



RAMAIAH
Institute of Technology

CURRICULUM

for the Academic year 2019 – 2020

SCHOOL OF ARCHITECTURE

I & II Semester M.ARCH– (LANDSCAPE ARCHITECTURE)

RAMAIAH INSTITUTE OF TECHNOLOGY

(Autonomous Institute, Affiliated to VTU)

Bangalore – 560054.

About the Institute:

Ramaiah Institute of Technology (RIT) (formerly known as M. S. Ramaiah Institute of Technology) is a self-financing institution established in Bangalore in the year 1962 by the industrialist and philanthropist, Late Dr. M S Ramaiah. The institute is accredited with “A” grade by NAAC in 2014 and all engineering departments offering bachelor degree programs have been accredited by NBA. RIT is one of the few institutes with prescribed faculty student ratio and achieves excellent academic results. The Institute was a participant of the Technical Education Quality Improvement Program (TEQIP), an initiative of the Government of India. All the departments have competent faculty, with 100% of them being postgraduates or doctorates. Some of the distinguished features of RIT are: State of the art laboratories and individual computing facility to all faculty members. All research departments are active with sponsored projects and more than 304 scholars are pursuing PhD. The Centre for Advanced Training and Continuing Education (CATCE), and Entrepreneurship Development Cell (EDC) have been set up on campus. RIT 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 over 1,35,427 books with subscription to more than 300 International and National Journals. The Digital Library subscribes to several online e-journals like IEEE, JET etc. RIT is a member of DELNET, and AICTE INDEST Consortium. RIT has a modern auditorium, several hi-tech conference halls all being air-conditioned with video conferencing facilities. It has excellent hostel facilities for boys and girls. RIT Alumni have distinguished themselves by occupying high positions in India and abroad and are in touch with the institute through an active Alumni Association. RIT obtained Academic Autonomy for all its UG and PG programs in the year 2007. As per the National Institutional Ranking Framework, MHRD, Government of India, Ramaiah Institute of Technology has achieved 64th rank in 2019 among the top 100 engineering colleges across India.

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, was established in the year 1992. Since its establishment, the school has played a vital role in providing quality education. The Council of Architecture (COA) 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 Habitat Design, Product Design, Urban Design, Urban Planning, Landscape Architecture, Heritage Conservation 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 2 year 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 MS 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 stake holders 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):

- PEO1:** Use the knowledge and skills of Architecture to analyze the real life problems and interpret the results.
- PEO2:** Effectively design, implement, improve and manage the integrated socio-technical systems.
- PEO3:** Build and lead cross-functional teams, upholding the professional responsibilities and ethical values.
- PEO4:** Engage in continuing education and life-long learning to be competitive and enterprising.
- PEO 5:** To prepare students to excel in – urban context, historical landscape, specialized landscape situations, industrial landscapes, recreational landscapes etc as well as get an understanding ecologically sustainable development and familiarize the students to environmental legislation and its components and its role in checking the damage to the environment.
- PEO 6:** To educate the students on the various aspects of a Landscape design practice

Curriculum breakdown structure:

The Post Graduate curriculum of Landscape Architecture program is so structured to include all the courses that together satisfy the requirements of the program specific criteria prescribed by the **Council of Architecture**. The Course code, Course title, the number of contact hours and the number of credits for each course are given in the following table. The courses are grouped in line with the major components of the curriculum namely: (i) Basic Landscape Architecture and Engineering courses (ii) Professional Core courses (iii) Electives and (iv) Project and Industry exposure/internship.

Breakup of Credits for M Arch Degree Curriculum. (I to IV Semester)

Sem	BAE	PCS	Electives	Project Internship /	Total Credits
I	12	13	-	-	25
II	7	15	3	-	25
III	7	13	2	3	25
IV	3	6	-	16	25
Total	29	47	5	19	100

