SYLLABUS: SEMESTER III

SEMESTER III

19LA03001: LANDSCAPE DESIGN-III

Course Code	Course	Hrs Per Week			Credits	Marks					Total
						CA			UE		
		T	W /L	S		Asg mt.	CT	Sub total	Jury	Writ ten	
19LA03001	Landscape Design- III	0	0	10	10	150	0	150	150	0	300

COURSE OVERVIEW

To develop the skill to integrate various knowledge systems to arrive at a design proposal of a project, preferably with the involvement of the stakeholders.

COURSE OUTCOMES

Upon completion of the course,

* Landscape design of complex sites with multifaceted dimensions and resolving design problems with the involvement of stakeholders.

COURSE CONTENTS

* Features the process of solving complicated site planning and site design problems.
* Each phase of the site planning process is examined in detail by undertaking one or more studio problems that involve resolution of issues related to existing site conditions, program development, conceptual design, design development, and design detailing.
* The studio exercises will involve a combination of different situations – urban context, historical landscape, specialized landscape situations, landscapes etc. Understanding of ecologically sustainable development would be the underlying theme.

References:

1. Simonds. J. O. (1961). Landscape Architecture, The Shaping of Man's Natural Environment.London: F.W. Dodge Cooperation.

2. Harris.C.W and Dine.N.T ; (1997) Time Saver Standards For Landscape Architecture, Mcgraw – Hill International Edition, Arch. Series

3. Starke .B and Simonds. J. O. (2013) Landscape Architecture: A Manual of Site Planning and Design. 5 editions. McGraw-Hill Professional

4. Baker.B.H (1987) A Dictionary of Landscape Architecture.Albu : University Of New MexicoPress

5. Reid G. W: (1987) Landscape Graphics: Watson-Guptill

6. Shaheer .M, Dua G.W and Pal.A .(2012) Landscape Architecture in India: a reader .India: La, Journal of Landscape Architecture

7. Reid G. W: (1993)From Concept to Form: In Landscape Design. John Wiley & Sons

8. All publications by Brian Hackett

SEMESTER III

19LA03002: RESEARCH METHODOLOGY AND DISSERTATION

Course Code	Course	Hrs Per Week			Credits	Marks					Total
						CA			UE		
		T	W /L	S		Asg mt.	CT	Sub total	Jury	Writ ten	
19LA03002	Research Methodology and Dissertation	0	2	3	5	100	0	100	100	0	200

COURSE OVERVIEW

* To enable the student to undertake a methodical research on a topic in landscape architecture and to communicate it through technical writing.

COURSE OUTCOMES

Upon completion of the course,

* Expertise in collecting, processing and presenting relevant information and the art of oral and written expression.
* Findings that can be taken forward for further studies/ design/research.

COURSE CONTENTS

- Introduction- Basic research issues and concepts- orientation to research process- types of research: historical, qualitative, co-relational, experimental, simulation and modeling, logical argumentation, case study and mixed methods- illustration using research samples
- Research Process- Elements of Research process: finding a topic- writing an introduction- stating a purpose of study- identifying key research questions and hypotheses- reviewing literature- using theory- defining, delimiting and stating the significance of the study, advanced methods and procedures for data collection and analysis- illustration using research samples
- Researching And Data Collection- Library and archives- Internet: New information and the role of internet; finding and evaluating sources- misuse- test for reliability- ethics Methods of data collection- From primary sources: observation and recording, interviews structured

and unstructured, questionnaire, open ended and close ended questions and the advantages, sampling- Problems encountered in collecting data from secondary sources

- Report Writing- Research writing in general- Components: referencing- writing the bibliography developing the outline- presentation; etc.
- Case Studies- Case studies illustrating how good research can be used from project inception to completion- review of research publications

Dissertation:

The course deals with selecting an appropriate topic (the topic for the research could be selected in a such way that it could help to develop an appropriate methodology and research approach related to the Landscape Architectural Project taken up in semester-IV from the field of landscape architecture or allied disciplines, for its theoretical exploration.

