ADHIYAMAAN COLLEGE OF ENGINEERING

[An Autonomous Institution Affiliated to Anna University, Chennai]
[Accredited by NAAC]
Dr. M. G. R Nagar, HOSUR, KRISHNAGIRI (DT) – 635 130, TAMILNADU, INDIA

REGULATIONS 2018

CHOICE BASED CREDIT SYSTEM

B. ARCH - ARCHITECTURE

VISION

To nurture and equip young minds, who aspire to create a sustainable built environment that responds to climate, context and the changing needs of the society.

MISSION

Empowering individuals through a holistic and interdisciplinary approach to education thereby creating a social conscience, environmental sensibility and a sense of professional responsibility.

The Programme defines Programme Educational Objectives, Programme Outcomes and Programme Specific Outcomes as follows:

I. PROGRAM EDUCATIONAL OUTCOMES (PEOs)

PEO 1 Perform standard competencies in accordance with the scope of the global and local practice of architecture.

PEO 2 Instill understanding of the basic philosophy and fundamental principles of the multidimensional aspects of architecture, and the direct relationship between man and his environment.

PEO 3 Show traits of professionalism, sense of responsibility, equality and patriotism.

PEO 4 Receptiveness to new ideas and knowledge through scientific research.

PEO 5 Direct and focus the thrust of architecture education to the needs and demands of society and its integration into the social, economic, cultural and environmental aspects of nation building.

II. PROGRAM OUTCOMES (POs)

PO 1 Understanding concepts, theories and fundamentals that form the primary knowledge base of the architectural profession.

PO 2 Creation of architectural solutions with analysis and design at all scales with innovative ideas and appropriate approach satisfying the current needs of the built environment.

PO 3 Use of various graphical communication skills of architecture such as drawing, presentation techniques, and architectural drafting for solutions: both manual and computer aided.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

PO 4 Analyzing the existing situations and contribute to constructional aspects of building materials, model making, surveying, construction techniques and building services and structural design.

PO 5 Understand through experiences with the current scenario of how architectural theory and design methodology leads to the solution of architectural design problems in a global society.

PO 6 Understanding the structural concepts and behaviour of structural elements and relate the knowledge acquired to architectural design.

PO 7 Acquisition of entrepreneurial and business acumen relevant to architecture practice enables the student ready through courses on professional practice, urban economics, estimation and surveying and an opportunity to learn through apprenticeship.

PO 8 Understanding of various historical context with sensitivity of cultural, social aspects of architecture and as well as make meaningful and contextual design decisions.

PO 9 Ability to think, plan and prepare solutions for an architectural project and design assessment criteria.

PO 10 Understanding of the principles of sustainability, climatology, heritages sites in making architecture and urban design decisions that conserve natural and built resources and in the creation of sustainable buildings and communities.

PO 11 Engage in the process of design and building in the discourse of social, ethical, and professional responsibility.

PO 12 Acquisition of entrepreneurial and business acumen relevant to architecture practice and engage them to serve as a catalyst.

III. PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO 1 Design building forms that are based on foundational design principles and reflect the needs and desires of users, contexts, uses, and content.

PSO 2 Understand key historical and contemporary concepts, people, artifacts, and tools and use them in the development of design work.

PSO 3 Effectively communicate ideas orally, graphically, physically, and in writing throughout all stages of the design process.

IV. CORRELATION OF PEO'S WITH PO's AND PSO's

PEO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	1	2	2	2	1	3	2	1	3	3	1	3	2	
2	2	3	1			2		3		3			3	3	
3	2				1				3		2	3	3	3	
4	1	2			3			2	3	3			3	3	2
5		1		2	2		3	3		3	3	1	3	2	

3 – Strong, 2 – Medium, 1 – Low

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

V. CORRELATION OF CO'S WITH PO's AND PSO's

Sem	Course Code	Course Title	Category	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
I	118ART01	Mathematics	BS	2	3	-	-	-	-	-	-	-	-	-	-	3	-	-
I	118ART02	History of Architecture I	HS	2	-	-	-	-	2	-	3	-	2	1	-	2	3	-
I	118ART03	Architectural Drawing I	ES	2	2	3	-	-	-	-	-	-	-	-	-	2	-	3
I	118ART04	Materials and Construction I	PC	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
I	118ARP05	Art Studio	PC	2	2	-	-	2	-	-	-	-	-	-	-	2	-	3
I	118ARP06	Basic Design	PC	1	3	3	2	3	2	-	1	3	-	-	-	3	1	3
I	118ARE01	Personality development	HE	2	-	-	-	-	-	-	-	-	-	2	2	-	-	3
I	118ARE02	Art appreciation	HE	2	-	-	-	2	-	-	-	-	-	-	-	-	-	3
I	118ARE03	Communication Skills	HE	2	-	-	-	-	-	-	-	-	-	2	2	-	-	3
I	118ARE04	Foreign Language	HE	2	-	-	-	-	-	-	-	-	-	2	2	-	-	3
II	218ART01	Mechanics of Structures I	ES	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
II	218ART02	Principles of Architecture	PC	3	-	-	-	2	-	-	-	3	-	1	-	3	1	1
II	218ART03	History of Architecture II	HS	2	-	-	-	-	2	-	3	-	2	1	-	2	3	-
II	218ART04	Architectural Drawing II	ES	2	2	3	-	-	-	-	-	-	-	-	-	2	-	3
II	218ART05	Materials and Construction II	PC	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
II	218ARP06	Architectural Design Studio I	PC	1	3	3	2	3	2	-	2	3	3	3	3	3	2	3
II	218ARE01	Clay Modeling	WE	2	-	3	-	-	-	-	-	-	-	-	-	3	-	2
II	218ARE02	Presentation and Rendering techniques	WE	2	-	3	-	-	-	-	-	-	-	-	-	3	-	2
II	218ARE03	Model Making	WE	2	-	3	-	-	-	-	-	-	-	-	-	3	-	2
II	218ARE04	Creative Workshop	WE	2	-	3	-	-	-	-	-	-	-	-	-	3	-	2
III	318ART01	Mechanics of Structures II	ES	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
III	318ART02	History of Architecture III	HS	2	-	-	-	-	2	-	3	-	2	1	-	2	3	-
III	318ART03	Climate Responsive Architecture	PC	2	2	3	3	3	2	-	3	3	3	3	-	2	3	3
III	318ART04	Materials and Construction III	PC	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
III	318ARP06	Computer Aided Design Studio	SEC	2	2	3	-	2	3	-	-	3	-	-	3	2	3	3
III	318ARP07	Architectural Design II	PC	1	3	3	2	3	2	-	2	3	3	3	3	3	2	3
III	318ARE01	Behavioral studies in Built Environment	PE	2	1	-	3	-	2	-	3	-	2	1	-	2	3	-
III	318ARE02	Modular Construction Techniques	PE	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
III	318ARE03	Vernacular	PE	2	1	-	3	-	2	-	3	-	3	1	-	2	3	1

