

**ANNA UNIVERSITY, CHENNAI
NON- AUTONOMOUS AFFILIATED COLLEGES**

M.ARCH (CONSERVATION) FULL-TIME PROGRAMME

**REGULATIONS 2021
CHOICE BASED CREDIT SYSTEM**

1. PROGRAMME EDUCATIONAL OBJECTIVES(PEOs):

- i. To provide students with additional knowledge and skills as a conservation architect/ research/ teacher
- ii. To enable students to add value to the process of architectural conservation by incorporating depth in already existing fields of study relevant to architectural conservation.
- iii. To enable students to widen the scope of their professional abilities through additional fields of study that would enhance their knowledge in intellectual, creative, technical, social and environmental realms.
- iv. To enable students to take independent, informed and innovative decisions within the discipline of conservation architecture and contribute to larger society through their future career as a conservation architect, an academican or a research scholar.

2. PROGRAMME OUTCOMES(POs):

PO Programme Outcomes

- 1 An ability to independently carry out research/investigation and development work to solve practical problems
- 2 An ability to write and present a substantial technical report/document
- 3 Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program
- 4 Graduates will demonstrate an all-round skill in design and research in architectural conservation and contribute successfully further to society through their design, or research or teaching.
- 5 Graduates will be able to identify additional parameters/ issues within the context of architectural conservation and resolve them using technical expertise in a holistic manner using conservation-based design and execution.
- 6 Graduates will be able to resolve issues relating to conservation with due consideration to historical and environmental issues using cutting edge methods and approaches in resolution of conservation related issues.

4. PEO/PO Mapping:

PEO	PO					
	1	2	3	4	5	6
I.	3	2	3	1	1	2
II.	1	-	2	2	2	-
III.	1	-	3	1	-	1
IV.	2	-	3	-	2	2

1,2,3,-, scale against the correlation PO's with PEO's

			PO1	PO2	PO3	PO4	PO5	PO6
YEAR 1	SEM 1	Introduction to Architectural Conservation	1	-	1.6	2	3	1
		Impact of Society and Culture on Built Heritage	1	-	1.6	1.3	1.3	1.6
		Traditional Knowledge System	1	-	1.4	1	1	1
		Materials & Structural System	3	-	1.8	1.6	2	1.6
		Documentation Techniques & Information Data Management	2.25	2	2	2	2.3	2
		Conservation Studio I	3	3	3	2.5	2	1.5
	SEM 2	Research Methodologies in Built Environment	2	2.25	5	1.25	1.8	1
		Strengthening and Retrofitting Historic structures	1.5	1.6	1.67	1.75	2	1.75
		Project Management in Conservation	1	1.75	2	1	2	1.75
		Geographical Information Systems for Built Environment	1.25	1	2	2	1.4	2
Professional Elective I								
Conservation Studio II		2.67	2.25	2.5	2.25	2.25	2.75	
YEAR 2	SEM 1	Services in Historic Structures	1.25	3	2	1.4	1.25	1.5
		Conservation Legislation	1	2	1.5	1.5	1.75	-1.6
		Professional Elective II						
		Professional Elective III						
		Dissertation	2	1.6	2	1.3	1	2
		Internship Training	3	3	3	2.5	2	1.6
	Conservation Studio III	3	3	3	2.5	2	1.6	
	SEM 2	Professional Elective IV						
		Thesis Project	2	1.5	2	2.3	1	2.5

PROGRESS THROUGH KNOWLEDGE

ANNA UNIVERSITY, CHENNAI
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M. ARCH. (CONSERVATION) FULL-TIME PROGRAMME
REGULATIONS 2021
CHOICE BASED CREDIT SYSTEM
I TO IV SEMESTERS CURRICULA AND SYLLABUS
SEMESTER I

S. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
THEORY								
1.	CO4101	Introduction to Architectural Conservation	PCC	3	0	0	3	3
2.	CO4102	Impact of Society and Culture on Built Heritage	PCC	3	0	0	3	3
3.	CO4103	Traditional Knowledge System	PCC	3	0	0	3	3
4.	CO4104	Materials and Structural Systems	PCC	3	0	0	3	3
5.		Audit Course I*	AC	2	0	0	2	0
THEORY CUM STUDIO								
6.	CO4121	Documentation Techniques and Information Data Management	PAEC	1	0	3	4	4
STUDIO								
7.	CO4111	Conservation Studio I	PCC	0	0	10	10	10
TOTAL				15	0	13	28	26

* Audit Course is optional

SEMESTER II
(Prerequisite- Pass in Conservation Studio I)

S. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
THEORY								
1.	RM4251	Research Methodologies for Built Environment	RMC	3	0	0	3	3
2.	CO4201	Strengthening and Retrofitting Historic Structures	PCC	3	0	0	3	3
3.	CO4202	Project Management in Conservation	PCC	3	0	0	3	3
4.		Audit Course II*	AC	2	0	0	2	0
THEORY CUM STUDIO								
5.	MH4221	Geographical Information Systems for Built Environment	PAEC	1	0	3	4	4
STUDIO								
6.	CO4211	Conservation Studio II	PCC	0	0	10	10	10
TOTAL				12	0	13	25	23
PROFESSIONAL ELECTIVE								
7.		Professional Elective I	PEC	X	X	X	3	3
TOTAL							28	26

* Audit Course is optional

SEMESTER III
(Prerequisite- Pass in Conservation Studio II)

S. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
THEORY								
1.	CO4301	Services in Historic Buildings	PCC	3	0	0	3	3
2.	CO4302	Conservation Legislation	PCC	3	0	0	3	3
STUDIO								
3.	CO4311	Dissertation	PCC	0	0	4	4	4
4.	CO4312	Conservation Studio III	PCC	0	0	10	10	10
TOTAL				6	0	14	20	20
PROFESSIONAL ELECTIVE								
5.		Professional Elective II	PEC	X	X	X	3	3
6.		Professional Elective III	PEC	X	X	X	3	3
INTERNSHIP TRAINING								
7.	CO4313	Internship Training	PAEC	X	X	X	X	2
TOTAL							26	28

SEMESTER IV
(Prerequisite- Pass in Conservation Studio III)

S. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
STUDIO								
1.	CO4411	Thesis Project	PCC	0	0	20	20	20
TOTAL				0	0	20	20	20
PROFESSIONAL ELECTIVE								
2.		Professional Elective IV	PEC	X	X	X	3	3
TOTAL							23	23

TOTAL NO. OF CREDITS: 103

PROFESSIONAL CORE COURSES (PCC)

SL. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	CO4101	Introduction to Architectural Conservation	PCC	3	0	0	3	3
2.	CO4102	Impact of Society and Culture on Built Heritage	PCC	3	0	0	3	3
3.	CO4103	Traditional Knowledge System	PCC	3	0	0	3	3
4.	CO4104	Materials and Structural System	PCC	3	0	0	3	3
5.	CO4111	Conservation Studio I	PCC	0	0	10	10	10
6.	RM4251	Research Methodologies for Built Environment	RMC	3	0	0	3	3

7.	CO4201	Strengthening and Retrofitting Historic Structures	PCC	3	0	0	3	3
8.	CO4202	Project Management in Conservation	PCC	3	0	0	3	3
9.	CO4211	Conservation Studio II	PCC	0	0	10	10	10
10.	CO4301	Services in Historic Buildings	PCC	3	0	0	3	3
11.	CO4302	Conservation Legislation	PCC	3	0	0	3	3
12.	CO4311	Dissertation	PCC	0	0	4	4	4
13.	CO4312	Conservation Studio III	PCC	0	0	10	10	10
14.	CO4411	Thesis Project	PCC	0	0	20	20	20

PROFESSIONAL ELECTIVE COURSES (PEC)

SEMESTER II, ELECTIVE I

SL. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	CO4001	Cultural Anthropology and Sociology	PEC	3	0	0	3	3
2.	CO4002	Shared Built Heritage	PEC	3	0	0	3	3
3.	CO4003	Natural and Designed Landscape	PEC	3	0	0	3	3
4.	CO4004	Cultural Landscape	PEC	1	0	2	3	3
5.	CO4005	Museum Design and Management	PEC	1	0	2	3	3
6.	CO4006	History of Western Architectural Conservation	PEC	3	0	0	3	3
7.	MH4073	Soft Skills	PEC	2	0	1	3	3

SEMESTER III, ELECTIVE II & III

SL. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	CO4007	Sacred Landscapes	PEC	3	0	0	3	3
2.	CO4008	World Heritage Sites	PEC	3	0	0	3	3
3.	CO4009	Sustainability and Conservation	PEC	3	0	0	3	3
4.	CO4010	Landscape Conservation	PEC	3	0	0	3	3
5.	CO4011	Urban Conservation and Practice	PEC	3	0	0	3	3
6.	CO4012	Sustainable Tourism and Visitor Management	PEC	3	0	0	3	3
7.	MH4074	Psychology of Learning and Development	PEC	3	0	0	3	3

SEMESTER IV, ELECTIVE IV

SL. NO.	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	CO4013	Heritage Impact Assessment	PEC	3	0	0	3	3
2.	CO4014	Disaster Management of Cultural Resources	PEC	3	0	0	3	3
3.	CO4015	Economics of Preservation and Heritage	PEC	3	0	0	3	3
4.	MH4075	Theory of Architectural Education	PEC	3	0	0	3	3

PROFESSIONAL ABILITY ENHANCEMENT COURES (PAEC)

SL. NO.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	CO4121	Documentation Techniques and Information Data Management	PAEC	1	0	3	4	4
2.	MH4221	Geographical Information Systems for Built Environment	PAEC	1	0	3	4	4
3.	CO4313	Internship Training	PAEC	X	X	X	X	2

AUDIT COURSES (AC)

Registration for any of these courses is optional to students

SL. NO	COURSE CODE	COURSE TITLE	PERIODS PER WEEK			CREDITS	SEMESTER
			Lecture	Tutorial	Practical		
1.	AX4091	English for Research Paper Writing	2	0	0	0	1/2
2.	AX4092	Disaster Management	2	0	0	0	
3.	AX4093	Constitution of India	2	0	0	0	
4.	AX4094	நற்றமிழ் இலக்கியம்	2	0	0	0	

SUMMARY

Name of the Programme: M. ARCH. (CONSERVATION)						
	SUBJECT AREA	CREDITS PER SEMESTER				CREDITS TOTAL
		I	II	III	IV	
1.	PCC	22	16	20	20	78
2.	PAEC	4	4	2	-	10
3.	RMC	-	3	-	-	03
4.	PEC	-	3	6	3	12
5.	Non-Credit/Audit Course	-	-	NA	NA	-
6.	TOTAL CREDIT	26	26	28	23	103

COURSE OBJECTIVES:

- To introduce heritage conservation in the Indian context
- To inform about Governmental and Non-Governmental agencies that work towards Conservation at various levels in India.
- To enable students to understand the importance of documentation and assessing architectural character.
- To enable students to understand the relationship between craft and conservation
- To create awareness of the various charters and development of UNESCO as the global agency and its role in the field of conservation in India.

UNIT I INTRODUCTION TO CONSERVATION 6

Understanding Heritage, Types of Heritage, Heritage conservation – Need, Debate and purpose. Defining Preservation, Restoration, Conservation and Adaptive reuse. Distinction between Architectural and Urban Conservation, Heritage conservation in India – issues & challenges

UNIT II THEORY OF CONSERVATION IN INDIA 12

Listing & Documentation of Built Heritage in India - Assessing architectural character – the concept of Jeernodharana — historic structure report guidelines – Principles of Conservation – Conservation ethics - Craft & conservation – intangible heritage

UNIT III AGENCIES & POLICIES IN CONSERVATION 12

Establishment, goals & objectives of Archaeological Survey of India (ASI) - Role and activities of ASI Role of INTACH – Formation, Scope and Principles – Administrative Form -INTACH Charter Central & State Government policies on heritage Conservation - Legislations and legal interventions in Conservation

UNIT IV CASE STUDIES 9

Case study of projects (single building) by conservation architects/firms/organizations in India, Select Case Studies of ancient heritage sites in India such as Hampi, Qutub complex, Mahabalipuram, etc.

UNIT V ROLE OF UNESCO IN CONSERVATION IN INDIA 6

Birth and formation of UNESCO – Charters of UNESCO - Listing of World Heritage Monuments in India – Conservation Strategies – Case studies

TOTAL: 45 PERIODS**COURSE OUTCOMES:****Students should be able to**

- CO1** Relate to the heritage conservation movement in India
- CO2** Explain about various governmental agencies and their contributions towards conservation.
- CO3** Apply their mind and assess architectural character and importance of documenting heritage
- CO4** Analyze the importance of craft in conservation and importance of craft in community.
- CO5** Build case studies and understand the role of agencies like UNESCO in architectural conservation

REFERENCES:

1. Biswas, S.S. Protecting the cultural heritage: National Legislation, 344.094BIS-P and International Conventions, 1999
2. Pant, Dharendra Kumar, Care and administration of heritage monuments in India, 725.940954PAN-C1784-1904-2012

3. Bracker, A., Ed. and Richmond, A., ed., 363.69CON, Conservation: principles, dilemma sand uncomfortable
4. Cumming Sir John, Revealing India's Past(COSMOPUBLICATION), ISBN81-307-0087-5
5. Glendinning, Miles, The Conservation Movement: A History of Architectural, Preservation (ROUTLEDGE2013) 978-0-415-54322-4
6. Cleere Henry , Heritage: A, Approaches to the Archaeological, Comparative Study of World ISBN:9780521243056 truths,2009

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	-	-	2	1	2	-
2	-	-	2	1	2	1
3	1	-	2	1	1	-
4	-	-	1	-	1	-
5	1	-	1	1	-	-
AVg.	$(1+1)/2=1$	-	$(2+2+2+1+1)/5=1.6$	$(1+1+1+1)/2= 2$	$(2+2+1+1)/2=3$	$1/1=1$

CO4102 IMPACT OF SOCIETY AND CULTURE ON BUILT HERITAGE L T P/S C
3 0 0 3

COURSE OBJECTIVES:

- To enable understanding of the scientific approach to cultural studies and cultural theories related to perception and interpretation of built heritage.
- To provide students with various theories of cultural study and discuss various methodologies to study culture
- To enable students to understand the concept of vernacular architecture and various traditional materials associated with them.
- To enable students to develop holistic understanding of conservation by studying the core disciplines of conservation
- To introduce the importance of culture mapping among various social communities of India.

UNIT I INTRODUCTION TO HISTORY & SOCIAL SCIENCES 6

Understanding the concept and development of society – Core disciplines including social sciences (Anthropology, Sociology, History, Art-History, etc.), Archaeology, Museology and Planning. Synergies between the core disciplines of society in understanding built heritage.

UNIT II STUDY OF CULTURE 9

Definition of culture - aspects, identity of key factors – theories of cultural study - overlap of culture – Approaches and methodologies of study of culture - interrelation between different cultural parameters

UNIT III ARCHITECTURE AND CULTURE 12

Architecture as a cultural element – concept of vernacular architecture – elements and characters of vernacular architecture – selected study of Chettinad houses – Agraharam dwellings – Havelis - NaluKettu houses – Goan houses etc.