References:

1. Linda Groat and David Wang; Architectural Research Methods;

2. Wayne C Booth; Joseph M Williams; Gregory G. Colomb; The Craft of Research, 2nd Edition; Chicago guides to writing, editing and publishing;

3. Iain Borden and Kaaterina Ruedi; The Dissertation: An Architecture Student's Handbook; Architectural Press; 2000

4. Ranjith Kumar; Research Methodology- A step by step guide for beginners; Sage Publications; 2005

5. John W Creswell; Research design: Qualitative, Quantitative and Mixed Methods Approaches; Sage Publications; 2002

6. Kothari, C.R. (2005) Research Methodology: Methods and Techniques, New Delhi: WishwaPrakashan.

7. Sanoff, H. (1977) Methods of Architectural Programming, Dowden Hutchinson and Ross, Inc. Vol. 29, Community Development Series.

8. Sanoff, H. (1991) Visual research methods in design, USA: Van Nostrand Reinhold.

SEMESTER III

19LA03003: PROFESSIONAL TRAINING

Course Code	Course	Hrs Per Week			Credits	Marks					Total
						CA			UE		
		T	W /L	S		Asg mt.	CT	Sub total	Jury	Writ ten	
19LA03003	Professional Training	0	4	0	2	50	0	50	50	0	100

COURSE OVERVIEW

* To give an opportunity to work in an office and give the student an exposure to real time challenges and situations of the profession.

COURSE OUTCOMES

* Practical exposure to real time challenges and situations and the process of arriving at design solutions for the same.
* Exposure to technical drawings

COURSE CONTENTS

- Professional training to be conducted efficiently for a period of 25 full working days with concerned office at any time after second semester as decided by the institution offering the course.

SEMESTER III

19LA03004: URBAN LANDSCAPE

Course Code	Course	Hrs Per Week			Credits	Marks					Total
						CA			UE		
		T	W /L	S		Asg mt.	CT	Sub total	Jury	Writ ten	
19LA03004	Urban landscape	2	0	0	2	25	25	50	0	100	150

COURSE OVERVIEW

* Understanding of approaches to the planning and design of urban public open spaces.

COURSE OUTCOMES

Upon completion of course,

* To make students understand the design aspects of successful urban landscape cases towards better quality of life.

COURSE CONTENTS

Module I: Introduction & Theory

• Urban Landscape and Urban Design, Urban Landscape and its benefits – ecological, social, health, economic, aesthetic; Sustainability and Urban Landscape, Urban ecology, urban water sheds.

• Open spaces with in urban environment – Natural and Artificial.–Brief introduction to natural and artificial types - street crossing/ square/ plaza/ promenade/ public space/ parks/ waterfronts/ wetlands/ with examples.

• Brief on factors forming Natural urban landscape – geographical features, climate, vegetation& Artificial urban landscape – Land use zoning, road pattern, formation of buildings, etc.

Module II: Urban open spaces

- Open space development in urban design context.Evolution of public park as a major component of urban landscape ; Open space development in new towns - Park systems, waterfronts, Green infrastructure,Vertical landscape.

- Urban spaces and its characteristics, Types of urban spaces, hierarchy of urban spaces - streets and squares. Streetscape and types of squares- Successful case studies.

• Cultural, social and aesthetic value of urban spaces and its perception - Enclosure of urban spaces, visual permeability, approach and axis – serial vision (Gorden Cullen), Imageability and legibility (Kevin Lynch) through landscape, aesthetics, sense of place.

• Urban space enhancement.–Enclosure quality, Public art and artifacts, hardscape and softscape, materials, furniture and lighting, signage.

Module III: Urban Landscape Design

• Design of public parks, streetscape, green ways- Hardscape and softscape, edge character, pavement / surface material selection, Plant / tree selection criteria, furniture and lighting of public space, signage, public art and artifacts.