BAE - Basic Architecture & Engineering -29

PCS - Professional Core Subjects -47

Elective - Professional Electives, relevant to the chosen specialization -5

Project / Internship - Project Work and Internship in Architect's office -19

Board of Studies for the Term 2019-2020

- | | | |
|-----|-------------------------------|--------------------------|
| 1. | Prof. (Dr.) Pushpa Devanathan | Chairperson |
| 2. | Ar. Chitra Vishwanath | VTU Nominee |
| 3. | Ar. Vidyadhar S. Wodeyar | External Industry Expert |
| 4. | Ar. Ulhas Rane | External Industry Expert |
| 5. | Dr. Rama R S | Academician |
| 6. | Dr. Chidambara Swamy | Academician |
| 7. | Ar. Subbiah T S | Alumni |
| 8. | Prof. Vishwas Hittalmani | Member |
| 9. | Prof. (Dr.) Rajshekar Rao | Member |
| 10. | Prof. (Dr.) Jyotimay Chari | Member |
| 11. | Dr. Rashmi Niranjana | Member |
| 12. | Dr. Monalisa Vyas | 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 & Head of Department
2.	Prof (Dr). Rajshekar Rao	M L Arch (PhD)	Professor & Head-M.Arch (Landscape Architecture)
3.	Ar. Prasad G	M L Arch	Professor (Tenure)
4.	Ar. Surekha R	M L Arch	Associate Professor
5.	Ar. Lavanya Vikram	M L Arch (PhD)	Assistant Professor
6.	Ar. Meghana K Raj	M L Arch	Associate Professor
7.	Ar. Tejaswini H	M L Arch	Associate Professor
8.	Ar. Mallika PV	M L Arch	Associate Professor (Tenure)
9.	Ar. Sivadeepti Reddy	M Arch	Assistant Professor
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.	Dr. Rajgopal Reddy	M.Tech PhD	Allied Faculty
14.	Dr. Raghavendra	M.Sc PhD	Allied Faculty
15.	Mr. Manjunath R	M.Tech	Allied Faculty
16.	Mrs. Shilpha	M.Tech	Allied Faculty
17.	Ar. Nina Chandavarkar	MS L Arch	Visiting Professor
18.	Ar. Bijoy Chacko	M L Arch	Visiting Professor
19.	Ar. Nivetha Paul	M L Arch	Visiting Faculty

ADMINISTRATIVE STAFF

1	Mrs. Padmavathy. B	MBA	FDA
2	Mrs. Ambika	M Tech	Assistant Instructor
3	Mr. Nagesh B.L	Dip. In Mech.Engg.	Assistant Instructor

SUPPORT STAFF

1	Mr. Ramachandra Chari	Attender
2	Mr. Penchaliah	Attender

**SCHEME OF TEACHING & EXAMINATION
M ARCH (LANDSCAPE ARCHITECTURE)
ACADEMIC YEAR 2019-2020**

Semester I (2019 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			

TW = TERM WORK

CIE = CONTINUOUS INTERNAL EVALUATION

SEE = SEMESTER END EXAMINATION

Evaluation Pattern : Marks allocation for SEE

Subject Code	Subject	Design	Drawing	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:

- Educational Tour are part of Landscape Design. 1 credit weightage to be given to Educational Tour/ Site Visit.
- National / International tours may be arranged during vacation to students, to study examples of Landscape Architecture.
- Literature survey will be a requirement for landscape design study, periodical review by external experts for subjects going for viva voce.
- For all viva voce examinations one internal faculty and one external juror will conduct the exam.
- Portfolios have to be submitted for all **Viva voce** exam subjects and retained in the department for one year.
- All students have to register and submit the portfolios on the first day at the beginning of Viva voce exam.

**SCHEME OF TEACHING & EXAMINATION
M ARCH (LANDSCAPE ARCHITECTURE)
ACADEMIC YEAR 2019-2020**

Semester 2 (2019 batch)						
		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			

SEE = SEMESTER END EXAMINATION

Evaluation Pattern : Marks allocation for SEE

Subject Code	Subject	Design	Drawing	Study Tour/Book review
LA201	Landscape Design -II	20	20	10

Subject Code	Subject Name	Portfolio	Viva
LA 202	Landscape Construction Techniques & Services -II	40	10
LA205	Seminar	20	30

Note:

- Educational Tour are part of Landscape Design. 1 credit weightage to be given to Educational Tour/ Site Visit.
- National / International tours may be arranged during vacation to students, to study examples of Landscape Architecture.
- Literature survey will be a requirement for landscape design study, periodical review by external experts for subjects going for viva voce.
- For all viva voce examinations one internal faculty and one external juror will conduct the exam.
- Portfolios have to be submitted for all **Viva voce** exam subjects and retained in the department for one year.
- All students have to register and submit the portfolios on the first day at the beginning of Viva voce exam.

