

Master of Architecture (Landscape Architecture)

Course Structure and Detailed Syllabus for
Two-Year Masters Degree Programme in Architecture

Effective from the Academic Year 2024-25 onwards
(As Approved by Senate in its 17th Meeting held on 27.05.2024)



योजना तथा वास्तुकला विद्यालय, विजयवाडा
School of Planning and Architecture, Vijayawada
An Institute of National Importance, MHRD, Govt. of INDIA.

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Course Structure

FIRST SEMESTER							
SR. NO.	SUBJECT CODE	SUBJECT TITLE	DISTRIBUTION OF PERIODS PER WEEK				CREDITS
			L	T	S	TP	
1	MLAR111	Landscape Architecture Studio - I	-	-	12	12	12
2	MLAR112	Plants Systematic, Plant Processes, Field Study & Edaphic parameters.	2	-	3	5	5
3	MLAR113	Landscape Graphics & Visual Communication	1	-	2	3	3
4	MLAR114	Geology, Hydrology & Geomorphology	2	1	-	3	3
5	MLAR115	Site Planning and Landscape Engineering - I	2	-	2	4	4
6	MLAR116	Theory of Landscape Architecture - I	2	1	-	3	3
TOTAL			10	1	19	30	30

SECOND SEMESTER							
SR. NO.	SUBJECT CODE	SUBJECT TITLE	DISTRIBUTION OF PERIODS PER WEEK				CREDITS
			L	T	S	TP	
1	MLAR121	Landscape Architecture Studio - II	-	-	12	12	12
2	MLAR122	Ecology, Ecosystem Analysis and Field Ecology	3	-	-	3	3
3	MLAR123	Theory of Landscape Architecture- II	2	1	-	3	3
4	MLAR124	Plants and Design	2	-	3	5	5
5	MLAR125	Site Planning and Landscape Engineering - II	2	-	2	4	4
6	MLAR126	Geoinformatics for Landscape Architecture	1	-	2	3	3
TOTAL			10	1	19	30	30

THIRD SEMESTER							
SR. NO.	SUBJECT CODE	SUBJECT TITLE	DISTRIBUTION OF PERIODS PER WEEK				CREDITS
			L	T	S	TP	
1	MLAR211	Landscape Architecture Studio-III	-	-	12	12	12
2	MLAR212	Landscape Economics, Landscape Management, Project Management, and Professional Practice	2	1	-	3	3
3	MLAR213	Sustainable and Energy Efficient Landscape	2	1	-	3	3
4	MLAR214	Landscape Resources and Conservation	3	1	-	4	4
5	MLAR215	Research Methodology	2	-	3	5	5
6	MLAR216	Summer Training	-	-	-	-	3
TOTAL			10	2	15	27	30

Note: Summer Training undertaken for a period of 6 weeks at the end of Second Semester is evaluated as part of Third Semester.

FOURTH SEMESTER							
SR. NO.	SUBJECT CODE	SUBJECT TITLE	DISTRIBUTION OF PERIODS PER WEEK				CREDITS
			L	T	S	TP	
1	MLAR221	Thesis	-	-	24	24	24
2		Elective I	2	1	-	3	3
	MLAR222	Future Cities					
	MLAR223	Interior Landscape					
	MLAR224	Movement Corridor					
	MLAR225	Green Infrastructure					
3		Elective II / Open Elective	3	-	-	3	3
	MSAR2210	Energy Audit and EIA					
	MBEM1211	Waste Management					
	MSAR1210	Eco Cities					
		Course from SWAYAM / Online Course (as PBOC)	-	-	-	-	-
TOTAL			6	0	24	30	30

TC Theory Course

JC Jury Course

L Lecture

S Studio

TP Total Periods

Detailed Syllabus for

Master of Architecture (Landscape Architecture)





FIRST SEMESTER

MLAR111-Landscape Architecture Studio I	Subject Category	JC
	Number of Credits	12
	Lecture Periods per Week	-
	Tutorials per week	-
	Studio/Lab/Workshop/Practical's	12
	Total Periods per Week	12

Objectives:

- To give an 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.

Students are expected to incorporate the learning from other subjects of the present semester to add value to the Studio outcome. Various materials, which can be used on Site for different components of the built form, may be explored through Site visits and observatory studies.

Studio project in Landscape Analysis, Landscape Design and Site Planning of small residential, recreational or civic spaces at community level for medium sized sites of area upto 2 Hectare in the identified context.

Design may be a cumulative result 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.

Professional Communication: Readings in Landscape Architecture. Introductory exercises in Art, Architecture & Landscape. Urban and Rural Landscape appraisal.

Total Period 180

Outcome :

Students finishing this course will be able to:

- Collaborate the various ideas of space planning through different design interventions at the micro level

References:

1. C.H.T. (n.d) Landform Designs , P D A Publication.
2. H, P.P. (n.d) Concrete Floors Finishes .
3. Michael, L. (1988) Tree Detailing, London: Butterworth Architecture.
4. Michael, L. (n.d) Landscape Detailing Vol.1 Enclosure.
5. Stevens, D. (n.d) Ultimate Water Garden Book.
6. Swaffield Simon, 'Theory in Landscape Architecture', University of Pennsylvania Press, Philadelphia, 2002.
7. Charles. W.Harris& Nicholas T. Dines, 'Time Saver Standards for Landscape Architecture' -2nd Edition, Mc. Graw Hill, 1998.
8. Nick Robinson, 'The Planting Design Handbook' -3rd Edition, Gower Pub, Routledge, 2016.
9. Strom Steven, 'Site Engineering for Landscape Architects'-6th Edition, John Wiley and sons Inc, 2013



MLAR112 - Plants Systematic, Plant Processes, Field Study & Edaphic parameters.	Subject Category	TC + S
	Number of Credits	5
	Lecture Periods per Week	2
	Tutorials per week	-
	Studio/Lab/Workshop/Practical's	3
	Total Periods per Week	5

Objectives:

- To develop an understanding of the plant material in Landscape Design.
- Examine the characteristics of Plants with reference to the plant material in design.
- Field trips with experts are required to identify the specific characteristics of the plants.
- Students are required to prepare a herbarium.

Unit I Plant Classification and Identification **15**

Fundamentals of plants, identification of physiological characteristics, deciduous and evergreen. Classification of Plant Kingdom. Taxonomy. Principles of nomenclature and identification.

Unit II Plant Anatomy **15**

General study of plant anatomy to understand the plant functions. Structure of plant cells, tissues and organs in relation to plant functions.

Unit III Plant Morphology **15**

Growth habits, habitat, origin, growth duration, leaf arrangement, leaf type, main flower colour, flowering period, family, genus. Structural characteristics of plants, trees, shrubs, and ground covers. Plant formations in Eco zones. Interdependence of animals and plants.

Unit IV Soil Classification and Properties **15**

Genesis, morphology, and classification of soils. Properties of Soils: Physical, Chemical, Biological and Mineralogical.

Unit V Relationship Between Plants and Soil **15**

Relationship between geology, soils and vegetation to be explored through practical examples with the help of field study / field visits.

Field visit(s) required to identify the characteristics of various flora, by visiting a greenhouse / nursery / seedbed.

Plant & Ecology Laboratory: Understanding plant identification and costing; plant material and their groupings, techniques and methods of plant propagation. This lab shall be in the form of a greenhouse and a nursery.

Total Period **75**

Outcome :

Students finishing this course will be able to:

- Understanding of Binomial nomenclature of plants.
- Appreciate and analyse the plant morphology and growth habits.
- Understand the fundamental aspect of plant identification.

References:

1. Ambasht, R.S. and Ambasht, N.K. (2002) Modern Trends in Applied Terrestrial Ecology, 1st edition, US: Springer US.
2. Austin, R. (2001) Elements of Planting Design, 1st edition, New York: John Wiley & Sons.
3. Randhwa, M.S. (1957) Flowering Trees, New Delhi: Indian Council Of Agricultural Research.
4. H, S. (1966) Common Trees –India, The Land and the People, New Delhi: National Book Trust.
5. Keith, R. (1974) Man, nature and ecology, Aldus book limited.
6. Kluwer academic publishers (2018) Landscape Ecology, 3rd edition, Netherlands: Springer Netherlands.
7. Kormondy, E.J. (1969) Concepts of Ecology, 4th edition, Prentice Hall.
8. Bose, T.K., Chowdhury, B. and Sharma, S.P. (2011) Tropical Garden Plants in Colour, New Delhi: Horticulture And Allied Publishers.
9. M., L.a.G.H. (1964) Taxonomy of Vascular Plants, New York: Oxford.

