RAMAIAH
Institute of Technology

CURRICULUM

Outcome Based Education

(Effective from the Academic Year 2023 – 2024)

DEPARTMENT OF
SCHOOL OF ARCHITECTURE

I - IV 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 17 UG programs and 15 PG programs. All these programs are approved by AICTE. All eligible UG and PG programs are accredited by National Board of Accreditation (NBA). The institute is accredited with **'A^{+}' grade by NAAC in March 2021** for 5 years. University Grants Commission (UGC) & Visvesvaraya Technological University (VTU) have conferred Autonomous Status to MSRIT for both UG and PG Programs since 2007. 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 for 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, Centre for Antennas and Radio Frequency systems (CARFS), Center for Cyber Physical Systems & 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 Entrepreneurship Development Cell (EDC) and Section 8 company **"Ramaiah Evolute"** have been set up on campus to incubate start-ups. **M S Ramaiah Institute of Technology secured All India Rank 8th for the year 2020 for Atal Ranking of Institutions on Innovation Achievements (ARIIA), by MoE, 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. The institute 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 (NIRF), MoE, Government of India, M S Ramaiah Institute of Technology has achieved 78th rank among 1314 top Engineering institutions of India & 23rd rank for School of Architecture in India for the year 2023.

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

1. Imparting quality technical education by nurturing a conducive learning environment through continuous improvement and customization

2. Establishing research clusters in emerging areas in collaboration with globally reputed organizations

3. 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):

PEO1: Use the knowledge and skills of Landscape 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.

PROGRAM OUTCOMES (POs):

PO1: Landscape Architectural knowledge: Apply the knowledge of mathematics, science, architectural fundamentals and an landscape architectural specialization to the solution of complex architectural problems

PO2: Problem analysis: Identify, formulate, review research literature, and analyse complex landscape architectural problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: 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.

PO4: 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.

PO5: Modern tool usage: Create, select and apply appropriate techniques, resources and modern landscape architecture and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6: The architect and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional architectural practice.

PO7: 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.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the landscape architectural practice.

PO9: Individual and Team Work: Individual and teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex architectural activities with the architectural community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of landscape architecture and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: 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):

PSO1: Apply knowledge and skills of art and sciences based on function, form, materials, information, facilities, technology and analysis to Design and develop sustainable landscape architectural Projects.

PSO2: Identity, formulate and solve industrial requirements and problems with a thorough knowledge of contemporary issues in industrial and service sectors and understand the impact of landscape architectural design solutions in a global and societal context.

PSO3: Understand and respect professional and ethical responsibility and implement the concepts of project and construction management with the cutting edge technology.

BOARD OF STUDIES FOR THE TERM 2023 – 2024

1.	Prof. Dr. Pushpa Devanathan	Chairperson
2.	Prof. Dr. Deepika Shetty	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
8.	Prof. Vishwas Hittalmani	Member
9.	Prof. Dr. Rajshekhar Rao	Member
10.	Dr. Rashmi Niranjan	Member
11.	Ar. (Dr.) Meghana K Raj	Member
12.	Er. (Dr.) 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. Arch (Landscape Architecture) PhD	Professor & Head - M. Arch (Landscape Architecture)
3	Ar. Prasad. G	M. Arch (Landscape Architecture)	Professor (Tenure)
4	Ar. (Dr.) Surekha R	M. Arch (Landscape Architecture)	Associate Professor
5	Ar. (Dr.) Lavanya Vikram	M. Arch (Landscape Architecture) (PhD)	Associate Professor
6	Ar. (Dr.) Meghana K Raj	M. Arch (Landscape Architecture)	Associate Professor
7	Ar. (Dr.) Tejaswini H	M. Arch (Landscape Architecture)	Associate Professor
8	Ar. Sudhir Chougule	M. Arch (Landscape Architecture)	Associate Professor (Tenure)
9	Ar. Mallika P V	M. Arch (Landscape Architecture)	Associate Professor (Tenure)
10	Ar. Ranjitha Govindaraj	M. Arch (Landscape Architecture)	Assistant Professor
11	Dr. Raghavendra	M Sc. PhD	Allied Faculty
12	Mrs. Shilpa D N	M.Tech	Allied Faculty
13	Mrs. Sri Latha	M.Tech	Allied Faculty

ADMINISTRATIVE STAFF

1	Mr. Nagesh B.L	Dip. in Mech. Engg.	Instructor
2	Ms. Swathi	M.com	SDA

SUPPORT STAFF

1	Mr. Ramachandra Chari	Attender
2	Mrs. Parvathy	Attender

RAMAIAH INSTITUTE OF TECHNOLOGY, BANGALORE
(AUTONOMOUS INSTITUTE, AFFILIATED TO VTU, BELGAUM)
SCHEME OF TEACHING & EXAMINATION
M ARCH (LANDSCAPE ARCHITECTURE)
ACADEMIC YEAR 2023- 2024

Semester I							
Code	**Subject**	**Credits**	**Total**	**Contact Hours**	**Examination**	**CIE Marks**	**SEE Marks**
LA 101	Landscape Design -I	8:0:1	9	10	SEE (Viva voce)	50	50
LA 102	Landscape Construction Techniques & services -I	3:0:1	4	5	SEE (Viva voce)	50	50
LA 103	Theory of Landscape Design	3:0:0	3	3	SEE	50	50
LA 104	Elements of Landscape Design	3:0:0	3	3	SEE	50	50
LA 105	Geology & Geomorphology	0:3:0	3	3	CIE	100	
LA 106	Hydrology	0:3:0	3	3	CIE	100	
	Total		**25**	**27**			

CIE = CONTINUOUS INTERNAL EVALUATION

SEE = SEMESTER END EXAMINATION

BATCH			Teaching Scheme/ Week					Exam Scheme		
Sl. No.	Code	Subject	Lecture/Studio	Tutorial	Practical	Total Credits	Contact hours	Exam	CIE Marks	SEE Marks

Evaluation Pattern: Marks allocation for SEE (Viva Voce)

Subject Code	Subject	Design	Viva	Total
LA 101	Landscape Design – I (SEE Viva Voce)	40	10	50

Subject Code	Subject	Portfolio	Viva	Total
LA 102	Landscape Construction Techniques & Services – I (SEE Viva Voce)	40	10	50

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 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 Viva subjects on the date announced by the department.
- All students have to register on the first day at the beginning of the Viva Voce exam.

