movements. Symbolic meanings and sacred value of natural landscapes.

Transfer of concepts through Buddhism to China –Chinese landscape development – gardens of China – Pre Buddhist Japanese landscapes – impact of China on Japanese gardens – Japanese gardens.

Nomadic culture of central Asia – advent of Islam – concept of Paradise as a garden – spread of Islamic traditions to the West and East. Eastern expression of Islam – Samarkhand and Mughul India – Tomb and pleasure garden – Mughul concepts of site planning. Western expression of Islam – Spain Alhambra and Generalife, Granada.

UNIT II RENAISSANCE AND THE EVOLUTION OF NEW THOUGHTS 6

Development of the enclosed garden in the Middle ages. Renaissance – Italy, France and England, Romanticism. Influences and linkages across cultures. Study of the western landscapes till the nineteenth century.

UNIT III THE EVOLUTION OF THE MODERN LANDSCAPE 9

Industrialization and urbanization. Impact and development of the concept of public open spaces, open space development in new towns, parks movement. Open space development and its urban design and planning context, Early industrial towns and the garden city movement. Public park as a major component of urban landscape, the works of F.L.Olmsted, and other pioneers. Open space development and Close conceptual relationship between Town planning, urban design and landscape architecture. Examples.

UNIT IV THE MODERN MOVEMENT, CONTEMPORARY CONCEPTS AND CONCERNS 9

Changing concepts of space and the relationship of architecture to landscape. Study of selected works of modern architects and landscape architects. Postwar development in Europe. The influence of Ian Mcharg on Landscape architecture. The works of Jellicoe, Burle Marx and others. Concept of sustainable landscape development, Cultural landscapes their definition, identification, characteristics, policies, Artistic sensibility in landscape architecture and land art, New development in urban Landscape design.

UNIT V INDIAN CONTEXT 6

Issues in contemporary India, Analysis and understanding of philosophies of contemporary landscape works in India, case studies.

TOTAL: 45 PERIODS

COURSE OUTCOMES:

On completion of the course, the student is expected to be able to

CO1 Understanding of the relationship between culture and Landscape design.

CO2 Perceptive knowledge of open spaces in different cultures

REFERENCES

1. Geoffrey and Susan Jellicoe, 'The Landscape of Man', Thames & Hudson Publication, 1995.
2. Robert Holden, 'New Landscape Design', Lawrence King Publishing, UK, 2003.
3. Penelope Hill, 'Contemporary History of Garden Design', Birkhauser publishers, 2004.
4. Elizabeth Barlow Rogers, 'Landscape Design – A Cultural & Architectural History', Harry & Abram inc. Publishers, 2001.
5. Phillip Pregill & Nancy Volkman, 'Landscapes in History', John Wiley & Sons, 1999.
6. Jonas Lehrman, 'Earthly Paradise- Garden and Courtyard in Islam', Thames and Hudson, 1980.
7. G.B. Tobey, 'A History of American Landscape Architecture', American Elsevier Publishing Co., NY, 1973.
8. Pieluigi Nicholin, Francesco Repishti, 'Dictionary of Today's Landscape Designers', Skira Editores P.A, 2003.

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	-	-	2	-	-	1
2	-	-	2	-	-	1
Avg.	-	-	2	-	-	1

'1' = Low; '2' = Medium; '3' = High

LN3004

ENVIRONMENTAL PLANNING AND LEGISLATION

L T P/S C
3 0 0 3

OBJECTIVES:

- To introduce to the students, basic concepts of environmental planning and legislation.
- To enable learning about tools and methods of E.I.A.

UNIT I COMPONENTS OF ENVIRONMENT

6

Environmental sciences, Environment – definition, important components, quality of total environment

UNIT II HUMAN IMPACT ON ECOSYSTEMS

12

Environmental impact of man's activities on earth, impacts of agriculture, industrialization, urbanization. Relations between local modification and global phenomena. Green house effect, acid rain etc., Pollution – definition, pollution of air, water, land and noise, effect on humans, vegetation and other life forms, degradation of land. International treaties on environment, sustainable development – ecological and environmental parameters, public participation and role of NGOs. Status of environment in India.

