



RAMAIAH
Institute of Technology

CURRICULUM

for the Academic year 2020 – 2021

SCHOOL OF ARCHITECTURE

I & II Semester M.ARCH (LANDSCAPE ARCHITECTURE)

RAMAIAH INSTITUTE OF TECHNOLOGY
(Autonomous Institute, Affiliated to VTU)
Bangalore – 560054.

About the Institute

Dr. M. S. Ramaiah a philanthropist, founded 'Gokula Education Foundation' in 1962 with an objective of serving the society. M S Ramaiah Institute of Technology (MSRIT) was established under the aegis of this foundation in the same year, creating a landmark in technical education in India. MSRIT offers 13 UG programs and 15 PG programs. All these programs are approved by AICTE. All the UG programs & 09 PG programs are accredited by National Board of Accreditation (NBA). The institute is accredited with 'A' grade by NAAC in 2014. University Grants Commission (UGC) & Visvesvaraya Technological University (VTU) have conferred Autonomous Status to MSRIT for both UG and PG Programs till the year 2029. The institute is a participant to the Technical Education Quality Improvement Program (TEQIP), an initiative of the Government of India. The institute has 380 competent faculty out of which 60% are doctorates. Some of the distinguished features of MSRIT are: State of the art laboratories, individual computing facility to all faculty members, all research departments active with sponsored funded projects and more than 300 scholars pursuing Ph.D. To promote research culture, the institute has established Centre of Excellence for Imaging Technologies, Centre for Advanced Materials Technology & Schneider Centre of Excellence. **M S Ramaiah Institute of Technology has obtained "Scimago Institutions Rankings" All India Rank 65 & world ranking 578 for the year 2020.**

The Centre for Advanced Training and Continuing Education (CATCE), and Entrepreneurship Development Cell (EDC) have been set up on campus to incubate startups. **M S Ramaiah Institute of Technology secured All India Rank 8th for the year 2020 for Atal Ranking of Institutions on Innovation Achievements (ARIIA), an initiative of Ministry of Human Resource Development (MHRD), Govt. of India.** MSRIT has a strong Placement and Training department with a committed team, a good Mentoring/Proctorial system, a fully equipped Sports department, large air-conditioned library with good collection of book volumes and subscription to International and National Journals. The Digital Library subscribes to online e-journals from Elsevier Science Direct, IEEE, Taylor & Francis, Springer Link, etc. MSRIT is a member of DELNET, CMTI and VTU E-Library Consortium. MSRIT has a modern auditorium and several hi-tech conference halls with video conferencing facilities. It has excellent hostel facilities for boys and girls. MSRIT Alumni have distinguished themselves by occupying high positions in India and abroad and are in touch with the institute through an active Alumni Association.

As per the National Institutional Ranking Framework, MHRD, Government of India, M S Ramaiah Institute of Technology has achieved 59th rank among 1071 top Engineering institutions of India for the year 2020 and 1st rank amongst Engineering colleges (VTU) in Karnataka.

SCHOOL OF ARCHITECTURE

Ramaiah Institute of Technology (RIT), Bangalore, is a leading institution offering undergraduate, post graduate and research programs in the areas of engineering, management and architecture. The institute was established in the year 1962 under the aegis of Gokula Education Foundation. Its mission is to deliver Global quality technical education by nurturing a conducive learning environment for better tomorrow through continuous improvement and customization.

The school of architecture, RIT, Bangalore, started in the year 1992. Since its establishment, the school has played a vital role in providing quality education. The Council of Architecture and AICTE has recognized this program.

The mission of the school is to uphold RIT mission and thus provide quality education to the students and mould them to be excellent Architects with adequate management skills and noble human qualities.

Full time faculty members having postgraduate qualification from prestigious institutions in India and abroad are teaching in this school. Experienced and well respected practicing architects are invited to provide their experiences as visiting faculty. New milestones are continually being set and achieved. The synergy of the progressive management, committed faculty and students are ensuring in excellent academic results year after year. This is reflected in the high number of University ranks that are secured.

The School of Architecture is now autonomous (affiliated to VTU) providing scope for further improvement. The focus has been towards fostering novel concepts and solutions in architectural design. The student's response is very encouraging and the school recognizes and appreciates such good students by awarding them. Many of the students after graduation have pursued higher studies in various universities in the country and abroad. There is a good demand for the school graduates in the industry and is developing initiatives towards co-branding of the industry and the institution school. Many have started their own enterprise and architectural practice as well.

All this has been possible as a result of the efforts of the impeccable faculty of the school. The faculty is committed to the welfare and success of the students. The teachers of the school are also engaged in enhancing their knowledge and skills and many are engaged in research activities as well. The school has experts in specialized disciplines like Planning, Landscape Architecture and Interior Design. Faculties of the school also actively participate in National and International conferences and publish and present papers.

The school as part of consultancy started off with the maiden project to redevelop the RIT engineering college campus and is now involved in various campus designs.

The school is proud to have started the M. Arch programme in Landscape Architecture. This was started in the year 2011. The Master of Landscape Architecture is a 2year full time postgraduate programme. The prescribed course is two years of full-time study.

The course consists of areas of study ranging from community-scale landscape planning to the details of landscape construction technology, with an emphasis on sustainable practices in landscape architecture. The course covers a broad spectrum of topics from local to regional scale. Balancing theory with hands-on practice, design aspects of landscape architecture is given equal prominence to direct the students towards a holistic approach to Sustainable Landscape Architecture. The course is structured to analyze and respond to critical issues facing contemporary landscape architectural design and development. Thus the students have the opportunity to explore alternative, innovative, and experimental design.

The course will enable design and construction professionals to enhance their understanding of the integral relationship between natural processes and human activity, and how sustainable design fits into everyday life, explore design options to address the same and examine policies, regulations, and standards in industry and government for implementation of the principles of sustainable design.