RAMAIAH INSTITUTE OF TECHNOLOGY, BANGALORE
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SCHEME OF TEACHING & EXAMINATION
M ARCH (LANDSCAPE ARCHITECTURE)
ACADEMIC YEAR 2023- 2024

Semester II							
Code	**Subject**	**Credits**	**Total**	**Contact Hours**	**Examination**	**CIE Marks**	**See Marks**
LA201	Landscape Design -II	8:0:1	9	10	SEE (Viva voce)	50	50
LA202	Landscape Construction Techniques & services -II	3:0:1	4	5	SEE (Viva voce)	50	50
LA203	Planting Design - I	3:0:0	3	3	SEE	50	50
LA204	Landscape Resources & management	3:0:0	3	3	SEE	50	50
LA205	Seminar	3:0:0	3	3	SEE (Term Work)	50	50
LA206	Research methodology	3:0:0	3	3	SEE	50	50
	Total		**25**	27			

CIE = CONTINUOUS INTERNAL EVALUATION

SEE = SEMESTER END EXAMINATION

Evaluation Pattern: Marks allocation for SEE
(SEE Viva Voce Examination)

Subject Code	**Subject**	**Design**	**Viva**	**Total**
LA 201	Landscape Design –II (SEE Viva Voce)	40	10	50

Subject Code	Subject	Portfolio	Viva Voce	Total
LA 202	Landscape Construction Techniques & services –II (SEE Viva Voce)	40	10	50

Subject Code	Subject	Portfolio	Viva Voce	Total
LA 205	Seminar (SEE Term Work)	40	10	50

Note:

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- 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 Viva subjects on the date announced by the department.
- All students have to register on the first day at the beginning of the Viva Voce exam.

RAMAIAH INSTITUTE OF TECHNOLOGY BANGALORE
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SCHEME OF TEACHING & EXAMINATION – M ARCH
(LANDSCAPE ARCHITECTURE)
ACADEMIC YEAR 2023- 2024

Semester III							
Code	**Subject (2019 Batch)**	**Credits**	**Total**	**Total Hours**	**Examination**	**CIE Marks**	**SEE Marks**
LA301	Landscape Design III (Regional landscape)	8:0:1	9	10	SEE (Viva voce)	50	50
LA302	Landscape Documentation	2:0:1	3	4	SEE (Term Work)	50	50
LA303	Remote sensing & GIS	0:1:1	3	3	CIE	100	
LA304	Environmental Impact & Legal Aspects	3:0:0	3	3	SEE	50	50
LA305	Professional Practice & Landscape Maintenance	3:0:0	3	3	SEE	50	50
LA306	Dissertation	1:0:1	2	3	SEE (Viva voce)	50	50
LA307	Practical Training / Vacation Assignment	0:0:3	3	-	SEE (Viva voce)	100	
	Total		25	26			

Evaluation Pattern: Marks allocation for SEE (Viva Voce / Term Work)

Subject Code	Subject	Design	Viva Voce	Total
LA301	Landscape Design III (Regional landscape) (SEE Viva Voce)	40	10	50

Subject Code	Subject	Portfolio	Viva Voce	Total
LA 302	Landscape Documentation (SEE Term Work)	40	10	50

Subject Code	Subject	Portfolio	Viva Voce	Total
LA306	Dissertation (SEE Viva Voce)	80	20	100

Subject Code	Subject	Portfolio	Critical Appraisal	Material Analysis	Viva Voce	Total
LA307	Practical Training / Vacation Assignment (SEE Viva Voce)	60	10	10	20	100

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 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 Viva subjects on the date announced by the department.
- All students have to register on the first day at the beginning of the Viva Voce exam.

RAMAIAH INSTITUTE OF TECHNOLOGY BANGALORE
(Autonomous Institute, Affiliated to VTU)
SCHEME OF TEACHING & EXAMINATION – M ARCH
(LANDSCAPE ARCHITECTURE)
ACADEMIC YEAR 2023- 2024

Semester IV							
Code	**Subject**	**Credits**	**Total**	**Total Hours**	**Examination**	**CIE Marks**	**SEE Marks**
LA 401	Landscape Architecture Thesis	20:0:0	20	20	SEE (Viva voce)	50	50
LA 402	Landscape Conservation	0:2:0	2	2	CIE	100	
LA 403	Planting Design - II	0:3:0	3	3	CIE	100	
	Total		**25**	**25**			

CIE = CONTINUOUS INTERNAL EVALUATION
SEE = SEMESTER END EXAMINATION

Evaluation Pattern: Marks allocation for SEE (Viva-Voce)

Subject Code	**Subject Name**	**Design**	**Drawing**	**Viva Voce**	**Total**
LA401	Landscape Architecture Thesis (SEE Viva Voce)	25	15	10	50

Note:

- Literature survey will be a requirement for Landscape design study. Periodical review by an external jury for subjects going for viva voce.
- Landscape Architecture Thesis Viva Voce examinations one internal faculty and two external faculty will conduct the exam.
- Portfolios have to be submitted on prescribed date for all Viva subjects on the date announced by the department.
- All students have to register on the first day at the beginning of the Viva Voce exam.

RAMAIAH
Institute of Technology

CURRICULUM

for the Academic Year 2023-2024

SCHOOL OF ARCHITECTURE

I Semester M. Arch (Landscape Architecture)

RAMAIAH INSTITUTE OF TECHNOLOGY
(Autonomous Institute, Affiliated to VTU)
BANGALORE -54

SEMESTER - I

LANDSCAPE DESIGN - I	
Course Code: LA101	**Credits: 8:0:1**
Prerequisite: Nil	**Contact Hours: 10 Hrs. / Wk.**
Course Coordinator: Prof. Dr. 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

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 III

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.

Unit IV

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

Unit V

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

Course Outcomes (COs):

CO1- Understand the basics of landscape design (PO1, PO2) (PSO1)
CO2- Analyze the role of plants in outdoor spaces (PO1) (PSO1)
CO3- Understand the value of plants and its socio-economic aspects (PO1) (PSO1)
CO4- Learn to document a site and understand site planning (PO3) (PSO1)
CO5- Analyze and design the site, its context based on the requirement (PO1, PO2) (PSO3)

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 (Viva Voce)

Subject Code	Subject	Design	Viva	Total
LA101	Landscape Design –I (SEE Viva Voce)	40	10	50

SEMESTER - I

LANDSCAPE CONSTRUCTION TECHNIQUES AND SERVICES - I	
Course Code: LA 102	**Credits: 3:0:1**
Prerequisite: Nil	**Contact Hours: 5 Hrs./ Wk.**
Course Coordinator: Associate Prof. Surekha R	

Course Objectives:

- Properties, uses and inherent qualities of various hardscape materials and associated
- Construction techniques and process
- Hardscape details related to sports fields and related to planning.
- Various aspects of street design including street furniture, signages
- Various landforms and grading
- Enhancing understanding in

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. Barrier free access design, tactile paving, etc.