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

		Architecture of India																
III	318ARE04	Theory of Design	PE	3	1	-	3	1	2	2	3	3	3	1	-	2	3	1
IV	418ART01	Analysis & Design of Structures I	ES	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
IV	418ART02	Environmental Science and Services	BS	2	2	3	3	3	2	-	3	3	3	3	-	2	3	3
IV	418ART03	Site Planning & Analysis	PC	2	2	3	3	3	2	-	3	3	3	3	-	2	3	3
IV	418ART04	Materials and Construction IV	PC	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
IV	418ARP05	Architectural Design III	PC	1	3	3	2	3	2	-	2	3	3	3	3	3	2	3
IV	418ARE01	Energy Efficient Architecture	PE	2	2	3	3	3	2	-	3	3	3	3	-	2	3	3
IV	418ARE02	Traditional Indian Architecture	PE	2	1	-	3	-	2	-	3	-	3	1	-	2	3	1
IV	418ARE03	Ergonomics in Building Design	PE	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
IV	418ARE04	Spatial Planning Strategies	PE	2	1	-	3	-	2	-	3	-	2	1	-	2	3	-
V	518ART01	Analysis & Design of Structures II	ES	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
V	518ART02	History of Modern Architecture	HS	2	-	-	-	-	2	-	3	-	2	1	-	2	3	-
V	518ART03	Materials and Construction V	PC	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
V	518ART04	Building Services I (Electrical and Acoustic)	ES	2	3	3	3	3	3	-	-	2	-	-	-	3	3	-
V	518ARP05	Architectural Design IV	PC	1	3	3	2	3	2	-	2	3	3	3	3	3	2	3
V	518ARE01	Structure and Architecture	PE	2	3	3	3	3	3	2	1	3	3	3	2	3	3	3
V	518ARE02	Waste management and recycling	PE	2	2	3	3	3	2	-	3	3	3	3	-	2	3	3
V	518ARE03	Safety systems and building management	PE	2	3	3	3	3	3	-	-	2	-	-	-	3	3	-
V	518ARE04	Contemporary Building Materials	PE	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
VI	618ART01	Specification Estimation & Budgeting	ES	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
VI	618ART02	Interior Design Principles	PC	2	1	2	-	-	-	1	-	2	2	-	2	3	2	-
VI	618ART03	Building Services – II (Mechanical & HVAC)	ES	2	3	3	3	3	3	-	-	2	-	-	-	3	3	-
VI	618ART04	Materials and Construction VI	PC	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
VI	618ARP05	Architectural	PC	1	3	3	2	3	2	-	2	3	3	3	3	3	2	3

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

		Design V																
VI	618CEO01	Valuation and Real Properties	OE	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
VI	618ARE01	Digital Art	WE	2	2	3	1	3	3	1	2	3	1	2	2	1	2	3
VI	618ARE02	Product Design	WE	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
VI	618ARE03	BIM	WE	2	2	3	-	2	3	-	-	3	-	-	3	2	3	3
VII	718ART01	Landscape Architecture & Design	PC	2	3	3	-	-	-	3	3	3	3	2	2	3	3	3
VII	718ART02	Human Settlement Planning	PC	2	3	1	3	3	2	2	3	3	3	3	3	2	3	3
VII	718ARP03	Architectural Working Drawing & detailing	PAECC	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
VII	718ARP04	Architectural Design VI	PC	1	3	3	2	3	2	-	2	3	3	3	3	3	2	3
VII	718CEO01	Construction Management	OE	2	3	-	-	1	2	-	2	1	-	-	-	2	2	1
VII	718ARE01	Sustainable Planning and Architecture	PE	2	2	3	3	3	2	-	3	3	3	3	-	2	3	3
VII	718ARE02	Architectural Acoustics	PE	2	3	3	3	3	3	-	-	2	-	-	-	3	3	-
VII	718ARE03	Contemporary Process in Architecture	PE	2	-	-	-	3	2	-	3	2	1	-	-	2	3	1
VII	718ARE04	Services in High Rise buildings	PE	1	1	-	3	-	3	2	-	-	-	-	-	3	2	1
VIII	818ART01	Urban Design	PC	2	3	1	3	3	2	2	3	3	3	3	3	2	3	3
VIII	818ART02	Professional Practice & Ethics	PC	1	-	-	-	2	-	3	-	-	-	3	3	-	2	2
VIII	818ARP03	Dissertation	PAECC	1	3	3	2	3	2	-	2	3	3	3	3	3	2	3
VIII	818ARP04	Architectural Design VII	PC	1	3	3	2	3	2	-	2	3	3	3	3	3	2	3
VIII	818ARE01	Architectural Conservation	PE	2	2	3	3	3	2	-	3	3	3	3	-	2	3	3
VIII	818ARE02	Industrial Architecture	PE	1	1	-	3	-	3	2	-	-	-	-	-	3	2	1
VIII	818ARE03	Project Management	PE	2	3	-	-	1	2	-	2	1	-	-	-	2	2	1
VIII	818ARE04	Disaster Mitigation & Management	PE	2	2	3	3	3	2	-	3	3	3	3	-	2	3	3
VIII	818ARE05	Urban and Regional Planning	PE	2	3	1	3	3	2	2	3	3	3	3	3	2	3	3
VIII	818ARE06	Contemporary Housing	PE	2	3	3	3	3	3	2	3	3	3	3	2	1	3	1
VIII	818ARE07	Steel in Architecture Design	PE	2	3	3	3	3	3	2	1	3	3	3	2	1	3	1
VIII	818ARE08	Environmental Planning and Design	PE	2	2	3	3	3	2	-	3	3	3	3	-	2	3	3
IX	918ARP01	Internship Program	PAECC	3	3	3	2	3	3	3	2	3	3	3	3	3	2	3
X	1018ARP01	Thesis	EEC	3	3	3	2	3	3	3	2	3	3	3	3	3	2	3

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

ADHIYAMAAN COLLEGE OF ENGINEERING

[An Autonomous Institution Affiliated to Anna University, Chennai]
[Accredited by NAAC]
REGULATIONS 2018
CHOICE BASED CREDIT SYSTEM
B. ARCH – ARCHITECTURE

CURRICULA AND SYLLABI FOR SEMESTER I TO X

SEMESTER I

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	118ART01	Mathematics	BS	2	2	0	4	3
2.	118ART02	History of Architecture I	HS	3	0	0	3	3
3.		Humanities Elective	HE	1	2	0	3	2
THEORY CUM STUDIO								
4.	118ART03	Architectural Drawing I	ES	1	0	4	5	3
5.	118ART04	Materials and Construction I	PC	1	0	4	5	3
STUDIO								
6.	118ARP05	Art Studio	PC	1	0	4	5	3
7.	118ARP06	Basic Design	PC	0	0	10	10	5
			TOTAL	**9**	**4**	**22**	**35**	**22**

SEMESTER II

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	218ART01	Mechanics of Structures - I	ES	2	2	0	4	3
2.	218ART02	Principles of Architecture	PC	3	0	0	3	3
3.	218ART03	History of Architecture-II	HS	3	0	0	3	3
THEORY CUM STUDIO								
4.	218ART04	Architectural Drawing - II	ES	1	0	4	5	3
5.	218ART05	Materials and Construction - II	PC	1	0	4	5	3
STUDIO								
6.	218ARP06	Architectural Design Studio - I	PC	0	0	10	10	5
7.		Workshop Elective - I	WE	1	0	4	5	3
			TOTAL	**11**	**2**	**22**	**35**	**23**