UNIT IV CULTURAL STUDY AND CONSERVATION 9

Importance of core disciplines in holistic understanding of conservation - Impacts of core disciplines on Conservation - Understanding various perception and interpretation of heritage - Evolving holistic and integrated habits of thought.

UNIT V CASE STUDY 9

Culture mapping and study of practices of selected social communities of India.

TOTAL: 45 PERIODS**COURSE OUTCOMES:****Students should be able to**

CO1 Relate to the scientific approach to cultural studies and theories related to interpretation of built heritage.

CO2 Explain about various theories about cultural study and their methodologies.

CO3 Apply their mind and assess the importance of vernacular architecture in today's context.

CO4 Analyze the importance of holistic understanding of conservation from a grass root level.

CO5 Build case studies based on culture mapping across various social communities.

REFERENCES:

1. Blistene, Bernard, ISBN:9782080105646, History of 20th-centuryArt, Flammarion, 2001,
2. Heath, Kingston Wm, Vernacular Architecture and Regional Design: Cultural., 720.103 HEAProcess and Environmental Response,2009
3. Marie Louise Stig Sorensen, John Carman, ISBN:9780415431859, Heritage Studies: Methods and Approaches
4. Noble, Allen G., Traditional Building: A global survey of structural forms And cultural functions,ISBN:9781890206628
5. Sengupta, Gautam, ed. And Gangopadhyay, Kaushik, ed., 934ARC, Archaeology in India: Individuals, Ideas and Institutions, 2009

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	-	-	2	1	1	-
2	-	-	1	1	-	-
3	1	-	2	2	1	2
4	1	-	2	-	-	1
5	-	-	1	-	2	2
AVg.	(1+1)/2=1	-	(2+1+2+2+1)/5= 1.6	(1+1+2)/3=1.3	(1+1+2)/3=1.3	(2+1+2)/3=1.6

CO4103**TRADITIONAL KNOWLEDGE SYSTEM****L T P/S C
3 0 0 3****COURSE OBJECTIVES:**

- To enable students to understand the concept of traditional knowledge and differentiate between that and formal education.
- To provide students with typologies of architecture, evolution of need-based architecture.
- To enable students to understand the concept of traditional crafts and the importance of craftsmen and materials.
- To enable students to develop an understanding for general planning strategies in ancient cities.
- To introduce the importance of gaining knowledge on traditional materials and practices especially in heritage sites.

UNIT I TRADITIONAL KNOWLEDGE SYSTEM 6

Understanding the concept of traditional knowledge – Difference between traditional knowledge and formal education – advantages and disadvantages – need for safe guarding traditional knowledge – examples of traditional knowledge system in various fields.

UNIT II TRADITIONAL ARCHITECTURAL PRACTICE 9

Need based architecture – evolution of different typologies of architecture – housing – religious – forts – Introduction to books like Manasara, Mayamatam and its contents – Basics of Agama principles, evidence from Sangam Literature - Systems of calculations and geometry - Fusing of native knowledge with modern practices - Select case studies.

UNIT III ARCHITECTURE & ASSOCIATED CRAFTS 12

Traditional crafts and craftsmen of Indian architecture – traditional knowledge in building sciences and environmental studies - associated craftsmen like artist, carpenter, weavers - select case studies using materials like bamboo, bricks, lime, terracotta, etc.- Indigenous Construction Techniques like Chettinad Plaster, Athangudi Tiles, Madras Terrace Roof, Araish Lohi Lime Plaster.

UNIT IV DEVELOPMENT OF HISTORIC CITIES 12

Historic City, a product of people, place and time – General Planning strategies for city planning in ancient times – religious structures, road network, irrigation channels, occupation-based settlement designs – sustainability of historic cities – selected case studies of Srirangam, Kancheepuram, Hampi, Nalanda, Benares, etc.

UNIT V TRADITIONAL KNOWLEDGE & CONSERVATION 6

Methods of gaining traditional knowledge – importance and ways of documenting traditional practices application process of traditional knowledge in practice – site visit and field work- Risk Management in Heritage Sites

TOTAL: 45 PERIODS**COURSE OUTCOMES:****Students should be able to**

- CO1** Relate to the concept of traditional knowledge and differentiate between that and formal education.
- CO2** Explain the typologies of architecture, evolution of need-based architecture. about cultural study and their methodologies.
- CO3** Apply their mind and assess the importance of traditional crafts and the importance of craftsmen and materials.
- CO4** Analyze the importance of general planning strategies in ancient cities.
- CO5** Build a knowledge bank on traditional materials and practices that can be applied to current projects as well.

REFERENCES:

1. Coomaraswamy, Ananda, K., Vatsyayan, Kapila. ISBN:9788120716438 The Transformation of Nature in Art (Indira Gandhi, National Centre for the Arts)
2. Foucault, Michel, ISBN:9780415267373, Order of things: An Archaeology of the Human Sciences, 1994
3. Wright, A, ISBN:0713464194, Craft techniques for Traditional Buildings, Batsford, 1991

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	1	-	2	2	1	1
2	-	-	1	-	1	1
3	-	-	1	-	-	-
4	1	-	2	-	1	-
5	-	-	1	1	-	1
AVg.	(1+1)/2=1	-	(2+1+1+2+1)/5=1.4	(2+1)/3=1	(1+1+1)/3=1	(1+1+1)/3=1

COURSE OBJECTIVES:

- To enable students to various properties of historic building materials.
- To enable students to understand various types of structural systems that are common in heritage buildings
- To provide information on various causes of decay in both materials and structural systems.
- To expose students to various methods of assessment and investigations to check on structural stability.
- To enable students to connect traditional structural systems to current context

UNIT I HISTORIC BUILDING MATERIALS 9

Historic building materials - location, formation, physical and chemical properties, types, availability, sourcing, characterization of materials & compatibility of its usage, relationship of strength of materials used to the type of heritage structure, weathering characteristics, workability – select building materials like Lime, Stone, Timber, Brick, Glass, Cement, Concrete, etc.

UNIT II HISTORIC STRUCTURAL SYSTEMS 12

Various types of structural systems, Trabeate & arcuate systems, loading patterns, different structural components - arches, domes, vaults, beams, slabs, vertical supports, trusses & foundation with different building materials & loading conditions, their behavior, calculation of stresses & deformations.

UNIT III CAUSES OF DECAY IN MATERIALS & STRUCTURES 6

Gravity factor, Natural factors – climatic, natural disasters, botanical, biological & entomological causes of decay, Termite infestation, other causes for weakening of materials, Man-made factors – lack of maintenance strategies, vibration, atmospheric pollution, inappropriate use, etc.

UNIT IV ASSESSMENT OF MATERIALS & STRUCTURE 9

Methods of assessing materials – Physical & Chemical diagnosis of defects in materials, destructive (sample collection) & non-destructive tests (sound, penetrating radiation, optical & electromagnetic tests), Assessment report. Structural assessment of historic buildings – types of investigations required, condition mapping, equipment & monitoring, characteristic symptoms of structural distresses, failure of structural elements, Structural Analysis Techniques & Report.

UNIT V CASE STUDIES 9

Case studies of historical buildings with columnar & trabeate structure to understand materials used for various building components, structural behavioral patterns, methods of assessment, defect analysis & reporting. Case studies of historical buildings with arcuate structure to understand materials used for various building components, structural behavioral patterns, methods of assessment, defect analysis & reporting.

TOTAL: 45 PERIODS**COURSE OUTCOMES:****Students should be able to**

- CO1** Relate to the various properties of historic building materials.
- CO2** Explain the various types of structural systems that are common in heritage buildings
- CO3** Apply their mind and assess various causes of decay in heritage buildings.
- CO4** Analyze the importance of assessment and investigations to check on structural stability.
- CO5** Build a knowledge bank on traditional structural systems and correlate them to conservation projects

REFERENCES:

1. Bernard Feilden, ISBN: 0750658630, Conservation of Historic Buildings
2. J. Stanley Rabun, ISBN: 978-0-471-31545-2, Structural Analysis of Historic Buildings: Restoration, Preservation, and Adaptive Reuse Applications for Architects and Engineers

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	-	-	2	2	2	-
2	-	-	2	1	-	-
3	-	-	1	2	2	2
4	3	-	2	1	2	2
5	-	-	2	2	-	1
AVg.	3/1=3	-	(2+2+1+2+2)/5=1.8	(2+1+2+1+2)/5= 1.6	(2+2+2)/3=2	(2+2+1)/3=1.6

CO4121 DOCUMENTATION TECHNIQUES AND INFORMATION DATA MANAGEMENT L T P/S C 1 0 3 4

COURSE OBJECTIVES:

- To impart necessary technical skills and competence required for the preparation of inventories of cultural resource for survey, analysis and documentation.
- To create awareness about the need for a methodical and systematic process for inventory as an essential basis for management and conservation plans.
- To enable students to try their hands out on the field documenting using new methods and tools
- To give competency in documenting, organizing, storing and managing information in written, oral or visual form using GIS and other tools.

UNIT I DOCUMENTATION 10

Need & types Introduction to documentation – need and importance of documentation and inventory in conservation – maintaining records and using documented work–archiving - Available methods of documentation and communication – recording oral facts – standards of documentation - measurement book – field survey books – selection of appropriate method of documenting – tools selection – preparation for field documentation

UNIT II DOCUMENTATION TECHNIQUES – MANUAL & DIGITAL 15

Introduction to methods of physical documentation – hand sketching – measured drawing – colour coding Exercise - Documentation of a live case study including field work Photography – archiving digital data – use of software for measured drawing – 2D and 3D rendering of historic structures for documentation - Communicating documentation including technical skills and competence Exercise - Documentation of a live case study including field work

UNIT III DATA COLLECTION, STORAGE, ORGANIZATION & ANALYSIS 15

Different methods of data collection (primary & secondary) - Library & archives – Internet – importance of reliability of source – classification & reviewing data – understanding the value of data – Documents as a source of data collection. Data compilation & storage – storage of classified data – Data cleaning – Data theft – need for Backup – Digitizing & listing stored data – Data saving techniques - Challenges in data collection & storage. Interpretation of data - cross

comparison and over lapping of data collected - Data Linking - Data Analysis – Archiving of analyzed Data – System Data Storage – Tools and equipment’s for storage - Compiling and Report generation – Drafting a report and presentation

UNIT IV DIGITAL IMAGING

10

Digitizing entities – artifacts, architectural elements, architectural sites, Digitizing details, easel paintings, sculpture, etc., Use of advanced technology in the capture & delivery of certain types of digital images – Digital photography (field visits & photo sessions) – image enhancement techniques, application of filters, image editing & other tools

UNIT V MODERN DOCUMENTATION & DATA MANAGEMENT TECHNIQUES

10

Photogrammetry – modern survey equipment’s – remote sensing tools for measuring – laser detection tools for measuring and survey - digitized survey tools – usage of cloud computing – creating and maintaining digital archive - Applying Digital Imaging to Cultural Heritage, Introduction, use & application of GIS in heritage conservation – digital mapping – storing and safe guarding GIS images

TOTAL: 60 PERIODS

COURSE OUTCOMES:

Students should be able to

- CO1** Relate to the various technical skills and competence required for the preparation of inventories of our built heritage.
- CO2** Explain the various types of methods and processes involved in documenting our heritage
- CO3** Apply their mind and assess various methods of documentation on site.
- CO4** Analyze the importance of documenting, organizing, storing and managing information in written, oral or visual form using GIS and other tools.
- CO5** Build a documentation report based on all techniques and methods taught

REFERENCES:

1. David O’Sullivan and David J. Unwin, 910.285SUL-G, Geographic Information Analysis
- Eun Sul Lee and Ronald N. Forthofer, 300.727LEE-A, Analyzing Complex Survey Data
2. ICOMOS, ISBN:075061210X, Guide to recording Historic Buildings, Butterworth,1990.
3. John Krygier and Denis Wood, 526KRY-M, Making Maps: a Visual Guide to Map Design for GIS
4. Lindsay MacDonald (ed.), ISBN 13:978-0-75-066183-6, Digital Heritage: Applying Digital Imaging to Cultural Heritage
5. Meredith H.Sykes, ISBN:9789231020803, Manual on Systems of Inventorying Immovable Cultural Property,UNESCO,1984
6. Proceedings, French Ministry for education and culture, ISBN:9287123411, Architectural Heritage: Inventory and Documentation, Methods in Europe, Council of Europe,1992.
7. Swallow, Peter, ISBN:9781873394083, Measurement and Recording of Historic Buildings – Donhead,1993
8. Watt,D & Swallow P, ISBN:9781873394670, Surveying Historic Buildings, Donhead,1996

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	3	3	2	2	3	2
2	1	2	1	2	2	2
3	3	-	3	2	2	2
4	2	1	2	-	-	-
AVg.	$(3+1+3+2)/4 = 2.25$	$(3+2+1)/3 = 2$	$(2+1+3+2)/4 = 2$	$(2+2+2)/3 = 2$	$(3+2+2)/3 = 2.3$	$(2+2+2)/3 = 2$

CO4111**CONSERVATION STUDIO I****L T P/S C
0 0 10 10****OBJECTIVES:**

- To enable the student to understand the difference between a conservation project and a new design project
- To enable the student to understand the importance of site context and age of the building/ site.
- To prepare the student to see the potential of a building in disrepair and analyze the methods it can be rehabilitated with.

CONTENT:

Projects either by individuals or groups shall be worked upon emphasizing on the following:

- Understanding historic buildings / site.
- Demarcation of historic sites and its relationship to surroundings.
- Detailed documentation of the site/structure.
- Understanding the building and composition of building materials.
- Identification of function, use and condition of the buildings/site.
- Statement of Significance of historic buildings/site.
- Maintenance, Management and Conservation of the buildings/site includes planning interventions.

The project contents would include programming for the project, appreciation and identification of heritage value, interpretation and interventions. Exploring various research methods & data collection techniques would be part of the exercise. The tutorials and studio program will help the students in the development of project statement, data analysis and critical inferences for design application.

TOTAL: 150 PERIODS**COURSE OUTCOMES:**

- CO1** The students should be able to apply themselves as a conservation architect
- CO2** The students should be able to analyze the importance of the cultural heritage of the site and building
- CO3** The students should be able to build a sustainable heritage proposal for an historic building.

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	3	-	3	-	2	-
2	-	-	3	2	-	1
3	-	3	-	3	-	2
AVg.	$3/1=3$	$3/1=3$	$(3+3)/2=3$	$(2+3)/2=2.5$	$2/1=2$	$(1+2)/2=1.5$

OBJECTIVES

- To introduce the students to the importance of critical inquiry as a way of gaining knowledge and adding to it through research.
- To expose the students to the various forms of research and research methodologies/ processes.
- To introduce various methods of data collection
- To enable architectural report writing techniques
- To engage this understanding in the specific field of architectural research.

UNIT I INTRODUCTION**9**

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

UNIT II RESEARCH PROCESS**9**

Elements of Research process: finding a topic- writing an introduction- stating a purpose of study identifying key research questions and hypotheses- reviewing literature- using theory- defining, delimiting and stating the significance of the study, advanced methods and procedures for data collection and analysis- illustration using research samples

UNIT III RESEARCHING AND DATA COLLECTION**9**

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.

UNIT IV REPORT WRITING**6**

Research writing in general- Components: referencing- writing the bibliography - developing the outline - presentation; etc.