Unit II

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.

Unit III

Design of road and street details.
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 IV

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 V

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.

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 - Applying the Designing and detailing of Sports fields. (PO2)
CO3 - To understand the street design including street furniture and simple structures. (PO1, PO2)
CO4 - To learn Landscape elements and features including landform, earthwork. (PO1, PO2)
CO5 -To understand the Earth work forma□on, grading calculations. (PO1, PO2, PSO

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 (Viva- Voce)

Subject Code	Subject Name	Portfolio	Viva	Total
LA 102	Landscape Construction Techniques & services –I (SEE Viva Voce)	40	10	50

SEMESTER - I

THEORY OF LANDSCAPE DESIGN	
Course Code: LA103	**Credits 3:0:0**
Prerequisite: Nil	**Contact Hours: 3 Hrs./ Wk.**
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

Informal Gardens- Influence, Elements, Principles of Garden Design in Chinese and Japanese Landscape, Landscape evolution and 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, PO6) (PSO1)

CO2- Identify exchanges of ideas between different cultural and across geographic boundaries and temporal
frameworks. (PO1, PO3, PO7) (PSO1)

CO3- Identify changes in the human/nature relationship through history. (PO3, PO8) (PSO1)

CO4- Study the characteristics and analyze the features of historical gardens. (PO1, PO6) (PSO1)
CO5- Recent trends and appreciation of scale in terms of natural landscape. (PO1, PO5) (PSO1)

References:

1. The History of Gardening Design, Faber & Faber Ltd., 1962- Derek Culfford,
2. The Landscape of Man, Thames & Hudson Ltd., London 1975. - Geffrey & 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: 3:0:0**
Prerequisite: Nil	**Contact Hours: 3 Hrs./ Wk**
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.
- Introduction to application of Plant material

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, Osmosis, Photosynthesis, Respiration and Mineral nutrition. 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, types of succession – Hydrosere and Xerosere

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, PO5) (PSO1)
CO2- Learn the relationship of how plant, water and soil functions. (PO4, PO5) (PSO1)
CO3- Identify taxonomical classification of plants and their geographical distribution across India. (PO5, PO6) (PSO1)
CO4 – Identify different types of Ecology and their plant succession as per their climatic and habitat conditions. (PO4, PO5, PO6) (PSO3)
CO5 – Learn the application of plant material in landscape architecture. (PO4, PO7) (PSO3)

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
6. The hidden life of trees – Peter Wohlleben

SEMESTER - I

GEOLOGY, GEOMORPHOLOGY	
Course Code: LA105	**Credits: 0:3:0**
Prerequisite: Nil	**Contact Hours: 3 Hrs./ Wk.**
Course Coordinator: Dr. H U Raghavendra (Civil Department)	

Course Objectives:

- Introduces concepts from Geology, its policy and values as they appear in geophysics, geochemistry and other natural sciences and technological sciences.
- Gives detailed knowledge on the different terrain evolution
- Introduction of its material sciences in construction, management and conservation.
- Understand soil analysis and its influence on landscape
- Demonstrate ability to effectively present field maps with link of various landscape

Course contents:

Unit I

Scope & Importance of the Earth – Its Position in space and its origin, Internal structure & composition, structure distribution of land and sea, outer zones of earth; Major geological cycles - exogenous and endogenous processes, weathering, Landslides: types & causes of mass movements, stabilizing hill-slopes, Concept of Plate Tectonics, Earthquakes: causes and effects, seismic zones of India, Volcanoes and their types.

Unit II

Petrology – Igneous, Sedimentary & Metamorphic rocks, Classification, Structure & their importance in landscape practice from Granite, Dolerite dyke, Basalt etc., Conglomerate, Sandstone, Shale, Limestone etc., Gneiss, Slate, Marble etc.

Structural geology – Outcrops, dip, strike, folds, faults, joints, unconformities, Selection of suitable site and its consideration for landscape design.

Unit III

Evolution of landscapes – Concept of geomorphology, Geological factors in developments of landscapes by the action of rivers; Geology of India.

Landscape Assessment – Based on geological resources and man's interventions their impact on environment, Economic impact of geological formations; Application of geological information in the interpretation of landscapes on maps and in the field.

Unit IV

Soil Formation – physical, chemical & biological properties of soil, Soil horizons, Soil texture and classification, Types of soil in India, Karnataka & Bangalore; Soil pH, Mineralogical properties of soil; Soil erosion – measures for soil stabilization and conservation; Soil degradation – control & remedial actions; Deficiency symptoms, Managing difficult soils and reclamation techniques.

Unit V

Manure for soil – green manure, organic/inorganic fertilizers, composting & vermi-composting, Bio fertilizers; Soil required for plant growth & preparation of the soil, Soil for potted plants & terrace gardens; Land capability classification; Soil analysis – Survey & field mapping.

Course Outcome (COs):

The students will be

CO1- Describe index properties of earth dynamic & justify geological hazards. (PO1, PO3, PO6) (PSO1)

CO2- Availability of rock mass for landscape construction. (PO1, PO2, PO7) (PSO2)

CO3- Evaluate the ground behaviour & its suitability in landscape projects. (PO2, PO3, PO6, PO7) (PSO3)

CO4- Determine the strength of soils from actual field conditions. (PO1, PO2, PO7) (PSO2)

CO5- Delineate layers and their interpretation through mapping technique. (PO1, PO3, PO6) (PSO1)

Text Books:

1. Mukerjee, P. K. "Textbook of Geology", World Press Pvt. Ltd., Kolkatta.
2. Gokhale, K. V. G. "Principles of Engineering Geology, B S Publication, Hyderabad, 2011.
3. Parbin Singh. "Text book of Engineering and General Geology", Katson publishing house, Ludhiana, 2009.
4. Biswas, T. D. "Textbook of Soil Sciences", McGraw Hill Education; 2nd edition, 2017.
5. Puri, A. N. "Soil Science – An Elementary Textbook", Oxford & IBH Publishing Co Pvt. Ltd.

References:

1. Tyrrell, G. W. "Principles of Petrology", Chapman & Hall Ltd, 1978.
2. Billings, M. P. "Structural Geology", Prentice Hall, 1972.
3. Valdiya, K. S. "Environmental Geology", Mc Graw Hill Education, Chennai, 2017.
4. Cook, R. L. "Soil Management for Conservation & Production".
5. Brandy Nylec. "Nature & Properties of Soil".