UNIT III ENVIRONMENTAL LEGISLATION

9

Concept of law constitution in relation to environment. Introduction to town planning legislation and legal tools for development control and their relationship for landscape design objectives. Indian forests acts – preserved, protected, private and village forests, wild life sanctuaries act. Legislative and administrative framework for national parks in U.K., U.S.A. and India. Periphery control legislation and green belt concept. Preservation of the countryside.

UNIT IV CONSERVATION AND PRESERVATION

9

Legislation relating to preservation of parks, open spaces, playgrounds, trees and ancient monuments. Legislation related to air, water, Land pollution prevention

UNIT IV ENVIRONMENTAL IMPACT ASSESSMENT

9

Environmental impact assessment – definitions, methodologies, techniques, advantages and disadvantages. Process – data collection, identification of study area, scope, aim, environmental standards and their measurement. EIA in India, legislation related to EIA, EIA in developed and developing countries

TOTAL: 45 PERIODS

COURSE OUTCOMES:

On completion of the course, the student is expected to be able to

CO1 An understanding of the basics of Environmental planning and legislation.

CO2 Knowledge about E.I.A.

REFERENCES:

1. Michael Allaby, 'Basics of Environmental Science', Routledge, 2000.
2. Avjit Gupta and Mukul.G.Asher, 'Environment and the Developing World', John Wiley and Sons, Inc, 2000.
3. Larry W.Canter, 'Environmental Impact Assessment', McGraw – Hill, Inc,1996
4. H.N.Tiwari, 'Environmental Law', Allahabad law agency, 2016.
5. Rosencrany, a.Diwan, Noble.M, 'Environmental Law and Policy in India (Cases, Materials, and Statutes)', Oxford University Press, New Delhi, 2002

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	-	-	3	1	-	-
2	-	-	3	1	-	-
Avg.	-	-	3	1	-	-

'1' = Low; '2' = Medium; '3' = High

LN3005

LANDSCAPE RESOURCES

L T P/S C

3 0 0 3

OBJECTIVES:

- To give understanding of the different types of Landscape resources, the threats they are facing and the different means of conservation.
- To enable application of the different techniques for regional planning.

UNIT I SETTLEMENTS AND LANDSCAPE 6

Siting and evolution of cities in relation to regional landscape resources. The role of landform, water systems, climate and vegetation. Illustrative studies of cities in India and elsewhere.

UNIT II LANDSCAPE RESOURCES 9

Landscape resources specific to distinctive city types: for example: religious centers, historic cities, coastal or port cities, hill station etc. The urban forest: its ecological social and environmental dimensions. Ways of studying urban vegetation. Its role in the urban landscape.

UNIT III RESOURCES AT THE NATIONAL LEVEL 12

Overview of landscape resources at the national level. National Environment Policy. Developmental and Environmental issues associated with particular landscape regions: mountain and hill areas; deserts and wastelands; river and aquatic systems, coastal and estuarine regions, etc.

UNIT IV THREATS TO URBAN LANDSCAPE RESOURCES 9

Threats to urban landscape resources; urban environmental issues such as solid waste management, air quality, conservation of water resources and vegetation cover. The rural landscape, the impact of industry and power generation. Agricultural practices and the formation of traditional rural landscape. Illustrative examples from different climatic and geographic regions.

UNIT V POLICIES AND DEVELOPMENT CONTROLS 9

Introduction to Forest Policy and management of forest resources. Conservation Forestry, Agro-Forestry and Social Forestry. Significance of biodiversity, urban biodiversity, and wildlife conservation. City development Plans, Zonal Plans and structure plan. Development controls and their role in the conservation and creation of urban landscape.

TOTAL 45 PERIODS

COURSE OUTCOMES:

On completion of the course, the student is expected to be able to

CO1 Understanding of resource management from macro to micro level.

REFERENCES

1. John Lyle, 'Design for Human Ecosystems: Landscape, Land Use, and Natural Resources', Island Press, 1999.
2. O. R. Gray, 'Landscape Planning for Energy Conservation' Van Nostrand Reinhold, 1983

3. Jianguo Liu, William W. Taylor, 'Integrating Landscape Ecology into Natural Resource Management', Cambridge University Press, 2002
4. Götz Schroth, 'Agro forestry and Biodiversity Conservation in Tropical Landscapes', Island Press, 2004

CO-PO Mapping

CO	PO					
	1	2	3	4	5	6
1	-	-	-	1	-	-
Avg.	-	-	-	1	-	-

'1' = Low; '2' = Medium; '3' = High;

**LN3006 ENERGY, CLIMATE CHANGE AND URBAN DEVELOPMENT L T P/S C
3 0 0 3**

OBJECTIVES:

- The objective of this course is to make students aware of the scenario of climate change and to provide exposure on discussions happening at national and international levels. After attending this course, the students will be in a position to appreciate the role of settlements in climate change mitigation at the same time they will be able to address impact and adaptations issues faced by human settlements.