UNIT V CASE STUDIES**12**

Case studies in the relevant discipline illustrating how good research can be used from project inception to completion- review of research publications.

TOTAL: 45 PERIODS**COURSE OUTCOMES:****Students should be able to**

- CO1** Relate to the various technical skills and competence required for the research writing
- CO2** The student will develop the skill to identify, decipher and interpret issues relating to architecture based on research enquiry methods.
- CO3** Apply the various methods to collect data
- CO4** The student will gain knowledge of different methods of conducting research and researchwriting.
- CO5** The student will able to write and understand the research methodology through various case studies.

REFERENCES

1. Iain Borden and Kaaterina Ruedi Ray ; The Dissertation: An Architecture Student's Handbook;Architectural Press; 2006
2. JA Smith, P Flowers, M Larkin -Interpretative Phenomenological Analysis: Theory, Method andResearch (English) FIR Edition- Sage Publication -2009.
3. John W Creswell; Research design: Qualitative, Quantitative and Mixed Methods Approaches;Sage Publications; 2011.
4. Linda Groat and David Wang; Architectural Research Methods – 2nd edition ‘,John

Wiley & Sons Inc, Hoboken, New Jersey, US, 2013.

5. Ranjith Kumar; Research Methodology- A step by step guide for beginners-3rd Edition ; Sage Publications; 2011
6. Wayne C Booth; Joseph M Williams; Gregory G. Colomb; 'The Craft of Research' , 3rd Edition; Chicago guides to writing, editing and publishing; 2008

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	3	3	2	-	2	1
2	3	2	-	1	2	1
3	2	-	-	1	3	1
4	1	3	1	2	1	1
5	1	1	-	1	1	1
AVg.	$(3+3+2+1+1)/5=2$	$(3+2+3+1)/4=2.25$	$(2+1)/2=1.5$	$(1+1+2+1)/4=1.25$	$(2+2+3+1+1)/5=1.8$	$(1+1+1+1+1)/5=1$

CO4201 STRENGTHENING AND RETROFITTING HISTORIC STRUCTURES L T P/S C
3 0 0 3

OBJECTIVES:

- To introduce various interventions in conservation related issues
- The objective is to understand solutions for repair and strengthening of structural system of historic structures and also upgrading them to cater to the contemporary demands and needs.
- To provide rescue measures and techniques to strengthen the historic buildings
- The detailing of appropriate options of intervention will lead to making of an implementable document. Case studies of completed projects shall be evaluated towards quantification and quality.
- To introduce adaptive reuse methods and retrofitting techniques

UNIT I INTRODUCTION 4

Degrees of Intervention in Historic buildings, Definition of Restoration, Retrofitting & Adaptive reuse, Major issues & challenges faced in India

UNIT II REPAIR & RETROFITTING PROCESS 9

Building/Site Inspection, assessment procedure for evaluating a damaged structure- Research, analysis & Recording, causes of deterioration & testing techniques – Diagnosis & Cure - Budget- Design Strategies – Execution - Strategic Maintenance Plan, Advantages of preventive maintenance

UNIT III STRENGTHENING & TREATMENTS 12

Assessment Report reading – immediate rescue measures for distress in buildings – shoring, underpinning, shuttering, etc. Non-structural repairs - simple traditional remedies, advanced methods, mortar repair for cracks– preventive measures. Special Techniques of repair & reconstruction – consolidation, grouting, painting, strengthening & replacement, Jacking, drilling, Scaffolding, etc.

Structural repairs - Various advanced techniques of strengthening and retrofitting - Guniting and shotcrete epoxy injection. Repairs to overcome low member strength like deflection, cracking, chemical disruption, weathering, wear, fire, marine exposure, etc. like section enlargement, rust eliminators and polymers coating for rebar's, etc. Engineered demolition techniques for dilapidated structures-Case studies

UNIT IV CASE STUDIES**12**

Select case studies of restored/conserved buildings in India to understand the process & details of strengthening & retrofitting heritage structures including financial implications

UNIT V ADAPTIVE REUSE**8**

Need for adaptive reuse - Issues to be explored in building adaption - Economic, social, environmental, and assessment models for adaptive reuse - Case studies of buildings with adaptive reuse.

TOTAL: 45 PERIODS**COURSE OUTCOMES:****Students should be able to**

CO1 Students will understand various interventions and will enable to choose the appropriate

CO2 The student will develop the skill to identify the issues and recording the damages

CO3 Students will acquire skills to find appropriate remedial measures and solutions for strengthening and retro fitting of structure.

CO4 Assignments will include on site observation and analysis and formulating proposal for remedial measures and solutions for strengthening and retro fitting of a structure.

CO5 Assignment will be in the form of reports, reviews and tutorials with suitable illustrations.

REFERENCES

1. Beckmann, Poul Structural Aspects of Building Conservation, McGraw Hill, 1995 ISBN: 0750657332
2. Benya, James R. Lighting Retrofit and Relighting: a Guide to green lighting solutions, 2011621.321BEN-L
3. CPWD Analysis of Rates for Delhi-CPWD cpwd.gov.in/deputation/ar1- final.pdf
4. John Marshall Conservation Manual: A handbook for the use of Archaeological Officers and others entrusted with the care of ancient monuments,1923 Calcutta: Superintendent Government Printing, Archaeological Survey of India
5. Murthy, K.L. Structural Conservation of Monuments in South India,1997 720.954 MUR-S
6. Powys, A.R. Repair of Ancient Buildings, Society for Protection of Ancient Buildings,1981 ISBN:189885601X
7. Thorpe, David, Sustainable Home Refurbishment: the Earth scan expert guide to retro fittinghomes for efficiency,2010 696THO-S

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	2	2	1	2	3	3
2	1	2	-	1	2	1
3	2	1	1	2	1	1
4	1	1	3	2	2	2
5	-	2	-	-	-	-
AVg.	$(2+1+2+1)/4=1.5$	$(2+2+1+1+2)/5=1.6$	$(1+1+3)/3=1.67$	$(2+1+2+2)/4=1.75$	$(3+2+1+2)/4=2$	$(3+1+1+2)/4=1.75$

CO4202 PROJECT MANAGEMENT IN CONSERVATION

L T P/S C
3 0 0 3

OBJECTIVES:

- The objective is to understand core principles of Project Management
- The focus is on using Project Management tools for effective conduction of conservation projects in particular
- To enable the students to create communication models and methods
- To create awareness on the safety and risk management
- To learn portfolio management through case studies.

UNIT I INTRODUCTION TO PROJECT MANAGEMENT 6

Introduction - Project management, Project management versus Traditional management, Different forms of Project Management – Project Phases – Project Life Cycle – Project Management Process through Initiation, Planning, Execution, control and closure within the triple constraints of scope, time and cost with all inputs, tools & techniques and outputs.

UNIT II CONSERVATION PROJECT PLANNING 9

Project Plan Development - Scope planning with inputs –Master Plan – Programming – Scheduling – Project Organization–Scope planning and Work Definition, Tools and techniques- Expert Judgment and meetings, Monitoring Plan – Operational Plan - Outputs of scope planning- Collect requirements, defining scope - WBS, Classification of levels, Scope Control- scope verification and change control

UNIT III COMMUNICATION MANAGEMENT 12

Project Management plan - The Project Management Configuration Plan - Stakeholder register, Documentation and Communication “Road Map” –Enterprise environmental factors, Organizational process assets. Tools & techniques - Communication requirements analysis, Communication Technology –Communication models and methods: General Guidelines for Effective Communication -Communication Management plan to manage stakeholder engagement -Project Manager’s Checklist& Project documents update

UNIT IV SAFETY & RISK MANAGEMENT 12

Identifying risk, preparing for risk identification, risk categories, referring to historical information - Identifying the project risk – Reviewing project documents, brainstorming, analyzing SWOT – Examining the results of risk identification, qualitative and quantitative risk analysis - Safety in construction contracts - Safety record keeping - Safety culture - Safe workers - Safety and first line supervisors, safety and middle managers, top management practices - Company activities and safety- Safety Personnel - Contractual obligation - Project Coordination and Safety Procedures - Workers Compensation

UNIT V PORTFOLIO MANAGEMENT 6

Defining and Implementing Project Portfolio Management – Objectives, practices and organizational roles – evolution of PPM - Bridging the Gap between Operations management and Project Management for multiple projects- Importance of Case Study and its relevance – Analysis and references from case study of conservation Project

TOTAL: 45 PERIODS

OUTCOMES:

- CO1** The assignments shall be based on legal documents and their reviews.
- CO2** Assignment will be in the form of reports, reviews and tutorials with suitable case studies.
- CO3** Students shall learn about law for protection of heritage in India.
- CO4** Students will learn safety related issues and solutions
- CO5** Students will learn to implement project portfolio management

REFERENCES

1. Bruce Barkley Project Risk Management (Project Management), McGraw-Hill Professional, 2004, **ISBN** :9780071436915
2. Calin M. Popescu, Chotchai Charoenngam Project planning, Scheduling and Control in Construction: An Encyclopedia of Terms and Applications, John Wiley, New York, 1995 **ISBN**: 978-0195084948
3. James B. Atkins and Grant A. Simpson Managing Project Risk: Best Practices for Architects and Related Professionals, Wiley, 2008, **ISBN**: 978-0-470-27381-4
4. Jonathan F. Hutchings Project Scheduling Handbook (Civil and Environmental Engineering), CRC Press, 2003 **ISBN** 9780824746216
5. Project Management Institute A Guide to the Project Management Body of Knowledge (PMBOK Guide), Project Management Institute, Incorporated, 2013 **ISBN** 978-1-935589-67-9

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	1	2	2	1	3	2
2	1	3	2	1	-	-
3	-	1	2	1	2	3
4	-	-	2	1	1	1
5	-	1	2	-	2	1
AVg.	$(1+1)/2=1$	$(2+3+1+1)/4=1.75$	$(2+2+2+2+2)/5=2$	$(1+1+1+1)/4=1$	$(3+2+1+2)/4=2$	$(2+3+1+1)/4=1.75$

MH4221

GEOGRAPHICAL INFORMATION SYSTEMS FOR BUILT ENVIRONMENT

L T P/S C
3 0 0 3

OBJECTIVES

- To examine the role and application of Geographic Information Systems in environmental design, community charities and other urban design projects.
- To learn database concepts and its management
- To understand spatial data management
- Enable to use Arc GIS tools
- To create land use maps

UNIT I INTRODUCTION 6

GIS – Spatial data, non Spatial data, Plan, Map, Scale, Map Projection, GPS, GCP collection, Spectral signature curve, Image processing – Geo coding / Geo referencing, GIS software, Two tier architecture, Three tier architecture, Thin client, Thick client

UNIT II DATABASE CONCEPTS 9

Data structures, Databases, Files, Types of Tables, Table operations, Creating a Table, Accessing Records in a Table, Manipulating records in a Table, Modifying Table structure, Reports, Advantages of database, Primary key and data access, Composite primary key, Defining a primary key, Sorting, Indexing, Master Detail relationships, Types of relationships, Foreign key, Deleting, updating and adding records to linked tables, ER Diagram, Data Model – Physical, logical and conceptual.

UNIT III SPATIAL DATA 9

Comparative methods for obtaining images, Aerial Photograph, Satellite Imagery – High resolution imagery – LISS, PAN, MSS – Ortho rectification, Digitization – Layers, Digital Elevation model, Digital Terrain Modelling, Existing maps – Problems and Issues, Rubber sheeting, Digitization, overlay, union, intersection.

UNIT IV INTRODUCTION TO GIS SOFTWARE 9

Arc Info – Coverage – Arc, Node, Tics, Add, get, put, Map extent, edit, Topology creation – Clean, Build, Tables – Creating tables, updating tables, join, drop item, Export, Import, overlay, union, intersection, buffer.

UNIT V MODELLING GIS PROJECTS FOR URBAN AREAS 12

Preparation of Land use map, Land use suitability analysis, Screen design, Visual Basic application using Map objects.

TOTAL: 45 PERIODS

OUTCOMES

- CO1** The student will increase the knowledge on GIS and the various characteristics of Data.
CO2 The student will learn database concepts and its application
CO3 The student will learn spatial data management
CO4 The student will learn to apply the software knowledge
CO5 The student will accept the potential of GIS and develop integrated practice of using the GISapplication with architecture.

REFERENCES

1. An Introduction to Data base Systems – C.J.Date
2. ESRI (1992) Understanding GIS, The Arc Info Methods, ESRI, USA
3. Fundamentals of Data base Management System by Elmasri & Navethi
4. Information systems for Urban Planning – Robert Laurini
5. Modelling our world – ESRI Press

CO	PO					
	1	2	3	4	5	6
1	-	-	2	2	1	-
2	2	-	2	1	2	1
3	1	-	1	1	1	2
4	1	-	2	2	2	2
5	1	1	1	1	1	3
AVg.	$(2+1+1+1)/4=1.25$	$1/1=1$	$(2+2+1+2+1)/4=2$	$(2+1+1+2+1)/5=2$	$(1+2+1+2+1)/5=1.4$	$(1+2+2+3)/4=2$

CO4211

CONSERVATION STUDIO II

L T P/S C
0 0 10 10

OBJECTIVES:

- The objective is to introduce the problems and issues confronting historic core and urban areas.
- The aim of the studio in this semester is to introduce the students to a historic site, historic city or environment which is more complex and larger in scale to the building.
- The exercise shall address issues related to heritage at the urban scale.
- The attempt will be to adopt an integrated approach.

CONTENTS

Projects by either individuals or groups shall be worked upon emphasizing on the following:

- Understanding historic core and its linkage to developing city.
- Demarcation of historic core and its relationship to surroundings.
- Understanding the historic core in terms of built and open spaces, skyline, interface and transitions.
- Identification of function, use and condition of the buildings/site/historic cores.
- Statement of Significance.
- Maintenance, Management and Conservation plan.
- Planning Interventions.

The project shall emphasize on assessment of cultural significance and community participation for conservation and area and city level issues in architectural conservation. Identification of Heritage Zones and their appreciation of architectural vocabulary. Traditional building technology, streets, markets, neighborhoods and their heritage value.

Preparation of conservation plans and management plans as required. Formulation and application of conservation policy and guidelines for historic areas and extensions.

TOTAL: 180 PERIODS

OUTCOMES:

- CO1** Students will understand the cultural significance of the historic core
CO2 Students shall study and find solutions to problem and issues confronting historic core/urban areas.
CO3 Students will learn to formulate guidelines and policies.
CO4 The studio shall be progressive work in groups. Deliverables shall include drawings and report. Progressive presentations shall be made for reviews at various stages.

CO	PO					
	1	2	3	4	5	6
1	3	2	3	3	2	2
2	2	1	2	2	2	3
3	3	3	3	2	3	3
4	-	3	2	2	2	3
AVg.	$(3+2+3)/3=2.67$	$(2+1+3+3)/4=2.25$	$(3+2+3+2)/4=2.5$	$(3+2+2+2)/4=2.25$	$(2+2+3+2)/4=2.25$	$(2+3+3+3)/4=2.75$

CO4301**SERVICES IN HISTORIC BUILDINGS****L T P/S C**
3 0 0 3**OBJECTIVES:**

- The objective is to introduce the students to various fields of services involved in heritage structures.
- The focus on upgrading services with respect to original design and materials while meeting applicable codes and occupant needs.
- To exercise and address issues related to services in historic structures
- The attempt will be to improve the internal environment by installing appropriate building services.
- The focus will be on an integrated approach to services on historic structures.