SEMESTER - I

HYDROLOGY	
Course Code: LA106	**Credits: 0:3:0**
Prerequisite: Nil	**Contact Hours: 3 Hrs/ Wk**
Course Coordinator: Dr. Raghavendra (Civil Department)	

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, gabiol structures, check dams, percolation tanks, subsurface dams, farm ponding, and 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, PO4) (PSO1)
CO2- Understand how the occurrence of Groundwater and aquifers. (PO2, PO3) (PSO3)
CO3- Understand how the stream flow originates and there by runoff & floods. (PO2, PO4, PO6) (PSO2)
CO4- Understand soil erosion and study soil conservation methods. (PO4, PO5, PO12) (PSO1)
CO5- Understand watershed and its management. (PO4, PO10) (PSO3)

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

RAMAIAH
Institute of Technology

CURRICULUM

for the Academic Year 2023-2024

SCHOOL OF ARCHITECTURE

II Semester M.Arch (Landscape Architecture)

RAMAIAH INSTITUTE OF TECHNOLOGY
(Autonomous Institute, Affiliated to VTU)
BANGALORE -54

SEMESTER - II

LANDSCAPE DESIGN-II	
Course code LA 201	**Credits: 8:0:1**
Pre- requisite: Nil	**Contact Hours: 10 Hrs./ Wk.**
Course Coordinator: Prof. Dr. 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, PO6) (PSO1)
CO2- Resolve complex urban issues. (PO1, PO2, PO7) (PSO2)
CO3- Develop landscape design for specialized landscapes. (PO2, PO8) (PSO1)
CO4- Evaluate and analyze large scale urban sites. (PO1, PO2, PO4, PO10) (PSO1)
CO5- Develop a design methodology and carry out site planning for large scale urban sites. (PO1, PO2, PO3, PO12) (PSO3)

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 Viva- Voce

Subject Code	Subject	Design	Viva Voce	Total
LA201	Landscape Design –II (SEE Viva Voce)	40	10	50

SEMESTER - II

LANDSCAPE CONSTRUCTION TECHNIQUES AND SERVICES -II	
Course Code: LA202	**Credits: 3:0:1**
Prerequisite: Nil	**Contact Hours: 5 Hrs./ Wk.**
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, PO6) (PSO1)

CO2 - Understanding the principles importance of various landscape components such as street furniture, outdoor lighting, Irrigation, LEED and sustainable practices (PO1, PO2, PO12) (PSO1)

CO3 - Prepare design development and construction drawings and details (PO2, PO3, PO10) (PSO1)

CO4 - Develop working knowledge of the appropriate technologies as they apply to sites on the ground. (PO2, PO3, PO12) (PSO3)

CO5 - Study on different emerging technologies, Materials and Preparation of Tender drawings/BOQ's for Hardscapes (PO2, PO3, PO12) (PSO3)

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 Viva Voce

Subject Code	Subject Name	Portfolio	Viva	Total
LA 202	Landscape Construction Techniques & services –II (SEE Viva Voce)	40	10	50

SEMESTER – II

PLANTING DESIGN – I	
Course Code: LA203	**Credits: 3:0:0**
Prerequisite: Nil	**Contact hours : 3hrs/wk**
Course Coordinator: Associate Prof. Meghana K Raj	

Course Objectives:

- Discuss in detail about the various aspects of designing with plants.
- Learn to do the necessary drawings and specifications for execution on Site
- Understand the principles of drawings for client and site
- Understand the principles of Planting and its application
- It also emphasizes on the applications of planting design in practice

Course Contents

Unit I

Introduction to planting design, Functional Use of plants and Ecology. Classification of plant material for various uses in landscape design. Introduction to landscape working drawings like Master Plan,

Unit II

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. Spatial characteristics of plants in design-ground covers, shrubs, trees, climbers.

Unit III

Design dynamics and design disciplines. Visual characteristics of plants such as form, line, texture and color in design.

Unit IV

Principles of Visual Compositions, Planting and setting out plans for landscape design. Plants for urban and rural roads, parks, open spaces, residential areas etc.

Unit V

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. 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 - Learn to do the necessary drawings and specifications for execution on Site (PO3, PO5)
CO3 - Understand the essential characteristics of plants and its requirements (PO2)
CO4 - Understand the principles of Planting and its application (PO1, PO2)
CO5 - Analyze the context and create spatial compositions (PO1, PO3, PO4)

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	
Course Code: LA204	**Credits: 3:0:0**
Prerequisite: Nil	**Contact Hours: 3 Hrs./ Wk**
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. Ecology, Ecosystem and Biodiversity and Biodiversity hotspots. Values imparted by them, threats and need for conservation. Introduction to Ecosystem- Desert, Marine, Estuarine, Aquatic ecosystems. Studies of threats to ecosystems and conservation measures with case studies from India and the world.

Unit II

Introduction to Landscape Resources- Types and importance in Urban, and regional context. Importance and need of Water resources, Forest resources, Land resources through case studies. Introduction to Urban water bodies, Urban Lands. Their needs and values, Threats and Mitigation and management techniques.

Unit III

Introduction to Landscape Resource Management. Methodologies used in Landscape management. Public participation as a method of conserving and managing Landscapes
Introduction and need for Urban Forests. Role of Urban Forests, Threats and management techniques. Issues in management and maintenance of Urban forests

Unit IV

Disaster management- Landslides, Earthquake, floods, in both Urban and regional contexts. Causes, and mitigation process through understanding and intervention of landscape. Solid waste management- Classification, methods, benefit, Government measures.

Unit V

Introduction to Sustainable Landscape Practices. Techniques used in Sustainable Landscapes. Application in Urban and Regional context. Study of Vertical Garden and Terrace Garden in urban context.