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

SEMESTER III

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	318ART01	Mechanics of Structures – II	ES	2	1	0	3	3
2.	318ART02	History of Architecture - III	HS	3	0	0	3	3
3.	318ART03	Climate Responsive Architecture	PC	2	1	0	3	3
4.		Professional Elective I	PE	3	0	0	3	3
THEORY CUM STUDIO								
5.	318ART04	Materials and Construction – III	PC	1	0	4	5	3
STUDIO								
6.	318ARP06	Computer Aided Design Studio	SEC	0	1	4	6	3
7.	318ARP07	Design Studio - II	PC	0	0	10	12	5
			TOTAL	**11**	**3**	**18**	**35**	**23**

SEMESTER IV

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	418ART01	Analysis & Design of Structures – I	ES	2	2	0	3	3
2.	418ART02	Environmental Science and Services	BS	3	0	0	3	3
3.		Professional Elective II	PE	3	0	0	3	3
THEORY CUM STUDIO								
5.	418ART03	Site Planning & Analysis	PC	2	0	2	5	3
6.	418ART04	Materials and Construction – IV	PC	1	0	4	5	3
STUDIO								
7.	418ARP05	Architectural Design - III	PC	0	0	16	16	8
			TOTAL	**11**	**2**	**22**	**35**	**23**

SEMESTER V

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	518ART01	Analysis and Design of Structures - II	ES	2	2	0	3	3
2.	518ART02	History of Modern	HS	3	0	0		3

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

		Architecture						
3.		Professional Elective - III	PE	3	0	0	3	3
THEORY CUM STUDIO								
4.	518ART03	Materials and Construction - V	PC	1	2	2	5	3
5.	518ART04	Building Services I (Electrical and Acoustic)	ES	2	0	2	4	3
STUDIO								
6.	518ARP05	Architectural Design - IV	PC	0	0	16	16	8
TOTAL				**11**	**4**	**20**	**35**	**23**

SEMESTER VI

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	618ART01	Specification Estimation & Budgeting	ES	2	1	0	3	3
2.		Open Elective I	OE	3	0	0	3	3
THEORY CUM STUDIO								
5.	618ART02	Interior Design Principles	PC	2	0	2	4	3
6.	618ART03	Materials and Construction - VI	ES	1	0	4	5	3
7.	618ART04	Building Services – II (Mechanical & HVAC)	PC	1	0	2	3	3
STUDIO								
8.	618ARP05	Architectural Design - V	PC	0	0	12	12	6
		Workshop Elective II	WE	1	0	4	5	3
			TOTAL	**10**	**1**	**24**	**35**	**24**

SEMESTER VII

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	718ART01	Landscape Architecture & Design	PC	2	0	2	4	3
2.	718ART02	Human Settlement Planning	PC	3	0	0	3	3
3.		Professional Elective - IV	PE	3	0	0	3	3
4.		Open Elective - II	OE	3	0	0	3	3
STUDIO								
5.	718ARP03	Architectural Working Drawing & detailing	PAECC	0	2	4	6	3
6.	718ARP04	Architectural Design - VI	PC	0	0	14	14	7

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

TOTAL	**11**	**2**	**20**	**35**	**22**

SEMESTER VIII

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	818ART01	Urban Design	PC	3	0	0	3	3
2.	818ART02	Professional Practice & Ethics	PC	3	0	0	3	3
3.		Professional Elective - V	PE	3	0	0	3	3
4.		Professional Elective - VI	PE	3	0	0	3	3
STUDIO								
5.	818ARP03	Dissertation	PAECC	0	0	8	8	4
6.	818ARP04	Architectural Design - VII	PC	0	0	12	15	6
		TOTAL		**12**	**0**	**20**	**35**	**22**

SEMESTER IX

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	918ARP01	Internship Program	PAECC	0	0	0	-	12
		TOTAL		**0**	**0**	**12**	**-**	**12**

SEMESTER X

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	1018ARP01	Thesis	EEC	0	0	36	36	16
		TOTAL		**0**	**0**	**36**	**36**	**16**

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

PROFESSIONAL ELECTIVES (PE)

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
PROFESSIONAL ELECTIVE - I								
1.	318ARE01	Behavioral studies in Built Environment	PE	3	0	0	3	3
2.	318ARE02	Modular Construction Techniques	PE	3	0	0	3	3
3.	318ARE03	Vernacular Architecture of India	PE	3	0	0	3	3
4.	318ARE04	Theory of Design	PE	3	0	0	3	3
PROFESSIONAL ELECTIVE - II								
5.	418ARE01	Energy Efficient Architecture	PE	3	0	0	3	3
6.	418ARE02	Traditional Indian Architecture	PE	3	0	0	3	3
7.	418ARE03	Ergonomics in Building Design	PE	3	0	0	3	3
8.	418ARE04	Spatial Planning Strategies	PE	3	0	0	3	3
PROFESSIONAL ELECTIVE - III								
9.	518ARE01	Structure and Architecture	PE	3	0	0	3	3
10.	518ARE02	Waste management and recycling	PE	3	0	0	3	3
11.	518ARE03	Safety systems and building management	PE	3	0	0	3	3
12.	518ARE04	Contemporary Building Materials	PE	3	0	0	3	3
PROFESSIONAL ELECTIVE - IV								
13.	718ARE01	Sustainable Planning and Architecture	PE	3	0	0	3	3
14.	718ARE02	Architectural Acoustics	PE	3	0	0	3	3
15.	718ARE03	Contemporary Process in Architecture	PE	3	0	0	3	3
16.	718ARE04	Services in High Rise buildings	PE	3	0	0	3	3
PROFESSIONAL ELECTIVE - V								
17.	818ARE01	Architectural Conservation	PE	3	0	0	3	3
18.	818ARE02	Industrial Architecture	PE	3	0	0	3	3
19.	818ARE03	Project Management	PE	3	0	0	3	3
20.	818ARE04	Disaster Mitigation & Management	PE	3	0	0	3	3
PROFESSIONAL ELECTIVE - VI								
21.	818ARE05	Urban and Regional Planning	PE	3	0	0	3	3
22.	818ARE06	Contemporary Housing	PE	3	0	0	3	3
23.	818ARE07	Steel in Architecture Design	PE	3	0	0	3	3
24.	818ARE08	Environmental Planning and Design	PE	3	0	0	3	3

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

OPEN ELECTIVES (OE)

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	618CEO01	Valuation and Real Properties	OE	3	0	0	3	2
2.	718CEO01	Construction Management	OE	3	0	0	3	3

HUMAN ELECTIVES (HE)

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	118ARE01	Personality development	HE	1	2	0	3	2
2.	118ARE02	Art appreciation	HE	1	2	0	3	2
3.	118ARE03	Communication Skills	HE	1	2	0	3	2
4.	118ARE04	Foreign Language	HE	1	2	0	3	2