SEMESTER –I

LANDSCAPE DESIGN – I

Course Code: LA101

Credits: 8:0:1

Prerequisite: Nil

Course Coordinator: Prof. Rajshekar Rao

Course Objectives: To introduce the students to landscape design.

- Introductory exercises in Art, Architecture & Landscape.
- Landscape analysis and site planning for medium sized sites.
- Landscape design of small recreational or civic spaces.

Studio work shall deal with an appreciation of basic landscape design issues and elements – simple site planning and structuring the open spaces, landscape treatment in relation to the buildings, understanding the aesthetic qualities of the plant materials and their associations.

Course contents:

UNIT -I

Studio work shall deal with appreciation of basic landscape design issues and elements of site planning;
Elements of landscape design and landscape treatment in relation to the buildings

UNIT -II

Use of plant material for defining and structuring the open spaces

UNIT -III

Understanding the aesthetic qualities of the plant material and their associations
Interaction of social and economic forces, historical value

UNIT -IV

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 outcome (COs):

- Exposure to the process of site study and analysis.
- Understanding the site planning process.
- Landscape design of small projects primarily involving site planning and design.

REFERENCE BOOKS:

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 – Reid.

SEMESTER –I

LANDSCAPE CONSTRUCTION TECHNIQUES & SERVICES – I

Course Code: LA102

Credits: 3:0:1

Prerequisite: Nil

Course Coordinator: Associate Prof. Surekha R

Course Objectives: To introduce students to

- Landforms and earthwork,
- Various aspects of street design including storm water drain, street furniture.
- Sustainable storm water management.
- Water features and their maintenance.

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 bodies 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.

Course outcome (COs):

The students will be able to detail

- Landscape elements and features including landform, earthwork.
- Streets including storm water drainage and furniture.
- Sustainable water management through landscape design.
- Site elements like Water features, swimming pools.

REFERENCE BOOKS:

1. Landscape Construction and Detailing. – 1993 blanc, alan
2. An Introduction to Landscape Design and Construction - James Blake.
3. Site Design and Construction Details -Walker Theodore.
4. Rainwater Harvesting – G.N Virupaksha
5. Landscape Development Handbook’ -Dewberry and Davis.

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 student to the importance of history of landscape architecture.
- Exploration of continuous evolution of thought and trends across 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.

Detailed study of selected examples from eastern and western traditions.

UNIT -II

Ancient civilizations – Introduction to Babylon

Formal gardens - Influences, Elements, Principles of garden design in Persian Gardens and Gardens of Spain, Italy, France

UNIT -III

Informal gardens - Influences, Elements, Principles of garden design in Chinese and Japanese Landscape.

Formal and Informal Landscape design in England (Humphrey Repton, Lancelot Brown, William Kent).

UNIT -IV

Mughal Gardens in India

Design philosophy and concepts of Landscape works of Thomas Church, F. L. Olmstead

Study of Modern Masters of Landscape Architecture

Course Outcome (COs):

The students will be able to

- Identify changes in the human/nature relationship through history.
- Identify exchanges of ideas between different cultures and across geographic boundaries and temporal frameworks.
- Demonstrate knowledge of fundamental terminology and concepts drawn from the global tradition of landscape design from antiquity to the twenty-first century.
- Appreciation of scale in terms of landscape and nature.

REFERENCE BOOKS:

1. Derek Culford, the History of Gardening Design, Faber & Faber Ltd., 1962
2. Geoffrey & Susan Jellicose, The Landscape of Man, Thames & Hudson Ltd., London 1975.
3. G.A. Jellicose, Studies in Landscape Design – Vol: 1, 2 & 3, London Oxford University 1970

SEMESTER –I
ELEMENTS OF LANDSCAPE DESIGN

Course Code: LA104

Credits: 2:0:0

Prerequisite: Nil

Course Coordinator: Associate Prof. Tejaswini H

Course Objectives:

- Introduction to the importance of Plants in landscape architecture.
- To understand the taxonomical classification of plants.
- Introduction to different type 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 storeys.