VISION OF THE INSTITUTE

To be an Institution of International Eminence, renowned for imparting quality technical education, cutting edge research and innovation to meet global socio-economic needs

MISSION OF THE INSTITUTE

MSRIT shall meet the global socio-economic needs through

- Imparting quality technical education by nurturing a conducive learning environment through continuous improvement and customization
- Establishing research clusters in emerging areas in collaboration with globally reputed organizations
- Establishing innovative skills development, techno-entrepreneurial activities and consultancy for socio-economic needs

QUALITY POLICY

We at Ramaiah Institute of Technology strive to deliver comprehensive, continually enhanced, global quality technical and management education through an established Quality Management System complemented by the synergistic interaction of the stakeholders concerned

VISION OF THE DEPARTMENT

To achieve and propagate high standards of excellence in architectural education

MISSION OF THE DEPARTMENT

- The school's commitment is to prepare people to make a difference;
- To create an environment that shall foster the growth of intellectually capable, innovative and entrepreneurial professionals, who shall contribute to the growth of the society by adopting core values of learning exploration, rationality and enterprise; and
- To contribute effectively by developing a sustainable technical education system to meet the changing technological needs incorporating relevant social concerns and to build an environment to create and propagate innovative designs and technologies.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs):

PEO 1: Use the knowledge and skills of Architecture to analyze the real life problems and interpret the results.

PEO 2: Effectively design, implement, improve and manage the integrated socio-technical systems.

PEO 3: Build and lead cross-functional teams, upholding the professional responsibilities and ethical values.

PEO 4: Engage in continuing education and life-long learning to be competitive and enterprising.

PROGRAM OUTCOMES (POs):

PO1: Problem analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO2: Design/development of solutions: Design solutions for complex Landscape design problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO3: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO4: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO5: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs):

- a. Design and develop projects based on function, form and analysis.
- b. Design and improve integrated systems of people, materials, information, facilities, and technology.
- c. Identify, formulate and solve industrial requirements and problems.
- d. Understand the impact of design solutions in a global and social context.

BOARD OF STUDIES FOR THE TERM 2020 - 2021

1.	Prof. (Dr.) Pushpa Devanathan	Chairperson
2.	Ar. Chitra Vishwanath	VTU Nominee
3.	Ar. Vidyadhar S. Wodeyar	External Industry Expert
4.	Ar. Prasad G	External Industry Expert
5.	Dr. Rama RS	Academician
6.	Dr. Chidambara Swamy	Academician
7.	Ar. Subbiah T S	Alumni Industry Expert
8.	Prof. Vishwas Hittalmani	Member
9.	Prof. (Dr.) Rajshekhar Rao	Member
10.	Dr. Rashmi Niranjana	Member
11.	Ar. Meghana K Raj	Member
12.	Ar. Reema H Gupta	Member
13.	Er. Vijayanand M	Member

SCHOOL OF ARCHITECTURE

TEACHING STAFF

Sl No	Name	Qualification	Designation
1	Prof. (Dr.) Pushpa Devanathan	M.Arch., P.G.D.I.(PhD)	Professor & HOD
2	Prof. (Dr.) Rajshekhar Rao	M L Arch (PhD)	Professor & Head – M. Arch (Landscape Architecture)
3	Ar. Surekha R	M L Arch	Associate Professor
4	Ar. (Dr.) Lavanya Vikram	M L Arch (PhD)	Associate Professor
5	Ar. Meghana K Raj	M L Arch	Associate Professor
6	Ar. Tejaswini H	M L Arch	Associate Professor
7	Ar. Prasad.G	M L Arch	Professor (Tenure)
8	Ar. Sudhir Chougule	M L Arch	Associate Professor (Tenure)
9	Ar. Mallika P V	M L Arch	Associate Professor (Tenure)
10	Ar. Ranjitha Govindaraj	M L Arch	Assistant Professor
11	Ar. Arpita Sarkar	M L Arch	Assistant Professor
12	Ar. Jyotsna Rao	M L Arch	Assistant Professor
13	Ar. Sheethal B S	M. Plan	Assistant Professor
14	Dr. Raghavendra	M Sc. PhD	Allied Faculty
15	Mr. Manjunath R	M.Tech	Allied Faculty
16	Mrs. Shilpa	M.Tech	Allied Faculty
17	Ar. Nina Chandavarkar	MS L Arch	Visiting Professor
18	Ar. Bijoy Chacko	M L Arch	Visiting Professor
19	Ar. Deepthi C B	M L Arch	Visiting Faculty

ADMINISTRATIVE STAFF

1	Mr. Nagesh B.L	Dip. in Mech. Engg.	Instructor
2	Mrs. Ambika. B	M Tech	Assistant Instructor
3	Ms.Swathi. P	B.com	SDA

SUPPORT STAFF

1	Mr. Ramachandra Chari	Attender
2	Mrs. Varalakshmi	Attender

RAMAIAH INSTITUTE OF TECHNOLOGY, BANGALORE
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SCHEME OF TEACHING & EXAMINATION
M ARCH (LANDSCAPE ARCHITECTURE)
ACADEMIC YEAR 2020- 2021

Semester I (2020 batch)						
Code	Subject	Credits	Total	Examination	CIE Marks	SEE Marks
LA 101	Landscape Design -I	8:0:1	9	SEE (Viva voce)	50	50
LA 102	Landscape Construction Techniques & services -I	3:0:1	4	SEE (Viva voce)	50	50
LA 103	Theory of Landscape Design	2:0:0	2	SEE	50	50
LA 104	Elements of Landscape Design	2:0:0	2	SEE	50	50
LA 105	Geology & Geomorphology	3:0:0	3	SEE	50	50
LA 106	Hydrology	3:0:0	3	SEE	50	50
LA 107	Soil science	2:0:0	2	SEE	50	50
	Total		25			