WORKSHOP ELECTIVES (WE)

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
WORKSHOP ELECTIVE - I								
1.	218ARE01	Clay Modeling	WE	3	0	0	3	3
2.	218ARE02	Presentation and Rendering techniques	WE	3	0	0	3	3
3.	218ARE03	Model Making	WE	3	0	0	3	3
4.	218ARE04	Creative Workshop	WE	3	0	0	3	3
WORKSHOP ELECTIVE - II								
5.	618ARE01	Digital Art	WE	1	0	4	3	3
6.	618ARE02	Product Design	WE	1	0	4	3	3
7.	618ARE03	BIM	WE	3	0	0	3	3

SKILL ENHANCEMENT COURSE (SEC)

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	318ARP06	Computer Aided Design Studio	SEC	0	1	4	6	3

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

HUMANITIES AND SOCIAL SCIENCE (HS)

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	118ART02	History of Architecture-I	HS	3	0	0	3	3
2.	218ART03	History of Architecture-II	HS	3	0	0	3	3
3.	318ART02	History of Architecture - III	HS	3	0	0	3	3
4.	518ART02	History of Modern Architecture	HS	3	0	0	3	3

BASIC SCIENCE (BS)

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	118ART01	Mathematics	BS	2	2	0	4	3
2.	418ART02	Environmental Science and Services	BS	3	0	0	3	3

ENGINEERING SCIENCE (ES)

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	118ART03	Architectural Drawing I	ES	1	0	4	5	3
2.	218ART01	Mechanics of Structures - I	ES	2	2	0	4	3
3.	218ART04	Architectural Drawing - II	ES	1	0	4	5	3
4.	318ART01	Mechanics of Structures – II	ES	2	1	0	3	3
5.	418ART01	Analysis & Design of Structures – I	ES	2	2	0	3	3
6.	518ART01	Analysis and Design of Structures - II	ES	2	2	0	3	3
7.	518ART04	Building Services I (Electrical and Acoustic)	ES	2	0	2	4	3
8.	618ART01	Specification Estimation & Budgeting	ES	2	1	0	3	3
9.	618ART03	Materials and Construction - VI	ES	1	0	4	5	3

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

PROFESSIONAL CORE (PC)

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	118ART04	Materials and Construction I	PC	1	0	4	5	3
2.	118ARP05	Art Studio	PC	1	0	4	5	3
3.	118ARP06	Basic Design	PC	0	0	10	10	5
4.	218ART02	Principles of Architecture	PC	3	0	0	3	3
5.	218ART05	Materials and Construction - II	PC	1	0	4	5	3
6.	218ARP06	Architectural Design Studio - I	PC	0	0	10	10	5
7.	318ART03	Climate Responsive Architecture	PC	2	1	0	3	3
8.	318ART04	Materials and Construction – III	PC	1	0	4	5	3
9.	318ARP07	Design Studio - II	PC	0	0	10	12	5
10.	418ART03	Site Planning & Analysis	PC	2	0	2	5	3
11.	418ART04	Materials and Construction – IV	PC	1	0	4	5	3
12.	418ARP05	Architectural Design - III	PC	0	0	16	16	8
13.	518ART03	Materials and Construction - V	PC	1	2	2	5	3
14.	518ARP05	Architectural Design - IV	PC	0	0	16	16	8
15.	618ART02	Interior Design Principles	PC	2	0	2	4	3
16.	618ART04	Building Services – II (Mechanical & HVAC)	PC	1	0	2	3	3
17.	618ARP05	Architectural Design - V	PC	0	0	12	12	6
18.	718ART01	Landscape Architecture & Design	PC	2	0	2	4	3
19.	718ART02	Human Settlement Planning	PC	3	0	0	3	3
20.	718ARP04	Architectural Design - VI	PC	0	0	14	16	7
21.	818ART01	Urban Design	PC	3	0	0	3	3
22.	818ART02	Professional Practice & Ethics	PC	3	0	0	3	3
23.	818ARP04	Architectural Design - VII	PC	0	0	12	15	6

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

PROFESSIONAL ABILITY ENHANCEMENT COMPULSORY CORE (PAECC)

S. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	118ART01	Mathematics	BS	2	2	0	4	3
2.	418ART02	Environmental Science and Services	BS	3	0	0	3	3
3.	718ARP03	Architectural Working Drawing & detailing	PC	0	2	4	6	3
4.	818ARP03	Dissertation	PAECC	0	0	8	8	4

SUMMARY

SEMESTER WISE CREDIT ALLOCATION AS PER SUBJECT AREA

2018 Regulation

S.No	SUBJECT AREA	CREDITS ALLOCATION										CREDITS TOTAL
		I	II	III	IV	V	VI	VII	VIII	IX	X	
1	HS	3	3	3	-	3	-	-	-	-	-	**12**
2	HE	2	-	-	-	-	-	-	-	-	-	**02**
3	BS	3	-	-	3	-	-	-	-	-	-	**06**
4	ES	3	6	3	3	6	6	-	-	-	-	**27**
5	PC	11	11	11	14	11	12	13	12	-	-	**95**
6	PE	-	-	3	3	3	-	3	6	-	-	**18**
7	WE	-	3	-	-	-	3	-	-	-	-	**06**
8	OE	-	-	-	-	-	3	3	-	-	-	**06**
9	PAECC	-	-	-	-	-	-	3	4	12	16	**35**
10	SEC	-	-	3	-	-	-	-	-	-	-	**03**
	Total	**22**	**23**	**23**	**23**	**23**	**24**	**22**	**22**	**12**	**16**	**210**
Mandatory course		Indian Constitution and Rights						Educational Tour				

COURSE CODE DEFINITION

SL.NO	COURSE CODE	DEFINITION
1.	HS	Humanities and Social Sciences
2.	BS	Basic Sciences
3.	ES	Engineering Sciences
4.	PC	Professional Core
5.	PE	Professional Elective
6.	OE	Open Elective
7.	SEC	Skill Enhancement Courses
8.	HE	Humanities Electives
9.	WE	Workshop Electives
10.	PAECC	Professional Ability Enhancement Compulsory Courses

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

118ART01 **MATHEMATICS** **L T P C**
2 2 0 3

COURSE OBJECTIVES:

- To acquaint the student with basic statistical techniques.
- To introduce probability concepts which prevail in everyday life.
- To learn the differential calculus.
- To acquire the knowledge of integral calculus.
- To understand the concept of three dimensional analytical geometry.

UNIT I STATISTICS **9Hrs**

Measures of central tendency- Mean, Median, Mode, Measures of dispersion- Standard deviation, Variance and Correlation coefficient – Graphical representation of data- pie chart, bar graph, Histogram and Ogives.

UNIT II PROBABILITY **9 Hrs**

Probability - Conditional Probability-Independence of Events-Baye's Rule - Probability distributions – Binomial,Poisson and Normal distributions.

UNIT III DIFFERENTIAL CALCULUS **9 Hrs**

Higher order linear differential equations with constant coefficients – Method ofvariation of parameters – Cauchy's and Legendre's linear equations – Simultaneousfirst order linear equations with constant coefficients-Applications to Engineering problems-Electric Circuits, Simple Harmonic Motions and bending of beams.