Course Outcomes (COs):

CO1- Develop fundamental knowledge of Landscape Ecology (PO1, PO4) (PSO1)
CO2- Develop basic understanding of Landscape resources and management principles and techniques (PO1, PO3) (PSO1)
CO3- Understand the issues of Urban forest management and its requirement in the current context (PO1, PO3, PO4) (PSO2)
CO4- Recognizing the need for maintenance and revival of urban water bodies. (PO1, PO3, PO4) (PSO2)
CO5- Develop critical thinking in designing sustainable landscapes in urban and regional context (PO3, PO4 and PO5) (PSO1)

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
8. Projective Ecologies- Chris Reed

SEMESTER - II

SEMINAR	
Course Code: LA205	**Credits: 3:0:0**
Prerequisite: Nil	**Contact Hours: 3 Hrs./ Wk.**
Course Coordinator: Prof. Dr. 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) (PSO1)
CO2 -Expertise in collecting, Processing and presenting relevant information. (PO2, PO3) (PSO1)
CO3 -Broad knowledge about Regulations, Guidelines, Policies. etc. (PO4) (PSO2)
CO4 -Prepare the detail Analysis on the topic (PO2) (PSO1)
CO5 -Conclusion on the topic and Detail report of the same (PO2) (PSO3)

Evaluation Pattern : Marks allocation for SEE Term Work

Subject Code	Subject Name	Portfolio	Viva Voce	Total
LA205	Seminar (SEE Term Work)	40	10	50

SEMESTER - II

RESEARCH METHODOLOGY	
Course Code: LA206	**Credits: 3:0:0**
Prerequisite: Nil	**Contact Hours: 3 Hrs./ Wk.**
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, and 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, PO6) (PSO1)
CO2- Understand the different research methods used by landscape architects and top be critically evaluate the use. (PO1) (PSO2)
CO3- Understand the different methods to conduct the sample surveys and date collection for various projects. (PO5, PO6) (PSO3)
CO4- To prepare scholarly proposals for the masters of landscape architecture thesis report. (PO4) (PSO1)
CO5- To develop a comprehensive understanding of the various research dimensions in landscape architecture. (PO1) (PSO2)

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

RAMAIAH
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CURRICULUM

for the Academic Year 2023-2024

SCHOOL OF ARCHITECTURE

III Semester M.Arch (Landscape Architecture)

RAMAIAH INSTITUTE OF TECHNOLOGY
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BANGALORE -54

SEMESTER – III

LANDSCAPE DESIGN III (Regional landscape)	
Course Code: LA301	**Credits: 8:0:1**
Prerequisite: Nil	**Contact Hours: 10 Hrs./Wk.**
Course Coordinator: Prof. Dr. Rajshekhar Rao	

Course objectives:

- To develop the skill in students to investigate and record interdisciplinary regional scale projects integrating characteristics of soils, slopes, natural drainage systems, native plants communities, and wildlife habitat systems.

Unit I

The studio exercises will involve regional context, conservation, specialized landscape situations, ecology and the region. Understanding of ecologically sustainable development would be the underlying theme.

Unit II

The exercise includes documentation, to illustrate the process of understanding through study, in depth analysis of all the major issues, present status, scheme and policy decisions. Due importance to be given for the entire process that happens in site, studio and reviews.

Unit III

It can include a large area in a regional scale with strong justification with reference to conservation, ecological problems, environmental issues etc.

The studio shall begin with documentation and understanding the process followed in each of schemes. Documentation shall be intensive exercises with small groups who will identify the project and illustrate the entire process of design as well review the present status of the project and realization of stated objectives.

Unit IV

The main studio project shall be chosen in an area which is undergoing rapid changes triggered by an identifiable event or policy. The studio shall debate the needs of conserving the overall character of the chosen area with an in depth analysis on the social- cultural issues. Design of the proposed built element shall be preceded by a comprehensive scheme which shall be detailed.

Unit V

Projects like; tourism development; conservation of natural and built heritage; intervention in an urban area which has not been able to maintain its cultural moorings due to market forces shall be attempted.

Preliminary work on thesis project is to be done.

Course outcomes (COs):

CO1- To investigate and record the information available for analyzing natural and cultural processes that influence landscape planning and design. (PO1, PO2, PO4, PO6) (PSO1)
CO2 - Adapt techniques and approach to organize and presenting environmental themes. (PO1, PO4) (PSO2)
CO3- To understand the parameters that guide planning and design decision making. (PO1, PO3) (PSO2)
CO4- To understand and analyze the socio-cultural issues. (PO1) (PSO1)
CO5-To understand and maintain the cultural significance in urban scenario. (PO1) (PSO1)

References:

1. Silent Spring- Rachael Carson
2. Small is Beautiful -EF Schumacher
3. Introduction to Landscape Design- John L. Motloch
4. Cities- Lawrence Halprin
5. The Wonder that was India- AL Basham
6. Regional Landscape Architecture: Southern California: Mediterranean Modern- Jeffrey Head
7. Beatrix Farrand's American Landscapes: Her Gardens and Campuses- Diana Balmori, Diane Kostial-Maguire, Elanor M. McPeck
8. Detailing for Landscape Architects: Aesthetics, Function, Constructability - John Wiley & Sons, Hoboken, NJ

Evaluation Pattern: Marks allocation for SEE (Viva Voce)

Subject Code	Subject	Design	Viva Voce	Total
LA301	Landscape Design III (Regional landscape) (SEE Viva Voce)	40	10	50

SEMESTER – III

LANDSCAPE DOCUMENTATION	
Course Code: LA 302	**Credits: 2:0:1**
Prerequisite: Nil	**Contact hours: 4 Hrs./Wk.**
Course Coordinator: Prof. Dr. Rajshekhar Rao	

Course Objectives:

- To Understand the Value of Landscape documentation and procedure involved in landscape documentation.

Course Contents

Unit I

Introduction to landscape documentation: definition, Objectives, Importance of documentation

Unit II

Validation of a site

Unit III

Methodology and techniques of Documentation

Unit IV

Analysis of given data and formulating policies.

Unit V

Apply the knowledge gained and document a landscape site.

Course Outcomes (COs):

CO1- Gain knowledge about landscape documentation (PO1) (PSO1)
CO2- Be able to validate a given site (PO1, PO2) (PSO2)
CO3- Learn various techniques of documentation (PO3) (PSO1)
CO4- Learn the need and art of Policy making (PO4) (PSO2)
CO5- Field work. (PO4, PO5) (PSO3)

References:

1. Landscape Architecture Documentation standards – Principles, guidelines and Best Practices by Wiley
2. A History of Landscape Architecture: The Relationship of People to Environment by G.B Tobey
3. Heritage and Urban Renewal – INTACH
4. Heritage at Risk- World Report 2014-15
5. Historic Gardens (Making Inventory for the Indian Context) by Priyaleen Singh

Evaluation Pattern: Marks allocation for SEE (Term Work)

Subject Code	Subject Name	Portfolio	Viva Voce	Report	Total
LA 302	Landscape Documentation (SEE Term Work)	60	20	20	100

SEMESTER – III

REMOTE SENSING AND GIS	
Course Code: LA 303	**Credits: 0:1:1**
Prerequisite: Nil	**Contact Hours: 3 Hrs./ Wk**
Course Coordinator: Associate Prof. Meghana K Raj	

Course Objectives:

Objective of the course is to train the students in the application of GIS in landscape design.