MLAR-113 Landscape Graphics and Visual Communication	Subject Category	JC
	Number of Credits	3
	Lecture Periods per Week	1
	Tutorials per week	-
	Studio/Lab/Workshop/Practical's	2
	Total Periods per Week	3

Objectives:

- To expose the students about the various techniques of presenting landscape design drawings.
- To train the students in preparing design portfolios

Unit I Graphic Language and Design Process 9

Drawings used for design communication – Concept, Scheme, Drawing and free hand Sketches. Use of pen, pencil and other manual media.

Unit II Representation of Landscape Elements and Maps 9

Develop understanding of the basic landscape elements & principles; Visual compositions. Introduction to represent different textures and finishes in plan and elevation. Developing Site analysis maps, conceptual diagrams and illustrations. Sheet formatting and compositions.

Unit III Use of Digital Tools for Rendering 9

Application of software for drafting, visualization, rendering, presentation, report making, video or walkthrough creation and editing etc. Application of AI tools and ethical use of AI tools for design illustration.

Unit IV Documentation of Regional landscape 9

Documentation of different landscapes characters, visual qualities, activity, vegetation and infrastructure mapping in regional scale.

Unit V Advanced Visual Techniques 9

3D rendering and animation, mixed media methods of presentation.

Total Period 45

Outcome :

- Knowledge and skill about preparing landscape design portfolios.

References:

1. Reid, G. W. (1987). *Landscape Graphics*. Design.
2. Bishop, I. and Lange, E. (2005). *Visualization in Landscape and Environmental Planning*, Taylor and Francis.
3. Bertauski, T. (2006). *Plan Graphics for the Landscape Designer; with Section, Elevation and computer Graphics'*, Pearson Prentice Hall.
4. Wang, T.C. (1996). *Plan and Section Drawing'*, John Wiley and sons.
5. Ervin, S.M. and Hasbrouck, H.H. (2001). *Landscape Modeling: Digital Techniques for Landscape Visualization'*, McGraw-Hill Professional.
6. Edward Hutchison(2019) *Drawing for Landscape Architecture: Sketch to Screen to Site*
7. Bradley Cantrell and Wes Michaels(2014) *Digital Drawing for Landscape Architecture: Contemporary Techniques and Tools for Digital Representation in Site Design*

	Subject Category	TC
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MLAR114-Geology , Hydrology and Geomorphology	Number of Credits	3
	Lecture Periods per Week	3
	Tutorials per week	-
	Studio/Lab/Workshop/Practical's	-
	Total Periods per Week	3

Objectives:

- To develop an understanding of the geological pattern of the region and devise an approach to use the parameters in landscape design.
- To develop an understanding of the drainage pattern, watershed and usefulness of the hydrological principles in evolving a landscape design.

Unit I Introduction to Geology

9

Earth in space: Origin and interior structure of the earth. Early history of Earth: Origin of life and meaning of fossils as keys to the past. Life through the geologic ages, Deccan Basalt volcanism, Plate tectonics, Natural hazards: Causes and effects viz. Volcano, tsunamis Earthquakes: seismic micro-zonation, seismic zones of India. Minerals and Metals.

Unit II Geological Patterns

9

Rocks: Igneous, Sedimentary and Metamorphic rocks, Isostasy, plate tectonics, crustal deformation and mountain building. Structural geology: dip, strike, folds, faults, joints, unconformities. Stratigraphy: principles, geologic time scale and geology of India. Glaciers of India, geothermal fields of India. Geologic maps, Application of geological information in the interpretation of landscapes on maps and in the field. Case studies-Application of geologic principles to environmental problems e.g.: Stream restoration, hydrogeology, geotourism.

Unit III Hydrological Cycle;

9

Evaporation, evapo-transpiration; and sources of surface water, forms of subsurface water, Occurrence and movement of groundwater, geologic formations as aquifers, Infiltration, Soil moisture. Precipitation, weather system's for precipitation, 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.

Unit IV Hydrological Process

9

Surface water flow, Runoff: hydrograph, runoff characteristics of streams, field, flow duration curve, Flew mass curve. Characteristics of Precipitation in India; relationship to vegetation, drainage basins, natural drainage patterns. Artesian conditions, development of Karst topography; saltwater intrusions. Aquifer recharge area, infiltration characteristics; Water efficient landscape designs, rainwater harvesting, artificial recharge, Groundwater management, sources of groundwater pollution and its control Flood plains.

Unit V Geomorphology

9

Major processes and associated landforms. Tectonic, Fluvial, Aeolian, Coastal, Karst, Glacial, and topography caused by groundwater, deformations in landform Climatic geomorphology and morphogenic regions: Structural geomorphology, landforms developed on sedimentary sequences, volcanoes and volcanic landforms, pseudo structural landforms. Running water and underground water: Channel networks and drainage basins, Hill slope geomorphology. Landforms related to the activities of

organisms and man. Application of remote sensing in geomorphology.
Geomorphological features of the Indian subcontinent.

Total Period 45

Outcome :

Students finishing this course will be able to:

- Understand the basics of various geological factors used for reding the landscapes.
- Appraise the connection between factors as geology, vegetation etc for impending landscape design pertaining to environmental problems.
- Analyzing various patterns of surface and subsurface groundwater movement.
- Understand the various processes of landform formation, causes and effects.

References:

1. Akhauri, S. (2015) Fundamentals of Hydrogeology, Zorba Books.
2. Babar, M.D. (2005) Hydro geomorphology: Fundamentals, Applications and Techniques, New India Publishing Agency.
3. Davie, T. (2017) Fundamentals of Hydrology, T&F/Routledge.
4. Dine, C.W.H.A.N.T. (1997) Time Saver Standards for Landscape Architecture, , 2nd edition, McGraw-Hill Education.
5. Dullo, W.-C. (2018) 'Environmental Geology', International journal of earth science, no. 531.
6. etal., J.A.Z. (2016) Geopedology: An Integration of Geomorphology and Pedology for Soil and Landscape Studies, Springer.
7. Gohau, G. (1990) A History of Geology, revised edition, Rutgers University Press.
8. Goudie, A. (2010) Landscapes and Geomorphology: A very short, OUP Oxford.
9. Huggett, R.J. (2016) Fundamentals of Geomorphology, Taylor and Francis.
10. ISSS (2015) Soil Science: An Introduction, Indian Society of Soil Science (ISSS).
11. M.A.Glazovskaya (1984) Soils of the World: Soil Families and Soil Types, Amerind Publishing Co.Pvt.Ltd.
12. Mahapatra, G.B. (2008) Textbook of Physical Geology, CBS.
13. Oldroyd, D. (1996) Thinking about the Earth: A History of Ideas in Geology , First Edition edition edition, Harvard University Press;.
14. Robinson, H. (1969) Morphology and Landscape , 1st edition, University Tutorial Press.
15. Tilley, C. (2010) Interpreting Landscapes: Geologies, Topographics, Identities, 1st edition, Routledge.
16. Walker, J.D. (2009) The Geoscience Handbook , Fourth Edition edition, AGI Data Sheets
17. Viessman ,Warren(1985), Water Management-Technology and Institutions, Harper & Row,
18. Bansil, P.C,(2004), Water Management in India, Concept Publishing

MLAR115 -Site Planning and Landscape Engineering I	Subject Category	TC +S
	Number of Credits	4
	Lecture Periods per Week	2
	Tutorials per week	-
	Studio/Lab/Workshop/Practical's	2
	Total Periods per Week	4

Objectives:

- To develop a complete understanding of a site and the surroundings, with a whole-to-part approach on a holistic basis. Students must examine the natural, cultural, and social systems that affect the design decisions, as well as the language and literature of landscape architecture.
- Studies to be undertaken on land development planning to appraise students in environmental, economic, legal, and visual issues associated with land planning process

Unit I Site Mapping

9

Site Survey and mapping: topographic surveys and their methodology, visualizing landforms. Understanding contours and their characteristics, graphical representation, deriving contours by interpolation. Earth form Grading: Symbols and annotations, basic grading principles, grading terraces, grading of roads across/along contours, Basics of road alignment (horizontal and vertical)

Unit II Site Analysis

9

Processes and practices of site planning and development, including site inventory, analysis and assessment of potential building sites. Site planning process and its significance: Establishing relationship between site characteristics and design requirements. Inventory, documentation and site planning checklist.