UNIT IV INTEGRAL CALCULUS **9 Hrs**

Definite and Indefinite integrals: Properties of definite integrals,Integration of rational, trigonometric and irrational functions, reduction formulae fortrigonometric functions.

UNIT V THREE DIMENSIONAL ANALYTICAL GEOMETRY **9 Hrs**

Direction cosines and ratio's – Angle between two lines – Equations of a plane – Equationsof a straight line – Coplanar lines – Shortest distance between skew lines – Sphere –Tangent plane – Plane section of sphere.

TOTAL: 45Hrs

COURSE OUTCOMES:

After completing this course, the student will be able to

CO 1: Acquire the knowledge of basic statistics and graphical representation tools.
CO 2: Understand the applications of probability concepts.
CO 3: Apply the techniques to solve ordinary differential equations.
CO 4: Evaluate integrals involving rational and irrational functions which have an applicationin many application fields.
CO 5: Associate the concept of three dimensional analytical geometry to real time applications.

TEXT BOOKS:

1. B.S. Grewal, "Higher Engineering Mathematics", Khanna Publications, 43rd Edition, 2014.

REFERENCES:

1. Gupta.S.C., &Kapoor,V.K., "Fundamentals of mathematical statistics", 11th edition, Sultan Chand &
2. Sons publishers, New Delhi.
3. T.Veerarajan,"Engineering Mathematics-I", Tata McGraw-Hill Publishing company, New Delhi, 2014
4. Kandasamy.P, Thilagavathy,K., &Gunavathi.K., "Engineering Mathematics for first year ", S.Chand&
5. Company Ltd., New Delhi, 2014.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

6. P.K.Jain, “A Text book of Analytical Geometry of Three Dimensions”, New AgeInternational (P) Ltd, 2010 publishers, New Delhi.

Course Outcome		Program Outcome												Program Specific Outcome		
CO’S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Acquire the knowledge of basic statistics and graphical representation tools.	1	-	2	-	-	-	-	-	-	-	-	1	-	-	1
CO2	Understand the applications of probabilityconcepts.	2	2	-	-	1	2	-	-	2	1	-	1	-	-	1
CO3	Apply the techniques to solve ordinary differentialequations.	-	1	-	1	-	2	-	-	-	-	-	-	-	-	1
CO4	Evaluate integrals involving rational and irrational functions which have an applicationin many application fields.	2	-	2	-	-	-	-	-	-	-	-	-	-	-	1
CO5	Associate the concept of three dimensional analytical geometry to real time applications.	1	-	-	-	-	2	-	-	-	-	-	-	-	-	1

118ART02 HISTORY OF ARCHITECTURE I L T P C

3 0 0 3

COURSE OBJECTIVES:

- To explore the diverse factors that shaped the built forms during Neolithic, bronze and Iron Age.
- To understand architecture as evolving within specific cultural contexts including aspects of politics, society, religion and climate
- To gain knowledge of the development of architectural form with reference to technology, style and character in the prehistoric world and in Ancient Egypt, West Asia, Greece and Rome.
- To enable a student to understand the progress and evolution of cities leads to the development of shelter.
- To understand the rock cut and stone architecture of Dravidian period and later developments in south India.

UNIT I PREHISTORIC AGE 6Hrs

Introducing concepts of culture and civilization - art forms and evolution of shelter - megaliths - agricultural revolution and its impact on culture and civilization.

UNIT II NEOLITHIC ARCHITECTURE 12 Hrs

Paleolithic& Neolithic - Elements and types of settlements, Nucleus and growth of settlements, Culture, Evolution of shelter, Factors influencing Architecture- Khirokitia, CatalHuyuk, Early Indus settlements, Harappa and Mohenjodaro, Stonehenge, Architectural character - Ziggurat of Ur; Palace of Sargon, Khorsabad.

UNIT III BRONZE AGE 9 Hrs

Ancient Egypt, history, religious and funerary beliefs and practices, biomorphism, monumentality, Tomb Architecture: Evolution of the pyramid from Mastaba, Pyramids-Giza, Temple architecture,

Temple of Ammon Ra-Karnak, Temple of Abu Simbel.

UNIT IV EARLY IRON AGE **9Hrs**

Aryan civilization, Evolution of City States, Greece: The Geometric period, Emergence of Greek Temple, Shape grammar, Theater Epidaurus, orders, optical illusion, Examples: Parthenon, Erecthion, Evolution of Republic states, The founding of Rome, Pompei.

UNIT V MIDDLE IRON AGE **9 Hrs**

Mauryan dynasty, Asokan pillar, Development of Mahayana Buddhism, Symbolism, Sanchi complex, Amaravatistupa, Chaitya halls and Viharas, Lomas Rishi Cave, Rani Gumpha- Udaigiri, Takht-i- Bahai, Chaitya halls at Karle, Baja, Ajanta and Ellora caves.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: Enabled the students to understand the development of architecture in the Ancient WesternWorld and the cultural and contextual determinants that produced that architecture.
CO 2: An understanding about the spatial and stylistic qualities associated with architecture.
CO 3: Understanding of architecture as an outcome of various social, political and economic upheavals, and as a response to the cultural and context.
CO 4: Comprehend the evolution and characteristics of cities.
CO 5: The students understood Indian architecture as a response to the political and socio culturalconditions present in India at different points of time.

TEXT BOOKS:

1. Sir Banister Fletcher, A History of Architecture, University of London, The AntholonePress,1996.
2. Spiro Kostof - A History of Architecture - Setting and Rituals, Oxford UniversityPress, London,1985.
3. Leland M Roth; Understanding Architecture: Its elements, history and meaning;CraftsmanHouse; 1994.
4. Christopher Tadgell , The History of Architecture of India from the Dawn of Civilization to theend of the Raj , Longman UK, London, 1990
5. Percy Brown , Indian Architecture (Buddhist Period) , Volume I, Taraporevala and Sons, Bombay, 1983
6. SatishGrover , The Architecture of India (Buddhist period), Vikas Publishing House Pvt. Ltd.,New Delhi,1981

REFERENCES:

1. Pier Luigi Nervi, General Editor - History of World Architecture - Series, Harry N.Abrams,Inc.Pub., New York, 1972.
2. S.Lloyd and H.W.Muller, History of World Architecture - Series, Faber and Faber Ltd.,London,1986.
3. Gosta,E.Samdstrp, Man the Builder, Mc.Graw Hill Book Company, New York, 1970.
4. Webb and Schaeffer; Western Civilisation Volume I; VNR: NY: 1962
5. Vincent Scully: Architecture; Architecture – The Natural and the Man Made: Harper CollinsPub:1991.