Course Outcome (COs):

The students will be able to

- Identify different plant material and their adaptations to different climate. Learn the relationship of how plant, water and soil functions.
- Identify taxonomical classification of plants and their geographical distribution across India.
- Identify different type of Ecology and their plant succession as per their climatic and habitat conditions.
- Learn the Application of plant material in landscape architecture.

REFERENCE BOOKS

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
6. Landscape Graphics. - Reid

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 influence on landscape.
- This course introduces gives 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 microzonation, 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.

Course Outcome (COs):

The Student will be

- Explain the importance of structure & composition of earth, earthquake, landslides, action of various geological agencies, formation of rocks and its characteristics.
- Understand the aspects of structural geology and the principles of Stratigraphy.
- Ability to understand the characteristics of landforms, causes and effects.
- Soil characteristics, causes and effects and modifications and methods of analysis of soils.

REFERENCE BOOKS

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 gives 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: Occurance 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.

Soil erosion: Types of soil erosion, controlling of soil erosion.

Soil conservation: afforestation, agronomical practice, terracing, bunding, cropping patterns.

Water Conservation: contour bunding, contour terracing, gabiol structures, checkdams, percolation tanks, sub-surface dams, farm ponding, rain water harvesting.

UNIT -IV

Water shed: definition and description of water shed. Water shed management of forest lands, grass lands, agricultural lands, arid and semi-arid regions and urban areas.

Course Outcome (COs):

- Understands what is the importance of Hydrology and Precipitation.
- Understands how the occurrence of Ground water and aquifers.
- Understands how the streamflow originates and thereby runoff & floods.
- Understands soil erosion and studies soil conservation methods.
- Understands watershed and watershed management.

REFERENCE BOOKS

1. Ground Water Hydrology -Todd, David Keith
2. Hydrology – Jayaram Reddy
3. Applied Hydrology - Chow, VenTe & 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: Asst. Prof. Manjunath R

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.

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

UNIT -IV

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 Outcome (COs):

The students will be able to

- Understand the significance of various properties of soils and their relation to the formation of soils.
- Determine the strength of soils keeping in mind the actual field conditions with respect to drainage conditions available in the field.
- Analyze any field situation with the knowledge gained.
- Design the foundations for any structure in any field/soil.
- Position to assess the stability of slopes & retaining walls.
- Confident to say how safe or stable is a structure.

REFERENCE BOOKS

1. Nature & Properties of Soil -Brady Nylec
2. Handbook of Agriculture -CSIR Publication
3. Soil Management for Conservation & Production - R.L.Cook
4. Soil and Groundwater pollution from agricultural activities. - Ramachandra

SEMESTER –II

LANDSCAPE DESIGN II

Course Code: LA201

Credits: 8:0:1

Prerequisite: Nil

Course Coordinator: Prof. Rajshekar 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

The studio exercises dealing with environment of urban life and its understanding through social, physical and biological processes. Studio work is geared more towards analysis of the problem, evaluation and design methodology for developing the design concept.

UNIT -II

The project may involve urban context, historical landscape, specialized landscape situations, industrial landscapes, recreational landscapes, ecology and the city.

UNIT -III

Understanding of ecologically sustainable development would be the underlying theme.

UNIT -IV

Exercises related to the application of ecological principles in a range of situations and directed towards understanding and proposing design possibilities in: Urban Open space systems, Rural landscape, Heritage and cultural landscapes, Campus landscape

Course outcome (COs):

- Understanding the function and structuring of outdoor spaces would be the underlying theme.
- Application of landscape elements in the given space.
- Understanding urban space as ecosystem.

REFERENCE BOOKS

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

SEMESTER –II

LANDSCAPE CONSTRUCTION TECHNIQUES & SERVICES – II

Course Code:LA202

Credits: 3:0:1

Prerequisite: Nil

Course Coordinator: Associate Prof. Surekha R

Course Objective: Students are introduced to

- Properties, uses and inherent qualities of the various hardscape materials and associated construction techniques and processes.
- Fundamental principles of outdoor lighting.
- A broad overview of plumbing and irrigation systems.
- Importance and impact of waste material recycling.