UNIT I INTRODUCTION TO SERVICES IN HISTORIC STRUCTURES**6**

Need and necessity for services – Permissible interventions – Norms to be followed – Planning of service lines – Service provisions and adaptive reuse – Energy Efficiency in Historic Buildings- Provisions by ASI for service system installations, ducting etc.

UNIT II PLUMBING SERVICES IN HISTORIC STRUCTURES**9**

Plumbing Codes -Health Requirements for Plumbing - Water Quantity calculations- Water-Pipe Sizing- Waste water piping-Wastewater-System Elements - Waste-Pipe Materials - Layout of Waste Piping - Interceptors - Piping for Indirect Wastes - Venting - Plumbing-System Inspection and Tests.

UNIT III ELECTRICAL, LIGHTING & AIRCONDITIONING SERVICES**15**

Electrical power – DC / AC system, electrical load and emergency power – electrical conductors and raceways – electrical distribution in buildings –power distribution system – standby and alternate power supply system.

Light and sight – quality of light – lighting methods – daylight – system design of lighting.–selection of recommended I luminance - - Lamp characteristics and Selection Guide –Impact of light on colour - Integration of services – Electrical power monitoring

Major Factors in HVAC Design – Ventilation - Duct Design - Heat Losses - Heat Gains - methods of cooling and air conditioning - Sizing an Air- Conditioning Plant – Refrigeration - Cycles - Air-Distribution Temperature for Cooling - Energy efficiency techniques in air conditioning - Air conditioning in museums, historic structures etc.,

UNIT IV FIRE SAFETY & CONTROL SYSTEMS**6**

Fire detection & Fire alarm systems – fire protections systems – study of codes and standards - sprinkler systems -Automatic Sprinklers - System Design and layout – Standpipes- Water Supplies for sprinkler and Standpipe Systems – Central Station Supervisory Systems— fire alarm system – fire- fighting system and monitoring –safety and security systems – FAS, PAS – access control system-fire fighter telephone system – CCTV surveillance system – IBMS system.

UNIT V INTEGRATED SERVICE PLANNING**9**

Vibrations from mechanical equipment-Pumps & motors - basic practice of vibration isolation & guidelines, wall, floor & ceiling construction AC ducts - Characteristics of duct system noise, noise sources in ducts, Building Codes& Standards, Civil infrastructure services for residential and institutional complexes with planning, design, construction and maintenance of external development works such as water supply, sewerage, solid wastes, roads and storm water drainage, including rain water harvesting methods

TOTAL: 45 PERIODS**COURSE OUTCOMES:****Students should be able to**

- CO1** Relate to norms and planning of modern services in historic structures.
- CO2** Explain the appropriate solutions for integrating various services in historic structures.
- CO3** Apply the acquired skills on-site and propose appropriate services.
- CO4** Analyze and formulate proposal for integrating the various modern services in heritage structure.
- CO5** Build case studies in the form of reports, reviews and tutorials with suitable illustrations.

REFERENCES:

1. Fred hall and Roger Greeno, Building Services Handbook
2. Gurcharan Singh, Jagdish Singh, Water Supply & Sanitary Engineering
3. Krieder, J. F., Handbook of Heating Ventilation and Air Conditioning
4. Shri V.K. Jain, Fire Safety in Buildings
5. W. E. Steward, T. A. Stubbs Modern Wiring Practice Design and Installation BIS, National Building Code 2005.

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	-	-	3	1	2	-
2	2	-	2	1	1	2
3	1	-	2	1	1	-
4	1	-	2	3	1	1
5	1	3	1	1	-	-
AVg.	$(2+1+1+1)/4=1.25$	3	$(3+2+2+2+1)/5=2$	$(1+1+1+3+1)/5=1.4$	$(2+1+1+1)/4=1.25$	$(2+1)/2=1.5$

CO4302 CONSERVATION LEGISLATION**L T P/S C
3 0 0 3****OBJECTIVES:**

- The objective is to understand relationship between laws with the jurisdiction and it's relationship to conservation practice.
- To understand the extent of legal impacts on society and heritage
- To focus on understanding of local and national legislation and practices related to heritage conservation.
- The attempt will improve understanding of international conservation laws
- To interpret conservation laws and to formulate conservation proposals consistent with them.

UNIT I CONDITION OF HERITAGE IN INDIA 6
 Definition of heritage – types of heritage and their value – classification of heritage assets – their condition – means of safe guarding heritage assets – law and its jurisdiction

UNIT II NATIONAL LEGISLATION I 9
 Laws for protection of heritage in India including the provisions under the Constitution of India and 73rd and 74th amendments to the Constitution; AMASR act 1958, Antiquities and Art Treasures Act 1972, The Public Records Act of 1993, Hampi World Heritage Area Management Authority Act 2002, Majuli Cultural Landscape Region Act 2006;

UNIT III NATIONAL LEGISLATION II 12
 Town and Country planning Act, Maharashtra Region - Town and Country Planning Act 1966 Gazettee' Draft list of heritage buildings and precincts for Greater Mumbai the Andhra Pradesh Urban Area Act 1975; Indian forest Act, Land Acquisition Act 1827, Public Premises Eviction Act 1971 etc. Coastal Regulation Zone (CRZ) Regulation; Cantonment Act 2006 and Environment (Protection) Act, 1986 etc.

UNIT IV NATIONAL LEGISLATION III 12
 Legal protection under Ancient Monuments and Archaeological Sites and Remains Act of 1958 with all its amendments (July 1992 notification and The Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010) and the corresponding State Acts. Role of Archeological Survey of India, National Monument Authority, etc. in protection of heritage in India.

UNIT V INTERNATIONAL LEGISLATION 6
 Legal systems of protection of heritage across the globe – Listing of monuments by UNESCO – norms and criteria for protection of world heritage - UNESCO intervention in protecting world heritage Case study - Various plans for conservation including, management plan, conservation plan, etc. and its statutory status.

TOTAL: 45 PERIODS

COURSE OUTCOMES:

Students should be able to

- CO1** Relate law for protection of heritage in India.
- CO2** Explain and understand the role each legislation plays in the society and historic conservation all over the world
- CO3** Apply and assess the importance and need of legislation in our country.
- CO4** Analyze the importance of various laws pertaining to heritage in a national perspective.
- CO5** Build case studies based on legal documents in the form of reports, reviews and presentations.



REFERENCES

1. E.F.N. Ribeiro The Law and the Conservation of Man-made Heritage in India, 1989 New Delhi: INTACH
2. McGlade, James, ed. and Leeuw Time, Process and Structured Transformation in Archaeology, 2010, Sander VanDer, ed. 930.1TIM.
3. Tripathi, Alok Ancient monuments and Archaeological Sites and Remains Act, 1958: with Rules Amendments, Notifications and Orders, 2007 344.094TRI-A.

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	1	-	-	1	3	2
2	1	-	1	1	2	2
3	-	-	3	-	1	-
4	1	-	1	3	1	1
5	1	2	1	1	-	-
AVg.	$(1+1+1+1)/4=1$	2	$(1+3+1+1)/4=1.5$	$(1+1+3+1)/4=1.5$	$(3+2+1+1)/4=1.75$	$(2+2+1)/3=1.6$

OBJECTIVES:

- To expose the students to the various thrust areas in Architectural Conservation.
- To inculcate the spirit of research in Conservation by providing opportunities to read on various issues.
- To expose the students to the finer details of technical writing.
- To provide a platform for a prelude to the 'Design Thesis'.
- To formulate and reinforce knowledge of research procedures, and strengthen ability to undertake independent theoretical research on areas of enquiry, aspects and topics of relevance in Conservation.

Dissertation is best expressed as 'Design in text'. It offers an opportunity to look at the research component in Conservation in various thrust areas such as history, theory, design and other value based aspects through texts. Students are encouraged to choose any topic of their interest. This may range from analyzing and a critique of the works of an architect, ideologies and philosophies of architects that get transformed spatially, history, typological architecture, sustainability issues and so on. The dissertation must comprise of an aim, the objectives, the scope and limitations of their dissertation, hypothesis (if any), methodology followed by extensive review of literature through references and documentation. The analysis of the work must be substantiated either empirically or through extensive arguments. A dissertation could also be a Thesis preparation course and gives the student scope for independent study and opportunity to explore specific area of interest which will form the basis of his/ her design thesis project in the next semester. The topic will have to be approved at the start of the semester and reviewed periodically by a jury at the end of the semester.

TOTAL: 60 PERIODS**COURSE OUTCOMES:****Students able to**

- CO1** Relate to theory and practical aspects of major conservation practices and minor disciplines to undertake independent research.
- CO2** Explain and develop own dissertation topic with research-oriented study
- CO3** Apply and understand the core ideas of Application design through the experimental research
- CO4** Analyze and synthesize a defined context with in-depth study and scientific approach.

REFERENCES:

1. Iain Borden and Kaaterina Ruedi; The Dissertation: An Architecture Student's Handbook; Architectural Press; 2000.
2. John W Creswell; Research design: Qualitative, Quantitative and Mixed Methods Approaches;
3. Linda Grant and David Wang, Architectural Research Methods, John Wiley Sons 2001.
4. Ranjith Kumar; Research Methodology- A step by step guide for beginners; Sage Publications; 2005. Sage Publications; 2002.
5. Wayne C Booth; Joseph M Williams; Gregory G. Colomb; The Craft of Research, 2nd Edition; Chicago guides to writing, editing and publishing.

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	3	-	1	-	-	-
2	2	3	-	-	-	-
3	-	-	2	1	1	-
4	1	1	3	2	1	2
5	-	3	2	1	1	2
AVg.	$(3+2+1)/3= 2$	$(3+1+1)/3= 1.6$	$(1+2+3+2)/4= 2$	$(1+2+1)/3= 1.3$	$(1+1+1)/3= 1$	$(2+2)/2=2$

OBJECTIVES:

- The objective is to introduce the students to the identification of problems and issues confronting heritage at a regional scale.
- To enable the student to understand importance of context and infrastructure needed to sustain urban demands
- To prepare the student to provide potential strategies and opportunities for sustaining the area.

CONTENTS

Projects by either individuals or groups shall be worked upon emphasizing on the following:

- Understanding heritage at a regional scale like-cultural landscape, etc.
- Identification of heritage with acknowledge system approach.
- Demarcation of the heritage are an including revenue boundaries and ownership.
- Statement of Significance.
- Identification of function, use and interdependency within the region.
- Understanding the needs of heritage management and development towards sustainable future.
- Preparation of heritage management strategy.

TOTAL: 150 PERIODS**COURSE OUTCOMES:**

CO1 The students shall study and find solutions to problem and issues confronting heritage at regionalscale.

CO2 The students should be able to analyze the importance of the cultural landscape of the area.

CO3 The studio shall be progressive working group. Deliverables shall include drawings and report.

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	3	-	3	-	-	2
2	3	-	2	2	-	1
3	-	3	-	3	1	2
AVg.	$(3+3)/2=3$	$3/1=3$	$(3+2)/2=3$	$(2+3)/2=2.5$	$1/1=2$	$(2+1+2)/3=1.6$

OBJECTIVES:

- To strengthen further the understanding of students to the nuances of conservation practice through Professional Training.
- To facilitate an understanding of the evolution of a conservation project from documentation to execution.
- To enable an orientation that would include the process of identification, documentation, presentation skills, involvement in office discussions, client meetings, development of the drawings, report/ manual writing, site supervision during execution and coordination with the agencies involved in the conservation process.

The Professional training is of minimum 6 weeks training under a conservation architect/ organization (Governmental or NGO) involved in conservation between the II and III Semesters. The choice of Office / Organization must be approved by the Head of the Institute.

At the end of the Professional Training, a portfolio of work done during the period of Training along with certification from the office is to be submitted for evaluation by a viva voce examination. This will evaluate the understanding of the students about the drawings, detailing, materials, construction method and the knowledge gained during client meetings, consultant meetings and site meetings. The Head of the office/Organization were the student underwent Professional Training shall award 50% of the marks for the Viva Voce examination.

COURSE OUTCOMES:

- CO1** Ability to translate skills and knowledge of conservation architect acquired at university into a professional setting.
CO2 Increased skills in performing tasks and ability to communicate in a professional setting.
CO3 Understand the social and ethical role and show skills in using software applications in a professional context.

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	3	-	3	-	-	2
2	3	-	2	2	-	1
3	-	3	-	3	1	2
AVg.	$(3+3)/2=3$	$3/1=3$	$(3+2)/2=3$	$(2+3)/2=2.5$	$1/1=2$	$(2+1+2)/3=1.6$

CO4411

THESIS PROJECT

L T P/S C
0 0 20 20

OBJECTIVES:

- The objective is to develop and acquire more specialized knowledge in the field of conservation through conservation projects or scientific research.
- The Thesis Project is a final culmination of knowledge acquired by students through the course of their sustainability curriculum.
- Theoretical, cognitive, empirical and analytical skills pertaining to architectural sustainability will be tested during the thesis program.
- Students shall consider large scale campus, environmental site planning, conservation, heritage districts etc.

CONTENTS

- Thesis is the main academic effort and culmination of all information and techniques learnt in the preceding semesters.
- Selection of thesis topic shall be from any aspect of Conservation whether theoretical, technical, management, operational or intervention.
- It is expected to undertake original work including data collection and primary surveys
- As part of the studio requirements, it is expected to go through a process of documentation, analyses and synthesis related to the specific topic and related area of work.
- It is required to work under the guidance of a supervisor allotted by the department and complete the requisite work in the course of the semester, ending in a viva-voce exam by a panel of examiners both external and internal.
- Progressive valuation would be done by a panel of external and/or internal jurors during reviews held at intervals during the course of the semester.

Students will submit a detailed proposal on their topic of interest. The Proposal shall be approved by the thesis review committee. The thesis project will be reviewed periodically by the review committee. At the end of the semester, the final thesis will be submitted and presented through a viva voce examination before a jury. Submission and defense of the thesis will be through drawings, reports, study sheets, models and digital presentations and verbal communications in all the reviews and the final viva-voce.

TOTAL: 300 PERIODS

OUTCOMES:

- CO1** Students would be able to integrate various contemporary and advanced issues and techniques into the architectural conservation process.
- CO2** Students would be able to identify and go in depth into specific and appropriate aspects relating to the discipline of conservation and reflect this in the realm of design.
- CO3** The scope and extent in the thesis works shall be substantial and realizable in application or concept as appropriate to the selected area of work.

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	3	1	3	2	1	-
2	1	-	-	2	-	3
3	-	2	1	3	1	2
AVg.	$(3+1)/2=2$	$(1+2)/2=1.5$	$(3+1)/2=2$	$(2+2+3)/3=2.3$	$(1+1)/2=1$	$(3+2)/2=2.5$



OBJECTIVES:

- The objective of the module is to sensitize students to the significance of cultural influences.
- To become aware of cultural differences and similarities, and to encourage others to interact and communicate efficiently with people of diverse cultural backgrounds.