• Design of parkways, waterfronts, promenade and plaza. - Hardscape and softscape, edge character, pavement / surface material selection, Plant / tree selection criteria, furniture and lighting of public space, signage, public art and artifacts.

• Maintenance and management of public spaces and parks – community participation, awareness programmes, public art / activities; Contemporary urban landscape issues, Case studies-Study, understanding and analysis of known examples at the national and international levels.

REFERENCES:

1. Garden Cullen, The concise Townscape, Architectural press, London.

2. Kevin Lynch, Image of City, Cambridge, MA, 1961.

3. Henry F. Arnold, Trees in Urban Design, Van Nostrand Reinhold Company.

4. Matthew Carmona, Tim Heath, Public places – Urban spaces, Architectural press, 2003.

5. Michael Hough, Cities and natural process, Routledge, 1995.

6. Donald Watson, Alan plattns, Roberta shibley, Time savers standards for urban design, McGraw hill, 2003.

7. Elements and total concept of urban landscape design, Graphic –sha publishing Co, 2001.

8. Tom turner, city as landscape, Eand FN spon, 1996.

9. Cliff Tandy, Handbook of urban Landscape, Architectural Press, 1970.

SEMESTER III

19LA03005: ENVIRONMENTAL LEGISLATIONS AND ECONOMICS

Course Code	Course	Hrs Per Week			Credits	Marks					Total
						CA			UE		
		T	W /L	S		Asg mt.	CT	Sub total	Jury	Writ ten	
19LA03005	Environment & Environmental legislations	2	0	0	2	25	25	50	0	100	150

COURSE OVERVIEW

* To familiarize the students to the environmental legislation and its components and its role in checking the damage to the environment.

COURSE OUTCOME

Upon completion of the course,

* Understanding of global and Indian legislation for protection of environment and sensitivity towards environmental protection.

COURSE CONTENTS

Module I- Environment and Human Activities

- Environmental sciences, Environment – definition, types, important components, positive and negative impact of environment upon humans, Environmental impact of man's activities on earth, impacts of agriculture, industrialization, housing & urbanization, transportation, mining etc; Environmental Valuation and Payment of Ecosystem services with national and international case studies
- Pollution – definition, pollution types- air, water, land, radioactive, noise &thermal and its impact on humans, vegetation and other life forms with appropriate case studies ; global issues like ozone layer depletion, acid rain, bio-magnification, green house effect, global warming, environmental crisis etc

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

Module II: Global EnvironmentalFramework & Legislations

- International framework related to landscape legislation, Role of UNEP and its framework, The Stockholm Declaration, The Vienna Convention for the Protection of the Ozone Layer, The Montreal Protocol on Substances that deplete the Ozone Layer, The Report of the World Commission on Environment and Development, Rio Declaration on Environment and Development
- The U.N Convention on Biological Diversity: Agenda 21, The U.N Framework Convention on Climate Change, UNFCCC, The Kyoto Protocol, The WSSD, 2002, International Environmental law, I.E.L : Precautionary principle and Polluter Pays Principle

Module III: Environmental Legislations in India

- Concept of law constitution in relation to environment in India, Role of MoEF, Indian forests acts and Biodiversity acts – preserved, protected, private and village forests, wild life sanctuaries act
- Legislative and administrative framework for conservation of forests, national parks, protected landscapes , bio reserves etc; Periphery control legislation and green belt concept; Forest policies related to Western Ghats in India- Kasthurirangan and Gadgil Report
- Environmental legislation dealing with Town planning, Urban and rural planning; Legislation relating to preservation of parks, open spaces, playgrounds, trees and ancient monuments, Historic and protected Landscapes ; Preservation of the country-sides etc
- Legislation related to air, water, Land pollution prevention, Role of pollution control boards
- Policies related to wetland preservation and paddy conservation, CRZ rules etc.