1. Mark M.Jarzombek, VikramadityaPrakash, A global history of architecture, Wiley, 2011

4. Spiro Kostof, A history of Architecture - settings and Rituals, Oxford University Press London1985

8. Volwahsen , Living Architecture: India (Buddhist Period), Macdonald & Co, London, 1969.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Enabled the students to understand the development of architecture in the Ancient Western World and the cultural and contextual determinants that produced that architecture. that architecture.	1	-	-	-	-	-	-	3	-	-	1	-	2	3	-
CO2	An understanding about the spatial and stylistic qualities associated with architecture.	3	3	3	2	2	1	-	3	2	3	2	1	2	3	-
CO3	Understanding of architecture as an outcome of various social, political and economic upheavals, and as a response to the cultural and context.	1	2	-	-	1	-	-	3	-	-	3	-	-	3	1
CO4	Comprehend the evolution and characteristics of cities.	3	3	3	1	2	-	2	3	1	-	-	-	-	2	-
CO5	The students understood Indian architecture as a response to the political and socio cultural conditions present in India at different points of time.	2	-	-	-	1	-	2	3	-	-	3	-	-	3	1

118ART03 ARCHITECTURAL DRAWING I L T P C
1 0 4 3

COURSE OBJECTIVES:

- To understand the concepts of Architectural Drawing with the introduction of drafting fundamentals.
- To understand the language of Architectural representations through Architectural Drawingsystems.
- To understand drawing as a medium to visualize and communicate design ideas.
- To involve students in a number of exercises that will help to understand the representation of3 Dimensional forms through isometric and axonometric drawings.

UNIT 1 INTRODUCTION - GEOMETRIC DRAWING 15 Hrs

Introduction to fundamentals of drawing/ drafting: Construction of lines, line value, line types, lettering, dimensioning, format for presentation etc, Construction of angles, use of scales, Construction of circles, tangents, curves.

UNIT II GEOMETRICAL DRAWING - PLANE GEOMETRY 20 Hrs

Construction and development of planar surface - square, rectangle, polygon, etc. Introduction of multi-view projection- projection of points, lines and planes, Description of Plane Curves: Ellipse, Parabola and Hyperbola.

UNIT III GEOMETRICAL DRAWING - SOLID GEOMETRY 20 Hrs

Multi- view projection of solids -cube, prism, pyramids, cones, cylinders etc.; Sections of solids, true shape of solids.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

UNIT IV GEOMETRICALDRAWING: AXONOMETRIC PROJECTION 20 Hrs

Axonometric, Isometric, plan oblique and elevation oblique projection of planes, solids and combination of solids, introduction to scales.

Note: Exercises on projections will be integrated with models done in art studio I.

TOTAL: 75 Hrs

COURSE OUTCOMES:

CO 1: Understood the nature of geometrical forms and simple building forms

CO 2: Understood on the building representation in 2D and 3D among students in addition to preparation of measured drawing.

CO 3: Enabled the students to understand concepts and fundamentals of architectural drawing to develop representation skill.

CO 4: Understood axonometric projections as well as representation skills are imparted.

TEXT BOOKS:

1. IH. Morris, Geometrical Drawing for Art Students - Orient Longman, Madras, 2004.
2. Francis Ching, Architectural Graphics, Van Nostrand Rein Hold Company, New York, 1964.

REFERENCES:

1. George K.Stegman, Harry J.Stegman, Architectural Drafting Printed in USA byAmericanTechnical Society, 1966.
2. C.Leslie Martin, Architectural Graphics, The Macmillan Company, New York, 1964
3. Francis D.K. Ching, Architectural Graphics, John Wiley and Sons, 2009
4. Fraser Reekie& Tony McCarthy, Reekie's Architectural Drawing, Architectural Press, 1995
5. Leslie Martin C., Architectural Graphics, The Macmillan Company, New York, 1978
6. George A Dinsmore, Analytical Graphics, Van Nostrand, Company Inc., Canada, 1968

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Understood the nature of geometrical forms and simple building forms	3	2	2	2	2	-	-	-	3	2	1	3	3	3	3
CO2	Understood on the building representation in 2D and 3D among students in addition to preparation of measured drawing.	1	1	3	-	-	1	-	-	2	-	1	2	2	-	3
CO3	Enabled the students to understand concepts and fundamentals of architectural drawing to develop representation skill.	3	3	3	3	1	2	1	-	3	-	-	2	3	2	3
CO4	Understood axonometric projections as well as representation skills are imparted.	-	-	3	1	-	1	-	-	2	-	-	1	-	2	-

118ART04 MATERIALS & CONSTRUCTION I L T P C
1 0 4 3

COURSE OBJECTIVES:

- To have an understanding of the properties, characteristics, strength, manufacture, processing and application of materials such as soil, lime, rocks and stones.
- To inform the properties, characteristics and use of bamboo, palm, straw, etc. and

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

methods of preservation and treatment.

- To involve students in a number of drawing exercises that will analyse the various building components in a simple load bearing structure.
- To involve students in a number of drawing exercises that will look at the design and detail of simple structures using naturally occurring materials such as mud, bamboo, straw, etc.
- To involve students in a number of drawing exercises that will look at the design and detail of various building components in a simple load bearing structure using stone.

UNIT I BASIC SHELTERS 15Hrs

Construction of shelters using natural materials - Bamboo, straw bales, reeds, casurina, Palmyra Palm, mud blocks -Climate specific influences on shelters - openings in temporary shelters - articulation of openings, doors and window - openings with brick jalli, bamboo split & mat finishes
- Roof in temporary shelters - Thatch roof, pan tiles - Fixing details - fencing.

UNIT II SIMPLE LOAD BEARING STRUCTURES - BRICK MASONRY 20Hrs

General introduction of various components of building from foundation to roof- Principles of loadbearing Construction - simple brick footing - principles of bonding, English and Flemish bond, rat trap bond, T-Junctions (1 and 1 1 / 2, 2 bricks), L - Junctions, Cross junction (2 bricks), Brick piers,Cavity walls, rat trap bond, plinth and Sill details, brick arches and lintels, compound walls.

UNIT III SIMPLE LOAD BEARING STRUCTURES - STONE MASONRY 20 Hrs

Stone foundation - random rubble/ ashlar, copings, stone piers, plinth and sill details, stone archesand lintels, stone fencing, Dhajji wall construction.

UNIT IV FLOORING 20Hrs

Flooring: rammed earth, Natural stones like Shahabad, Tandur, Kota, Kadappa, Marble, Granite, etc., athangudi tiles, red oxide, terracotta tiles (Laying details),brick paving, Glazed ceramic tiles, Vitrified tiles - Finishes: pointing, grouting, pavement, mud plastering, PCC.

TOTAL: 75 Hrs

COURSE OUTCOMES:

CO 1: Understood the properties, characteristics, strength and application of naturally occurring building materials such as Stone, Bamboo, Lime and Mud.
CO 2: Exposed the principles of designing components of load bearing structures – foundation
CO 3: Students learned on construction details using building materials such as stone through drawing as well as doing a literature or live case study.
CO 4: Understood Students are to submit drawing plates comprising of technical plan, elevation and section along with sketches and details showing method of construction.

TEXT BOOKS:

1. Arora S.P. and Bindra S.P., “Text book of Building Construction”, DhanpatRai&Sons, New Delhi, 2012.
2. KlansDukeeberg, Bambus – Bamboo, Karl Kramer Verlag Stuttgart Germany, 2000.