Course Contents

Unit I

Concept and Foundation of Remote Sensing - Elements of Photographic System Types of Aerial Photographs: Vertical Photographs, Oblique Photographs, Satellite Imagery - Classification of Spatial and non-spatial data - spatial relationships among elements / activities – fundamentals of topological relationship - spatial data and their representation in maps - raster and vector based system to representing spatial objects

Unit II

Objective and functions Geographical Information System – GIS software in general - over view of GIS map components.

Google Earth – site marking – KML files- exposure to other data sources – Bhuvan. nrc - USGS earth explorer, etc.

Unit III

Basics of GIS maps preparation – digitization of spatial data - concept of point, line and polygon features - fundamental of coordinate system – map layers and georeferencing – displaying spatial features – adding attribute values to the features – preparing and displaying thematic layers and maps - selecting and editing spatial features and attribute data - preparing Grid surfaces form point, line and polygon features.

Unit IV

SPATIAL ANALYSIS USING GIS

Spatial joining - concept of geo processing – union, intersect, clip and merge – features to raster - preparing surfaces - creating TIN surfaces and contours - surface analysis – spatial joining of geographic features.

Unit V

Overlaying features and analyzing using overlay function – feature selection – buffering – table joining and analysis - manipulating attribute data – classification and reclassifications - GIS modelling – 3-D GIS Digital Elevation Model & Digital Terrain Model - Case problem on landscape analysis – application of GIS in assessing Landscape Ecological risks. Case problem on Landscape Analysis. Preparation and analysis of Maps: Contour Map, Slope Map, Watershed Map, Watershed Delineation Maps, Land cover Map, Soil and Geology Maps.

Course Outcomes (COs):

CO1: To expand understanding and use of social and environmental systems information in the design and planning process (PO1, PO2) (PSO1)
CO2: To increase the knowledge on GIS and the various characteristics of Data. (PO1) (PSO1)
CO3: Techniques of Map preparation and analysis using maps. (PO2, PO3, PO4, PO5) (PSO1)
CO4: Understand the concept of GIS and its applications (PO3, PO5) (PSO1)
CO5: Understand the potential of GIS and develop integrated practice of using the GIS application with landscape architecture. (PO5) (PSO3)

References:

1. Introduction to G.I.S – Kang Tsung Chang
2. Remote Sensing and Image Interpretation –Thomos M Lillisand, Ralph W
3. Fundamentals of Remote Sensing – George Joseph
4. Principles of G.I.S – Peter A Burrough, Rachael A McDonnel
5. Spatial Analysis and G.I.S – Michael F Goodchild

SEMESTER - III

ENVIRONMENTAL IMPACT & LEGAL ASPECTS	
Course Code: LA 304	**Credits: 3:0:0**
Prerequisite: Nil	**Contact Hours: 3 Hrs./ Wk**
Course Coordinator: Associate Prof. Meghana K Raj	

Course Objectives:

- To Understand of environmental issues and suggestive measures
- To Introduce the techniques of environmental assessment
- To Introduce the application of relevant legislations in landscape design
- To Establish links of environmental management and landscape architecture
- To Understand the significance and application of the same in landscape projects

Course contents

Unit I

Introduction to environmental documentation; management; ethics and environment; environmental management tools. Environmental movements in the world. Environmental pollution and environmental concerns in India. Impact of human settlements, industries, dams, national parks, etc. on environment. Evolution of EIA across world and India.

Unit II

Environmental Impact Assessment - Definitions, purpose, steps, hierarchy, impact indicators and forecasting environmental changes. Strategic environmental assessment (SEA): Rationale and scope, process, benefits and constraints. Environmental clearance procedure in India. Environmental auditing: Objectives and scope, types, methodology. EIA notifications by MoEF.

Unit III

Environmental and town planning legislations dictating the EIA procedures: Air act; Water act, EPA act , Environmental Protection Act, Air Act, Water Act, Mining Act, Forest Act, Wetland Act, Biodiversity Act, National Green Tribunal Act, Tribal Act, Wildlife Protection Act, Ancient Monument Act, International Environmental regulation and treaties. Role of a landscape architect in EIA. Distribution of Power – 3 tier governance system, importance of the amendment, implementation of the amendment in different region, issues of the amendment

Unit IV

Significance and Concept of Constitution and Laws in Indian Scenario Indian Constitution: Concept of Law in Indian Scenario, legislation, Land Acquisition Significance, Process of acquisition, ownership details, issues, penalties of land Acquisition 1894, The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013

Unit V

Town Planning Legislation in India and Abroad Town and Country Planning Act, Importance and Need of Development Plans in India, Hierarchy and significance of green area in development plans, Concept of Planning in other countries. Panchayat and Municipalities. Evolution and Need for 73rd and 74th amendments, Balwant Rai Metha Committee and Ashok Metha Committee,

Course Outcomes (COs):

CO1: Understand the environmental and appreciate the evolution, importance and need for environmental impact assessment.
CO2: Skilled in review and appraisal of the EIA process and its outputs specific topic areas. Explain the major principles and steps involved in environmental impact assessment. Develop an understanding of the role of SEA & EIA in decision making.
CO3: Select methodology for identification of environmental impacts, environmental indices and indicators. Apply the skill and knowledge of predicting impact of proposed project.
CO4: Participate in interdisciplinary environmental report preparation.
CO5: Gain an overview of the legislative framework for EIA, with a focus towards its application for policy development, project planning.

References:

1. Our National park policy, The John Hopkins Press, 1961 – Ise John
2. Parks and Recreational Needs in Urban area - Elinor C. Guggenheimer
3. Landscape Planning & Environmental Impact Design – Tom Turner
4. Industrial Heritage Re-tooled -The TICCIH Guide to Industrial Heritage Conservation-Edited by James Douet
5. Professional Practice of Landscape Architecture - Walter Rogers
6. Project Management for the Design Professional- Frank Burstein,
7. Making Environmental Law: The Politics of Protecting the Earth - Nancy E. Marion
8. The Making of Environmental Law - Richard J. Lazarus
9. The Global Environment and International Law - Michael J. Lynch; Ronald G. Burns
10. Environmental Law, Crime, and Justice - Paul B. Stretesky
11. Protecting Life on Earth: An Introduction to the Science of Conservation- Michael P. Marchetti; Peter B. Moyle
12. Environment and Law- David Wilkinson

SEMESTER - III

PROFESSIONAL PRACTICE & LANDSCAPE MAINTENANCE	
Course Code: LA 305	**Credits: 3:0:0**
Prerequisite: Nil	**Contact Hours: 3 Hrs./ Wk**
Course Coordinator: Prof. Dr. Rajashekar Rao	

Course Objectives:

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

Course Contents

Unit I

The clients: different kinds of clients including public and local authorities engaging the services of Landscape Architect. The extent and variety of services performed by the landscape Architect; Professional ethics and code of professional conduct.