References:

1. Birnie,P W & Boyle; (2002) International Law And The Environment, Marsh W; Landscape Planning : Environmental Applications;USA: Oxford University Press

2. Fischer T B ;(2007) Theory And Practice Of Strategic Environmental Assessment : Towards A More Systematic Approach: Routledge

3. Jones C Ed.;(2005) Strategic Environmental Assessment And Land Use Planning : An International Evaluation: Routledge

4. Lee.J (1986) The Environment, Public Health And Human Ecology Consideration For Economic Development: The Johns Hopkins University Press

5. Saksena,K.D; Environmental Policies And Programs In India

6. Anuj Kumar Purwar (2012); Environment and Ecology:I.K International Publishers Pvt. Ltd

SEMESTER III

19LA03006: PROFESSIONAL PRACTICE

Course Code	Course	Hrs Per Week			Credits	Marks					Total
						CA			UE		
		T	W /L	S		Asg mt.	CT	Sub total	Jury	Writ ten	
19LA03006	Professional Practice	2	0	0	2	25	25	50	0	100	150

COURSE OVERVIEW

* To educate the students on the various aspects ofa Landscape design practice.

COURSE OUTCOMES

Upon completion of the course,

* Understanding of professional practice, conduct and ethics

COURSE CONTENTS

Module I: Professional Practice

- Brief history of profession, Professional career tracks, Registration and License, professional ethics and code of professional conduct; Scope and meaning of professional services, scope of work and services to be provided.
- Types of client: Private, Government, Corporate etc. Professional relationship between client and Landscape Architect: Forms of agreement, conditions of engagement, Practical illustrations of various aspects of Client-Landscape Architect transactions, especially with regards to the establishment of credibility and trust.
- Scale of Professional Fees: Common and accepted methods of charging fees, percentage, lump sum, time-basis etc. Calculation and estimation of fee based on work involved. Taxes, remuneration and reimbursement.

Module II: Construction administration, Implementation process & Construction documents

- Sequence of activities from inception to completion: agencies involved at each stage, their professional relationships and obligations; Co-ordination of agencies and activities on site.

Practical examples; budgetary control, progress evaluation and monitoring: various kinds of estimates, review and updating, simple examples of pert charts and bar diagrams.

- Site documentation: importance of written records. Site instruction book, periodic reports, visual records, bar charts etc;Techniques of inspection and quality control; visits to site under development.
- Contract Procedure; Criteria for selecting contractors: the process of calling tenders. Comparison of various kind of tenders with regard to objectives, utility and appropriateness; Tender Documentation and evaluation of tender; negotiations with contractors
- Contract Documentation: Forms of contract; General and special conditions, specifications, Bill of quantities; significant clauses pertaining to defects, maintenance, arbitrations, etc; Parties to the contract; their roles, contractual relationships and legal obligations.

Module III: Regulations, Professional Institutes and Competitions

- Regulations and Legal Aspects- Codes, Standards, Bye laws and planning regulations applicable to building and landscape development. The role of statutory and regulatory bodies such as the Municipal Corporation, ISOLA, IFLA and Urban Art commission etc.
- Role of Professional Institute: Professional code of conduct. Relationship of Landscape Architect with other professionals;
- Landscape Design Competitions: Types, Guidelines

References:

1. Walter Rogers(1997): The Professional practice of landscape architecture; Van nostrand Reinhold.
2. John.L.Motloch(2001): Introduction to Landscape design.
3. Jack.E.Ingels(1992): Landscaping, Principles and Practices; Delmar publishers inc.
4. W.F.Hill (1995): Landscape handbook of Tropical Landscape; Garden Art Press.
5. Code of professional practice and competition guidelines of Council of Architecture

SEMESTER III

19LA03006: ELECTIVE (THEORY) -II

Course Code	Course	Hrs Per Week			Credits	Marks					Total
						CA			UE		
		T	W /L	S		Asg mt.	CT	Sub total	Jury	Writ ten	
19LA03006	Elective(Theory) –II 1. Landscape conservation, Planning & Managent 2. Sustainable Landscapes 3. Landscape restoration	2	0	0	2	25	25	50	0	100	150

1. LANDSCAPE CONSERVATION, PLANNING& MANAGEMENT

COURSE OVERVIEW:

* To understand the basic principles and concepts related to conservation of Landscape and landscape planning.
* To outline the evolution of landscape planning, its premises and the process.