CIE = CONTINUOUS INTERNAL EVALUATION

SEE = SEMESTER END EXAMINATION

Evaluation Pattern : Marks allocation for SEE

Subject Code	Subject	Design	Drawing	Elective / Study Tour / Book review
LA101	Landscape Design -I	20	20	10

Subject Code	Subject Name	Portfolio	Viva
LA 102	Landscape Construction Techniques & Services -I	40	10

Note:

- Literature survey will be a requirement for Landscape design study. Periodical review by an external jury for subjects going for viva voce.
- National/International tours may be arranged during vacation to students, to study good examples of Landscape Architecture.
- For all viva voce examinations one internal faculty and one external faculty will conduct the exam.
- Portfolios have to be submitted on prescribed date for all subjects on the date announced by the department for one year
- All students have to register on the first day at the beginning of the Viva Voce exam.
- All students have to register on the first day of Term work exams.

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SCHEME OF TEACHING & EXAMINATION
M ARCH (LANDSCAPE ARCHITECTURE)
ACADEMIC YEAR 2020- 2021

Semester 2 (2020 batch)						
Code	Subject	Credits	Total	Examination	CIE Marks	SEE Marks
LA201	Landscape Design -II	8:0:1	9	SEE (Viva voce)	50	50
LA202	Landscape Construction Techniques & services -II	3:0:1	4	SEE (Viva voce)	50	50
LA203	Planting Design -I	3:0:0	3	SEE	50	50
LA204	Landscape Resources & management - I	3:0:0	3	SEE	50	50
LA205	Seminar	3:0:0	3	SEE (Viva voce)	50	50
LA206	Research methodology	3:0:0	3	SEE	50	50
	Total		25			

CIE = CONTINUOUS INTERNAL EVALUATION

SEE = SEMESTER END EXAMINATION

Evaluation Pattern : Marks allocation for SEE

Subject Code	Subject	Design	Drawing	Viva
LA201	Landscape Design -II	20	20	10

Subject Code	Subject Name	Portfolio	Viva
LA 202	Landscape Construction Techniques & services -II	40	10
LA205	Seminar	40	10

Note:

- Literature survey will be a requirement for Landscape design study. Periodical review by an external jury for subjects going for viva voce.
- National/International tours may be arranged during vacation to students, to study good examples of Landscape Architecture.
- For all viva voce examinations one internal faculty and one external faculty will conduct the exam.
- Portfolios have to be submitted on prescribed date for all subjects on the date announced by the department for one year
- All students have to register on the first day at the beginning of the Viva Voce exam.
- All students have to register on the first day of Term work exams.

SEMESTER –I

LANDSCAPE DESIGN – I

Course Code: LA101

Credits: 8:0:1

Prerequisite: Nil

Course Coordinator: Prof. Rajshekhar Rao

Course Objectives

- To introduce the students to landscape design
- Introductory exercises in Art, Architecture and Landscape
- Landscape Analysis and site planning for medium sized sites
- Landscape design of small outdoor spaces which clued recreational, ecological, public or civic

Course Contents:

Unit -I

To understand Landscape and its elements. The studio shall deal with the basics of Landscape Design like principles, composition, perception and appreciation of basic landscape design issues and landscape treatment in relation to the buildings

Unit -II

Use of plant material for defining, structuring the open spaces to create spatial experiences in outdoor areas.

Unit -III

Understand the various qualities of the plant material like ecological, aesthetics and their associations. Interaction of social and economic forces, historical value.

Unit –IV

Understand the Elements of site planning with respect to the context and surroundings. To use elements of landscape design and landscape treatment in relation to the buildings. Document the open space.

Unit -V

Design problem to include open spaces, space around buildings, courts, etc. with landscape details, scale and proportion, relation with buildings & surroundings with due emphasis on design process, organization and evaluation of ideas into a physical solution within the scope of landscape architecture.

Course Outcomes (COs):

CO1: Understand the basics of landscape design (PO1, PO2)

CO2: Analyze the role of plants in outdoor spaces (PO1)

CO3: Understand the value of plants and its socio-economic aspects (PO1)

CO4: Learn to document a site and understand site planning (PO3)

CO5: Analyze and design the site, its context based on the requirement (PO1, PO2, PSO a)

References:

1. The Complete Landscape Design and Gardens of Geoffrey Jellicoe -Michael Spens
2. The Poetics of Garden – William Turnbull Jr.
3. Designing the New Landscape -Sutherland Lyall.
4. Time Saver Standards for Landscape Architecture
5. Landscape Graphics- Plan, section and perspective drawing of Landscape Spaces. -Rant W Reid
6. Introduction to Landscape Design -John L. Motloch
7. Landscape Architecture-history, ecology and patterns. -Minakshi J

Evaluation Pattern : Marks allocation for SEE

Subject Code	Subject	Design	Drawing	Viva
LA101	Landscape Design -I	20	20	10

SEMESTER –I

LANDSCAPE CONSTRUCTION TECHNIQUES AND SERVICES -I

Course Code: LA 102

Credits: 3:0:1

Prerequisite: Nil

Course Coordinator: Associate Prof. Surekha R

Course Objectives:

- Landforms and earthwork,
- Various aspects of street design including storm water drain, street furniture.
- Sustainable storm water management.
- Water features and their maintenance.
- Hardscape details related to sports fields and related to planting.

Course Contents:

Unit – I

Design of Landforms - Contours- representation of landforms and landform design, interpretation of contours, slope analysis, uses and function.

Grading – symbols and abbreviations, basic grading exercises, grading and alignment of paths/ roads, angle of repose and retaining walls.