UNIT I INTRODUCTION**6**

Definition of Anthropology & Sociology – Its origin & development - Culture studies – Debate on the need for cultural studies – Popular theories of cultural interference – Cultural influence on life style

UNIT II ANTHROPOLOGY**6**

Anthropology as a field of enquiry - nature and scope of anthropology - relationship of anthropology with architecture and other social sciences - Principles and methods of anthropological research - conceptualization of research - formulation of hypothesis, source of data, techniques of data collection
- sampling, presentation and interpretation of data - methods of exploration.

UNIT III NATIONAL & INTERNATIONAL CULTURE**9**

Concepts and principles of national and international culture – Inter cultural and cross-cultural communication - Individual and collective, Social Interaction & Structure, Culture & community life, Socialization & social processes – Primary and Secondary Relations – material and mental - Culture, Authority, Social Control, conformity and Deviance, Difference and inequality.

UNIT IV CULTURE & ARCHITECTURE**12**

Cultural concept: of house, neighborhood and cultural identity of a place - Settlement plans: cultural perspective, villages – tribes and non-tribal rural towns and township and cities - Cultural role of cities and sacred complex, rituals and festivals - Rural and urban Continuum

UNIT V GLOBALISATION**12**

Coding and Decoding of verbal and non-verbal communication in its cultural context – Developing skills for inter cultural communication – Understanding relationship between culture and globalization
– Understanding process of globalization to international politics including politics of/for heritage - Understanding the relationship between local culture and global citizenship.

TOTAL: 45 PERIODS**OUTCOMES:**

- CO1** Students shall be equipped to interact and communicate with people of diverse cultural background.
- CO2** Students will understand the relationship of anthropology and architecture
- CO3** Students will learn concepts and principles of national and international culture
- CO4** The assignments shall include application of skills in primary survey.
- CO5** Assignment will be in the form of reports, reviews and tutorials with suitable illustrations.

REFERENCES

1. Barry, Peter Beginning theory: An Introduction to literary and cultural theory, 2011 801.95BAR-B
2. Bono, Edwardde Lateral and Parallel Thinking [http:// www.edwdebono.com/debono/lateral.htm](http://www.edwdebono.com/debono/lateral.htm)
3. Pande, Anupa, Art of Central Asia and the Indian subcontinent in Cross-Cultural Perspective, 2009 ed. 709.58ART
4. Paul Oliver (Editor) Encyclopedia of Vernacular Architecture of the World ISBN-10:0521564220
5. Verma, S. P. Crossing cultural frontiers: Biblical themes in Mughal painting, 2011 759.04VER-C

CO	PO					
	1	2	3	4	5	6
1	3	1	-	2	-	1
2	-	1	2	2	2	2
3	1	-	2	1	2	2
4	3	2	1	1	2	2
5	-	3	-	-	-	-
AVg.	$(3+1+3)/3=2.33$	$(1+1+2+3)/4=1.75$	$(2+2+1)/3=1.67$	$(2+2+1+1)/4=1.5$	$(2+2+2)/3=2$	$(1+2+2+2)/4=1.75$

CO4002

SHARED BUILT HERITAGE

L T P/S C

3 0 0 3

OBJECTIVES:

- The objective is to build understanding for protection and management of Shared Built Heritage.
- To look at SBH from a cultural perspective and approach conservation from a cultural Stand point.
- Its aim is to evolve the scope, scale and meaning of SBH from built environment across the culture.

UNIT I INTRODUCTION

9

Definition of Shared Built heritage - Defining and recognizing Shared Built heritage/Regions- location, formation, characteristic features– Definitions of Shared Built heritage as understood by other disciplines like UNESCO & ICOMOS.

UNIT II UNDERSTANDING SHARED VALUES

9

Understanding 'Whose 'heritage? –Cultural boundaries- Shared values- assessment-statement of significance-conflicting memories and association-Shared responsibility-Shared identity

UNIT III COLONIAL SHARED BUILT HERITAGE

12

European colonization-historical overview- cultural context-British, Scottish, Dutch, Danish, French influences-influence of indigenous knowledge of Indian culture in colonial buildings- symbolism- Case studies from India--revival of shared legacy-Sustainable development and future of SBH in India.

UNIT IV CASE STUDIES: CONSERVATION OF SBH

6

Assessment of shared values- conservation projects: National & International case studies-policy level interventions-cross cultural reflections on political dominance-urban heritage conservation.

UNIT V CASESTUDIES

9

Case studies –understanding the issues-interventions-developing various meanings of Shared built heritage through examples.

TOTAL: 45 PERIODS

OUTCOMES:

CO1 Students shall acquire knowledge about Shared Built heritage.

CO2 Students will learn the values and challenges of conserving shared built heritage

CO3 assignments would include application of concepts towards identification, understanding and mapping of Shared built heritage.

CO4 Assignment will be in the form of reports, drawings and presentations.

CO5 The students shall make progressive presentations for reviews at various stages.

REFERENCES:

1. Beyond Tranquebar, Grappling Across cultural boundaries in South India, edited by Esther Fihl, A.R.Venkatachalapathy, 2014
2. The Governor’s residence in Tranquebar, Edited by Esther Fihl
3. Imperial Converstation, Indo-Britons and the Architecture of South India by Shanti Jayewardene-Pillai, 2007
4. Chapter, Second two- Whose heritage? Local and Global perspectives,The heritage reader , Edited by Graham Fairclough,Rodney Harrison, John H.Jameson Jnr, John Schofield.

CO	PO					
	1	2	3	4	5	6
1	-	1	2	1	2	2
2	2	2	2	2	1	3
3	2	2	2	2	2	1
4	-	3	2	2	2	1
5	2	3	2	1	1	-
AVg.	$(2+2+2)/3=2$	$(1+2+2+3+3)/5=2.2$	$(2+2+2+2+2)/5=2$	$(1+2+2+2+1)/5=1.6$	$(2+1+2+2+1)/5=1.6$	$(2+3+1+1)/4=1.75$

CO4003

NATURAL AND DESIGNED LANDSCAPE

L T P/S C
3 0 0 3

OBJECTIVES:

- The objective is to understand the difference between Natural and Designed Landscape.
- It shall elaborate on the need and means to tackle the various issues related to conserving the historic landscapes, as an important aspect of cultural heritage.

UNIT I NATURE & ECOLOGY

6

Understanding the ecosystem and their functioning — components of ecosystem - natural processes

- Fundamentals of ecology - Ecological processes and dynamics– understanding ecological concepts like population growth, regulation, carrying capacity - colonization and succession - stability and resilience of ecosystem – ecosystem degradation.

UNIT II LANDSCAPE & ECOLOGY

6

Introduction to landscape ecology – formation of various landforms – landforms and landscape process – pattern and structure of landscapes– concepts of patch, corridor and matrix - landscape dynamics and function – topological and chorological process within landscape - concept of landscape metrics – understanding dynamic interaction between landscape structure and function – ecological services of landscape.

UNIT III SITE PLANNING PRINCIPLES

9

Contours – representation of landforms and landform design, interpolation of contours, slope analysis,uses and function - Earth works – principles of earth work, cut and fill calculations – borrow pitmethod, average end area method, average spot level method, precautions taken in cut and fill methods in relation to soil conditions, amount of precipitation etc.,

UNIT IV LANDSCAPE DESIGNS OF INDIA

12

Early traditions and beliefs about landscape and environment in east - Ancient Indian traditions – Symbolic meanings and sacred value of natural landscapes - Open space development and its urban design and planning context - Public park as a major component of urban landscape - Open space development and Close conceptual relationship between Town planning, urban design and landscapearchitecture - Issues in contemporary India, Analysis and understanding of philosophies of contemporary landscape works in India, case studies.

UNIT V LANDSCAPE MANAGEMENT**12**

Landscape management at the regional scale in relation to soil conservation, Land use planning and resource management - water management, forest management, grassland and agricultural management. Management practice related to urban ecology and urban habitats such as urban forests, urban water sheds, regional parks, green belts, Ecological, Economic and administrative issues, management models.

TOTAL: 45 PERIODS**OUTCOMES:**

CO1 Students shall develop skills to identify, maintain and manage natural and designed landscapes.

CO2 Students will learn site planning concepts

CO3 Students will learn landscape management models to handle the issues

CO4 The assignments shall include case studies and application of principles for conservation.

CO5 Assignment will be in the form of reports, reviews and tutorials with suitable illustrations.

REFERENCES

1. Gokhale, Yogesh, ed. And Negi, Ajeet K. 333.9516COM, Community-based biodiversity conservation in the Himalayas,2011
2. Lindenmayer, D.B., ed. And Hobbs, R.J.,ed. Managing and designing landscapes for conservation: moving from perspectives to principles,2007 712MANK8
3. Nigel,ed. Arguments for protected areas: Multiple benefits for conservation and use, 2010 Stolton, Sue, ed. And Dudley, 333.9516ARG
4. Priyaleen Singh Historic Gardens: making an Inventory for the Indian context, 2006. New Delhi:INTACH.
5. Rose, Dilys, ed. And Elliott, Joanna Earth-scan reader in poverty and biodiversity conservation,2010, ed. 333.9516EAR
6. Trombulak, Stephen C., ed. And Baldwin, Robert F., ed. Landscape-scale conservation planning,2010 333.72LAN

CO	PO					
	1	2	3	4	5	6
1	-	-	1	1	2	2
2	-	-	2	2	2	-
3	1	1	1	2	2	3
4	1	2	-	2	2	2
5	1	2	2	2	2	2
AVg.	$(1+1+1)/3=1$	$(1+2+2)/3=1.67$	$(1+2+1+2)/4=1.5$	$(1+2+2+2+2)/5=1.8$	$(2+2+2+2+2)/5=2$	$(2+3+2+2)/4=2.25$

CO4004**CULTURAL LANDSCAPES****L T P/S C**
1 0 2 3**OBJECTIVES:**

- The objective is to build understanding for protection and management of cultural landscapes.
- To look at a region from a cultural perspective and approach conservation from a cultural stand point.
- Its aim is to evolve the scope, scale and meaning of heritage from buildings to entire regions.

UNIT I INTRODUCTION TO CULTURAL LANDSCAPE**6**

Definition of landscape-ecology - Defining and recognizing Cultural Landscapes/Regions-location, formation, characteristic features– Definition of cultural landscapes as understood by other disciplines like US National Park Services and UNESCO.

UNIT II CULTURAL GEOGRAPHY 9

Techniques for assessing the cultural values of a Cultural Landscapes/Region - Demarcating Cultural Landscapes through various parameters like political, physical, natural, linguistic boundaries, etc. - Describing the cultural region through its components – the tangible heritage and the intangible aspects like crafts, traditional skills and local knowledge systems of such zones

UNIT III ASSESSMENT OF CULTURAL LANDSCAPE 12

Need and use of assessment of cultural landscape –Methods of mapping the Cultural Landscapes– Forests and vegetation – their cultural values - Cultural Geography and regional symbolism - meanings behind cultural landscapes - components that make them unique - Review of contemporary regional boundaries based on standard parameters - cultural boundaries that exist in people’s minds integrated with their lifestyles and culture

UNIT IV PRESERVATION OF CULTURAL LANDSCAPE 12

Analysis of Cultural Landscapes - Case study – identified in World Heritage List and in India like Braj, Bundelkhand, Kutch, Rock Shelters of Bhimbetka, etc. – cultural restoration of Ganga River.

UNIT V MANAGEMENT OF CULTURAL LANDSCAPE 6

Management and Conservation of Cultural Landscapes /Regions – preservation strategies – tourism potential – threats to cultural landscapes and the causes – methods to safe guard and promote these landscapes

TOTAL: 45 PERIODS

OUTCOMES:

- CO1** Students shall acquire knowledge about cultural landscapes.
- CO2** The assignments would include application of concepts towards identification, demarcation and mapping of cultural landscapes.
- CO3** Students will learn to assess the cultural landscape
- CO4** Assignment will be in the form of reports, drawings and presentations.
- CO5** Students will learn to apply the strategies to preserve the cultural landscape

REFERENCES

1. Agnoletti, Mauro, ed., Conservation of Cultural Landscapes, 2006 304.2CON
2. Oliver, Paul, Built to meet Needs: Cultural Issues in Vernacular Architecture, 2006 720. 103OLI-B
3. Singh Purushottam, Archaeology of the Ganga Plain: Cultural-Historical Dimensions, 2010, 930.10954SIN-A
4. Singh, Rana P.B., ed. Heritage Scapes and Cultural Landscapes, 2011, 304.2HER.

CO	PO					
	1	2	3	4	5	6
1	1	-	1	-	-	-
2	2	2	1	2	2	2
3	2	-	2	2	2	2
4	2	3	2	-	-	-
5	-	-	2	2	2	3
AVg.	$(1+2+2+2)/4=1.75$	$(2+3)/2=2.5$	$(1+1+2+2+2)/5=1.6$	$(2+2+2)/3=2$	$(2+2+2)/3=2$	$(2+2+3)/3=2.33$

CO4005 MUSEUM DESIGN AND MANAGEMENT

L T P/S C
1 0 2 3

OBJECTIVES:

- The objective is to train and develop skills for Museum Design.
- To introduce design and planning aspects of museum
- To develop the ability to create inventories
- To introduce digital interference
- To learn to make management plans

UNIT I INTRODUCTION	6
Introduction to Museums – Collections and Artifacts – Types of objects – Public and private collections and museums – Characteristics of different display objects like historic, natural, prints, paintings, sculpture etc.	
UNIT II PLANNING & DESIGN	12
Spatial Planning – Classification of spaces into public, private etc. – Hierarchy of spaces – Safety and intrusions prevention - Vertical movement planning – Services including HVAC, Lighting, and IAQ etc. - Adapting an existing structure to set a museum – Case studies	
UNIT III ARCHIVING & INVENTORY	9
Collection of artifacts – Methods of collecting – Certification of antiquity – Registering – Log maintaining – Storage facilities in museums – Classification of objects – Display of artifacts – Rotational display system	
UNIT IV DIGITAL INTERFERENCE	12
Digital tools in museum management – CCTV and other safety equipment's – Information system – IBMS in museums – Digital Inventory – Information sharing to public through internet – Online information system on the museum	
UNIT V MUSEUM MANAGEMENT	6
Legislations and governance policies of museums in India – Safety Management – Security system –Precaution from natural disasters – Visitor management	

TOTAL: 45 PERIODS

OUTCOMES:

- CO1** Students will learn the basics of museum
- CO2** Students will learn design and planning aspects
- CO3** Students will create inventories
- CO4** Students will acquire knowledge to use digital tools in museum management
- CO5** Assignment will be in the form of are port, site visit report, class reviews and tutorials covering topics mentioned above with suitable illustrations and supportive material.