Unit III Shaping the Landforms

9

Landform modulation: Structured and landscape elements. Surface Drainage: Site planning for efficient drainage; understanding drainage pattern and watershed area, calculation of surface runoff, determination of catchments area and discharge rate; types of drainage systems, design of drainage elements: swales and culverts etc. Planning, grading and drainage of sports fields. Earthwork- cut and fill processes, volume computation

Unit IV Site Services and Landscape Infrastructure

9

Landscape simulation and site utilities: Basic planning and understanding of principles for external lighting, types of fixtures and their use in varying situations. Irrigation: Broad systems and their utility as per plantation typology. Street furniture / site furnishings. Overall consideration of external electrical, plumbing co-ordination vis-à-vis routing and interface with landscape elements.

Unit V Landscape Technology -Basic

9

Landscape Construction: Factors in relation to systems, structures and materials for: Circulation: Roads and Parking, paths and plazas. Level Change: Wall, steps and ramps Planting: Planters, beds, edges and terraces. Water elements: Pools and water bodies. Working drawings: Format and logical representation of information.

Outcome :

Students finishing this course will be able to:

- Explore the techniques of Site analysis, landscape drawing and site elements.
- Understand the grading & design as closely related & dependent processes.
- Understand the site drainage and creation of drainage plan.

References:

1. Dines, C.W.H.N.T. (2001) Time saver Standards for Landscape Architecture, Mc. Graw Hill.
2. Lynch, K and Hack, G (1984) Site Planning , MIT PRESS.
3. Hamid, S. (1985) Urban Design Process , Van Nostrand Reinhold.
4. Hopper (2007) Landscape Architectural Graphic Standards Student Ed., John Wiley and Sons Inc.
5. Ingels, J.E. (1992) Landscaping – Principles & Practices , Pelmer Publishers Inc.
6. Lovejoy, D. (1973) Land use and Landscape Planning, Barnes & Noble.
7. Lynch, K. (1994) A Good City Form , MIT PRESS.
8. Mukoda, N. (1990) Street furniture, Bijutsushuppan – sha Ltd.
9. Niall, K.a. (1999) The Art of Landscape Detail: Fundamentals, Practices and Case Studies.
10. Reid, G.W. (1987) Landscape Graphics, Watson , New York: Guptill publication.
11. Russ, T.H. (2002) Site Planning and Design Handbook, Mc Graw-Hill Companies.
12. Ryan (2011) Detailing for Landscape Architects, John Wiley and Sons Inc.
13. Sauter, D. (2000) Landscape Construction, Pelmer Thomson Learning.
14. Simonds, J.O. (1990) Landscape architecture- A manual of site planning and design , Willey.
15. Steven, S. (2004) Site engineering for landscape Architects, John wiley and sons Inc.
16. Tom, T. (1995) City As Landscape, Taylor and Francis.
17. Wood, M.L. (1993) Landscape Detailing Volume I -IV, Architectural Press.

MLAR116 Theory of Landscape Architecture I	Subject Category	TC
	Number of Credits	3
	Lecture Periods per Week	2
	Tutorials per week	1
	Studio/Lab/Workshop/Practical's	-
	Total Periods per Week	3

Objectives:

- To equip the students with the knowledge base regarding history of landscape Architecture with the various theories that have guided landscape design through the ages.

Unit I Traces of landscape planning and design from Ancient Heritage	9
Process of transforming landscapes; landscapes of Power, Faith and Place from Mesopotamia, Egypt, Greece, Rome	
Unit II Traces of landscape planning and design from Western Civilization and Middle-east	9
Process of transforming landscapes in Europe; Italy, France, and England ,Persian tradition and its influence	
Unit III Traces of landscape planning and design from Eastern Civilisation	9
Process of landscapes in China , Japan ,Ancient and medieval period in India; Mughal and Rajput Landscapes. Development of landscape design and gardens till the early 19th century	
Unit IV An introduction to various dimensions in landscape	9
Understanding of Landscape as a "Language". Various process of Narrations to "Communicate" and Express" the Landscape by various Architects .Study of works of renowned Landscape Architects, their philosophies.	
Unit V Cultural landscapes	9
Identity, collective memory; landscape as text, Landscape as an Art. Theoretical terrain of landscape architecture: nature of theory in landscape architecture, design process, form, meaning and experience. Society, language, representation of landscape.	
Total Period	45

Outcome :

Students finishing this course will be able to:

- Understand the process of landscape planning throughout history.
- Apply the concepts of historical impression in landscape planning by integrating cultural, social and environmental factors etc

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, Van Nostrand publishers, 1993.
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.
9. Schaal ,Hans Dieter (1993) , New Landscape Architecture, Ernst and Sohn
10. Dee, C. (2001) Form and Fabric: A Visual Introduction, London: Spon Press- Taylor and Francis Group. et al., A.a. (n.d) Building and Landscape.?
11. G.B.Tobey (1973) A history of American Landscape architecture, American elsevier Publishing Co., NY.
12. Hill, P. (2004) Contemporary history of garden design ,Birkhauser publishers.
13. Jellico, G.a.S. (1995) The Landscape of Man, Thames & Hudson Publication.
14. Lehrman, J. (1980) Earthly Paradise- Garden and courtyard in Islam, Thames and Hudson.
15. Maria, C.B.J. (n.d) Mastaedi Arain: Landscape Design Today, Spain .
16. Newton, N.T. (n.d) Design on the Land: The Development of Landscape Architecture
17. Repishti, P.a.F. (2003) Dictionary of today's landscape designers, Skira Editores P.A.

SECOND SEMESTER

MLAR121 - Landscape Architecture Studio II	Subject Category	JC
	Number of Credits	12
	Lecture Periods per Week	-
	Tutorials per week	-
	Studio/Lab/Workshop/Practical's	12
	Total Periods per Week	12

Objectives:

- To develop the skill to integrate various knowledge systems to arrive at a design proposal of an urban scale, the process used for the same.

Course Content:

Exercise related to the application of Urban landscapes and public realm in a range of situations directed towards understanding and proposing design possibilities in:

- Urban Open Space
- Residential Landscapes - Group Housing and Gated communities
- Campus Landscape
- Urban Streets

Professional Communication II:

Advanced language skills in relation to technical writing and professional communication. Develop Professional techniques in digital media.

Total Period 180

Outcome :

Students finishing this course will be able to:

1. Understanding the function and structuring of outdoor spaces would be the underlying theme.
2. Develop a design proposal by evaluation the prerequisites of various stakeholders.

References:

1. C, H.T. (1998) Land Form Designs , P D A Publication.H, P.P. (n.d) Concrete Floors Finishes .
2. Michael, L. (1988) Tree Detailing, London: Butterworth Architecture.
3. Michael, L. (1993) Landscape Detailing Vol.1 Enclosure.
Stevens, D. (2002) Ultimate Water Garden Book.

MLAR122– Ecology ,Eco System Analysis and Field Ecology	Subject Category	TC
	Number of Credits	3
	Lecture Periods per Week	3
	Tutorials per week	-
	Studio/Lab/Workshop/Practical's	-
	Total Periods per Week	3

Objectives:

- To understand the role of the plant community in the field and to establish a broad understanding between aquatic and terrestrial ecosystems.

Unit I Evolution

Earth and Life. Concept of Ecosystem, General Structure and Function:i) Energy flow, Primary & Secondary Production ii) Types of Bio-geochemical cycles; Carbon cycle, Global water cycles, nitrogen cycle, bioaccumulation and bio-magnifications iii) Analysis and evaluation.

Unit II Concept of ecosystem services

Types of Ecosystems, Plant Community in general:i) Structure ii) Concept of ecological Succession and Maturity, Types of succession iii) Analysis iv) Description and Evaluation Ecological conditions of India, Eco systems and forest types of India. Phyto geographical regions of India.ecosystem functioning, analysis and types of habitat and behavior.