UNIT I INTRODUCTION 09

Energy, Climate change and Urban Development – Interface. Understanding Climate Change: Greenhouse gases, Anthropogenic causes, Carbon Cycle, Global Warming, Inventory of GHGs, Urban Heat Islands

UNIT II ENERGY GENERATION AND CONSUMPTION 12

Energy Supply and Demand, Energy Consumption in cities, determinants of energy demand, phenomenon of climate change, factors influencing climate change, impacts of climate change

UNIT III ENERGY PLANNING AND MANAGEMENT, AND MITIGATION AND ADAPTATION TO CLIMATE CHANGE 07

Energy efficient development, Compact city form, Transit oriented development. Mechanisms and measures for mitigating and adapting to climate change at various levels

UNIT IV PLANS, POLICIES AND STRATEGIES 05

Related to energy planning, conservation, climate change mitigation and adaptation.

UNIT V CLIMATE CHANGE 12

An introduction to the Earth's Climate System and Climatic Zones as Basis for Human Activity and Settlements, The Development of Society in Relation to the Local Climatic and Topographic Conditions, Resources Availability (Food, Building Material, Energy), Technical Skills and the Societal Framework, The Conditions for Development, Evolution and Collapse of Civilizations. An Assessment of Population Development and its Implications on Settlements, Buildings and Resource Consumption with Particular Focus on Energy Consumption.

TOTAL: 45 PERIODS

COURSE OUTCOMES:

- CO1** Knowledge about climate change and its influences in urban areas
- CO2** Knowledge about measures for mitigating and adapting to climate change
- CO3** Ability to understand linkage about the micro-climatic and topographic condition
- CO4** Ability to understand an assessment of population density and resource consumption

REFERENCES:

1. Andres Duany, Jeff Speck and The Smart Growth Manual 2009 McGraw-Hill.
2. Bicknell, Jane Adapting cities to climate change: understanding and addressing the development Change 2009 Earthscan, London.
3. Jenks, Mike; Burgess, Rod Compact cities: Sustainable urban forms for developing countries 2000 Spon Press, London.
4. Mike Lydon David Owen Green Metropolis: Why Living Smaller, Living Closer, and Driving Less are the Keys to Sustainability.
5. S.K Dash Climate change: an Indian perspective, New Delhi 2007 Cambridge University Press.

CO -PO Mapping

Course Outcome (CO)	Programme Outcome (POs)					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	-	-	-	2	-	-
CO2	-	-	-	1	-	-
CO3	-	-	-	2	2	2
CO4	-	-	-	1	2	2
AVERAGE	-	-	-	2	2	2

'1' = Low; '2' = Medium; '3' = High;

LN3007

LANDSCAPE ASSESSMENT**L TP/S C****3 0 0 3****OBJECTIVES:**

- To give understanding about the different types Landscape Assessment techniques and methodologies
- To give understanding about the application of landscape assessment in planning.

UNIT I INTRODUCTION TO LANDSCAPE ASSESSMENT**6**

Introduction to the concept of Landscape Assessment. Importance in today's scenario. Development of the field and formative theories.

UNIT II ASSESSMENT TECHNIQUES**15**

Assessing the landscape value – landscape quality – aesthetic, heritage and sensitivity values. – Landscape Perception - Evaluating natural process, pattern and elements of landscape. Classification and ranking of landscape. Basic quantitative methods of collecting and analyzing, projecting and presenting data for landscape planning, visual assessment and aesthetic dimension.

UNIT III MODELS IN LANDSCAPE ASSESSMENT**9**

Models for assessing landscape resources. Land use impact assessment models. Model to assess the ecological values. Land Evolution and Site Assessment model (LESA). Ecological modeling. GIS models in landscape assessment.