REFERENCES

1. Barry Lord, Gail Dexter Lord, Lind say Martin Manual of Museum Planning: Sustainable Space, Facilities and Operations ISBN:0759121478
2. Edward Porter Alexander Museums in motion: an introduction to the history and functions of museums ISBN:075910509X
3. George Jacob Museum: Design the Future, BooksurgeLlc, 2009 ISBN:1439235740
4. Kevin Moore Museum Management ISBN:1134830653
5. Suzanne Macleod Reshaping Museum Space, Routledge, 2005 ISBN:0203483227

CO	PO					
	1	2	3	4	5	6
1	-	-	1	1	-	-
2	1	-	1	1	2	2
3	2	2	1	1	1	2
4	-	1	2	2	2	2
5	2	3	2	2	2	2
AVg.	$(1+2+2)/3=1.67$	$(2+1+3)/3=2$	$(1+1+1+2+2)/5=1.4$	$(1+1+1+2+2)/5=1.4$	$(2+1+2+2)/4=1.75$	$(2+2+2+2)/4=2$

OBJECTIVES:

- The students will learn various early approaches to conservation
- The objective is to introduce personalities, ideologies and various philosophies that helped to formulate the principles of conservation discipline as it exists today abroad.
- Students will learn from case studies
- To be introduced to architectural conservation in the USA
- The students shall be introduced to the various charters and development of UNESCO as the global agency and its role in the field of conservation.

UNIT I EARLY APPROACH TO CONSERVATION 6

Beginnings in the Renaissance – Works of Filippo Brunelleschi – Architectural Treatises of 15th Century – Early practice and protection - Conservation practices in the 17th Century – Reformist Movements and Neo Classicism – Archaeological Interests in the Age of Enlightenment - French Revolution, destruction and orders for protection

UNIT II DEVELOPMENT OF CONSERVATION THEORIES IN EUROPE 12

Restoration of Classical monuments – English Antiquarianism - Early Restoration in Germanic Countries – Early Efforts in Conservation in France - Organization and Administration — Discussion on Principles in France - Viollet-le-Duc, ‘Stylistic Restoration’— The Gothic Revival and Restoration— The Anti-Restoration Movement - Restoration Influences in Italy - Germanic Countries, ‘Denkmalkultus’

UNIT III CASE STUDIES 12

Stylistic restoration & conservation movement in Italy - Restoration & conservation in the Papal states of Rome, Restoration & protection in Athens, Restoration of Durham Cathedral, Restoration of Magdeburg Cathedral, Restoration of la Madeleine, Vézelay

UNIT IV ARCHITECTURAL CONSERVATION IN THE USA 9

Conserving Historic Engineering Structures: Bridges, Emergence of an Historic Preservation System in the 1960s, The Economics and Standards of Historic Preservation, The Defining Role of U.S. Conservation Science and Technology, Preserving a Mosaic of Heritages in the United States and Its Territories, Historic Preservation and Sustainable Development

UNIT V RECENT TRENDS 6

Governmental indulgence in conservation in developed nations of the west – Financial and Administrative policies for conservation in developed countries – International Charters on conservation, International Concern in Cultural Heritage — Formation of International Guidelines - International agencies involved in conservation – Contemporary aspects of heritage and conservation in the age of globalization

TOTAL: 45 PERIODS**OUTCOMES:**

CO1 Students shall be introduced to the evolution and principles of conservation in the West.

CO2 Students will be knowing the theories of Europe

CO3 Students will be learn architectural conservation from various examples from USA

CO4 The assignments shall include studies of various charters and roles of various organizations in conservation.

CO5 Assignment will be in the form report, class reviews and tutorials covering topics mentioned

REFERENCES

1. Bracker, A., Ed. and Richmond, A.,ed. Conservation: principles, dilemmas and uncomfortable truths,2009 363.69CON
2. Cleere Henry Approaches to the Archaeological Heritage: A Comparative Study of World ISBN:9780521243056
3. Cumming Sir John Revealing India's Past(COSMOPUBLICATION) ISBN81-307-0087-5
4. Glendinning, Miles The Conservation Movement: a History of Architectural Preservation (ROUTLEDGE2013) 978-0-415-54322-4
5. John H. Stubbs and Emily G. Makas Architectural Conservation in Europe and the Americas -National experiences and practice ISBN 978-0470603857
6. Jukka Jokhileto A History of Architectural Conservation ISBN 07506 55119

CO	PO					
	1	2	3	4	5	6
1	-	-	1	1	1	2
2	1	-	2	2	2	2
3	1	-	1	1	2	2
4	2	1	2	2	1	1
5	2	3	1	2	2	2
AVg.	$(1+1+2+2)/4=1.5$	$(1+3)/2=2$	$(1+2+1+2+1)/5=1.4$	$(1+2+1+2+2)/5=1.6$	$(1+2+2+1+2)/5=1.6$	$(2+2+2+1+2)/5=1.8$

CO4007

SACRED LANDSCAPES

L T P/S C
3 0 0 3

OBJECTIVES:

- The objective is to understand the concept of sacred landscapes, understanding and its connection to religion as a way of living.
- To understand the evolution of sacred towns
- To know relationship between pilgrimage route and architecture
- To extend the knowledge through various case studies
- To enable skills to handle tourism related challenges

UNIT I

INTRODUCTION

6

Concept of sacred landscape – Connection between religion and sacred landscape - Historic/religious cities as sacred landscape - Components of sacred landscapes including built, forest, water systems, etc. – Analysis of sacred landscape.

UNIT II

EVOLUTION OF SACRED TOWN

6

Historic evolution of sacred towns – Religious aspects of geographical features like rivers, mountains, hillocks, tanks – Development and planning strategies of religious towns – Settlement study – Characteristic features of these towns

UNIT III

PILGRIMAGE AND ARCHITECTURE

9

Importance of pilgrimage in various religious contexts – Prominent pilgrimage routes in India – Characteristic of landscape in these towns – Architecture associated with travel – Development of settlements based on natural resource availability.

UNIT IV

RELIGIOUS TOWN CONSERVATION

12

Over view of urban development of religious towns in India and Tamil Nadu- understanding the character and issues of historic cities – select case studies of towns like Srirangam, Kumbakonam and Kanchipuram historic districts and heritage precincts.

UNIT V TOURISM MANAGEMENT**12**

Tourism Planning Methods and Analysis, Transport and other Infrastructure planning in tourism development, Urban and Rural based tourism - Tourism as a system- market, function and external factors, Government and tourism policy and priorities, Role of local community and Tourism promotion.

TOTAL: 45 PERIODS**OUTCOMES:**

- CO1** Students shall acquire knowledge about uniqueness of sacred landscapes and its importance in Indian context.
- CO2** Students will learn the evolution of the sacred towns
- CO3** Students will learn the relationship of pilgrimage routes and architecture
- CO4** Assignments will include exploration to analyze the sacredness in a landscape and its uniqueness and its connection to historic core.
- CO5** Assignment will be in the form of reports, drawings and presentations. The students shall make progressive presentations for reviews at various stages.

REFERENCES

1. Chakravarthy, Pradeep Thanjavur: A Cultural History, 2010 726.145CHA-T
2. Behera, K.S. Lingraja temple of Bhubaneshwar: Art and Cultural Legacy, 2008 726.1450954133BEH- L
3. Filiozat, Vasundhara Kalamukha temples of Karnataka: Art and Cultural Legacy, 2012 726.145095483FIL-K
4. Jackson, W.J. Vijayanagara Visions: Religious Experience and Cultural Creativity in a South Indian empire, 2007 954.87JAC-V
5. Lin, Jan Power of Urban Ethnic Places: Cultural Heritage and Community Life, 2011 307.7608900973 LIN-P
6. Ray, H.P. (ed) Sacred Landscapes in Asia: Shared Traditions, Multiple Histories, 2007 New Delhi: IIC-Manohar

CO	PO					
	1	2	3	4	5	6
1	1	-	1	2	1	1
2	1	-	1	1	2	1
3	2	-	2	2	2	2
4	2	1	2	2	2	2
5	1	3	2	2	2	2
AVg.	$(1+1+2+2+1)/5=1.4$	$(1+3)/2=2$	$(1+1+2+2+2)/5=1.6$	$(2+1+2+2+2)/5=1.8$	$(1+2+2+2+2)/5=1.8$	$(1+1+2+2+2)/5=1.6$

CO4008**WORLD HERITAGE SITES****L T P/S C
3 0 0 3****OBJECTIVES:**

- The objective is to develop skills in management of World Heritage Sites.
- To introduce the role of UNESCO
- To enable students to understand the management policies
- To make them learn strategies through case studies
- To learn conservation concepts from various case studies from India and abroad.

UNIT I INTRODUCTION**7**

Definition and list of World Heritage Sites - UNESCO World Heritage Convention and its implementation, including the processes of inscription and monitoring of World Heritage properties

UNIT II ROLE OF UNESCO 9

Formation of UNESCO – Charters pertaining to WHS – Nomination Criteria – Current state of affairs - theory and practice of conserving natural heritage, i.e. species, ecosystems and biodiversity, and cultural heritage, i.e. monuments, sites and landscapes – Brief discussions on select UNESCO Projects pertaining to conservation

UNIT III MANAGEMENT POLICIES 9

Nomination Dossiers - Funding – Listing of Structures under danger – Inter-relational approach – Intercontinental participation – Directions and Principles – Management hierarchy – Managing selected sites – Local representation - Operational Guidelines – Facilitation requirements – Impact of nomination of World Heritage Site on socio-economic condition of the surroundings.

UNIT IV PROTECTION GUIDELINES 10

Conservation activities of UNESCO – Strategies – Planning of phased conservation – conservation guidelines – Community participation - Case Study Abu Simbel restoration – Ankorwat , Cambodia

UNIT V CASE STUDIES 10

Select Case studies from India and abroad

TOTAL: 45 PERIODS

OUTCOMES:

- CO1** Students will acquire knowledge about nomination process of World Heritage Site.
- CO2** Students will understand the role of UNESCO
- CO3** Students will be able to understand the management policies and to apply the knowledge
- CO4** Students will learn conservation strategies through various case studies
- CO5** Assignment shall include preparation of tentative list document for a given site.

REFERENCES

1. Convention concerning the protection of the World Cultural and Natural Heritage: adopted by the General Conference at its 17th session, Paris. UNESCO1972
2. Operational Guidelines for the implementation of World Heritage Convention, World Heritage Centre. UNESCO, 2003.

CO	PO					
	1	2	3	4	5	6
1	-	-	2	1	1	1
2	1	-	2	2	2	2
3	2	-	2	2	2	2
4	2	1	2	2	2	2
5	2	3	1	2	2	2
AVg.	$(1+2+2+2)/4=1.75$	$(1+3)/2=2$	$(2+2+2+2+1)/5=1.8$	$(1+2+2+2+2)/5=1.8$	$(1+2+2+2+2)/5=1.8$	$(1+2+2+2+2)/5=1.8$

**CO4009 SUSTAINABILITY AND CONSERVATION L T P/S C
3 0 0 3**

OBJECTIVES:

- The objective is to develop skills towards understanding the need for conservation of energysystems and water ways.
- The focus will be on traditional systems of water management and contemporary methods of conserving energy.
- It emphasis on the role of sustainability within the historic context at both technical and strategic levels.

- Recognize both the character-defining and inherently sustainable features of a historic building.
- Designing, managing and protecting infrastructure with focus on conservation and sustainability ensuring responsible use of energy and natural resources while protecting the environment for future generations.

UNIT I INTRODUCTION 6

Aim and purpose of conserving energy and water – Need and objectives – National policies and legislations of the same – Introduction to National and International agencies that works towards conserving energy and water

UNIT II INTRODUCTION TO FORMS OF ENERGY 6

Definition, classification and types of energy - Current energy requirements, growth in future energy requirements, Review of conventional energy resources: coal, gas and oil reserves and resources, tar sands and oil shale, nuclear energy - Need for conversion to renewable energy - Sources of renewable energy – Case studies on advantages, disadvantages of Solar, Wind, oceanic & geothermal forms of energy.

UNIT III ENERGY CONSERVATION TECHNIQUES 12

Energy conservation and sustainability, principles of energy systems, energy and global environment, scope for energy conservation in architecture- Various methods of energy conservation in architecture, energy conservation techniques in various climates- hot and humid, hot dry, etc., Energy efficient site planning and development, Energy efficient design detailing.

UNIT IV TRADITIONAL METHODS OF WATER CONSERVATION 9

Traditional community wisdom regarding water conservation from different climatic zones of the world - Traditional Architecture of wells in Rajasthan, Gujarat, Tamilnadu – Stepped Wells, Baoris, Pushkarnis, Tanks, etc. Design for water conservation – Building and products - Designing building services, plumbing and sanitary design for effective water reuse, recycling, and recharge - Rain water harvesting techniques – Basic Concepts, piping techniques and pit design for groundwater recharge of wells.

UNIT V INTRODUCTION TO ENERGY CONSERVATION 12

Conservation of the water cycle as a single system – Conserving water supply, sanitation and drainage systems in neighbourhood - Social imperatives, environmental considerations and economic challenges and Technological options for water conservation, recycling, reuse, conservation and treatment - Planning of settlements and large campuses based on principles of sustainable watersheddevelopment with water as a priority resource. Reuse of grey water for non-potable uses - Wetlands for natural waste water treatment, use of wetlands for natural storm water and vegetated natural roof tops.

TOTAL: 45 PERIODS

COURSE OUTCOMES:

Students able to

- CO1** Relate and understand the need and importance of conserving energy and water.
- CO2** Explaining how sustainability will ensure responsible use of our energy and natural resources while protecting our environment for generations to come.
- CO3** Applying gained technical knowledge about conservation techniques to conserve water and other forms of energy.
- CO4** Analyze the rapidly changing pattern of life and scale of activities and understand the various principles of energy systems and sustainability.
- CO5** Build and emphasis on minimizing energy consumption, demonstrating energy efficiency, adaptation to future climate change and obtaining materials from sustainable sources and avoiding long transportation.

REFERENCES

1. Ahmed F. Zobaa Handbook of Renewable Energy Technology
2. John Briscoe, R.P.S. Malik(Ed.)Handbook of Water Resources in India: Development, Management, and Strategies Oxford University Press, 2007
3. K. Nageswara (Ed.) Water Resources Management: Realities and Challenges Eastern Book Corpn., 2006.
4. Robert Brown and Jenny J Gillespie, Micro climatic landscape design – creating thermal comfortand energy efficiency, John Wiley, N.Y, 1995

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	1	-	2	-	-	-
2	1	-	3	2	2	3
3	1	-	3	3	2	1
4	2	-	3	2	1	-
5	1	-	-	-	-	-
AVg.	$(1+1+1+2+1)/5=1.2$	-	$(2+3+3+3)/4= 2.75$	$(2+3+2)/3= 2.3$	$(2+2+1)/3= 1.6$	$(3+1)/2= 2$

CO4010

LANDSCAPE CONSERVATION

L T P/S C
3 0 0 3

OBJECTIVES:

- The objective of this course is to introduce the students to different types of historic landscape planning principles as found in various parts of world
- The subject will focus on ways to conserve the landscape through various traditional and modern means.
- To address the contemporary challenges that face the sustainable use and conservation of historic landscapes to ensure healthy ecosystems for future generations.
- To identify threats and sensitive landscapes including cultural, or historic landscapes.
- To study appropriate cases where approaches and proposed sustainable solutions are present which are critical to the future development of key economic sectors.

UNIT I INTRODUCTION TO HISTORIC LANDSCAPE DESIGNS

6

Introduction to landscape architecture, ecology, ecological balance, landscape conservation - reclamation and restoration of derelict landscapes, environmental impact assessment - Landscape and garden design in history - Japanese, Italian Renaissance and Moghul gardens in India, Study of notable examples, Spatial development in landscape design.