COURSE OUTCOMES:

Upon completion of course,

* Understanding the need for landscape conservation and planning and the principles related to them.

COURSE CONTENTS

Module I: Introduction to Landscape Conservation

- Importance of landscape conservation and various approaches to same; Landscape Conservation: Priorities, Policies and Programmes. National parks and other protective designations; Biodiversity and Biosphere reserves; Endangered landscapes; Aspects of watershed Management
- The application of landscape planning techniques to large scale developments such as infrastructure and power projects, extractive and manufacturing industry, new towns and urban extensions, and developments for tourism and eco-tourism.
- Conservation of natural resources; Understanding socio-cultural practices and its implications on landscape ecology; Ecological assessment and mapping of landscape with respect to biodiversity, soil, water etc. for understanding of ecologically sensitive sites; Conservation of historic and cultural landscapes.

Module II- Landscape Planning

- Relationship between man and nature; Analytical aspect of landscape; The natural and cultural setting; The purpose of landscape planning; Domain and context for landscape planning; Evolution of landscape planning; Landscape planning models; Application of G.I.S. and Remote sensing in Regional Landscape Planning; METLAND concept
- Process in landscape planning; principles of planning; procedure in landscape planning; problem defining, goal setting, inventory and analysis; basic of collecting and analyzing, projecting and presenting data in landscape planning; visual assessment and aesthetic dimension; Suitability analysis; Techniques for identifying preferences

- Concept of garden city and its evolution- Contemporary approaches in planning of cities; concepts and projects of McHarg, Carl Steinite, Warren Manning, Augus Hills, Phil Lewis – Izank Zonneveld, Ervin Zube
- Role of landscape architect in preparation of regional plans , city master plans , townships etc-Concept of Landscape Regionalism-Open space structure for a city and for a region-Landscape land-uses and related policy framework for regional landscape planning-Multidisciplinary framework for regional landscape planning; Introduction to the preparation of Landscape Conservation and Management Plan

Module III- Landscape Economics and Management

- Economics: Cost and benefits related to open space development; Tangible costs of development; capital and maintenance costs: intangible costs, depletion of natural resources, modification of ecological systems rehabilitation cost, social and cultural changes. Unit cost of development of open space.
- Management: Landscape management at the regional scale in relation to soil conservation, water management, grassland management, forestry and agriculture.
- Management practices related to urban ecology and urban habitats, such as urban forests, river banks, regional parks and green belts: ecological, economic and administrative issues.

REFERENCES:

1. Tom Turner(1998): Landscape Planning and Environmental Impact Design; UCL Press, London.
2. Ervin H. Zube, Robert O Brush, Julios G.Y.Fabos (1975); Landscape assessment – values, perceptions.
3. William M. Marsh (1997): Landscape planning – Environmental Application; John Wiley and sons Inc.
4. McHarg, I. L, (1969) Design with Nature, Garden City, N.Y: The Natural History Press.
5. Simonds, J.O; (1978) Earthscape- A Manual of Environmental Planning; NY: Mc Graw- Hill Book Company.
6. Lovejoy.D ; (1975) Landuse and Landscape Planning; Glasgow : Leonard Hill
7. Turner T;(1987) Landscape Planning, London : Hutchinson
8. Eaton R M; (2002) Ideal Cities : Utopianism And The(Un) Built Environment: Thames & Hudson
9. Selman Paul; (2006) Planning at the landscape scale: Routledge