Unit –II

Earth work formation - Earthworks – principles of Earthwork, earthwork grading, cut and fill calculations- borrow pit method, average spot level method, precautions taken in cut and fill method in relation to soil conditions, amount of precipitation.

Unit –III

Drainage system –Design of Road and street details, street furniture. Drainage – Surface drainage, calculation of surface run-off, design of surface & storm water drainage, design of streets and gutters, site planning for efficient drainage.

Water as a Resource –Sustainable storm water management, recharging techniques used in Indian and International context. Use of water in the appropriate context of time, political/religious power, way of thinking, technical advancements & influences from other regions. Qualities of water scope types of display, rain water harvesting and irrigation systems.

Unit –IV

Water Features - Design of water features such as swimming pools, cascades, fountains etc., and their functional requirements, considerations for design and detail. Water body's natural ponds.

Maintenance of swimming pools and related areas (Pump, filtration, balancing tank etc.)

Design of irrigation system: Landscape area types, objectives and design, water need and sources, maintenance. Application methods of installation, control systems, scheduling, and maintenance.

Unit –V

Hardscape details related to sports fields - Playfield and buffer area dimensions, drainage patterns related to play fields, construction details related to play fields including fixtures and markings.

Hardscape details related to planting like separators, root barriers, staking, materials to prevent soil consolidation, erosion control methods prevention of root damage during filling around trees etc.

Course Outcomes (COs):

CO1: To learn Landscape elements and features including landform, earthwork. (PO1, PO2)

CO2: To understand the Streets including storm water drainage and furniture. (PO1, PO2)

CO3: To understand the Earth work formation, grading calculations. (PO1, PO2, PSO b)

CO4: Integration of Sustainable water management through landscape design. (PO2, PO4)

CO5: Applying the Designing and detailing of Sports fields. (PO2)

References:

1. Landscape Construction and Detailing. – 1993 Blanc, Alan
2. An Introduction to Landscape Design and Construction - James Blake.
3. Site Design and Construction Details – Theodore D Walker
4. Rainwater Harvesting – G.N Virupaksha
5. Construction Detailing for Landscape and Garden Design: Surfaces, steps and margins - Paul Hensey
6. Landscape Development Handbook' -Dewberry and Davis.

Evaluation Pattern : Marks allocation for SEE

Subject Code	Subject Name	Portfolio	Viva
LA 102	Landscape Construction Techniques & services -I	40	10

SEMESTER – I

THEORY OF LANDSCAPE DESIGN

Course Code: LA103

Credits 2:0:0

Prerequisite: Nil

Course Coordinator: Associate Prof. Tejaswini H

Course Objectives:

- Introduce the students to the importance of history of Landscape Architecture.
- Exploration of continuous evolution of thought and trends across the timeline of Landscape architecture from the earliest period to the present day and examination of how humankind has influenced this change.

Course contents:

UNIT-I

Chronology of development and evolution of landscape from the earliest period to the present day. Early traditions and beliefs about landscape and environment in the eastern and western world. Development of landscape gardening and landscape design till the early 19th century.

UNIT-II

Detailed study of selected examples from eastern and western traditions. Ancient civilizations – Introduction to Gardens of Egypt, Greek, Roman, Babylon

UNIT-III

Formal gardens - Influences, Elements, Principles of garden design in Persian Gardens and Gardens of Spain, Italy and France. Informal gardens - Influences, Elements, Principles of garden design in Chinese and Japanese Landscape.

UNIT-IV

Formal and Informal Landscape design in England Colonial landscape development in India.

UNIT-V

Design philosophy and concepts of Landscape works of Humphrey Repton, Lancelot Brown, William Kent, Thomas Church, F. L. Olmstead. Study of modern Masters of Landscape Architecture, works of Peter Walker, Martha Schwartz.

Course Outcomes (COs):

- CO1:** Demonstrate knowledge of fundamental terminology and concepts drawn from the global tradition of Landscape design from antiquity to the twenty-first century. (PO1)
- CO2:** Identify exchanges of ideas between different cultural and across geographic boundaries and temporal frameworks. (PO1, PO3)
- CO3:** Identify changes in the human/nature relationship through history. (PO3)
- CO4:** Study the characteristics and analyze the features of historical gardens. (PO1)
- CO5:** Recent trends and appreciation of scale in terms of natural landscape. (PO1)

References:

1. The History of Gardening Design, Faber & Faber Ltd., 1962- Derek Culford,
2. The Landscape of Man, Thames & Hudson Ltd., London 1975.- Geoffrey & Susan Jellicose.
3. Studies in Landscape Design – Vol: 1,2& 3, London oxford University- G.A Jellicose
4. The History of Landscape Design in 100 Gardens - Linda A. Chisholm
5. Landscape design history & theory: landscape architecture and garden design origins - Tom Turner
6. Landscape and Garden Design: Lessons from History Paperback - Gordon Haynes
7. Garden Design and History - Tom Turner
8. A History of Landscape Architecture- Relationship of people to Environment - G B Tobey

SEMESTER –I

ELEMENTS OF LANDSCAPE DESIGN

Course Code: LA104

Credits: 2:0:0

Prerequisite: Nil

Course Coordinator: Associate Prof. Tejaswini H

Course Objectives:

- Introduce the student to know the importance of Plants in landscape architecture.
- To understand the taxonomic classification of plants.
- Introduction to different types of Ecology and their plant succession as per their climatic and habitat conditions.

Course contents:

UNIT -I

Introduction to Landscape design: Definitions, Types of landscape, Introduction to the plant kingdom. Classification of Plant Kingdom, Basic plant structure, General study of plant morphology and anatomy to understand plant functions. Functions of plants depending on their growth habits and climate.

UNIT -II

Principles of Taxonomy / nomenclature, Classification, identification and naming, Familiarity with native flora; geographical regions of India. Critical survey of Vegetation types of India. Distribution of plant communities and plant associations in India and its regional distribution. Economic value of plants in Landscape design.