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 signages 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

Waste material recycling - Use of waste materials in Landscape, recycling and reuse of materials and their impact on Landscape design.

Plumbing & irrigation system - Plumbing & irrigation system: types of irrigation system, drip system, sprinkler system. irrigation layout for landscape design working drawing for irrigation systems.

Course outcome (COs):

The students will be able to

- Understand about the character, quality, availability, sustainability, and integrity of the hardscape materials that are commonly used in landscape construction.
- Understand the importance of various landscape components such as street furniture, outdoor light, irrigation, LEED and sustainable practices.
- Prepare design development and construction drawings, construction details.
- Develop a working knowledge of the appropriate technologies as they apply to sites on the ground.

REFERENCE BOOKS

1. Dietrich, Kerrs, Landscape construction, 1994
2. Lennox – Moyer, Landscape lighting Book
3. Walker, site Details
4. Landscape lighting – Design Media

SEMESTER –II
PLANTING DESIGN – I

Course Code: LA203

Credits: 3:0:0

Prerequisite: Nil

Course Coordinator: Associate Prof. Meghana Raj

Course objectives:

- This course discusses in detail about the various aspects of designing with plants.
- It also emphasizes on the applications of planting design in the practice.

Course contents:

UNIT -I

Role of plant materials in Landscape Design. Introduction to planting design and Ecology. Classification of plant material for various uses in landscape 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):

- Basics of planting design
- Applications of planting design
- Creating Spatial Experiences using Plants

REFERENCE BOOKS

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. 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. Threats and issues of environmental problems, need for Conservation and public participation and awareness (eg. Chipko movement)

UNIT -II

Introduction to Landscape Resources: Types of resources. Conservation of resources: Forest and Water (Urban Related). Drought, flood, Forest fires and water shed management. Threats on different types of resources.

Threats to urban landscape resources: urban environmental issues, conservation of water resources and vegetation cover, cultural landscape and Sacred landscape.

UNIT -III

Urban forest: Introduction to urban forest. Need, benefits and threats on urban forest. Ecological, material, social and cultural benefits or values of urban forest.

Tree establishment and issues in maintenance related to urban vegetation, its role in urban landscapes. Urban forest and management techniques and issues. Vertical garden and terrace garden procedures and applications.

UNIT -IV

Definition of Sustainable landscape, Types of Sustainable landscape and its Techniques. Concept of Sustainable landscape and its application in Urban and regional context.

Course outcome (COs):

- Develop a fundamental knowledge base of landscape ecology.
- Develop a basic understanding of landscape and resource management principles and practices that are based upon fundamental principles of ecology and landscape ecology.
- Develop an understanding of landscape maintenance practices and how maintenance considerations may influence design at the site level.
- Demonstrate critical thinking in planning and designing a variety of landscapes at multiple scales based upon sound ecological, resource management and maintenance principles.

REFERENCE BOOKS

1. Project Management for the Design Professional - Burstein
2. Environmental Management – T.V Ramachandra
3. Landscape Ecology & Resource Management - John A. Bissonette, IlseStorch
4. Environmental Studies – Ahulwalia/Joseph/ D.L.Manjunath
5. Sustainable Design : Towards New Ethic in Architecture and Town Planning – Contal, Marie Helene
6. Green Architecture: Guide to Sustainable Design. – Crosbie, Micheal J
7. Strategies for Sustainable Rural Development. – Singh Surat

SEMESTER –II

SEMINAR

Course Code: LA205

Credits: 3:0:0

Prerequisite: Nil

Course Coordinator: Prof. Rajshekar Rao

Course objectives:

- To promote research in Landscape architecture.
- To train the students in collecting, critically analyzing and presenting information in a logical 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 content:

Aim of this seminar course is to broaden the knowledge of the student so as to enable the student to deal more effectively with various aspects of landscape architecture. Topics pertaining to Landscape Typology, environmental, ecological or other important issues in the field of landscape architecture.

Course Outcomes (COs):

- Research on a chosen topic
- Expertise in collecting, processing and presenting relevant information.

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.

Course Outcome (COs):

The students will be able to

- Identify different types of research methods carried out in landscape architecture.
- Identify different methods involved in data collection and sampling selection.
And different steps involved in implementing the research.
- Learn the art and techniques of report writing.

References:

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