UNIT II EVOLUTION OF MODERN LANDSCAPE DESIGNS

9

Industrialization and urbanization – impacts and development of the concept of public, open spaces, open space development in new towns, parks movement, Open space development and its urban design and planning context, Early industrial towns and the garden city movement, Public park as a major component of urban landscape, the works of F.L.Ohmstead, and other pioneers, Open space development and Close conceptual relationship between Town planning, urban design and landscapearchitecture, Examples.

UNIT III MODERN MOVEMENTS & CONTEMPROARY CONCEPTS

12

Changing concepts of space and the relationship of architecture to landscape, Study of selectedworks of modern architects and landscape architects, Post-war development in Europe, The influence of Ian Mcharg on Landscape architecture, The works of Jellicoe, Burle Marx and others, Concept of sustainable landscape development, Cultural landscapes their definition, identification, characteristics, policies, Artistic sensibility in landscape architecture and land art, New development in urban Landscape design.

UNIT IV SUSTAINABLE PRACTICES IN LANDSCAPE CONSERVATION**12**

Need and concept of sustainability, Brundtland report, World Commission on environment and development, sustainable development, sustainable growth, sustainable economy and sustainable use. Visions of sustainability, Source and ethics of sustainability. Sustainability and Climate Change - Sustainable landscape maintenance and management, Conservation and preservation of ecological fragile areas such as wetlands, creeks etc. - Conservation ordinances

UNIT V CASE STUDIES**6**

Selected case studies on various types of landscape conservation in India and abroad

TOTAL: 45 PERIODS**COURSE OUTCOMES:****Students should be able to**

- CO1** Relate and understand various historic landscape designs, principles and their development
- CO2** Explain the historic development and growth of various types of landscape planning.
- CO3** Identify various methods of landscape conservation and apply specific methods wherever required.
- CO4** Analyze historic landscapes, their relationship with heritage structures and make informed land management decisions
- CO5** Build strategic and integrated plans which are essential for sustaining indispensable landscapes.

REFERENCES

1. Anne Simon Moffat and Marc Schiller Landscape design that saves energy William Monow andco.,Inc., New York, 1981
2. Geoffrey and Susan Jellicoe The Landscape of Man Thames and Hudson, 1987
3. John.F.Benson and Maggie.H.Roe Landscape and sustainability John Wiley Publication, NewYork, 2000
4. O.R.Gray Landscape Planning for Energy Conservation

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	3	-	2	2	-	-
2	-	-	3	3	2	1
3	3	-	2	1	3	2
4	1	1	3	2	1	2
5	-	2	-	-	-	-
AVg.	$(3+3+1)/3=2.3$	$(1+2)/2=1.5$	$(2+3+2+3)/4=2.5$	$(2+3+1+2)/4=2$	$(2+3+1)/3=2$	$(1+2+2)/3=1.6$

CO4011**URBAN CONSERVATION AND PRACTICE****L T P/S C
3 0 0 3****OBJECTIVES:**

- To introduce to the students the idea of conservation as enhancing quality of life, as effective planning strategy, as means of particularization of place and as a way to address issues of memory and identity.
- To introduce the students to issues and practices of urban conservation at various levels and scales.
- To give an overview of current status of conservation in India.

- To examine the conservation process of maintaining and managing change to a heritage asset in a way that sustains and where appropriate enhances its significance.
- To introduce the student to the various norms and planning tools to improve tourism and urban conservation.

UNIT I INTRODUCTION TO CONSERVATION 5

Understanding Heritage. Types of Heritage. Heritage conservation – Need, Debate and purpose. Defining Conservation, Preservation and Adaptive reuse. Distinction between Architectural and Urban Conservation. International agencies like ICCROM, UNESCO and their role in Conservation

UNIT II CONSERVATION IN INDIA 8

Museum conservation – monument conservation and the role of Archeological Survey of India – role of INTACH – Central and state government policies and legislations – inventories and projects – select case studies – craft Issues of conservation – conservation project management.

UNIT III CONSERVATION PRACTICE 12

Listing of monuments – documentation of historic structures – assessing architectural character – historic report – guidelines for preservation, rehabilitation and adaptive re-use of historic structures – seismic retrofit and disabled access /services additions to historic buildings – heritage site management.

UNIT IV URBAN CONSERVATION 12

Over view of urban history of India and Tamil Nadu – understanding the character and issues of historic cities – select case studies of sites like Thanjavur, Kumbakonam, Kanchipuram, Chettinad – historic districts and heritage precincts.

UNIT V CONSERVATION AND URBAN PLANNING 8

Norms for conservation of heritage buildings and sites as part of Development Regulations - Conservation as a planning tool – financial incentives and planning tools such as TDR, (transferable development right) – Urban conservation and heritage tourism.

TOTAL: 45 PERIODS

COURSE OUTCOMES:

Students able to

- CO1** Relate, be sensitive as well as be informed to carry forth understanding urban conservation in the realm of practice/research.
- CO2** Explain and understand the need and benefits of urban conservation
- CO3** Apply the interrelated policies of urban conservation
- CO4** Analyze the various case studies and understand the essence of the urban setting and conservation process
- CO5** Build knowledge in terms of understanding what norms are applied in specific urban areas or heritage districts.

REFERENCES:

1. A Richer Heritage: Historic Preservation in the Twenty – First Century by Robert E. Stipe.
2. A.G.K. Memon ed. Conservation of Immovable Sites, INTACH Publication, N.Delhi Seminar Issue on Urban Conservation.
3. B.K. Singh, State and Culture, Oxford, New Delhi.
4. Bernard Feilden, Conservation of Historic Buildings, 2nd Edition, Butterworth, 1994.
5. Christopher Brereton, The repair of Historic Buildings. Advice on principles and methods; English Heritage 1991.
6. Conservation Manual, Bernard Feilden
7. Donald Apple yard, The Conservation of European Cities, M.I.T. Press, Massachusetts.
8. James M. Fitch, Historic Preservation: Curatorial Management of the Built World by University Press of Virginia; Reprint edition (April 1, 1990)

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	2	-	3	2	-	-
2	-	-	1	1	2	-
3	3	-	2	-	3	1
4	-	-	-	-	-	-
5	1	-	-	-	1	2
AVg.	$(2+3)/2=1.6$	-	$(3+1+2)/3=2$	$(2+1)/2 = 1.5$	$(2+3+1)/3 = 2$	$(1+2)/2 = 1.5$

CO4012**SUSTAINABLE TOURISM AND VISITOR MANAGEMENT****L T P/S C**
3 0 0 3**OBJECTIVES:**

- The objective is to enhance the knowledge to develop specialization in handling complex management issues.
- To create awareness towards different types of visitors and their needs in finding management solution.
- To understand the process of calculating carrying capacity of Heritage site.
- To introduce the student to visitor management of World Heritage Site
- To understand how tourism and other management issues are solved from examples around the world and India.

UNIT I INTRODUCTION**9**

Managing Heritage Tourism: Concept and Scope - Tourism Impact and problems in India - Common impacts related to visitor use – Visitor Management – Concept of Carrying Capacity – Similarities between carrying capacity and site management planning process – Community based tourism (Or) Understand heritage tourism demand - analyzing the nature of heritage demand - visitor characteristics - visitor typology - their motivations driving to visit heritage sites.

UNIT II VISITOR MANAGEMENT**9**

Identification of different types of visitors - Formal and informal tourists - Pilgrimage and its linkage to cultural tourism - Organization and traditional facilities for visitors - Visitor needs and expectation - Infrastructural requirements - Critical consideration for visitor management

UNIT III CARRYING CAPACITY**6**

Visitors Data - Future projection of visitors to the site - Impact of visitors on Heritage Site - Calculating of threshold of Heritage site towards visitors to the site - Identifying Indicators - Calculating carrying capacity

UNIT IV MANAGING TOURISM AT WORLD HERITAGE SITES**12**

World Heritage Sites in India – Problems and Prospects of Cultural/ Natural Tourism in India – Sustainable tourism Policy and strategy Development – Relationship between World Heritage and Sustainable Tourism - National Tourism Policy, 2002 – Guidelines for Tourism and Visitor Management in Protected Areas – Action plan for sustainable tourism development

UNIT V CASE STUDIES**9**

Select Case studies from India and Abroad (or) International and National Case studies of Sustainable Tourism.

TOTAL: 45 PERIODS

COURSE OUTCOMES:

Students able to

- CO1** Relate and acquire knowledge about visitors and finding management solution.
- CO2** Explain and understand the need for historical tourism management
- CO3** Apply and calculate the carrying capacity for a heritage site.
- CO4** Analyze and contextualize the relationship between sustainability and visitor management
- CO5** Build and work out infrastructural requirements for visitors

REFERENCES:

1. Timothy, D. J. (2021). Cultural Heritage and Tourism: An Introduction (Volume 7) (Aspects of Tourism Texts, 7) (2nd ed.). Channel View Publications.
2. Leask, A., & Yeoman, I. (1999). Heritage Visitor Attractions: An Operations Management Perspective (1st ed.). Cengage Learning EMEA.
3. The Challenge of Tourism Carrying Capacity Assessment: Theory and Practice (New Directions in Tourism Analysis) by Alexandra Mexa (28-Apr-2004) Hardcover. (2021). Ashgate Publishing Limited (28 April 2004).
4. Arthur Pedersen. (2002, November). Managing Tourism at World Heritage Sites: a Practical Manual for World Heritage Site Managers. UNESCO publication.
5. Comer, D. C. (2012). *Tourism and Archaeological Heritage Management at Petra*. Author(s).

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	3	-	2	3	1	1
2	-	-	3	-	2	1
3	1	-	3	-	-	-
4	2	-	-	-	2	3
5	-	3	1	1	-	-
AVg.	$(3+1+2)/3=2$	$3/1=3$	$(2+3+3+1)/4= 2.25$	$(3+1)/2 = 2$	$(1+2+2)/3= 1.6$	$(1+1+3)/3= 1.6$

CO4013

HERITAGE IMPACT ASSESSMENT

L T P/S C
3 0 0 3

OBJECTIVES:

- The objective is to develop skills towards Heritage Impact assessment to assess the impact of development on heritage in various conditions.
- To introduce students to assessment of cumulative impacts and assisting in raising awareness for protection of OUV
- To give an overview of the methodology of Impact Assessment
- To study and understand the principles of Impact Assessment.
- To understand the impact of development on the historic value.

UNIT I INTRODUCTION

6

Definition of heritage – Factors that impact heritage – Internal and external factors – results of impact

UNIT II METHODOLOGY

12

Methods of assessment – Documentation – Interviews – Visual analysis – Lab testing – Material and Structural analysis – Photography Techniques – Compilation of collected data – Scientific methods

UNIT III ASSESSMENT TOOLS**9**

Qualitative and quantitative assessment – OUV for World Heritage Sites – Threats at Regional, National and Global level – means to safe guard at various levels – Monument Management – safety and security

UNIT IV CASE STUDY AND REPORT WRITING**12**

Choosing, analyzing and presentation of a HIA for a structure/site – Collecting data – Investigation of the selected site – HIA report writing

UNIT V GUIDELINES FOR HIA**6**

Programming and guidelines as prescribed by National and International agencies like ASI – ICCROM, ICOMOS - UNESCO

TOTAL: 45 PERIODS**COURSE OUTCOMES:****Students able to**

CO1 Relate to Heritage Impact Assessment and use it as a tool for evaluating impacts from various factors affecting heritage

CO2 Explain and gain knowledge on the principles and methodology used for the assessment

CO3 Apply the acquired skills towards Heritage Impact Assessment.

CO4 Analyze through case studies and reports of World Heritage Sites

CO5 Build reports, drawings and presentation

REFERENCES

1. ICOMOS, ICOMOS guidelines for cultural world heritage properties, Jan, ICOMOS publication, 2011.
2. ICOMOS, A Cultural heritage assessment of the impact on the outstanding universal value of the Greenwich maritime world heritage site, ICOMOS publication, 2010.
3. Stovel, H, Risk Preparedness: A Management Manual for World Cultural Heritage ICCROM, ICCROM publication 200

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	3	-	3	2	-	-
2	2	-	3	-	2	-
3	-	1	3	1	-	-
4	2	-	-	-	2	3
5	-	3	2	3	-	-
AVg.	$(3+2+2)/3=2.3$	$(1+3)/2=2$	$(3+3+3+2)/4=2.75$	$(2+1+3)/3=2$	$(2+2)/2=2$	$3/1=3$

CO4014**DISASTER MANAGEMENT OF CULTURAL RESOURCES****L T P/S C
3 0 0 3****OBJECTIVES:**

- The objective is to train and develop skills for Disaster Management of Cultural resources.
- To introduce the student to the basic understanding of disasters and its relationship with development
- To enhance awareness of Disaster Risk Management organizations and processes in India
- To understand impacts of disaster and processes used to recover from them
- To understand Rehabilitation and Reconstruction

UNIT I INTRODUCTION	6
Introduction to Disaster Management - Analyze the vulnerability of cultural heritage for physical, socio-economic and political risks– Risks to Cultural Resources during disasters.	
UNIT II DISASTER MANAGEMENT	6
Natural Hazards and risk preparedness – global, regional and Indian Context and international cooperation - prevention, mitigation and preparedness - Disaster response relief and recovery- Protecting Heritage in times of conflict and other emergencies.	
UNIT III DISASTER MITIGATION IN INDIA	9
National Disaster Management System of India – Precaution to prone areas – Disaster assessment and estimation of loss – Techniques and Strategies for mitigating risks to cultural heritage - Agencies for rehabilitation of structural damages and rebuilding of structures – Role of NGOs	
UNIT IV POST DISASTER MITIGATION	12
Planning for post-disaster recovery of cultural heritage – Training craftsmen and artisans for rehabilitation of structures in such situations – role of government in the post disaster period	
UNIT V CASE STUDY	12
Selected case study of architectural and cultural rehabilitation for structures post natural disasters from India and abroad	

TOTAL: 45 PERIODS

COURSE OUTCOMES:

Students should be able to

- CO1** Relate and understand the various types of disasters and risks it poses to cultural heritage
- CO2** Explain the various precautions and measures taken based on the vulnerability of heritage
- CO3** Apply the understanding of disasters and create prior assessments and valuations
- CO4** Analyze what can be done for post disaster mitigation measures
- CO5** Build case studies in the form of reports, site visit report, class reviews and tutorials covering topics mentioned above with suitable illustrations and supportive material.

REFERENCES

1. Harsh K. Gupta, Disaster management, ISBN: 8173714568.
2. Powell, Kenneth, Architecture Reborn: Converting Old buildings for New Uses, Rizzoli, University of Michigan, 1999.
3. Stratton, Michael, Industrial Buildings: Conservation and Regeneration, Taylor and Francis, 2009, ISBN: 1135807817.