UNIT -III

Plant processes/ Problems, plant- water- soil relationship, mineral nutrition, photosynthesis, and respiration. Stem, root & leaf relationship, growth & flowering, growth regulators. Plant multiplication & adaptations.

UNIT -IV

Plant Ecology – Introduction to ecosystem, Different types of ecosystem, Food chains - Trophic levels with respect to plant communities and plant storeys. Stages of plant succession, relationship of plant communities & plant storey's.

Unit-V

Introduction to Horticulture and greenhouse crops. Introduction, importance, scope, advantages and dis-advantages. Types of Greenhouses, plant response to Greenhouse environment. Design criteria of greenhouse for cooling and heating purposes. Hydroponics and aeroponics application techniques, advantages and disadvantages.

Course Outcomes (COs):

CO1: Identify different plant material and their adaptations to different climates. (PO1, PO4)

CO2: Learn the relationship of how plant, water and soil functions. (PO5)

CO3: Identify taxonomical classification of plants and their geographical distribution across India. (PO5)

CO4: Identify different types of Ecology and their plant succession as per their climatic and habitat conditions. (PO4, PO5, PSO d)

CO5: Learn the application of plant material in landscape architecture. (PO4)

References:

1. Botany -W.A. Jenson
2. Environment of Plant Ecology - Etherington, John R.
3. Botany - Ashok Kumar
4. 'The study of plant communities' - Oosting
5. 'The science of Biology' -Paul B. Weisz

SEMESTER-I

GEOLOGY & GEOMORPHOLOGY

Course Code: LA105

Credits: 3:0:0

Prerequisite: Nil

Course Coordinator: Dr. Raghavendra

Course Objectives:

- This course introduces students to rock formation, its characteristics and its influences on landscape.
- This course introduces detailed knowledge on the soils.
- Introduction of basic geology and its link with various landscape.
- To understand land formation and its characteristics.

Course contents:

UNIT -I

The Earth – origin, composition, structure distribution of land and sea. Outer zones of earth. Major geological cycles- external and internal processes, Plate Tectonics and its effects etc.,

Rocks- formation, classification, physical and chemical properties.

UNIT –II

Petrology-Igneous, Sedimentary, Metamorphic.

Structural geology- dip, strike, folds, faults, joints, unconformities. Stratigraphy: principles, stratigraphy and geology of India.

UNIT -III

Earthquakes: causes and effects, seismic micro zonation, seismic zones of India. Volcanoes and their types.

Evolution of landscapes - Basics concept of geomorphology/ Geological factors in developments of landscapes. Based on geological resources and man's interventions their impact on environment and landscape design. Economic impact of geological formations.

UNIT -IV

Application of geological information in the interpretation of landscapes on maps and in the field.

The relationships between geology, soils and vegetation: Practical examples.

UNIT-V

Landscape Assessment- Based on geological resources and man's interventions and their impact on the environment. Economic impact of geological formations, Applications of landscapes on maps and in the field: Practical examples of relationships between geology, structures, slope stabilization, water development and management etc.

Course Outcomes (COs):

CO1: Describe the properties of earth dynamic and their processes (PO1, PO3)

CO2: Identifying natural changes on terrain and justify geological hazards. (PO2)

CO3: Availability of rock mass for landscape construction. (PO2, PO4)

CO4: Evaluate the ground behavior and its suitability in landscape projects. (PO3, PO4)

CO5: Delineate the layers and their interpretation through mapping technique. (PO2, PO3)

References:

1. Introduction to the Geology of India -Krishnan M.S
2. Elements of Geology- Zumberge, James H.
3. Environmental Geology- K.S. Vadiya

SEMESTER –I
HYDROLOGY

Course Code: LA106

Credits: 3:0:0

Prerequisite: Nil

Course Coordinator: Dr. Raghavendra

Course Objectives:

- This course introduces students to soil erosion, characteristics and land formation and its influence on landscape.
- This course introduces detailed knowledge on the soils.
- Introduction of basic hydrology and its link with various landscape.

Course Contents:

UNIT -I

Introduction to Hydrological systems: Hydrological cycle, Precipitation – forms and types, Intensity of rainfall, Measurement of rainfall, computation of average rainfall over a catchment area.

UNIT -II

Abstraction: evaporation, transpiration, evapo-transpiration, interception, infiltration.
Ground water: Occurrence of ground water, types of aquifers, stream flow effects and bank storage, influent and effluent streams.

UNIT -III

Runoff: Types, factors affecting runoff. Hydrographs – definition, components of hydrograph, time of concentration, lag time. Floods – definition, impact of floods on environment.

UNIT-IV

Soil erosion: Types of soil erosion, controlling soil erosion.
Soil conservation: afforestation, agronomic practice, terracing, bunding, cropping patterns.
Water Conservation: contour bunding, contour terracing, gabion structures, check dams, percolation tanks, subsurface dams, farm ponding, rain water harvesting.

UNIT -V

Watershed: definition and description of watershed. Watershed management of forest lands, grasslands, agricultural lands, arid and semi-arid regions and urban areas.

Course Outcomes (COs):

CO1: Understand what is the importance of Hydrology and Precipitation. (PO1, PO3)

CO2: Understand how the occurrence of Groundwater and aquifers. (PO2)

CO3: Understand how the stream flow originates and there by runoff & floods. (PO2, PO4)

CO4: Understand soil erosion and study soil conservation methods. (PO4, PO5)

CO5: Understand watershed and its management. (PO4)

References:

1. Ground Water Hydrology -Todd, David Keith
2. Hydrology – Jayaram Reddy
3. Applied Hydrology - Chow, Ven Te & others
4. Soil and Groundwater pollution from agricultural activities - Ramachandra

SEMESTER –I
SOIL SCIENCE

Course Code: LA107

Credits: 2:0:0

Prerequisite: Nil

Course Coordinator: Dr. Raghavendra

Course Objectives:

- This course introduces students to soil formation, characteristics and its influence on landscape.
- This course introduces gives detailed knowledge on the soils
- This course introduces methods of soil analysis

Course Contents:

UNIT -I

Introduction to soil science. Role of soil in landscape design. Formation of the soil, physical, chemical and biological properties of the soil. Importance of Soil pH value, Soil horizons, soil moisture permeability, Ion exchange capacity. Soil texture and classification. Various classification of soil in India, Karnataka and Bangalore.