Unit III Systems Ecology

Introduction to systems approach and mathematical models in ecology;Population Census techniques

Unit IV Field Ecology

Quadrat, line transect, community analysis, Field work and laboratory analysis of data

Unit V Selected topics in ecosystem management

Climate change – causes and consequences, Aquatic ecology – fresh water and marine

Total Period 45

Outcome :

Students finishing this course will be able to:

- Understand the various aspect of environmental concepts and about plant community prevalent to landscape architecture
- Examine and to create models of various community of ecosystems in detail through various techniques.

References:

- Odum, E.P. (1959) Fundamentals of ecology , 5th edition, America: University of Georgia.
- Keith, R. (1974) Man, nature and ecology , Aldus book limited. Detailed Syllabus for B. Arch with effect from A.Y 2019-20 onwards Department of Architecture School of Planning and Architecture Vijayawada Page 11 of 25
- Kluwer academic publishers (2018) Landscape Ecology, 3rd edition, Netherlands: Springer Netherlands.

4. Ambasht, R.S. and Ambasht, N.K. (2002) Modern Trends in Applied Terrestrial Ecology, Istedition, US: Springer US.
5. Jr., G.T.M. (2004) Living in the Environment: Principles, Connections, and Solutions, Brooks / Cole publishers co.
6. K, R.A. (n.d) Modern Trends in Applied Terrestrial Ecology .
7. Kormondy, E.J. (1969) Concepts of Ecology , 4th edition, Prentice Hall.Landscape Ecology, Kluwer Academic Publishers.
8. Marsh, W.M. (1997) Landscape planning – Environmental Application, John Wiley and sons Inc.
9. Plant Ecology, Kluwer Academic Publishers.



MLAR 123 – Theory of Landscape Architecture II	Subject Category	TC
	Number of Credits	3
	Lecture Periods per Week	2
	Tutorials per week	1
	Studio/Lab/Workshop/Practical's	-
	Total Periods per Week	3

Objectives:

- To develop an understanding of contemporary landscapes and as to how ecological and social issues have been resolved in them; and understanding regional scale of landscape architecture and its allied aspects.

9

Unit I Evolution of the Modern Landscape

Impact of Industrialization and urbanization. Development of the concept of public open spaces. Public park as a major component of urban landscape. Growth and development of Landscape as a profession, Modern garden design and innovations in landscape architecture, the environmental movement, large scale regional planning, the works of F.L.Ohmstead, and other pioneers, significant landscape architectural projects of the past century.

Unit II Social and Cultural Dimensions of Landscape

An introduction to social and cultural dimensions of landscape, Cultural landscapes their definition, identification, characteristics, policies, Sacred landscape and Historic Urban Landscape, Green pilgrimage network, Historic landscape preservation issues, Environmental and Behavioral theories: Entropy, Prospect and Refuge, Defensible space etc.

9

Unit III Landscape Urbanism

Open space development in new towns and urban renewal to illustrate the close conceptual relationship between town planning, urban design and landscape architecture. Case studies. New development in urban Landscape design.

9

Unit IV Contemporary Concepts and Concerns

Concept of sustainable landscape development, Multifunctional landscape, landscape fragmentation, urban agriculture, water and climate sensitive urban landscapes, and emerging issues, Works of contemporary Landscape Architects.

9

Unit V Indian Context

Development and evolution of the landscape profession in India. Issues in contemporary India, Analysis and understanding of philosophies of contemporary landscape works in India, case studies

9

Total Period 45**Outcome :**

Students finishing this course will be able to:

- Appreciate and analyze the different design concepts, philosophies and strategies in the works of prominent Landscape Architects

- Comprehend and discuss contemporary and emerging concepts in the field of landscape architecture in response to environmental, ecological and cultural issues.

References:

1. Boult, Elizabeth and Chip Sullivan, 'Illustrated History of Landscape Design', Hoboken, John Wiley and Sons, New Jersey, 2010.
2. McHarg, I.L. (1995) Design with Nature, Wiley.
3. Pregill Philip and Nancy Volkman, 'Landscapes in History, Design and Planning in the Western Tradition', John Wiley and Sons Inc, New York, 1999.
4. Rogers, Elizabeth Barlow, 'Landscape Design: A Cultural and Architectural History', Harry N. Abrams, Inc, New York, 2001.
5. Shaheer, M. (2013) Landscape Architecture in India : A Reader, LA Journal of Landscape Architecture
6. Swaffield, Simon, 'Theory in Landscape Architecture', University of Pennsylvania Press, Philadelphia





MLAR124 –Plants and Design	Subject Category	TC+S
	Number of Credits	5
	Lecture Periods per Week	2
	Tutorials per week	-
	Studio/Lab/Workshop/Practical's	3
	Total Periods per Week	5

Objectives:

- To develop an enhanced understanding of the plant material in Landscape Design and to examine the characteristics of Plants with reference to the plant material in design.
- To develop an integrated understanding of ecological planting, plants establishment and horticulture practices.

Unit I Orientation to Plant & Application

15

Planting design through the ages - a historic perspective, Planting as a design element for structuring the landscape, Differentiation between trees, shrubs, ground cover and creepers. Planting for appearance of form, leaf colour and texture, branching habit and trunk form and their texture, colour of flowers and fruits. Spring, winter, summer and autumn variation in appearance.

Unit II Plants Arrangement

15

Visual, aesthetic and functional considerations in planting design. Planting for visual effect and accent. The role of plant material in environmental improvement, (e.g. soil conservation, modification of microclimate). Planting for shelter, windbreaks and shelter belts.

Unit III Plants and Ecology

15

Planting in various environments such as woodlands, forests, rural areas, urban areas, roadside planting in urban and rural areas, industrial sites etc. Planting design for habitat such as grasslands, woodlands, sloping areas, marshes, bogs, wetlands, waterside and aquatic planting etc. Planting design and ecological considerations, stratification of plant material in nature, herbal plants and their uses.

Unit IV Plants Establishment

15

Plants and sustainability, Growth rate of plants as a criterion for plant choice for particular situations. Comparison of advantages and disadvantages of fast, medium and slow growing trees. The concept of nurse planting. Creating conditions for plant establishment, planting and transplanting trees and shrubs.

Unit V Horticulture Practices

15

Maintenance of plant material; The preparation of planting concepts, planting plans and plant schedules for various scales of project. Nursery establishment and Plant propagation. Establishment and maintenance of grass, shrubs and trees with respect to: ground preparation. Pruning Common plant pests, diseases and their control; manures and insecticides and their application. Protection of plant material. Water Budgeting. Equipment for landscape maintenance.

Total Period 75

Outcome :

Students finishing this course will be able to:

- Annotating the fundamentals of planting design.
- Analyzing the role of plants in natural & designed environments.
- Appreciate & use plant material as one of the important landscape design elements in addressing ecological, functional, cultural and visual aspects of the environment.
- Develop the planting design concept.

References:

1. Hackett, B. (1979) Planting Design, McGraw Hill.
2. N.H, N.R. (2004) The Planting Design Handbook, England: Ashgate Publishing Limited.
3. Walker, T.D. (1991) Planting Design, John Wiley and Sons
4. Richard Austin, John Wiley & Sons (2002), Elements of Planting Design,
5. Nick Robinson (2016) The Planting Design Handbook
6. GW Reid (2007) From Concept Form in Landscape Design
7. Gang Chen (2011) Landscape Architecture: Planting Design Illustrated (3rd Edition)
8. Nigel Dunnett, James Hitchmough (2008) The Dynamic Landscape: Design, Ecology and Management of Naturalistic Urban Planting.
9. N. Dunnett (2019) How to Design High-Impact, Low-Input Gardens: The Essential Guide
10. Dr. Deepa Maheshwari (2023) Indian Plantarum (A compendium of Phytogeographic zones and Plant lists)
11. Henk Gerritsen Piet Oudolf (2019) Planting the Natural Garden



MLAR125-Site Planning and Landscape Engineering II	Subject Category	TC+S
	Number of Credits	4
	Lecture Periods per Week	2
	Tutorials per week	-
	Studio/Lab/Workshop/Practical's	2
	Total Periods per Week	4

Objectives:

- To develop an advanced understanding of a site and the surroundings, with a whole-to-part approach on a holistic basis. Students must examine the natural, cultural, and social systems that affect design decisions, as well as the language and literature of landscape architecture. Studies to be undertaken on land development planning to appraise students in environmental, economic, legal, and visual issues associated with the land planning process.