UNIT IV APPLICATION IN LANDSCAPE PLANNING**6**

The application of landscape assessment to evolve effective landscape planning measures. Strategies and methodologies for compilation and presentation of the landscape assessment for dissemination and use in landscape planning.

UNIT V CASE STUDIES**9**

Case studies of projects in which landscape assessment have been conducted and has been applied to formulate master plans.

TOTAL: 45 PERIODS

COURSE OUTCOMES:

On completion of the course, the student is expected to be able to

CO1 Knowledge about tools and models of landscape assessment.

CO2 Knowledge about application of assessment for effective Landscape Planning and Landscape Conservation

REFERENCES:

1. Tom Turner, 'Landscape Planning and Environmental Impact Design', Routledge, Oxon, 2003.
2. Ervin H. Zube, Robert O Brush, JuliosG.Y.Fabos, 'Landscape Assessment – Values, Perceptions', Dowden, Hutchinson & Ross, 1975.
3. Field, B. C. and Field, M. K., 'Environmental Economics', McGraw-Hill/Irwin, 7th edition, 2016.
4. Kolstad, C. D. 'Environmental Economics', Oxford university press, 2010.

CO -PO Mapping

CO	PO					
	1	2	3	4	5	6
1	-	-	1	2	3	-
2	1	-	1	2	1	1
Avg.	1	-	1	2	2	1

1' = Low; '2' = Medium; '3' = High;

LN3051

LANDSCAPE URBANISM

L T P/S C
3 0 0 3

OBJECTIVE:

- To introduce the theory of planning known as landscape urbanism.
- To give understanding about the applications of the theory in landscape planning and city planning.

UNIT I BACK GROUND

6

The basis of the theory of landscape urbanism. Concepts about the emergence of the theory. Back ground and formulation of basic tenets. Landscape planners who advocated the theory.

UNIT II PRINCIPLES OF LANDSCAPE URBANISM

9

New Urbanism, Green urbanism, from critical regionalism to critical pragmatism. Theories of landscape and city planning that led to Landscape urbanism. Role of theory in landscape urbanism. Strategies, tools and limitations of the theory.

UNIT III LANDSCAPE URBANISM-PLANNING

6

Performative processes. Process cycles, processes engaged in design, a democratic urban environment, processes of planning. Surface strategies. Contemporary positions- Network city, New pragmatism, philosophy of world complexity, ecological design media. Evolution of planning ideals- From modern to the contemporary. Rise of landscape urbanism.

UNIT IV SUSTAINABLE AND ECOLOGICAL URBANISM

12

Sustainable Urbanism. Urban design with nature. The case for sustainable urbanism. Emerging thresholds. Sustainable neighbourhoods- time: The 2030 community challenge. Implementing sustainable urbanism. Rethinking cities for the future. Case studies.

Ecological Urbanism. Historic roots and current trends, propositions and principles for the design of resilient cities, Cities as habitats, part of natural world, Urban ecosystems, The future of urban design.

UNIT V ASIAN LANDSCAPE URBANISM**12**

Emerging challenges, Relationship between Asian urbanism and Landscape Urbanism. Social and cultural aspects of Asian Urbanism. Landscape Urbanism in India. Case studies.

TOTAL: 45 PERIODS**COURSE OUTCOMES:**

On completion of the course, the student is expected to be able to

CO1 Knowledge about landscape urbanism.**CO2** Understanding of the application of theory in landscape planning.**REFERENCES**

1. Charles Waldheim, 'Landscape as Urbanism: A General Theory', Princeton University Press, New Jersey, USA, 2016.
2. Mohsen Mostafavi, Gareth Doherty (eds.), 'Ecological Urbanism', Harvard University Graduate school of Design, Lars Muller, 2016.
3. Richard Weller, 'BOOM TOWN 2050 Scenarios for a Rapidly Growing City', UWA Publishing 2009.
4. Steven Velegrinis, 'Flux-space: Emerging Challenges of Asian (Landscape) Urbanism', 2011.

CO -PO Mapping

CO	PO					
	1	2	3	4	5	6
1	-	-	1	1	2	2
2	-	-	1	2	3	3
Avg.	-	-	1	2	3	3

'1' = Low; '2' = Medium; '3' = High

LN3008 CULTURAL LANDSCAPES AND LANDSCAPE CONSERVATION**L TP/S C****3 0 0 3****OBJECTIVES**

- To introduce, the concept of cultural landscapes
- To enable learning about the conservation of cultural landscapes.