UNIT -II

Mineralogical properties of Soil. Soil erosion, Factors responsible for soil erosion, measures for stabilization, methods adopted for soil conservation.

UNIT -III

Soil degradation control, remedial actions and reclamation techniques. Managing difficult soils.

Reclamation of problem soils, saline, alkaline and acidic soils, measures to reclaim the soil, deficiency symptoms.

UNIT-IV

Role of soil organisms, humus and top soil content, green manure, compost, organic/inorganic fertilizers, Composting, Vermi- Composting, Bio fertilizers.

UNIT -V

Soil required for plant growth and preparation of the soil, soil for potted plants and terrace gardens. Soil analysis: Soil survey and field mapping, land capability classification, soil capability study.

Course Outcomes (COs):

CO1: Understand the significance of various properties of soils and their relation to the formation of soils. (PO1)

CO2: Determine the strength of soils keeping in mind the actual field conditions with respect to drainage conditions available in the field. (PO1, PO2)

CO3: Analyze any field situations with the knowledge gained. (PO1, PO3)

CO4: Design the foundations for any structure in any field /soil. (PO2, PO4)

CO5: Position to assess the stability of slopes & retaining walls. (PO3)

References:

1. Nature & Properties of Soil -Brady Nylec
2. Handbook of Agriculture -CSIR Publication
3. Soil Management for Conservation & Production - R.L. Cook

SEMESTER –II

LANDSCAPE DESIGN-II

Course code : LA 201

Credits: 8:0:1

Pre- requisite: Nil

Course Coordinator: Prof. Rajshekhar Rao

Course objectives:

- To develop the skill in students to integrate various knowledge systems in relatively large urban scale exercises of analysis and proposals
- The studio exercises will involve three or four of the following situations – campus landscape, group housing, urban civic spaces at urban design scale, heritage and cultural zones, and transportation and interchange systems and complexes.

Course contents:

Unit -I

Developing a thorough understanding of social, physical and biological processes and issues of urban environment and civic spaces.

Unit –II

Resolving complex issues at various scales of urban contexts like historical, heritage, cultural, etc.

Unit -III

Landscape design of urban fabric for various situations like specialized landscape, industrial landscapes, recreational landscapes, commercial, institutional, recreational, etc.

Unit -IV

Evaluation and analysis of large scale contoured sites in the context of urban ecology.

Unit –V

Development of design methodology and site planning for large scale sites in contemporary urban context with ecologically sustainable design as the underlying theme.

Course Outcomes (COs):

CO1: Understand social, physical and biological processes of urban environment. (PO1)

CO2: Resolve complex urban issues. (PO1, PO2)

CO3: Develop landscape design for specialized landscapes. (PO2)

CO4: Evaluate and analyze large scale urban sites. (PO1, PO2, PO4)

CO5: Develop a design methodology and carry out site planning for large scale urban sites. (PO1, PO2, PO3)

References:

1. Great City Parks -Alan Tate.
2. The New Tech Garden -Paul Cooper.
3. Handbook of Urban Landscape -Cliff Tandy.
4. Radical Landscapes Reinventing Outdoor Spaces -Jane Amidon.
5. Time Saver Standards for Landscape Architecture
6. Returning to Nothing: The Meaning of Lost Places - Peter Read
7. The Experience of Place: A New Way of Looking at and Dealing with our Radically Changing Cities and Countryside - Tony Hiss
8. Great Streets- Allan B. Jacobs

Evaluation Pattern : Marks allocation for SEE

Subject Code	Subject	Design	Drawin g	Viva
LA201	Landscape Design -II	20	20	10

SEMESTER –II

LANDSCAPE CONSTRUCTION TECHNIQUES AND SERVICES -II

Course Code: LA202

Credits: 3:0:1

Prerequisite: Nil

Course Coordinator: Associate Prof. Surekha R

Course Objectives:

- Properties, uses and inherent qualities of various hardscape materials and associated Construction techniques and process
- Fundamental principles of outdoor lighting.
- A Broad overview of Plumbing and irrigation system.
- Water features.
- Market study of emerging materials, Importance and impact of Waste material recycling, Preparation of hardscape BOQ

Course Contents:

Unit –I

Hard landscape - Design and detail of hard landscape: Introduction to hard landscape design, Design and detail of hard landscape: Roads, paving, barriers, edge conditions – Function of hard landscape design, types of hard landscape material, fixing details, criteria for selection, design aspect etc.,

Unit -II

Street furniture - Introduction, criteria for the selection of material and specifications for the street furniture in various climatic conditions. Design of signage and simple outdoor structures like pavilions, gazebos etc.,

Unit -III

Outdoor lighting - Principles of design for outdoor illumination, definition of technical terms, types of fixtures, design and type of effects with electrical fitting, safety precaution and drawbacks of electrical lighting, electrical accessories and their installation. Working drawing for outdoor lighting.

Unit -IV

Water Features – Design of Water features such as swimming pools, cascades. Fountains. etc., and their functional requirements, considerations for design and detail. Water bodies, Natural ponds.

Plumbing and irrigation system – Plumbing and irrigation system: types of irrigation system (Drip system, sprinkler system), Objectives and design, Water need and source, Installations, Control systems, Scheduling and Maintenance.