3. National Building Code Of India 2005- Part 6 Structural Design- Section 3 Timber and Bamboo.
4. Francis D.K. Ching, Building Construction Illustrated John Wiley & Sons 2000.

REFERENCES:

1. Arora S.P. and Bindra S.P., Text book of Building Construction, DhanpatRai& Sons, New Delhi,2012
2. Chudley R., Construction Technology (Volume 1), Longman publications 3rd Edition,1999
3. Don A. Watson, Construction Materials and Processes, McGraw Hill, 1972
4. Francis D.K Ching, Building Construction Illustrated, John Wiley & Sons, 2000
5. All you wanted to know about soil stabilized mud blocks,HUDCO, New Delhi, 1989
6. Mckay W.B., Building construction, Volume 1 and 2, Longman UK, 1981
7. Rangwala S.C., Building Construction, AnandCharotar Publishing House, India, 2000
8. Sharma S.K., A Text book of Building Construction, S. Chand and company, New Delhi, 1998

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Understood the properties, characteristics, strength and application of naturally occurring building materials such as Stone, Bamboo, Lime and Mud.	3	-	3	3	-	3	-	-	-	-	-	-	-	-	2
CO2	Exposed the principles of designing components of load bearing structures – foundation of load bearing structures – foundation	1	2	1	3	-	3	-	-	2	-	-	-	-	-	2
CO3	Students learned on construction details using building materials such as stone through drawing as well as doing a literature or live case study.	-	-	2	3	-	3	-	-	-	-	-	-	-	-	2
CO4	Understood Students are to submit drawing plates comprising of technical plan, elevation Details showing method of construction	-	-	3	2	-	2	-	-	2	-	-	-	-	-	2

118ARP05 **ART STUDIO** **L T P C**
1 0 4 3

COURSE OBJECTIVES:

- To develop presentation skills, visual expression and representation, imaginative thinking and creativity through a hands on working with various mediums and materials.
- To familiarize the students with the various mediums and techniques of art through whichartistic expression can be achieved
- To involve students in a series of exercises which will look at graphic and abstract representations of art
- To sensitize students to the grammar of visual perception by involving them in a series of free hand exercises to understand form, proportion, scale, figure ground etc.,

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

UNIT I BASICS OF DRAWING **20 Hrs**

Introduction to Drawing through various period of History - Seeing (Observation / Proposition /Scale / Texture through study of still life and natural objects), Visualizing (Memory Drawing /Exploratory Drawing), Expressing (Qualities of Lines / Drawing tools and Quality of Expressions – Pen, Pencil, Charcoal, Marker) – Abstraction and communication (Sketching and Free handPerspective Drawing)

UNIT II DRAWING FROM OBSERVATION **20 Hrs**

The processes of seeing, Imagining and Representing - Observations on Line and Shape - Observation on Tone and Texture - Observations on Form and Structure - Observations on Space and Depth - Sketching Exercises related to the contents specified above.

UNIT III GRAPHIC DESIGN **15 Hrs**

Introduction to history of Graphic Design – Visual perception theory (Gestalts) – Principle of Compositions – Colour Theory – Type Design and Typography (Layouts / Format / Calligraphy)– Environmental Graphics (Signage / Logo / enhancing the built environment) – Exercises in Environmental graphic design, color and composition

UNIT IV PAINTING **20 Hrs**

Introduction to Art / Artists' / Movements and Styles before and after industrial revolution and its Implication on design and architecture – Mediums, Techniques and Tools (Water colours /
Posters / Acrylic / Inks / Brushes / Knives / Mixed Media) - Exercises using various techniques andmediums.

TOTAL: 75Hrs

COURSE OUTCOMES:

CO 1: The students are exposed to various mediums, techniques and tools.
CO 2: The students gain mastery in sketching, visualizing and expression through manual drawing.
CO 3: Sensitized to culture, craft and context.
CO 4: Skill Development in Handling Materials and in Making Products.

TEXT BOOKS:

1. Webb, Frank, "The Artist guide to Composition", David & Charles, U.K., 1994.
2. Ching Francis, "Drawing a Creative Process", Van Nostrand Reinhold, New York, 1990.
3. Alan Swann, "Graphic Design School", Harper Collins, 1991.
4. Envisioning Architecture – an analysis of drawing , Iain Fraser & Rod Henmi, 1991

REFERENCES:

1. Moivahuntly, "The artist drawing book", David & Charles, U.K., 1994.
2. Arundell (Jan) Exploring sculpture, Mills and Boon, London/Charles, T. Brand FordCompany, U.S.A.
3. The art of drawing trees, heads, colours, mixing, drawing, landscape and painting, water colour oil colour, etc. – The Grumbacher Library Books, New York, 1996.
4. Caldwell peter, "Pen and Ink Sketching", B.T. Bats ford Ltd., London, 1995.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	The students are exposed to various mediums, techniques and tools.	1	-	3	2	-	-	-	-	3	-	-	-	3	2	-
CO2	The students gain mastery in sketching, visualizing and expression through manualdrawing.	1	-	3	1	-	-	-	-	3	-	-	-	3	2	-
CO3	Sensitized to culture, craftand context.	2	2	3	2	1	-	-	2	2	-	2	-	3	2	-

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

CO4	Skill Development in Handling Materials and in Making Products.	2	2	3	3	1	-	-	2	2	-	-	-	3	2	-

118ARP06 **BASIC DESIGN** **L T P C**

0 0 12 6

COURSE OBJECTIVES:

- To understand the elements and principles of Basic Design as the building blocks of Creative design through exercises that will develop originality, expression, skill and creativethinking.
- To involve students in a number of exercises to understand the grammar of Design and Visual composition.
- To enable the understanding of 3D Composition by involving students in a number of exercises which will help generation of a form from a two dimensional / abstract idea.
- To understand architecture as a craft, of making and of putting together.
- To sensitize students to materials both planar and plastics and Processes involved in working with them.

CONTENT

Introduction to Spatial Design, Form and Structures through Basic Design – Elements of Design: Properties, qualities and characteristics of point, line, direction shape, form, colour andtexture – Principles of Design: Scale, Proportion, Balance, Harmony, Rhythm and Contrast. – Concepts of Visual perception – Material and processes.

The course shall be conducted by giving a number of exercises in the form of Design studios, Seminars and Creative workshops that are aimed at teaching the following:

Elements and Principles of Visual Composition and Pattern making. Exploring Colour theories and their application in a Visual composition.

Study of texture and schemes of texture both applied and stimulated and their application. Material and Form / Structures – Nature based enquiry into form both Linear and Planar, fluid andplastic forms using simple material like Mount Board, metal foil, box boards, wire string, thermocol, clay, plaster of Paris etc.

Study of Solids and voids to evolve sculptural forms and spaces using specific processoriented methods like casting, mouldings etc.,

Analytical appraisal of an iconic Design like a rivetvelt chair, Eames chair etc., for form, function,visual characteristics, ergonomics etc. /evolution of a craft.

Analytical appraisal of building form in terms of visual character, form and function, play of lightand shade, solids and voids, colors and texture.