UNIT I INTRODUCTION TO CULTURAL LANDSCAPE**9**

Definition of cultural landscapes. UNESCO. EU landscape convention. US National park service and others. Characteristics, features of cultural landscapes, examples from around the world.

UNIT II ELEMENTS OF CULTURAL LANDSCAPE**9**

Reading and assessing the elements of a cultural landscape/ region with reference to various parameters such as political, physical, natural, linguistic etc. Describing the components- tangible and the intangible. Traditions, crafts, vernacular heritage and their contributions.

UNIT III ASSESSMENT OF CULTURAL LANDSCAPES**9**

Methods for identification, assessment, mapping and recording of cultural landscapes.

UNIT IV LANDSCAPE CONSERVATION**9**

Landscape Conservation: Policies and Programs. Objectives, methodologies and the process.

UNIT V CASE STUDIES**9**

case studies of conservation /preservation of cultural landscapes.

TOTAL: 45 PERIODS

COURSE OUTCOMES:

On completion of the course, the student is expected to be able to

CO1 Understanding about the importance of cultural landscape. Recognizing cultural landscapes.

CO2 Learning about Landscape Conservation importance, methods and the process.

REFERENCES

1. IUCN, 01 'Landscape Conservation Law: Present Trends and Perspectives in International and Comparative Law: Proceedings of a Colloquium Commemorating the 50th Anniversary of IUCN', The World Conservation Union, 1998, Palais Du Luxembourg, Paris, 2000.
2. Martin Dieterich, Jan van der Straaten, 'Cultural Landscapes and Land Use: The Nature Conservation-Society Interface', Springer Science & Business Media, Kluwer academic publisher, 2004.
3. Ervin H. Zube, Robert O Brush, Julios G. Y. Fabos, 'Landscape assessment – values, perceptions', Dowden, Hutchinson & Ross, 1975.
4. Laura Verdelli and Danielle Pini, 'Planning and management of urban and landscape heritage', Bononia University Press, bologna, Italy, 2012.

CO -PO Mapping

CO	PO					
	1	2	3	4	5	6
1	-	-	1	-	2	-
2	1	-	1	-	-	1
Avg.	1	-	1	-	1	1

'1' = Low; '2' = Medium; '3' = High;

LN3009

**ENVIRONMENT, DEVELOPMENT AND DISASTER
MANAGEMENT**

**L T P/S C
3 0 0 3**

OBJECTIVES:

- At the end of the course, the students must have an understanding of the resource optimization and the measures to be taken in the face of a disaster

UNIT I

**ENVIRONMENT, DEVELOPMENT AND DISASTER MANAGEMENT
INTERFACE**

06

Resource use, exploitation and conservation; Impact of human activities on environment; Environment and economy interaction, introduction to environmental accounting.

UNIT II

ENVIRONMENTAL MANAGEMENT

09

Environmental Impact Assessment, thresholds, indicators, audits, environmental certification, lifecycle analysis, environment and poverty links, environmental policy, Acts and regulations; Environmental education, participatory approaches, emerging concepts. Disaster classification, concepts, hazards, vulnerability, risks, human response to disaster, impacts

UNIT III

CONCEPTS OF HAZARD

12

Vulnerability, Risks, Natural Disasters (earthquake, Cyclone, Floods, Volcanoes), and Man Made Disaster (Armed conflicts and civil strip, Technological disasters, Human Settlement, Slow Disasters (famine, draught, epidemics) and Rapid Onset Disasters(Air Crash, tidal waves, Tsunami) Risks, Difference between Accidents and Disasters, Simple and Complex Disasters,

Refugee problems, Political, Social, Economic impacts of Disasters, Gender and Social issues during disasters, principles of psychosocial issues and recovery during emergency situations, Equity issues in disasters, Relationship between Disasters and Development and vulnerabilities, different stake holders in Disaster Relief. Refugee operations during disasters, Human Resettlement and Rehabilitation issues during and after disasters, Inter-sectoral coordination during disasters, Models in Disasters. Impact on Environment.