Irrigation layout for landscape design, working drawing for irrigation systems.

Unit -V

Market study - For emerging materials and technology, comparative study with current alternatives,

Study the importance and Impact of Recycle/Reuse/Refurbish materials. Designing and detailing using Recycled materials.

Preparation of detailed Bill of quantities for Hardscape elements. - Details for the tender drawings, preparation of LBH sheets and tabulation of quantities, common terms and conditions of tenders, Detailed specifications.

Course Outcomes (COs):

CO1: Understand about the character, Quality, Availability, Sustainability and integrity of hardscape and materials that are commonly used in landscape construction (PO1)

CO2: Understanding the principles importance of various landscape components such as street furniture, outdoor lighting, Irrigation, LEED and sustainable practices (PO1, PO2)

CO3: Prepare design development and construction drawings and details (PO2, PO3)

CO4: Develop working knowledge of the appropriate technologies as they apply to sites on the ground. (PO2, PO3)

CO5: Study on different emerging technologies, Materials and Preparation of Tender drawings/BOQ's for Hardscapes (PO2, PO3)

References:

1. Landscape construction,1994- Dietrich, Kerrs
2. Lennox – Moyer, Landscape lighting Book
3. Walker, site details
4. Sports Fields: A Manual for Design, Construction and Maintenance -Jim Puhalla, Jeff Krans, Mike Goatle
5. Landscape irrigation: Design and management- Stephen W Smith
6. Landscape lighting Book - Jannet Lennox Moyer
7. The Site details- Walker
8. The Complete Book of Playgrounds Design- Carles Broto

Evaluation Pattern : Marks allocation for SEE

Subject Code	Subject Name	Portfolio	Viva
LA 202	Landscape Construction Techniques & services -II	40	10

SEMESTER –II

PLANTING DESIGN – I

Course Code: LA203

Credits: 3:0:0

Prerequisite: Nil

Course Coordinator: Associate Prof. Meghana K Raj

Course Objectives:

- Discusses in detail about the various aspects of designing with plants.
- Understand the principles of drawings for client and site
- Preparation of softscape BOQ
- It also emphasizes on the applications of planting design in practice

Course Contents:

Unit -I

Introduction to planting design, Role of plant materials in Landscape Design, Functional Use of plants and Ecology. Classification of plant material for various uses in landscape design. To learn to draw the Master plan for the proposed design to help the client envisage the designed area. To learn to draw Planting Plan for the proposed design to enable the contractor to execute the design on site. To learn to do the Bill of Quantities for Site preparation and the softscape used in the proposed design

Unit -II

Spatial characteristics of plants in design-ground covers, shrubs, trees, climbers. Visual characteristics of plants in design- form, line, texture, color. Plant material to be studied in detail with respect to the sun, soil, water quality.

Unit -III

Design dynamics and design disciplines. Planting and setting out plan for a landscape design.

Design exercises oriented towards the use of plant material for specific design applications Plants for urban and rural roads, parks, open spaces, residential areas etc.

Unit -IV

Introduction to soft landscape compositions with plant materials and their specifications. Usage of plant materials for indoor and outdoor spaces of a Residence/ Spa inclusive of terrace gardens.

Course Outcomes (COs):

CO1: Understand the Basics of Planting Design (PO1)

CO2: Understand the essential characteristics of plants and its requirements (PO2)

CO3: Understand the principles of Planting and its application (PO1, PO2)

CO4: Analyze the context and create spatial compositions (PO1, PO3, PO4)

CO5: Learn to do the necessary drawings and specifications for execution on Site (PO3, PO5)

References:

1. Landscape design with plants' - Clouston, Brian
2. Planting design' - Hackett, Brian
3. Tropical garden plants in colour: a guide to tropical ornamental plants' - Bose & Chowdhary
4. Some beautiful Indian Climbers & Shrubs' -Bor & Raizada
5. Residential Landscaping 1: planning, design, construction' - Walker, Theodore D.
6. Home Gardening' - Pratibha Trivedi
7. Planting the Landscape' -Nancy A. Leszczynski
8. The Planting Design Handbook' -Nick Robinson
9. Stunning Gardens - N.M Ganesh Babu
10. Plant taxonomy past, present and future - Gupta

SEMESTER –II

LANDSCAPE RESOURCES & MANAGEMENT – I

Course Code: LA204

Credits: 3:0:0

Prerequisite: Nil

Course Coordinator: Associate Prof. Lavanya V

Course Objectives

- Refine students' knowledge base of ecology and its application to natural resource management.
- Develop an understanding of various aspects of landscape resources, importance, need for conservation, and conservation techniques.
- Further the ability to plan, design and maintain landscapes based upon sound ecological and landscape management principles.

Course Contents:

UNIT I

Introduction to Environment. Regional levels to Microclimate levels. Microclimate: Definition and characteristics. Evolution of cities
The role of landscape components in modifying microclimate with respect to temperature, humidity, precipitation, air corridors, heat islands, wind speed etc., in cities. Threats to the environment. Research on Impacts and Mitigation methods adopted.

UNIT II

Introduction to Landscape Resources-Types and values in Urban context. Need for Conservation landscape resources. Public Participation as a method of Landscape conservation

UNIT III

Introduction to Landscape Management. Urban Forests- Need and Values of Urban Forests Role of Urban Forests, Threats and management techniques. Tree establishment and issues in maintenance related to urban vegetation, its role in urban landscapes.

UNIT IV

Introduction to Urban Water bodies and Urban Land, Need and values, Threats, mitigation and management techniques of Urban land and water bodies.

UNIT V

Definition of sustainable Landscape, Types of sustainable Landscape and its techniques. Application in Urban and Regional context. Vertical Garden and Terrace Garden procedures and applications.