Unit II

Tender Documents, calling of tender, measurements, analysis of rates, plant materials earth grading, masonry, paving, drainage etc. Bills of quantities, abstract of cost.

Unit III

Contract documents: procedure involved in awarding the contract, condition of contract, Specification, bill of quantities, cost estimation.

Unit IV

Condition of engagement and scale of professional charges: Terms and conditions used by professional Institutes.

Unit V

Landscape Architecture competition – Purpose, Types, Competition guide lines, conducting landscape architectural Institutes. Landscape Maintenance

Course Outcomes (COs):

CO1- Knowledge about landscape consultancy practice, Contract management. (PO2, PO3) (PSO3)
CO2-Understand code of conduct (PO2, PO3) (PSO3)
CO3-Understand the process and role of an architect in project execution. (PO3, PO4) (PSO1)
CO4-Understand the landscape management and maintenance. (PO3, PO4) (PSO1)
CO5-To understand the extent of service offered. (PO4, PO5, PSO 4) (PSO2)

References:

1. Rogers Professional Practice of Landscape Architecture
2. Project Management for the Design Professional - Burstein
3. Professional Practice of Landscape Architecture – Walter Rogers
4. Professional Practice by S.V Ravindra
5. Professional practice by Roshan Namavathi

SEMESTER - III

DISSERTATION	
Course Code: LA 306	**Credits: 1:0:1**
Prerequisite: Nil	**Contact Hours: 3 Hrs./Wk.**
Course Coordinator: Prof. Dr. Rajshekhar Rao	

Course Objectives:

- To Understand the Various Aspects of Landscape Architecture

Course Contents

Unit I

Aim of this Elective 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.

Unit II

Topic selection pertaining to environmental, ecological or other important issues in the field of landscape architecture like, Sacred landscape, Modern landscape, Cultural landscape. Eco-architecture, lake as water resource, Interior landscape design. Water as element in landscape, Manmade landscape etc.

Unit III

Case study and collection of data

Unit IV

Analysis and Synthesis of data

Unit V

Final report to be compiled

Course Outcomes (COs):

CO1- To analyze the different aspects in landscape Architecture (PO1) (PSO1)
CO2- To apply the principles of landscape architecture (PO2) (PSO1)
CO3- To select the topics for the Thesis Project (PO1) (PSO1)
CO4- Ability to plan and write a report /assignment (PO3, PO5) (PSO1)
CO5- Ability to substantiate critical reading of literature study. (PO4) (PSO2)

Evaluation Pattern: Marks allocation for CIE

Subject Code	Subject Name	Portfolio	Viva Voce	Total
LA306	Dissertation (SEE Viva Voce)	40	10	50

SEMESTER - III

PRACTICAL TRAINING / VACATION ASSIGNMENT	
Course Code: LA 307	**Credits: 0:0:3**
Prerequisite: Nil	**Contact Hours: 3 Hrs/wk**
Course Coordinator: Prof. Dr. Rajshekhar Rao	
Duration of Assignment: 6 weeks between 2nd& 3rd Semester.	

Course Objectives:

To provide exposure to the various dimensions of Landscape Architectural profession. The students are required to Study minimum two live Projects designed by landscape architects, Critical Analysis of the live projects designed by landscape architects.

Course Contents

Unit I

Study and critical analysis of completed live projects designed by the landscape architect. Understand how a Landscape office functions.

Unit II

Preparation of working drawings, Irrigation drawing, Electrical drawings.

Unit III

Prepare Planting plan, list of plant materials, BOQ, landscape elements, and documentation of projects through 3D views and photographs.

Unit IV

Study various landscape materials and construction techniques used on site.

Unit V

Through site visits gain practical knowledge, Exposure to Client-Architect relationship, Discussions with Contactor.

Course Outcomes (COs):

CO1: Understanding of the various types of projects and the process of designing. (PSO1)
CO2: Learn skill of producing detail drawings for construction on site. (PSO1)
CO3: Understanding of Designing and Detailing out of Landscape projects. (PSO1)
CO4: Exposure to Professional practice as per the demand of industry. (PSO3)
CO5: Demonstrate skills to start an independent Landscape practice. (PSO3)

Performance will be evaluated through Viva voce

The Viva voice marks will be awarded based on the following works:

- Documentation of the work done in the office
- Critical analysis report of two live projects
- Landscape material portfolio

Note: Student should work under a Landscape Architect who is a registered architect from Council of Architecture. The Certificate should be signed and the registration number must be mentioned.

Evaluation Pattern: Marks allocation for SEE (Viva Voce**)**

Subject Code	Subject Name	Portfolio	Viva Voce	Total
LA307	Practical Training / Vacation Assignment **(**SEE Viva Voce**)**	80	20	100

RAMAIAH
Institute of Technology

CURRICULUM
for the Academic Year 2023-2024

SCHOOL OF ARCHITECTURE

IV Semester M.Arch (Landscape Architecture)

RAMAIAH INSTITUTE OF TECHNOLOGY
(Autonomous Institute, Affiliated to VTU)
BANGALORE -54

SEMESTER – IV

LANDSCAPE ARCHTECTURE THESIS	
Course Code: LA 401	**Credits: 20:0:0**
Prerequisite: Nil	**Contact Hours: 20 Hrs./Wk.**
Course Coordinator: Prof. Dr. Rajshekhar Rao	

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

Course contents:

Unit I

To provide an opportunity to prepare independent and original study at local or regional level. The study should be research based related to Urban or regional landscape issue.

Unit II

To provide an opportunity to prepare independent and original study at local or regional level pertaining to landscape architecture. To create a brief which sets the frame work for design.

Unit III

To demonstrate an advanced level of design ability to convert the brief set forth earlier into a speculative proposition of design.

Unit IV

To articulate and delineate the proposition of design into a Landscape design solution addressing all the dimensions.

Unit V

Alternatively, the Thesis could be a research topic based on the accepted norms of research methods. The Thesis can either be scholarly research on an issue (or set of issues) which has a bearing on Urban or regional issues or a project with a clearly demonstrated design development process. The project shall demonstrate competence in integrating various issues of social, formal and local concerns into the design. 18 credits include the contact between the students and teachers. Each student is expected to spend additional time in the week on the Thesis in terms of library reference, site visits, designing, drawing, use of computers etc.