10. Turner T; (1995) City As Landscape : A Post Postmodern View Of Design And Planning ; Taylor & Francis
11. Simonds J.O;(1994) Garden Cities 21- Creating a Livable Urban Environment; Mc Grae Hill, Inc.
12. Marsh W.M; (1983) Landscape Planning and Environmental Applications; New York:John Wiley and Sons,Inc.
13. Publications of Brian Hackett

2. SUSTAINABLE LANDSCAPES

COURSE OVERVIEW:

* To make students aware of the environmental, Energy and Water scenario of our planet in general and to appraise them of the urgent need of making all our landscapes sustainable.

COURSE OUTCOMES:

Upon completion of course,

* Understanding the importance of sustainable site planning & practical application possibilities in landscaping
* Critical awareness of existing environmental rating systems

COURSE CONTENTS

Module I: Introduction to Sustainability

- Basics of Sustainability, Needs of Sustainable Outlook, Sustainable Development, Concept of Renewable/Non-renewable, Global warming, Space-Ship-Earth concept, Natural resources, Objectives of Green Buildings and its relation to landscaping, Different Green rating systems around the world
- LEED India rating & TERI GRIHA rating and the relevance of landscape design in both rating systems; Sustainable site planning and landscaping strategies in green buildings through case studies
- SITES Rating for sustainable landscapes and study of case studies

Module II: Site Planning, Energy Conservation and Materials

- Site Planning strategies like Topographical considerations, Erosion control measures; promotion of public transport and pedestrian movement, Pollution control measures; Design for differently abled etc;
- Microclimatic strategies that can be incorporated in site planning
- Energy Efficiency, Reasons for Energy Crisis; Need for the Energy Conservation; Use of renewable energies for landscaping- Solar, wind, tidal and geothermal energy; Conflict of hydro projects with environment, Preferable materials for hardscaping, Sustainable hardscape construction and maintenance, Cradle to Grave Concept; Improvement of indoor air quality through landscape; Energy efficient construction techniques and earth shelters

Module III: Water conservation and Planting Strategies

- Rain data of India and Kerala,Calculation of tank sizes for storage of rain water in Kerala, Traditional harvesting systems, Methods and techniques for water conservation and Flood

control- Detention and retention ponds, Infiltration ponds and trenches, Rain gardens, Green roof and suggested plants for green roof, Permeable paving etc; Fixtures in landscaping; Sustainable irrigation practices; Water conservation in green buildings and large areas

- Waste recycling, Management of Waste water and solid waste, Organic farming, Vermi-compost, De-centralised waste water treatment systems and case studies
- Planting strategies for sustainable landscaping- Native vegetation and types, types of lawn, xeriscaping, water requirements of tropical plants, Rain garden and its construction.

REFERENCES

1. Sue Reed(2010): Energy Wise Landscape Design; New Society Publishers
2. Owen E. Dell(2009): Sustainable Landscaping For Dummies; Wiley Publishing, Inc.
3. Harris.C.W and Dine.N.T ; (1997) Time Saver Standards For Landscape Architecture, Mcgraw – Hill International Edition, Arch. Series
4. Storm.S and Kurt Nathan P.E;(1985) Site Engineering for Landscape Architects, AVI Publishing Company
5. 'A Water Harvesting Manual; for Urban Areas; Case Studies from Delhi'(2003), Centre for Science and Environment, New Delhi.
6. Bansal Naveendra K., Hauser Gerd and Minke Gernot (1997), "Passive Buildings Designs : Handbook of Natural Climatic Control", Elsevier Science, Amsterdam.
7. www.sustainablesites.org
8. www.cseindia.org
9. Websites of TERI, LEED India etc.