Course Outcomes (COs):

CO1: Develop fundamental knowledge of Landscape Ecology (PO1, PO4)

CO2: Develop basic understanding of Landscape resources and management principles and techniques (PO1, PO3)

CO3: Understand the issues of Urban forest management and its requirement in the current context (PO1, PO3, PO4)

CO4: Recognizing the need for maintenance and revival of Urban water bodies. (PO1, PO3, PO4)

CO5: Develop critical thinking in designing sustainable landscapes in urban and regional context (PO3, PO4, PO5, PSO d)

References:

1. Project Management for the Design Professional - Burstein
2. Environmental Management – T.V Ramchandra
3. Landscape Ecology & Resource Management - John A. Bissonette, IlseStorch
4. Responsive Environments - Sue McGlynn, Graham Smith, Alan Alcock and Paul Murrain
5. The Landscape Urbanism Reader - Charles Waldheim
6. Cultural Landscapes of South Asia: Studies in Heritage Conservation and Management - Routledge Research
7. Sustainable Urbanism: Urban Design with Nature - Douglas Farr
9. Projective Ecologies- Chris Reed

SEMESTER –II

SEMINAR

Course Code: LA205

Credits: 3:0:0

Prerequisite: Nil

Course Coordinator: Prof. Rajshekhar Rao

Course Objectives:

- To promote research in Landscape architecture
- To train the students in collecting, critically analyzing and presenting information in a legal sequence
- Topics related to various aspects of landscape Architecture could be chosen in consultation with faculty members, comprehensively researched and findings presented in a series of seminars by individual students
- The materials would be documented and formally presented as a portfolio at the end of the semester.

Course Contents:

Unit –I

Introduction to the various aspects of landscape architecture and the selection of topics with potential for in-depth study, research and analysis.

Unit –II

Research: Enable students to choose their topic of interest and prepare a synopsis for the same.

Unit –III

Supporting data: case studies, publications and articles that underpin the study are to be sequentially collected and documented in the form of presentations and/ or reports for further analysis.

Unit –IV

Inference and Analysis: the data collected is individually analyzed and reported as final layer of the study, incorporated as part of the presentation.

Unit –V

Conclusions and regulations: the resulting analysis must enable the student to conclude on possible solutions if the topic of study is subject to debate, or must allow the individual to infer the existing rules, policies and guidelines pertaining to the topic, to be able to provide an analytical conclusion on the same.

Course Outcomes (COs):**CO1:** Research on chosen topic (PO1, PO2)**CO2:** Expertise in collecting, Processing and presenting relevant information. (PO2, PO3)**CO3:** Broad knowledge about Regulations, Guidelines, Policies. etc. (PO4)**CO4:** Prepare the detail Analysis on the topic (PO2)**CO5:** Conclusion on the topic and Detail report of the same (PO2)**Evaluation Pattern: Marks allocation for SEE**

Subject Code	Subject Name	Portfolio	Viva
LA205	Seminar	40	10

SEMESTER –II

RESEARCH METHODOLOGY

Course Code: LA206

Credits: 3:0:0

Prerequisite: Nil

Course Coordinator: Associate Prof. Lavanya V

Course Objectives:

- Introduce the student to different types of research methods carried out in landscape architecture.
- Introduce different methodology and steps involved in research.
- Introduce the student for different method involved in data collection and sampling selection.
- Introduce the student to techniques in report writing.

Course Contents:

UNIT –I

Introduction of the subject and its relevance to architectural field and society, Introduction: Introduction to Research Methodology, Meaning of Research, Objectives, Types, Approaches, Significance. Difference between Research methods and methodology,

UNIT –II

Research Problem Identification: Identification of Research Problem, Identification of need to define research problem, Techniques involved in defining the Research Problems.

Research Design: Need, Characteristics of a good Design and related concepts, Types and Basic Principles of Research Designs and its relevance in landscape architecture.

Research Hypothesis: Characteristics, questions and possible hypothesis, formulation of a hypothesis.

UNIT –III

Sampling Design: Need, types, methods, characteristics of a good sample design, steps in sampling design, criteria for selecting samples, Probability and Non-probability samples.– Urban related Problems

Data Collection: Types and Collection Methods, Primary and Secondary data, sources of data, method to select appropriate data collection method.

UNIT –IV

Interpretation of results and report writing

Significance, Steps, Layout of Report, Types of Reports, Mechanics of Writing, Precautions, Guidelines for research reports, Report formats, Typing Instructions. Future research and role of computers in architecture. Classroom Exercise: Very Small Sample of Research Project – 1 and enable students to get practically acquainted with the Research Methodology to carry out future researches.

Unit –V

Future research and role of computers in architecture. To take up a small project and apply research techniques to landscape architecture research.

Course outcomes (COs):

- CO1:** Understanding the basic concept of research and its application to landscape projects. (PO1)
- CO2:** Understand the different research methods used by landscape architects and to be critically evaluate the use. (PSO b, PO1)
- CO3:** Understand the different methods to conduct the sample surveys and data collection for various projects. (PO5)
- CO4:** To prepare scholarly proposals for the masters of landscape architecture thesis report. (PO4, PSO c)
- CO5:** To develop a comprehensive understanding of the various research dimensions in landscape architecture. (PO1, PSO d)

References:

1. Research Methodology: Methods and Techniques- C. R. Kothari
2. Methodology of Research in Social Sciences - O.R. Krishnaswami, M. Ranganathan
3. Architectural Research Methods - Linda N. Groat, David Wang
4. Research Methodology - R. Panneerselvam
5. Strategies for Sustainable Rural Development –Singh Surat
6. Sustainable Design: Towards New Ethic in Architecture and Town Planning – Contal, Marie Helene
7. Green Architecture: Guide to Sustainable Design -- Crosbie, Michael J