Unit I Site Appraisal and Site Mobilization

9

Components of Landscape Engineering and their consideration in Site Planning and Landscape design. Appraisal of site factors in large scale developments with above correlation. Advanced mapping technology for analysis. Site mobilisation; Sequence of site activity, site protection measures, site implementation checklist.

Unit II Site and Water Regime

9

Landscape Engineering and water conservation; Watersheds and their characteristics, protection of natural water bodies: water retention structures, water harvesting techniques and devices. Traditional water systems. Water efficient landscape design. Irrigation: Broad systems and their utility as per plantation typology.

Unit III Landscape Reclamation and Rehabilitation

9

Understanding Land/environmental modifications and engineering intervention in: Soil conservation and erosion control measures; Land reclamation and rehabilitation process; Disposal of sludge, fly-ash, solid and liquid waste; Strip-mines and quarries; Transportation corridors.

Unit IV Landscape Rejuvenation

9

Design of sustainable landscape features such as bio-swales, bio retention ponds etc. Urban lake management. Decentralized wastewater treatment

Unit V Landscape Technology and Estimation

9

Landscape detailing of terrace/roof, water features/ water bodies. Estimation of costs for civil works and plantation works. Preparation of bill of quantities, specifications and Tender documents.

Total Period 45**Outcome :**

Students finishing this course will be able to:

- Interpret the various site engineering techniques in their landscape design.
- Take conscious decision on understanding the environmental friendly concepts of site planning in their landscape design.

References:

1. Ines, C.W.H.N.T. (2001) Time saver Standards for Landscape Architecture, Mc. Graw Hill.
2. Hack, K.L.a.G. (1984) Site Planning , MIT PRESS.
3. Hamid, S. (1985) Urban Design Process , Van Nostrand Reinhold.
4. Hopper (n.d) Landscape Architectural Graphic Standards Student Ed., John Wiley and Sons Inc.
5. Ingels, J.E. (1992) Landscaping – Principles & Practices , Pelmer Publishers Inc.
6. Lovejoy, D. (1973) Land use and Landscape Planning, Barnes & Noble.
7. Lynch, K. (1994) A Good City Form , MIT PRESS.
8. Mukoda, N. (1990) Street furniture, Bijutsushuppan – sha Ltd.
9. Niall, K.a. (n.d) The Art of Landscape Detail: Fundamentals, Practices and Case Studies.
10. Reid, G.W. (1987) Landscape Graphics, Watson , New York: Guptill publication.
11. Liptan Thomas W (2017) Sustainable Stormwater Management: A Landscape-Driven Approach to Planning and Design
12. Bruce G. Sharky (2015) Landscape Site Grading Principles: Grading with Design in Mind
13. Valerie E. Aymer(2020) Landscape Grading: A Study Guide for the LARE



MLAR 126 - Geoinformatics for Landscape Architecture	Subject Category	JC
	Number of Credits	3
	Lecture Periods per Week	1
	Tutorials per week	-
	Studio/Lab/Workshop/Practical's	2
	Total Periods per Week	3

Objectives:

- To understand the basics of geoinformatics, data acquisition, processes, and interpretation. Students shall learn GIS-based analysis which links to the very heart of landscape architecture in a natural and intuitive way. GIS in landscape architecture helps to put forward some characteristic principles of study and practice that can be made operational via GIS while cultivating spatial intelligence in landscape design by exploiting its powerful integrating, analytical, and graphical capacities.

Unit I Overview of Remote Sensing

9

Definitions, Processes, and Characteristics of Remote Sensing Systems, Advantages and limitations, Concept of Electromagnetic Radiation (EMR), Sources of Energy –Active and Passive Remote sensing, Remote Sensor Platforms and Satellite Orbits, Types and Characteristics of Sensor, Multispectral and Hyperspectral sensors, Radar, Lidar; Specification of some popular satellites – IRS, Landsat and SPOT series; High-resolution satellites – IKONOS, Carto sat, Quick bird, Orb View, GeoEye, Worldview, Other latest earth resource satellites, Remote Sensing Scenario in Indian Context.

Unit II Application of Remote Sensing in Resource Management

9

Bio-Resources: Agriculture, forest resources and wildlife habitat assessment. forest density and type, issues in forest management. Water Resources: Remote sensing application in surface and sub-surface water resources evaluation, water mining and pollution, and water resource management issues. Geoinformatics Models in Resource Management: Forest Fire Modelling, Wild Life Habitat Assessment modelling, Soil Erosion modelling, Land Resources Development Prioritization modelling.

Unit III Introduction to Geographical Information Systems

9

Definition, Composition of Geographical Information System, Computer Hardware Module, GIS Software Module, Data Input, Data Storage, Data Output, Database Structures, Conversion between Raster and Vector Spatial Analysis: Types of Spatial Analysis, Measurement in GIS, Query – Query by Attributes, Spatial Queries, Attribute-Based Operation, Neighbourhood Analysis, Connectivity Analysis, Overlay and Coverage Rebuilding, Data Quality and Errors in GIS, Web GIS, Mobile GIS.

Unit IV Map Preparation for Rural, Urban and Regional Studies

9

Base Map, Choropleth maps, Land use Land Cover-Supervised and Unsupervised, NDVI, NDBI, NDWI; Watershed delineation Map, Flood Risk Mapping, Drought Mapping, 3-D GIS Digital Elevation Model & Digital Terrain Model, Digital Image Processing and Editing.

Unit V GIS in Landscape Research

9

GIS-based visibility analysis, GIS-based reconstructions of Urban, rural, and regional landscape and Temporal Analysis, GIS-based spatial association

analysis of the distribution and allocation of the cultural and natural landscape, GPS-monitoring of pedestrian movement, Use of Open Street mapping, and Various Open sources. Use of Drone for aerial Mapping and Surveying.

Total Period 45

Outcome :

- Students finishing this course will be able to understand the basics of geoinformatics, data acquisition, processes, and interpretation. Students shall learn GIS software packages over different exercises to understand all the themes discussed in the syllabus.

References:

1. Batty, D.M.a.M. (ed.) (2005) GIS, Spatial Analysis and Modeling, ESRI Press.
2. C, H.T (1998) Land Form Designs, P D A Publication.
3. C. Hanna, K. (1999) GIS for Landscape Architects, ESRI press.
4. G.S.Srivastava (2014) An Introduction to Geoinformatics, McGraw Hill Education.
5. Garcia, J. (2017) Introduction to Geographic Information System, Larsen and Keller Education.
6. Mitchell, A. (2005) Geographic patterns and Relationships, ESRI Press.
7. Stevens, D. (2000) Ultimate Water Garden Book , 01st edition, Conran.

THIRD SEMESTER

MLAR211 - Landscape Architecture Studio-III	Subject Category	JC
	Number of Credits	12
	Lecture Periods per Week	-
	Tutorials per week	-
	Studio/Lab/Workshop/Practical's	12
	Total Periods per Week	12

Objectives:

- To make the students understand the workings of a large site/ area of regional scale, including its design, implementation and management factors with the involvement of stakeholders.

Course Content

Relatively large scale exercise of analysis and proposals related to ecologically sensitive landscape of the following typology:

- Urban or Rural Landscapes
- Cultural Landscapes
- Eco-Tourism projects

Professional Communication III

Advanced language skills in relation to technical writing and professional communication with agencies associated with planning and design viz., planning authorities, statutory bodies, clients, contractors and other professionals.

Total Period 180

Outcome :

Students finishing this course will be able to:

- Understand the working of natural processes and ecosystems in relation to the proposed projects and their design requirements.
- Develop landscape guidelines, masterplan and design proposals for large scale sites involving complex situations applying ecological principles and keeping in view the requisites of various stakeholders.

References:

1. Geoffrey, Geoffrey, & Jellicoe. (1975). The landscape of man. Thames and Hudson.
2. Hack, G. (2018). Site Planning. Willey Publication.
3. Hamid, S. (1985). Urban Design Process.
4. Harg, I.M. (1995). Design with Nature (Wiley Series in Sustainable Design), John Wiley and Sons.
5. Lovejoy, D. (1973). Land use and Landscape Planning.
6. Lyle, J. T. (1999). Design for human ecosystems: Landscape, land use, and natural resources. Island.
7. Lynch, K. (1984). A Good City Form.
8. Simonds, J.O. (1985) Landscape architecture - A manual of site planning and design.
9. Tom, T. (1995) City As Landscape. Taylor & Francis.