Course Outcomes (COs):

CO1- Assimilate a comprehensive understanding in handling a major Landscape Design independently.
CO2 - Understand Practical application of the knowledge acquired in various subjects studied during the Course.
CO3 - Analyse solutions for real life situations.
CO4 - Exhibit design, verbal and graphic skills through presentation of their work
CO5 - Learn to develop maps of the topography for Landscape planning and Site Management

References:

1. Forest types -Vol1 and Vol 2 - Champion and Seth
2. Forest Ecology - G.S. Puri
3. Trees of Delhi - Pradeep Krishan
4. Research Methodology in Landscape Architecture - Nik Ismail Azlan
5. Landscape conservation - Brian Hackett
6. Earthscape – Simonds

Evaluation Pattern: Marks allocation for SEE (Viva Voce)

Subject Code	Subject Name	Design	Viva Voce	Total
LA401	Landscape Architecture Thesis (SEE Viva Voce)	40	10	50

SEMESTER – IV

LANDSCAPE CONSERVATION	
Course Code: LA 402	**Credits: 0:2:0**
Prerequisite: Nil	**Contact Hours: 3 Hrs/ Wk**
Course Coordinator: Associate Prof. Meghana K Raj	

Course Objectives:

- To understand Landscape Planning and Landscape Conservation
- To introduce difference types of Landscape Assessment techniques and conservation.
- To study the Landscape resources during planning.
- To learn different Acts and policies at different level.
- To educate about Landscape Conservation in the Modern era.

Course Contents

Unit I

Introduction to the concept of Landscape Conservation, Principles of Landscape Conservation. Types of Landscape for Conservation. Layers in Landscapes, Values in Landscapes

Unit II

Introduction to Historical perspective of Landscape Conservation – Eurocentric and Indian. Impact of Human activities on Historic Landscapes.

Introduction to Cultural Landscapes -Role of communities in Conservation of Landscapes. UNESCO Cultural Landscapes – examples.

Unit III

Impact of Large scale projects on Landscapes – Dams, Reservoirs, mining and industries etc.

Methodology of Landscape Conservation, Documentation process, Documentation techniques, examples. Burra Charter and the NARA document.

Unit IV

Landscape conservation Policies – International, National, State, Regional and Local level.

Unit V

Relevance of Landscape Conservation in Modern Era

Course Outcomes (COs):

CO1- Understanding of Landscape Planning and Landscape Conservation with proper Assessment results and cost benefit analysis. (PO3, PO4, PO5, PSO1)

CO2- Understanding the process and role of different organizations (PO3, PO4, PSO1)

CO3 - Knowledge on Landscape management at the regional level. (PO2, PO3, PSO2)

CO4 -Knowing different Acts and policies at different level. (PO3, PSO3)

CO5 -Assessing and studying the Landscape Conservation of modern era (PO3, PO4, PSO2)

References:

1. Strategies for Sustainable Rural Development –Singh Surat
2. Sustainable Design: Towards New Ethic in Architecture and Town Planning – Contal, Marie-Helene
3. Green Architecture: Guide to Sustainable Design -- Crosbie, Michael J
4. Wetlands, a Threatened Landscape - Michael Williams
5. Architecture in Conservation: Managing Development at Historic Sites - James Strike
6. Models for Planning Wildlife Conservation in Large Landscapes- Joshua J. Millspaugh and Frank R. Thompson,
7. Climate and Conservation: Landscape and Seascape Science, Planning, and Action- Charles C. Chester
8. Applying Landscape Ecology in Biological Conservation- Gutzwiller, Kevin
9. Applying Ecological Principles to Land Management- Dale, Virginia H., Haeuber, Richard A
10. Gardens & Landscapes in Historic Building Conservation - Marion Harney
11. Urban Nature Conservation: Landscape Management in the Urban Countryside- Taylor & Francis

SEMESTER - IV

PLANTING DESIGN – II	
Course Code: LA 403	**Credits: 0:3:0**
Prerequisite: Nil	**Contact hours: 3 Hrs/Wk**
Course Coordinator: Associate Prof. Meghana K Raj	

Course Objectives:

- Introduce the students to the technical representation of softscape and hardscape in Landscape Architecture.
- Introduce them to the methods of bill of quantities for the plant materials in Landscape Design.
- Introduce them to different ecosystems their significant issues and suggestive plantation.
- Introduce them to softscape maintenance and management.
- Introduce sustainable design techniques.

Course contents

Unit I

Introduction to landscape working drawings like Master Plan, plant patterns, plant schedule, specifications, estimation and bills of quantity for softscape w.r.t design exercises oriented towards the use of plant material in specific situation such as courtyards, small open spaces.

Unit II

Working Drawing of Planting Plan, BOQ, Windbreaks or shelter belts, Wetland ecosystems, plant materials for high water table, Wasteland reclamation,

Unit III

Application in planting design, case studies. Maintenance and management of plant material, Role of plants against drought, flood etc. Influence of temperature, humidity and rainfall over plants.

Unit IV

Process of transplanting of Trees. Soil preparation and Selection of plant material, Composting, Organic farming Vertical garden.

Unit V

Introduction to different Green Rating Systems, IGBC Green Rating Systems for landscaping, terrace gardening and sustainable use of water, introduction to Soil less culture – Hydroponics, Aquaponics

Course Outcomes (COs):

CO1- Gain the knowledge of technical drawings in Landscape Design (PO1, PO2, PSO1)
CO2- Identify the methods of bill of quantities for the plant materials in Landscape design. (PO1, PSO 2)

CO3-To understand the interrelation of plants and environment, the technique of maintenance and management of planting material. (PO2, PO3, PSO3)
CO4-Understand the planting procedure and considerations in tree transplantation. (PO1, PSO 4)
CO5-The awareness, knowledge and implementation of sustainable planning and design techniques. (PO1, PO4, PSO4)

References:

1. Residential Landscaping 1: Planning, Design, Construction - Walker, Theodore D.
2. Plants for Reclamation of Wasteland ICAR Publication
3. Plants & Environment - Daubenmire.
4. The Planting Design Handbook 2nd Edition -Nick Robinson
5. Landscape Graphics: Plan, Section, and Perspective Drawing of Landscape Spaces- Grant Reid
6. The Vertical Garden from Nature to the City - Patrick Blanc
7. Constructed Wetlands and Sustainable Development - Gary Austin, Kong jian Yu
8. Treatment Wetlands 2nd Edition - Robert H. Kadlec, Scott Wallace
9. The Organic Farming Manual: A Comprehensive Guide to Starting and Running a Certified Organic Farm – Ann Larkin Hansen