UNIT IV DISASTER MITIGATION AND MANAGEMENT 09

Relevance of disaster management in development and environment, disaster preparedness, prevention, displacement and development, Role and responsibilities of government and non-government organizations, Disaster Education – awareness of individuals, communities and participation at various levels; Integrating disaster mitigation in the spatial planning process, provision of infrastructure for disaster mitigation.

UNIT V POLICIES AND LEGISLATION PERTAINING TO ENVIRONMENT AND DISASTER MANAGEMENT 09

Policies and Legislation at various levels., Institutional and Legal Arrangements Disaster Management Act, 2005. Role of Central Ministries and Departments, and States, Communications and Information Technology (IT) Support, Community Based Disaster Preparedness, Stakeholders' Participation , Corporate Social Responsibility (CSR) and Public- Private Partnership (PPP).

TOTAL: 45 PERIODS**COURSE OUTCOMES:****CO1** Understand the various contexts leading to disaster**CO2** understand the vulnerability, risks, human response to disaster and its impacts**CO3** Awareness about disaster management and provision of infrastructure for disaster mitigation**CO4** Ability to understand policies and Legislation of disaster management**REFERENCES:**

1. Jegadish Gandhi P Disaster Mitigation & Management Post Tsunami Perspectives 2007 Deep & Deep Publications Pvt Ltd, New Delhi
2. Ministry of Home Affairs Model Amendment in Town and Country Planning Legislations, Regulation for Land Use Zoning and Building Byelaws for Structural Safety 2004 MHA 8. Ministry of Home Affairs National Policy on Disaster Management(NPDM) 2006 MHA
3. NDMA Disaster Management Guidelines 2007-11 NDMA
4. P C Sinha Introduction to Disaster Management 2007 Anmol Publications, New Delhi
5. Pardeep Sahni, Alka Dhameja, Uma Medury Disaster Mitigation: Experiences and Reflections 2008 PHI Learning Pvt. Limited, New Delhi
6. Rajib Shaw Community, Environment and Disaster Risk Management 2010 Emerald Group Publishing Limited
7. Rajib Shaw Hari Srinivas, Anshu Sharma Urban Risk Reduction An Asian Perspective 2009 Emerald Group Publishing Limited

CO -PO Mapping

Course Outcome (CO)	Programme Outcome (POs)					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	-	-	-	-	-	1
CO2	-	-	-	-	-	1
CO3	-	-	-	2	2	1
CO4	-	-	-	-	1	1
AVERAGE	-	-	-	2	2	1

'1' = Low; '2' = Medium; '3' = High;

OBJECTIVES

- To introduce the students to aspects of management of Landscape. Landscape project management at site level and management of natural resources for regional landscapes.
- To enable learning about the various techniques for management and valuation of natural resources.

UNIT I INTRODUCTION**9**

Fundamentals and concepts in Ecosystem Services and Valuation. Natural capitals and their benefits to the society. Externalities and public goods. Non-renewable resource depletion and their social costs. Intangible cost associated with social and cultural changes. Economics of global climate change. Kyoto protocol. Pollution control and Carbon trading. Economic definitions of sustainability. Ecological vs. Economic sustainability.

UNIT II ENVIRONMENTAL ECONOMICS IN LANDSCAPE**6**

Environmental Economics. Valuation of landscape services. Measuring benefits and cost. Tangible costs of landscape development. Capital and maintenance cost. Modification of natural system and environmental costs.

UNIT III MANAGEMENT OF NATURAL RESOURCES**15**

Landscape management at the regional scale in relation to soil conservation. Resource management - water management, forest management, grassland and agricultural management. Management practice related to urban ecology and urban habitats such as urban forests, urban water sheds, regional parks, green belts. Ecological. Economic and administrative issues,

UNIT IV MANAGMENT MODELS**6**

Models used for sustainable management of landscapes.

UNIT V LANDSCAPE PROJECT MANAGMENT**9**

Identification and protection of conservation areas at site level. Methodologies of protection of sensitive materials and zones within the site. Top soil removal, protection and reapplication during construction. Establishing and maintaining nursery at site for small and large projects. Maintenance and active management of planting areas. Life cycle analysis of projects. PERT and CPM with reference to landscape projects.