MLAR 212 - Landscape Economics, Project Management, Horticultural Practice and Professional Practice	Subject Category	TC
	Number of Credits	3
	Lecture Periods per Week	3
	Tutorials per week	-
	Studio/Lab/Workshop/Practical's	-
	Total Periods per Week	3

Objectives:

- To develop an integrated understanding of economics, landscape management, project management and Professional practice which is a prerequisite for landscape design and planning.

Unit I Landscape Economics

9

Cost and benefits related to open space development; Tangible costs of development; capital and maintenance costs: intangible costs, modification of ecological systems rehabilitation cost. Unit cost of development of open space. Assembling the land for urban development; legal issues; social and cultural issues; economic incentives.

Unit II Economic Valuation

9

Assessing monetary value of fragile and unique landscape and landscape resources. Various methods for determining landscape-derived economic benefits.

Unit III Landscape Management

9

Landscape management at the regional scale in relation to soil conservation, water management, grassland management, forestry and agriculture. Management practices related to urban ecology and urban habitats, such as urban forests, river banks, regional parks and green belts: ecological, economic and administrative issues. Management models.

Unit IV Project Management

9

Project Management: Types of projects, Various stages of the project, Project management process, Time and Cost management, Project life cycle.

Unit V Professional Practice

9

Regulations and legal aspects, Sequence of activities from inception to completion, Construction documents, Contract procedure, Contract Documentation, Types of clients, forms of agreement; conditions of engagement; scope of work and services to be provided, Scale of professional fees; Professional code of conduct.

Total Period

45

Outcome :

Students finishing this course will be able to:

- Analyse the role of landscape architects in developing open spaces and various economic models of open space development.
- Understand the process of landscape management practices at regional level.
- Summarize of code of conduct and landscape consultancy practices.

References:

- Conrad, J. M. (1999). Resource Economics. Cambridge University Press.
- Field, B. C. and Field, M. K. (2006). Environmental economics. McGraw-Hill/Irwin.

3. Hanley, N., Shogren, J. F., and White, B. (1997). Environmental economics in theory and practice. Oxford university press, New York.
4. Kolstad, C. D. (2003). Environmental economics. Oxford university press.
5. Solow, R. M. (1993). An almost practical step toward sustainability. Resources policy, 19(3):162–172.
6. Varian, H. R. (2007). Intermediate microeconomics: A modern approach. W. W. Norton & Company.
7. Daly, H. E. and Farley, J.(2004) Ecological Economics: Principles and Applications. Washington, D.C.: Island Press
8. John Parker(1989), Landscape Management and Maintenance: A Guide to its costing and organization, Routledge
9. Publications of the Indian Road Congress
10. Code of professional practice and competition guidelines of Council of Architecture

MLAR 213 Sustainable and Energy Efficient Landscape	Subject Category	TC
	Number of Credits	3
	Lecture Periods per Week	2
	Tutorials per week	1
	Studio/Lab/Workshop/Practical's	-
	Total Periods per Week	3

Objectives:

- To impart knowledge on sustainability and energy efficiency in landscape architecture and its application in landscape planning or landscape design process

Unit I Understanding the Sun and Climate	9
Earth's Climatic zones; distribution of heat and precipitation, prevailing winds, Solar radiation, Solar charts, transfer of energy in the atmosphere, greenhouse gases; Seasons and plant growth	
Unit II Sustainability and Energy Efficiency	9
Concept of sustainability, Energy efficiency: Meaning and definitions Need for adopting Energy efficient landscape design techniques. Rating systems - Design parameters and certification criteria for landscapes, sustainable and resilient landscapes, Application at various scales	
Unit III Microclimate and Landscape	9
Landscape elements for microclimatic modification - Radiation, Wind, Temperature, humidity & precipitation modification; Thermal comfort and landscape elements	
Unit IV Sustainable Site Planning and Landscape design	9
Various methods of energy conservation in landscape architecture, Passive design strategies in various climates; Energy efficient site planning and landscape development, Energy efficient planting design ,Water- energy nexus, water conserving landscape design, Embodied energy in landscape design.	
Unit V Sustainable Landscape Practices	12
Case studies and examples of Energy efficient landscapes practices globally and locally. Tools and techniques for evaluating energy efficient site planning and landscape development	
Total Period	45

Outcome :

Students finishing this course will be able to :

- Apply various climate responsive and energy efficient landscape design strategies in landscape projects of varied scales.

References:

- Brown, R. D., & Gillespie, T. J. (1995). Microclimatic landscape design: creating thermal comfort and energy efficiency (Vol. 1). New York: Wiley.
- CPWD (2013) Integrated Green Design for Urban & Rural Buildings in Hot-Dry Climate Zone
- GRIHA Version 2019 Manual (Volume I)
- Haque, M. T., Tai, L., & Ham, D. (2004). Landscape design for energy efficiency.

5. Krishan, A et.al(2001), Climate Responsive Architecture: A Design Handbook For Energy Efficient Buildings, McGraw Hill
6. Oke, T. R. (2002). Boundary layer climates. Routledge. - Chapter 5 - "Climates of non-uniform terrain"
7. Schultz, J., & Schultz, J. (2005). The Ecozones of the World: The Ecological Divisions of the Geosphere. Springer Science & Business Media. Berlin, Heidelberg. https://doi-org.aurarialibrary.idm.oclc.org/10.1007/3-540-28527-X_1
8. Seçkin, N. P. (2018). Environmental control in architecture by landscape design. A/Z ITU J. Fac. Archit, 15, 197-211.
9. Vashist, A. Energy efficient landscapes: a case study in the national capital region of Delhi. NAGARLOK VOL. LII, Part 4, October
10. John.F.Benson and Maggie.H.Roe, Landscape and sustainability, John Wiley Publication, New York, 2000.



MLAR214 - Landscape Resources and Conservation	Subject Category	TC
	Number of Credits	4
	Lecture Periods per Week	4
	Tutorials per week	-
	Studio/Lab/Workshop/Practical's	-
	Total Periods per Week	4

Objectives:

- To expose students to application of landscape planning techniques and to develop an understanding of landscape resources and its importance to conserve, protect and maintain for environmental benefits and well-being.
- To comprehensively make the students understand the impacts of proposed development projects, enabling them to work out alternatives, so that wherever possible significant negative impacts may be avoided, minimized, or mitigated.

Unit I Settlements and Landscape

8

Siting and evolution of cities in relation to regional landscape character ; Water management in ancient / historic cities- Greek, Roman, Indian, etc.Traditional Knowledge systems. Illustrative studies of cities in India and elsewhere.

Unit II Landscape Heritage

8

Open space systems, cultural and sacred landscapes, their typology and role in the development of cities. Landscape resources specific to distinctive city types viz., religious centres, historic cities, coastal or port cities, hill station etc.

Unit III EIA

12

Theory and Practice. Definitions, methodologies, techniques Illustrative examples from India and elsewhere (EIA in developed and developing countries) to demonstrate the degree of effectiveness. Role of Environmental Legislation and the Ministry of Environment and Forests and climate change. Environmental criteria for location of human settlements or any major land based activity viz industries/ dam sites ; applicability of EIA to various development programs;integration of EIA methodology to landscape design; environmental planning and management strategies and approaches relevant to urban and regional planning.

Unit IV Landscape Conservation

8

The concept of Landscape Planning and Landscape Conservation: definitions and scope. Landscape Assessment techniques. Priorities, Policies and Programmes; study of various charters related with landscape conservation; Landscape Conservation in Indian Context, Environmental conservation, National parks and other protective designations. Biodiversity and Biosphere reserves. Endangered landscapes. Landscape conservation and its significance (natural resources such as soil, water, vegetation etc) Aspects of watershed management; Conservation of historic landscapes, HULs, UNESCO's recommendations for the Historic Urban Landscapes, safeguarding methods.

Unit V Development control rules

9

Zonal Plans and structure plan. Development controls and their role in the conservation and creation of urban landscape. 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.