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	2	-	2	-	2	-
2	3	-	3	2	1	1
3	1	-	1	-	2	-
4	2	-	-	-	-	-
5	-	3	2	3	-	-
AvG.	$(3+3+1+2)/4=2.25$	$3/1=3$	$(2+3+1+2)/4=2.25$	$(2+3)/3=1.6$	$(2+1+2)/3=1.6$	$1/1=1$

OBJECTIVES:

1. This course discusses the conceptual framework of the critical area of the economics of heritage, and its centrality for heritage resource management and sustainable development.
2. The course covers techniques of cost-benefit analysis and economic viability for individual historic sites and historic housing, urban conservation, cultural landscapes.
3. To understand the role of historic preservation in economic development
4. It seeks to identify a finite number of indicators that can be used to regularly, consistently, meaningfully and credibly measure the economic impact of Historic preservation over time.
5. To understand the positive impact of historic preservation on the economy through case studies

UNIT I INTRODUCTION**9**

Economic sustainability for heritage conservation: Basic economic concepts related to heritage, creating bridges between heritage and economics, economic mechanisms for the implementation of heritage conservation from policies to projects.

UNIT II UNDERSTANDING HERITAGE RESOURCES**9**

Concepts of Cultural Capital: Core issues and techniques that determine value embodied in or generated by heritage resources; Types of values of heritage, Measurement and quantification of costs and benefits of heritage conservation in economic terms.

UNIT III EVALUTATION OF HERITAGE RESOURCES AND FINANCING**9**

Non-market evaluation techniques for Heritage resources – Travel Cost, Contingent Valuation, Hedonic Pricing, Combined Methods, Choice Modelling - Problems and issues of funding heritage conservation, and Existing programmes for financing

UNIT IV CASE STUDIES: BASED ON ECONOMIC VIABILITY**6**

Assessment of economic viability of conservation projects: National & International case studies

UNIT V CASESTUDIES**12**

Project on valuation of heritage resources – Case studies of innovative conservation financing mechanisms and programmes.

TOTAL: 45 PERIODS**COURSE OUTCOMES:****Students should be able to****CO1** Relate and understand the importance of economics with respect to heritage**CO2** Explain and gain knowledge of evaluating heritage resources and preservation as an economic tool.**CO3** Applying economic methods to historic preservation, when there is a mix of cultural and economic values embodied in the preservation activity.**CO4** Analyze the effects of historic preservation investment on a regional economy.**CO5** Build case studies in the form of reports, reviews and tutorials with suitable illustrations.**REFERENCES:**

1. Economics of Historic Preservation: A Community Leader's Guide by Donovan D. Rypkema
2. **Measuring the Economics of Preservation – Full Report, Recent Findings & Executive Summary by Advisory Council of Historic Preservation, 2011**
3. The Economics and Finance of Cultural Heritage: How to Make Tourist Attractions a Regional Economic Resource by Vincenzo Pacelli
4. Handbook on the Economics of Cultural Heritage by Edited by Ilde Rizzo, Professor of Public Finance, University of Catania, Italy and Anna Mignosa, Assistant Professor of Economics, University of Catania, Italy and Erasmus University Rotterdam, the Netherlands

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	3	-	2	1	-	-
2	1	-	3	2	-	2
3	-	-	1	-	3	-
4	1	-	-	-	-	3
5	-	3	-	-	-	-
Avg.	$(3+1+1)/3=1.6$	$3/1=3$	$(2+3+1)/3=2$	$(1+2)/2=1.5$	$3/1=3$	$(2+3)/2=2.5$



AUDIT COURSES

AX4091

ENGLISH FOR RESEARCH PAPER WRITING

L T P C

2 0 0 0

OBJECTIVES:

- To enable the student to improve writing skills and level of readability
- To enable the student to understand what to write in each section
- To prepare the student with the skills needed when writing a title
- To inculcate the skills needed to write the conclusion.
- To enable the student to submit a high-quality paper at very first-time submission

UNIT I INTRODUCTION TO RESEARCH PAPER WRITING 6

Planning and Preparation, Word Order, breaking up long sentences, Structuring Paragraphs and Sentences, Being Concise and Removing Redundancy, Avoiding Ambiguity and Vagueness

UNIT II PRESENTATION SKILLS 6

Clarifying Who Did What, Highlighting Your Findings, Hedging and Criticizing, Paraphrasing and Plagiarism, Sections of a Paper, Abstracts, Introduction

UNIT III TITLE WRITING SKILLS 6

Key skills are needed when writing a Title, key skills are needed when writing an Abstract, key skills are needed when writing an Introduction, skills needed when writing a Review of the Literature, Methods, Results, Discussion, Conclusions, The Final Check

UNIT IV RESULT WRITING SKILLS 6

Skills are needed when writing the Methods, skills needed when writing the Results, skills are needed when writing the Discussion, skills are needed when writing the Conclusions

UNIT V VERIFICATION SKILLS 6

Useful phrases, checking Plagiarism, how to ensure paper is as good as it could possibly be the first- time submission

TOTAL: 30 PERIODS

COURSE OUTCOMES:

- CO1** Relate to the various technical writing skills and high level of reading competence.
- CO2** Explain the various types of writings and understand the importance of different sections.
- CO3** Apply their mind and assess skills required in choosing an appropriate title.
- CO4** Analyze the importance of writing a document/ report and explaining the inferences.
- CO5** Build a research paper or report from scratch and develop it to something that can be published later

REFERENCES:

1. Adrian Wallwork , English for Writing Research Papers, Springer New York Dordrecht Heidelberg London, 2011
2. Day R How to Write and Publish a Scientific Paper, Cambridge University Press 2006
3. Goldbort R Writing for Science, Yale University Press (available on Google Books) 2006
4. Highman N, Handbook of Writing for the Mathematical Sciences, SIAM. Highman's book 1998

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	1	3	2	1	-	-
2	-	3	-	-	-	-
3	-	3	-	-	-	-
4	-	2	-	-	-	-
5	-	2	-	-	-	-
AVg.	1/1=1	(3+3+3+2+2)/5=2.6	2/1=2	1/1=1	-	-

AX4092

DISASTER MANAGEMENTL T P C
2 0 0 0**OBJECTIVES:**

Summarize basics of disaster

- Explain a critical understanding of key concepts in disaster risk reduction and humanitarian response
- Illustrate disaster risk reduction and humanitarian response policy and practice from multiple perspectives.
- Describe an understanding of standards of humanitarian response and practical relevance in specific types of disasters and conflict situations
- Develop the strengths and weaknesses of disaster management approaches

UNIT I INTRODUCTION**6**

Disaster: Definition, Factors and Significance; Difference between Hazard And Disaster; Natural and Manmade Disasters: Difference, Nature, Types and Magnitude.

UNIT II REPERCUSSIONS OF DISASTERS AND HAZARDS**6**

Economic Damage, Loss of Human and Animal Life, Destruction Of Ecosystem. Natural Disasters: Earthquakes, Volcanisms, Cyclones, Tsunamis, Floods, Droughts And Famines, Landslides And Avalanches, Man-made disaster: Nuclear Reactor Meltdown, Industrial Accidents, Oil Slicks And Spills, Outbreaks Of Disease And Epidemics, War And Conflicts.

UNIT III DISASTER PRONE AREAS IN INDIA**6**

Study of Seismic Zones; Areas Prone To Floods and Droughts, Landslides And Avalanches; Areas Prone To Cyclonic and Coastal Hazards with Special Reference To Tsunami; Post-Disaster Diseases and Epidemics

UNIT IV DISASTER PREPAREDNESS AND MANAGEMENT**6**

Preparedness: Monitoring Of Phenomena Triggering a Disaster or Hazard; Evaluation of Risk: Application of Remote Sensing, Data from Meteorological And Other Agencies, Media Reports: Governmental and Community Preparedness.

UNIT V RISK ASSESSMENT**6**

Disaster Risk: Concept and Elements, Disaster Risk Reduction, Global and National Disaster Risk Situation. Techniques of Risk Assessment, Global Co-Operation in Risk Assessment and Warning, People's Participation in Risk Assessment. Strategies for Survival

TOTAL : 30 PERIODS**COURSE OUTCOMES:****The students should have the****CO1** Ability to summarize basics of disaster**CO2** Ability to explain a critical understanding of key concepts in disaster risk reduction and humanitarian response.**CO3** Ability to illustrate disaster risk reduction and humanitarian response policy and practice from multiple perspectives.**CO4** Ability to describe an understanding of standards of humanitarian response and practical relevance in specific types of disasters and conflict situations**CO5** Ability to develop the strengths and weaknesses of disaster management approaches**REFERENCES:**

- 1.Goel S. L., Disaster Administration And Management Text And Case Studies”,Deep & Deep Publication Pvt. Ltd., New Delhi,2009.
- 2.NishithaRai, Singh AK, “Disaster Management in India: Perspectives, issues and strategies “New Royal book Company,2007
- 3.Sahni, PardeepEt.Al. ,” Disaster Mitigation Experiences And Reflections”, Prentice Hall OfIndia, New Delhi,2001

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	-	-	1	-	-	-
2	-	-	1	-	-	-
3	-	-	-	-	-	-
4	-	-	-	-	-	-
5	-	-	-	-	2	2
AVg.	-	-	$(3+1+1)/3=1.6$	-	$2/1=2$	$2/1=2$

AX4093**CONSTITUTION OF INDIA****L T P C
2 0 0 0****OBJECTIVES:****The students will be taught to**

- Understand the premises informing the twin themes of liberty and freedom from a civil rights perspective.
- Address the growth of Indian opinion regarding modern Indian intellectuals' constitutional
- Understand the role and entitlement to civil and economic rights as well as the emergence nation hood in the early years of Indian nationalism
- Address the role of socialism in India after the commencement of the Bolshevik Revolution in 1917 and its impact on the initial drafting of the Indian Constitution.

UNIT I HISTORY OF MAKING OF THE INDIAN CONSTITUTION

History, Drafting Committee, (Composition & Working)

UNIT II PHILOSOPHY OF THE INDIAN CONSTITUTION

Preamble, Salient Features

UNIT III CONTOURS OF CONSTITUTIONAL RIGHTS AND DUTIES

Fundamental Rights, Right to Equality, Right to Freedom, Right against Exploitation, Right to Freedom of Religion, Cultural and Educational Rights, Right to Constitutional Remedies, Directive Principles of State Policy, Fundamental Duties.

UNIT IV ORGANS OF GOVERNANCE

Parliament, Composition, Qualifications and Disqualifications, Powers and Functions, Executive, President, Governor, Council of Ministers, Judiciary, Appointment and Transfer of Judges, Qualifications, Powers and Functions.

UNIT V LOCAL ADMINISTRATION

District's Administration head: Role and Importance Municipalities: Introduction, Mayor and role of Elected Representative, CEO, Municipal Corporation. Pachayati raj: Introduction, PRI: Zila Pachayat. Elected officials and their roles, CEO Zila Pachayat: Position and role. Block level: Organizational Hierarchy(Different departments), Village level:Role of Elected and Appointed officials, Importance of grass root democracy.

UNIT VI ELECTION COMMISSION

Election Commission: Role and Functioning. Chief Election Commissioner and Election Commissioners - Institute and Bodies for the welfare of SC/ST/OBC and women.

TOTAL: 30 PERIODS

COURSE OUTCOMES:

The students should have the ability to

- CO1** Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics
- CO2** Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India
- CO3** Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution

REFERENCES:

1. The Constitution of India, 1950(Bare Act), Government Publication.
2. Dr.S.N.Busi, Dr.B. R.Ambedkar framing of Indian Constitution, 1st Edition, 2015.
3. M.P. Jain, Indian Constitution Law, 7th Edn., Lexis Nexis, 2014. 4. D.D. Basu, Introduction to the Constitution of India, Lexis Nexis, 2015.

CO-PO MAPPING

CO	PO					
	1	2	3	4	5	6
1	-	-	-	-	-	-
2	-	-	-	-	-	-
3	-	-	-	-	-	-
4	-	-	-	-	-	-
5	-	-	-	-	-	-
AVg.	-	-	-	-	-	-

UNIT I	சங்க இலக்கியம்	6
	1. தமிழின் துவக்க நூல் தொல்காப்பியம் - எழுத்து, சொல், பொருள்	
	2. அகநானூறு (82) - இயற்கை இன்னிசை அரங்கம்	
	3. குறிஞ்சிப் பாட்டின் மலர்க்காட்சி	
	4. புறநானூறு (95,195) - போரை நிறுத்திய ஔவையார்	
UNIT II	அறநெறித் தமிழ்	6
	1. அறநெறி வகுத்த திருவள்ளுவர் - அறம் வலியுறுத்தல், அன்புடைமை, ஒப்புரவறிதல், ஈகை, புகழ்	
	2. பிற அறநூல்கள் - இலக்கிய மருந்து - ஏலாதி, சிறுபஞ்சமூலம், திரிகடுகம், ஆசாரக்கோவை (தூய்மையை வலியுறுத்தும் நூல்)	
UNIT III	இரட்டைக் காப்பியங்கள்	6
	1. கண்ணகியின் புரட்சி - சிலப்பதிகார வழக்குரை காதை சமூகசேவை இலக்கியம் மணிமேகலை - சிறைக்கோட்டம் அறக்கோட்டமாகிய காதை	
UNIT IV	அருள்நெறித் தமிழ்	6
	1. சிறுபாணாற்றுப்படை - பாரி முல்லைக்குத் தேர் கொடுத்தது, பேகன் மயிலுக்குப் போர்வை கொடுத்தது, அதியமான் ஔவைக்கு நெல்லிக்கனி கொடுத்தது, அரசர் பண்புகள்	
	2. நற்றிணை அன்னைக்குரிய புன்னை சிறப்பு	
	3. திருமந்திரம் (617, 618) - இயமம் நியமம் விதிகள்	
	4. தர்மச்சாலையை நிறுவிய வள்ளலார்	
	5. புறநானூறு - சிறுவனே வள்ளலானான்	
	6. அகநானூறு (4) - வண்டு நற்றிணை (11) - நண்டு கலித்தொகை (11) - யானை, புறா ஐந்திணை 50 (27) - மான் ஆகியவை பற்றிய செய்திகள்	

1. உரைநடைத் தமிழ்,
 - தமிழின் முதல் புதினம்,
 - தமிழின் முதல் சிறுகதை,
 - கட்டுரை இலக்கியம்,
 - பயண இலக்கியம்,
 - நாடகம்,
2. நாட்டு விடுதலை போராட்டமும் தமிழ் இலக்கியமும்,
3. சமுதாய விடுதலையும் தமிழ் இலக்கியமும்,
4. பெண் விடுதலையும் விளிம்பு நிலையினரின் மேம்பாட்டில் தமிழ் இலக்கியமும்,
5. அறிவியல் தமிழ்,
6. இணையத்தில் தமிழ்,
7. சுற்றுச்சூழல் மேம்பாட்டில் தமிழ் இலக்கியம்.

TOTAL : 30 PERIODS

தமிழ் இலக்கிய வெளியீடுகள் / புத்தகங்கள்

1. தமிழ் இணைய கல்விக்கழகம் (Tamil Virtual University)- www.tamilvu.org
2. தமிழ் விக்கிப்பீடியா (Tamil Wikipedia)-<https://ta.wikipedia.org>
3. தர்மபுர ஆதீன வெளியீடு
4. வாழ்வியல் களஞ்சியம் - தமிழ்ப் பல்கலைக்கழகம், தஞ்சாவூர்
5. தமிழ்கலைக் களஞ்சியம் - தமிழ் வளர்ச்சித் துறை (thamilvalarchithurai.com)
6. அறிவியல் களஞ்சியம் - தமிழ்ப் பல்கலைக்கழகம், தஞ்சாவூர்

PROGRESS THROUGH KNOWLEDGE