TOTAL: 45 PERIODS**COURSE OUTCOMES:**

On completion of the course, the student is expected to be able to

- CO1** Knowledge of Landscape Management techniques and valuation of natural resources.
CO2 Familiarity with case studies of Landscape management

REFERENCES:

1. Field, B. C. and Field, M. K., 'Environmental economics', McGraw-Hill/Irwin, 7th edition, 2016.
2. Nick Hanley, Jason F. Shogren, and Ben White, 'Environmental Economics in Theory and Practice', Palgrave; 2nd edition, 2006.
3. Kolstad, C. D. 'Environmental Economics', Oxford university press, 2010.
4. Solow, R. 'An Almost Practical Sep toward Sustainability', 1993.
5. Varian, H. R., 'Intermediate Microeconomics: A Modern Approach'. W. W. Norton & Company. 8th edition, 2010.
6. Daly, H. E. and Farley, J., 'Ecological Economics: Principles and Applications', Washington, D.C., Island Press, 2004.

CO -PO Mapping

CO	PO					
	1	2	3	4	5	6
1	-	-	1	3	1	-
2	-	-	3	3	2	-
Avg.	-	-	2	3	2	-

'1' = Low; '2' = Medium; '3' = High;

LN3011

LANDSCAPE ECOLOGY AND PLANNING

L T P/S C

3 0 0 3

OBJECTIVES

- To give understanding that any developmental activity involves intervention in the natural processes and to minimize the impact due to this intervention.
- To outline the evolution of landscape planning, its premises and the process.

UNIT I ECOLOGY

9

Understanding the ecosystem and their functioning. Components of ecosystem. Natural process. Fundamentals of ecology. Ecological processes and dynamics. Understanding ecological concepts like population growth, regulation, carrying capacity colonization and succession. Stability and resilience of ecosystem. Ecosystem degradation.

UNIT II LANDSCAPE ECOLOGY

9

Introduction to landscape ecology. Formation of various landforms. Landforms and landscape process. Pattern and structure of landscapes. Concepts of patch, corridor and matrix. Landscape dynamics and function. Topological and chorological process within landscape. Concept of landscape metrics. Understanding dynamic interaction between landscape structure and function. Ecological services of landscape

UNIT III LANDSCAPE PLANNING

9

Relationship between man and nature. Analytical aspect of landscape - the natural and cultural setting. evolution of landscape planning. Concepts and projects of McHarg, Carl Steinite, Warren Manning, Augus Hills, Phil Lewis, IzankZonneveld, Ervin Zube. Landscape planning models. METLAND concept.

UNIT IV PROCESS IN LANDSCAPE PLANNING

9

The purpose of landscape planning. Domain and context for landscape planning. Principles of planning. Procedure in landscape planning - problem defining, goal setting, inventory and analysis. Basics of collecting and analyzing, projecting and presenting data in landscape planning, visual assessment and aesthetic dimension. Suitability analysis. Techniques for identifying preferences. Planning options. Proposing landscape plan.

UNIT V LANDSCAPE PLANNING- CASE STUDIES

9

Reclamation and restoration of derelict landscapes. Conservation and preservation of ecological fragile areas such as wetlands, creeks etc. Conservation ordinances. Case studies on landscape regional planning. Policies and landscape.

TOTAL: 45 PERIODS

COURSE OUTCOMES:

On completion of the course, the student is expected to be able to

CO1 Knowledge about basics of Ecology and Landscape Ecology.

CO2 Familiarity with landscape planning history, evolution, process and case studies.

CO3 Knowledge about legislation concerned with the environment and EIA

REFERENCES:

1. Richard T.T. Forman & Michel Godron, 'Landscape Ecology', John Wiley & Sons, 1986.
2. Tom Turner, 'Landscape Planning and Environmental Impact Design', Routledge, Oxon, 2003.
3. Ervin H. Zube, Robert O. Brush, Julios G. Y. Fabos, 'Landscape assessment – values, perceptions', Dowden, Hutchinson & Ross, 1975.
4. G. Tyler Miller Jr & Scott E. Spoolman., 'Living in the Environment: Principles, Connections, and Solutions', Brooks/Cole publishers co., 16th edition, 2009.
5. William M. Marsh, 'Landscape planning – Environmental Application', John Wiley and sons Inc., 1998.
6. Michael Allaby, 'Basics of Environmental Science', Routledge, 2nd edition, 2002.
7. Avijitgupta and Mukul. G. Asher, 'Environment and the developing world', John Wiley and sons, Inc, 1998.
8. Larry W. Canter, 'Environmental Impact Assessment', McGraw – Hill, Inc, 1996.
9. H.N. Tiwari, 'Environmental Law', Allahabad Law Agency, 2013.
10. Armin Rosencranz and Shyam Diwan, 'Environmental Law and Policy in India (Cases, Materials, and statutes)', Oxford, 2002.