Total Period 45

Outcome :

Students finishing this course will be able to:

- Demonstrate knowledge of landscape planning techniques and how to apply GIS and remote sensing in regional Landscape Planning.
- Understand the different steps within environmental impact assessment and explain the methodologies and techniques of environmental impact assessment in India through case studies.
- Understand the significances of landscape conservation

References:

1. Allaby, M. (2000) Basics of Environmental Science, Routledge.
2. H.N.Tiwari (1997) Environmental Law, Allahad Law Agency.
3. Mukul.G.Asher, A.a. (2000) Environment and the developing world, John wiley and sons, Inc.
4. Rosencranz, Diwan ,S .and.Noble,.M.L (1991) Environmental law and policy in India (Cases, Materials, and status), Tripathi Bombay.
5. Canter, L. W(1996) Environmental Impact Assessment, McGraw – Hill.
6. Ndubisi, F.(2002) Ecological Planning: A Historical and Comparative Synthesis, JHU Press
7. Selman,Paul(2012) Sustainable Landscape Planning:The Reconnection Agenda,Routledge
8. Selman Paul(2006) Planning at the landscape scale,Routledge

MLAR215 Research Methodology	Subject Category	JC
	Number of Credits	5
	Lecture Periods per Week	2
	Tutorials per week	3
	Studio/Lab/Workshop/Practical's	-
	Total Periods per Week	5

Objectives:

- To make the students understand the process of carrying out research and equip students with skills to articulate findings of their research
- To effectively programme the Thesis for the fourth semester.

Unit I Introduction to Research

6

What is research? Research versus faith, research versus project, philosophical and theoretical basis; Research philosophies – positivistic, phenomenological, anthropological; Research terminology; Types of Research – exploratory, descriptive, analytical, predictive; Research approaches – quantitative/ qualitative/mixed, basic/ applied, deductive/ inductive

Unit II Research Process

6

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 Data Collection and Analysis

6

Data and data sources - 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- - criteria of selecting samples. Qualitative and quantitative data analysis.

Unit IV Technical Writing

6

Research writing in general - Components: referencing - Writing the bibliography - Developing the outline – presentation etc. Ethics in Research – Plagiarism – Thesis Chapter Development – Time Schedule – Publication and Peer Review Process

Unit V Dissertation

51

Topics related to various aspects of Landscape Architecture would be chosen in consultation with faculty members. The lectures will assist the student in research methodologies, conducting of surveys, identifying case studies etc.

Under the direction of a supervisor and review panel, individual students shall carry out comprehensive study and research on the chosen topic, and present the findings in a 5000 to 8000 worded report with illustrations and references.

Total Period 75

Outcome :

- Dissertation report on initial exploration of identified research area to supplement 4th Semester Thesis topic.

References:

1. Booth, W. C., Colomb, G. G., & Williams, J. M. (2003). The craft of research. University of Chicago press.
2. Creswell, J. W., & Creswell, J. D. (2017). Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications.
3. Deming, M. E., & Swaffield, S. R. Landscape architecture research: inquiry, strategy, design. 2011, Hoboken.
4. Denzin, N., & Lincoln Y, The Landscape of qualitative research: Theories and issues. 2nd ed. Thousand Oaks: Sage, 2003
5. Foss, S. K. (2015). Destination dissertation: A traveler's guide to a done dissertation. Rowman & Littlefield.
6. Groat, L. N., & Wang, D. (2013). Architectural research methods. John Wiley & Sons.
7. Van den Brink, A., Bruns, D., Tobi, H., & Bell, S. (Eds.). (2016). Research in landscape architecture: Methods and methodology. Routledge.

MLAR216 - Summer Training	Subject Category	JC
	Number of Credits	3
	Lecture Periods per Week	-
	Tutorials per week	-
	Studio/Lab/Workshop/Practical's	-
	Total Periods per Week	-

Objectives:

- To facilitate exposure for students to practical facets of Landscape Architecture and thus add value to the teaching learning process.

Course Content:

Students are required to undertake Training in suitable firms which are relevant to the body of knowledge, for a period of Six weeks at the end of Second Semester. This will be evaluated as part of the Course Structure of Third Semester.

Total period

Outcome :

Students finishing the training will be able to

- Understand and apply the professional aspects of a landscape architecture firm and the multiple issues in conception, preparation and execution of project on a site.

FOURTH SEMESTER

MLAR221 Thesis	Subject Category	JC
	Number of Credits	24
	Lecture Periods per Week	-
	Tutorials per week	-
	Studio/Lab/Workshop/Practical's	24
	Total Periods per Week	24

Objectives:

- To provide the students an opportunity towards application of the knowledge gained in an independent Thesis, with a design or a research focus, to arrive at a creative thoughtful design or findings, enriching the field of landscape architecture.

Course Content:

Thesis may be either Thesis by Design Or Thesis by Research

The design thesis is an independent design on a topic defined by the student, leading to the development of a Landscape Planning or Landscape Design proposal with appropriate details. The thesis by research is an independent research on a topic defined by a student culminating into a methodology / policies/ guidelines/conceptual design proposals based on the research findings.

The progress of work will be reviewed periodically throughout the semester by a reviewing committee.

Total Period 240

Outcome :

Students finishing this course will be able to:

- Apply the systematic/methodological learning from their education and training in an independent thesis, with a design or a research focus.
- Handle a complete a project of their own choice, with a design or a research focus, in a practicable manner using their creative ability

ELECTIVE I

MLAR221 - The Future Cities	Subject Category	TC
	Number of Credits	3
	Lecture Periods per Week	2
	Tutorials per week	1
	Studio/Lab/Workshop/Practical's	-
	Total Periods per Week	3

Objectives:

- To understand the components and dynamics of the future cities, and the importance of technological advancements for the cities of the future.
- The course explores the latest research and development on how to better understand, create and manage the future cities for a more resilient urban world.

Unit I Evolution of cities, and Cities of the Future	9
Understand a city's people, components, functions, scales and dynamics, as precondition for its sustainable design and management. Analysis of layers of cityscapes like citizen and communities, city services, soft and hard (ICT and non-ICT based) infrastructure, natural environment, socio-cultural factors, Government policies and laws etc. Examples of smart services around the world, Future Vision for Smart City of various countries.	
Unit II Future Cities Concepts and Models	9
Scale related Sustainable Built Environment - Human Scale, Neighbourhood Scale, City Scale, and Landscape Scale. Key Concepts of Sustainable Cities - Zero Energy, Quality of life, City Resilience, Green Infrastructure etc. Bio-city, Smart city, Sustainable city, Compact city, Inclusive city, Intelligent city, Eco-city, Green city etc.	
Unit III Sustainable Urban Development	9
Different Architectural Perspectives on Sustainable Urban Development - Integrated Development, multi-disciplinary approach, governance. Global and National sustainable development objectives like Sustainable Development Goals, New Urban Agenda, City Liveability Framework, National Mission on Sustainable Habitats etc. Global Climate Agreements - UNFCCC, Kyoto Protocol, Montreal Protocol, COP, Paris Agreement etc.	
Unit IV Cities and Natural Capital	9
Environment as a capital - Ecosystem services and natural capital assets. Natural capital accounting. Natural capital assessments in city governments. Framework for Ecological Planning.	
Unit V Future Cities in Digital Media	9
Depiction of future cities in movies, video games, mobile apps etc. Correlation between the cities in digital media and the real works of architecture and urban design. Understanding Speculative Technology and concepts like utopian and dystopian world, post-apocalyptic universe, alternate reality, virtual worlds with respect to the cities of the future. Application of AI Tools for imagining the cities of future.	
Total Period	45



Outcome :

Students finishing this course will be able to:

- Develop the ability to critique city development processes and become sensitive towards understanding various nuances of cities. This can also help to forecast cities for a better future.

References:

1. Dobraszczyk, P. (2019). Future Cities: Architecture and the Imagination. Reactio Books.
2. Hall, P. (1998). Cities in Civilization. Pantheon.
3. Mitchell, W.J. (1998). City of bits: space, place, and the infobahn. MIT Press.
4. Monchaux, N. (2016). Local code: 3659 proposals about data, design and the nature of cities.
5. Muller, W. (2008). The metapolis dictionary of advanced architecture: city, technology and society in the information age.
6. Ratti & Claudel . (2016). The city of tomorrow: sensors, networks, hackers, and the future of urban life. Yale University Press.