3. LANDSCAPE RESTORATION

COURSE OVERVIEW:

* To understand the principles and concepts related to landscape restoration

COURSE OUTCOMES:

Upon completion of course,

* Understanding of landscape restoration and process of restoration of different types of degraded land uses

COURSE CONTENTS

Module I: Introduction to Landscape Restoration

- Disturbed landscapes & types; Functional and dysfunctional landscapes; Economic, Social and Environmental objectives; factors influencing methods of restoration; Selecting Appropriate Reclamation Methods, Materials and Developing a Plan for restoration, General procedure for restoration.
- Protection of Soil, Water Quality, and adjacent undisturbed Areas; sediment and erosion control devices and technologies, temporary degradable materials, Turf Reinforced Mats, Hard Armour Systems etc
- Surface Conditioning: Stabilizing of top soil, improvement of water retention capacity, Modifying Acidic Soils, Saline Soils; Applying Fertilizers, Seedbed Preparation, Mulches etc

Module II- Wetlands and phytoremediation

- Wetlands: definition, types, ecologic and remediating property of wetlands, Constructed wetland types; Phytoremediation & its process, Types- Rhizofiltration , Phytotransformation , Plant-Assisted Bioremediation , Phytoextraction , Phytostabilization & Plant-Assisted Bioremediation, Types suitable for groundwater remediation and soil remediation, plants used in each types, harvesting and disposal of plant material after restoration.
- Restoration of aquatic ecosystems through ecologic restoration: Principles of ecologic restoration; Evaluation of disturbance and ecosystem degradation, Land-uses that can be offered after restoration through case studies: e.g. Cheonggyecheon stream restoration, Successful case studies in India and other countries, works of Turenscape and similar works.

Module III: Landscape Restoration for Specific Types

- Restoration of mining sites- Setting the goal, Assessment of conditions and defining the problem, Evaluation of water retaining capacity and soil structure, design solutions and applicable technologies, treatment of topsoil and planting, Land-uses that can be offered after restoration through case studies. E.g.: Bauxite Mining, Gove Peninsula,Northern Australia; Gold Mining, East Kalimantan, Indonesia etc
- Restoration of quarries: Setting the goal, Assessment of conditions and defining the problem, Evaluation of water retaining capacity and soil structure, design solutions and applicable technologies, treatment of topsoil and planting, Land-uses that can be offered after restoration through case studies. E.g.: Bauxite Mining, Gove Peninsula, Northern Australia; Gold Mining, East Kalimantan, Indonesia etc
- Restoration of landfills: Landfills; Open dump and sanitary landfills; typical section of a sanitary landfill, Components of a landfill, Leachate and methane gas in landfills; Restoration procedure for landfills; Land-uses that can be offered after restoration through case studies.e.g. The Fresh Kills Park
- Restoration of brownfields: Assessment of contaminant levels in soil and groundwater; Removal of pollutants; Land-uses that can be offered after restoration through case studies e.g. Highland Park

REFERENCES

1. Harris.C.W and Dine.N.T ; (1997) Time Saver Standards For Landscape Architecture, Mcgraw – Hill International Edition, Arch. Series
2. David G. Tongway & John A.Ludwig (2011): Restoring Disturbed Landscapes: Putting Principles into Practice; Island Press
3. R. Bobbink, B. Beltman, J.T.A.Verhoeven, & D.F.Whigham(2006): RWetlands: Functioning, Biodiversity Conservation, and Restoration;Springer
4. Raymundo E. Russo(2008):Wetlands: Ecology, Conservation and Restoration; Nova Science Publishers, Inc.
5. Martin R. Perrow & Anthony J. Davy(2002):Handbook of Ecological Restoration; Cambridge University Press.
6. Justin. B.Hollander, Niall. G. Kirkwood & Julia.L.Gold (2010): Principles of Brownfield Regeneration; Island Press
7. Tim Dixon, Mike Rako, Philip Catney & David Liner(2007): Sustainable Brownfield Regeneration- Liveable Spaces from problem spaces; Wiley- Blackwell