CO -PO Mapping

CO	PO					
	1	2	3	4	5	6
1	-	-	2	3	1	-
2	2	-	2	3	3	-
3	-	-	2	3	-	-
Avg.	1	-	2	3	1	-

1' = Low; '2' = Medium; '3' = High;

LN3012

ENVIRONMENTAL IMPACT ASSESSMENT

L T P/S C
2 0 2 3

OBJECTIVES

- To give exposure to the need, methodology, documentation and usefulness of environmental impact assessment.
- To enable the development of skill to prepare environmental management plan.

UNIT I BASICS OF ENVIRONMENTAL IMPACT ASSESSMENT

14

Historical development of Environmental Impact Assessment (EIA). EIA in Project Cycle. Legal and Regulatory aspects in India. Types and limitations of EIA. Cross sectorial issues and terms of reference in EIA. Public Participation in EIA. EIA process- screening, scoping, setting, analysis, mitigation. Matrices. Networks. Checklists. Connections and combinations of processes. Cost benefit analysis. Analysis of alternatives.

UNIT II METHODS

16

Software packages for EIA. Expert systems in EIA. Prediction tools for EIA. Mathematical modeling for impact prediction. Assessment of impacts. Air, water, soil, noise, biological. Definition of social impact assessment. Social impact assessment model and the planning process. Rationale and measurement for SIA variables. Cumulative Impact Assessment. Documentation of EIA findings. Planning. Organisation of information and visual display materials. Report preparation. EIA methods in other countries. Case studies and exercises.

UNIT III EIA OF PROJECTS

16

Regional and strategic assessments. Elements of EIA – prediction and assessment of impacts on the physical, chemical, biological and socio economical environmental. EIA methodologies, cost-benefit analysis, comparison of alternatives, public participation, mitigation plans, monitoring plans,

environmental management plan. Expert system in EIA. Quantifying the urban environment. Urban heat islands. Prediction and evaluation of the urban environment. Ecological footprint of cities. Cognitive, analytical and simulated modelling and design of buildings. Zero Carbon Footprint Building.

UNIT IV ENVIRONMENTAL MANAGEMENT PLAN

14

Environmental Management Plan. Preparation, implementation and review. Mitigation and Rehabilitation Plans. Policy and guidelines for planning and monitoring programs. Post project audit. Ethical and Quality aspects of Environmental Impact Assessment.

TOTAL: 60 PERIODS

COURSE OUTCOMES:

On completion of the course, the student is expected to be able to

CO1 Understanding about the significance of environmental impact assessment.

CO2 Ability to prepare basics of environmental management plan.

CO3 Knowledge about the legal requirements of Environmental and Risk Assessment for projects.

REFERENCES

1. Canter L.W, 'Environmental Impact Assessment', McGraw Hill, 1997.
2. Lawrence D.P, 'Environmental Impact Assessment Practical solutions to recurrent problems', New Jersey, 2003.
3. Nick Harvey, Beverley Clarke, 'Environmental Impact Assessment: Procedures and Practices', Oxford University Press, USA, 2012.
4. Petts J, 'Handbook of Environmental Impact Assessment Vol., I and II', Blackwell Science, London, 1999.
5. World Bank, 'Environmental Assessment sourcebook', World Bank, 1991.
6. EIA Manual – Download from the website of ministry of environment and forests (MOEF)
7. Government of India. - 'EIA Manual', Ten Sectorial Manuals under EIA Notification, 2006.

Available from:

<<https://environmentclearance.nic.in/writereaddata/Form-1A/HomeLinks/ommodel2.html>>

CO -PO Mapping

CO	PO					
	1	2	3	4	5	6
1	-	-	1	3	-	-
2	1	1	1	3	3	1
3	-	-	-	3	-	-
Avg.	1	1	1	3	1	1

'1' = Low; '2' = Medium; '3' = High;