MLAR-222 - Interior Landscape	Subject Category	TC
	Number of Credits	3
	Lecture Periods per Week	2
	Tutorials per week	-
	Studio/Lab/Workshop/Practical's	1
	Total Periods per Week	3

Objectives:

- To develop an enhanced understanding of plant materials suitable for the interior environment. Plant arrangement and special compositions and development of favourable growing conditions.

Unit I Physical Requirements of Plants in Indoor Environment	9
Light, water, humidity, air quality and planting medium Distinguish between different types of indoor plants. Describe the cultural methods used for growing various indoor plants Select appropriate plants for different interior plantscaping situations	
Unit II Plants Arrangements	9
Design principles for plants arrangements for space creation. Design Objectives, Character of Interior Plants, Design Suggestions and commonly used plants for interior environment.	
Unit III Plants Establishment	9
Engineering facilities in interior landscaping, substrate design and possibilities, water requirement and strategies, climate requirement and strategies, Structural requirements and acclimatization of plant materials for indoor environment.	
Unit IV Plants Installations & Display	9
Green walls/ Moss walls, terrarium , bonsais, planted aquarium / aquasacping and Nano jungles and Land art.	
Unit V Emerging Concepts	9
Patterns of basophilic design, urban jungles, plants for mental health, productive landscape in indoor environment, contemporary trends for development of Indoor landscape.	
Total Period	45

Outcome :

Students finishing this course will be able to:

- Profound understanding of planting design for indoor environment.
- Techniques and process of plants design and development.
- Exposure to contemporary trends of interior landscaping

References:

1. Walker, T.D. (1991) Planting Design, John Wiley and Sons
2. Elements of Planting Design, Richard Austin, John Wiley & Sons, Inc., New York, 2002
3. Niall, K.a. (1999) The Art of Landscape Detail: Fundamentals, Practices and Case Studies.
4. Jerome Malitz ,Seth Malitz Interior Landscapes(2002) – Horticulture & Design: Horticulture And Design :W. W. Norton & Company; Illustrated edition.
5. Vernon, S., Tennant, R., & Garmory, N. (2013). Landscape architect's pocket book. Routledge.
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7. Corbo, S. (2016). Interior landscapes: a visual atlas. Images Publishing.

MLAR223 – Movement Corridor	Subject Category	TC
	Number of Credits	3
	Lecture Periods per Week	2
	Tutorials per week	1
	Studio/Lab/Workshop/Practical's	-
	Total Periods per Week	3

Objectives:

- To understand the various opportunities for integrating the urban landscape and conservation of natural systems to enhance the urban ecology.
- The subject explores fundamental concepts of wildlife corridors .landscape fragmentation and habitat conservation.

Unit I Introduction

9

Introduction to concept movement corridor- impact, significance, context and scale. The evolution and role of corridors in landscape planning and habitat conservation.

Unit II Urban Movement

9

Strategies for landscape planning and urban development to establish urban corridors: pedestrian, Non-motorised transport, greenways, urban linkages and greenbelts. Vehicular movement corridors, the highways, the forest roads.

Unit III Urban Ecology

9

Conservation and regeneration of urban open space systems, urban forests, and urban natural systems. Corridor ecology and landscape planning framework. Multifunctional ecological corridor in urban landscape. Movements of animals through linkages; landscape linkages, dispersal corridors. Urban watershed ecology.

Unit IV Wildlife Movement

9

Fundamental concepts in wildlife connectivity. The Theory of Island Biogeography, Metapopulation Theory, Metapopulation and Dispersal, Metapopulations Key Concepts, Landscape fragmentation, patch connectivity, Habitat Patches. Movement of multi-habitat species between landscape elements; Corridors and the functioning of metapopulations.

Unit V The Conservation of Habitat and Landscape:

9

Measurement of habitat use; Heterogeneity, Landscape gradients and patch dynamics; Problems of habitat loss, Isolation, and fragmentation; Edge effects; Managing habitat connectivity: The role of corridors in habitat conservation. Linkages in forest conservation and management.

Total period 45

Outcome :

Students finishing this course will be able to:

- Develop a comprehensive understanding of the subject to resolve issues pertaining to landscape planning.
- Concept, theories and approaches of wildlife movement and urban ecology and habitat conservation

References:

1. Hilty J, Lidicker Jr. WZ, Merenlender A (2006) Corridor Ecology: The Science and Practice of Linking Landscapes for Biodiversity Conservation; CRC Press
2. Wiens JA, Moss MR (2005) Issues and Perspectives in Landscape Ecology; Cambridge University Press.
3. Ilan C , Martin F, Jennifer H (2015) Land Restoration: Reclaiming Landscapes for a Sustainable Future; Academic Press
4. Edward T. McMahon, Mark A. Benedict ,(2006) Green Infrastructure: Linking Landscapes and Communities.
5. Charles A. Flink (2020) The Greenway Imperative: Connecting Communities and Landscapes for a Sustainable Future
6. D Farr (2008) Sustainable Urbanism - Urban Design with Nature
7. Billy Fields (2021) daptation Urbanism and Resilient Communities: Transforming Streets to Address Climate Change (Advances in Urban Sustainability)
8. Brita Brenna, Janike Kampevold Larsen, Mari Hvattum (2011) Routes, Roads and Landscapes: Routledge; 1st edition
9. Fischer, E. E., Hohmann, H., & Marriott, P. D. (2000). Roadways and the Land: The Landscape Architect's Role. Public Roads, 63(5), 30-34.



MLAR223 – Green Infrastructure	Subject Category	TC
	Number of Credits	3
	Lecture Periods per Week	2
	Tutorials per week	1
	Studio/Lab/Workshop/Practical's	-
	Total Periods per Week	3

Objectives:

- To provide an understanding of the concept of green infrastructure and develop methodological and technical knowledge in green infrastructures planning and design.

Unit I Introduction

9

Hydrological Cycle and Impact of urbanization, Concept of green infrastructure and definition, Grey Infrastructure Vs Green Infrastructure, Environmental, and socio-economic benefits of Green Infrastructure.

Unit II Concepts Related to Green Infrastructure.

9

Ecosystem services, green infrastructure, ecosystem-based adaptation and nature-based solutions; Water Sensitive Urban Design Sponge City, Hydro-ecological infrastructure; Multi-stakeholder participation, WSUDP

Unit III Green Infrastructure at Different Scales of Urban Areas

9

City and Regional scale - Canals, Forests, Reservoirs, Road and railway networks, greenbelts, Regional parks, Lakes and wetlands, Rivers and floodplains. Neighbourhood and Site scale – bioswales, detention and retention ponds, Green roofs, Green walls, and Permeable surfaces.

Unit IV Green Infrastructure Approach

9

Scope of GI interventions in urban areas, Green infrastructure approach - Coastal cities, Inlands and desert areas, Urban areas with hills, Urban areas with floodplains, case studies in various urban contexts.

Unit V Green Infrastructure in India

9

Evolution of GI in India, Potential of GI in India, Initiatives and Case Studies.

Total period

45

Outcome :

Students finishing this course will be able to:

- Demonstrate an understanding of the tools to conceptually plan a green infrastructure system.
- Apply methodologies, procedures and techniques for green Infrastructures planning and design in multiple spatial scales.

References:

- Austin, G. (2014). Green infrastructure for landscape planning: integrating human and natural systems. Routledge.
- Benedict & McMahon, 2006, Green Infrastructure: Linking Landscapes and Communities.
- Dover, J. W. (2015). Green infrastructure: incorporating plants and enhancing biodiversity in buildings and urban environments. Routledge.
- Matto, M., Jainer, S., & Sharda, C. (2017). Water-sensitive Urban Design and Planning: A Practitioner's Guide. Centre for Science and Environment.
- Sinnett, D., Smith, N., & Burgess, S. (Eds.). (2015). Handbook on green infrastructure: Planning, design and implementation. Edward Elgar Publishing.
- Rohilla, S. K., Jainer, S., & Matto, M. (2017). Green infrastructure: A practitioner's guide. Delhi, India: Centre for Science and Environment.
- Washbourne, C L & Wansbury C (2022) ICE Manual of Blue-Green Infrastructure, ICE Publishing.