TOTAL: 180 Hrs

COURSE OUTCOMES:

CO 1: An understanding of the qualities of different elements as well as their composite fusions.

CO 2: Ability to engage and combine the elements of design in spontaneous as well as intentionalways in order to create desired qualities and effects.

CO 3: Development of required skills – observation / analysis / abstractions / interpretation/representations / expressions through models and drawings.

CO 4: Students are trained to develop abstract and real compositions in drawings.

CO 5: Simultaneously workshop exercises involving real and abstract models made of match sticks, Card boards, wires, wood pieces to familiarize students with such skills shall be given importance.

TEXTBOOKS:

1. Owen Cappleman& Michael Jack Jordon, Foundations in Architecture: An Annotated Anthologyof Beginning Design Project, Van Nostrand Reinhold New York, 1993.

2. Charles Wallschlacgerm& Cynthia Busic-Snyder, Basic Visual Concepts and Principles for

Artists, Architects and Designers, McGraw Hill, New York 1992.

REFERENCES:

1. V.S.Pramar, Design fundamentals in Architecture, Somaiya Publications Pvt. Ltd., New Delhi,1973.
2. Francis D. K. Ching - Architecture - Form Space and Order Van Nostrand Reinhold Co., (Canada), 1979.
3. Elda Fezei, Henry Moore, Hamlyn, London, New York, Sydney, Toronto, 1972.
4. C. Lawrence Bunchy - Acrylic for Sculpture and Design, 450, West 33rd Street, New York, N.Y. 10001, 1972.
5. Exner. V, Pressel. D, Basics Spatial Design, Birkhanser, 2009.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	An understanding of the qualities of different elements as well as their composite fusions.	3	3	3	3	3	3	2	2	3	2	1	-	3	2	2
CO2	Ability to engage and combine the elements of design in spontaneous as well as intentional ways in order to create desired qualities and effects.	2	2	3	2	3	2	1	1	3	1	1	1	3	2	2
CO3	Development of required skills – observation / analysis / abstractions / interpretation/representations / expressions through models and drawings.	2	3	3	3	1	3	1	1	3	1	-	1	3	2	2
CO4	Students are trained to develop abstract and real compositions in drawings.	2	-	3	3	3	3	1	-	3	1	-	-	3	2	2
CO5	Simultaneously workshop exercises involving real and abstract models made of match sticks, Card boards, wires, wood pieces to familiarize students with such skills shall be given importance.	3	-	3	3	2	2	1	-	3	-	-	-	3	2	2

118ARE01 **PERSONALITY DEVELOPMENT** **L T P C**

2 0 0 2

COURSE OBJECTIVES:

- To build confidence and guide thought process.
- To help the students achieve effectiveness in their professional activities, harness skills anddevelop qualities suited for the profession.
- To groom students' attitude and develop communication skill.
- To build the communication skills in the field projects.
- To provide knowledge in time management and projects stages.

UNIT I PERSONALITY **5Hrs**

Nature of personality.Theories of personality- Type, Trait, Social Learning.Determinants of personality, Personality traits.

UNIT II ATTITUDE BUILDING **6Hrs**

Importance of attitude, factors that determine our attitude, types of attitude building

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

positiveattitude, developing optimism and discipline.

UNIT III GROUP AND TEAM WORK **9 Hrs**

Group and Team dynamics, Group Structuring- Leadership, role, Tasks, effective team work. Exercises to understand the nature of a team, team building, members and achieving a given task. Purpose (Intellectual ability, creativity, approach to a problem, solving, tolerance, qualities of a leader). Group behavior, Analyzing performance

UNIT IV COMMUNICATION SKILLS **6Hrs**

Verbal communication, Body language, Vocabulary building, Public speaking and extempore speech skills, Presentation skills, Panel discussions. Written communication- Letters, reports etc. Conflict Management, Assertiveness, Time management.

UNIT V TIME &STRESS MANAGEMENT **5 Hrs**

Types of time, Identifying time wasters, Time management skills. Importance, Causes, Stress relief mechanisms

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: Attained Confidence and improved thought process.
CO 2: Understood the behavioural aspects and built attitude.
CO 3: Exposed to a team work to implement in project management.
CO 4: Students are trained in communication skills.
CO 5: Gained knowledge in time management.

TEXT BOOKS:

1. Developing Communication Skills, Krishna Mohan &MeeraBanerji Macmillan India
2. Principles of Public Relations, C S Rayudu, Himalaya Publishing House
3. Organizational Behavior, K. Ashwathappa, Himalaya Publishing House
4. Emotional Intelligence, Daniel Colman

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Attained Confidence and improved thought process.	-	-	3	-	-	-	2	-	2	-	-	2	3	2	2
CO2	Understood the behavioural aspects and built attitude.	1	-	2	-	-	-	1	-	2	-	-	-	3	2	2
CO3	Exposed to a team work to implement in project management.	3	1	2	2	-	-	2	-	-	-	-	-	3	2	2
CO4	Students are trained in communicationskills	-	-	2	-	-	-	-	-	-	-	-	-	3	2	2
CO5	Gained knowledge in time management.	2	1	2	2	-	-	2	-	-	-	-	3	3	2	2

118ARE02 **ART APPRECIATION** **L T P C**

2 0 0 2

COURSE OBJECTIVES:

- To introduce the vocabulary of art and the principles.
- To study Modern Art and the new directions that evolved in the 19th and 20th centuries.
- To inform the production of art in the Indian context through history and the contemporarymanifestations.
- To introduce the vocabulary of art and the principles.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

- To inform students about the various art forms through the ages within the cultural contexts.

UNIT I INTRODUCTION TO ART 3Hrs

Definition of art - need for art – role of art – art reality, perception, representation- categories of art in terms of media and technique - appreciating art: form, content and context

UNIT II VOCABULARY OF ART 4Hrs

Introducing the vocabulary of art constituted by elements (line, shape, form, space, colour, light,value, texture) and principles (unity, variety, harmony, rhythm, balance, proportion, emphasis,contrast, movement)

UNIT III APPRECIATING ART – BEGINNINGS TO MODERN ART 8Hrs

Appreciating art through the study of art production in the West from the beginnings to the birth of modern art. Important works from the following art traditions will be studied and analysed in terms of their form, content and context Prehistoric Art - Egyptian and Mesopotamian art Greek and Roman art– Medieval art - Renaissance and Baroque art - Neoclassicism - Romanticism – Realism

UNIT IV APPRECIATING ART- MODERN ART AND AFTER 10 Hrs

Appreciating art through the study of art production in the West over history from modern art tillthepresent. Important works from the following art traditions will be studied and analysed in terms of their form, content and context : Context for new directions in art in the late 19th and early 20th century - Impressionism – post Impressionism – Fauvism- Expressionism- Cubism – Dadaism – Surrealism - abstract art – Futurism - Constructivism – Suprematism – De Stijl - Abstract Expressionism - Pop art –forms and media of art.

UNIT V APPRECIATING ART- INDIAN ART 5Hrs

Appreciating art through the study of art production in India over history. Important works from the following art traditions will be studied and analysed in terms of their form, content and context Indus Valley Art - Hindu Buddhist and Jain art - Mughal and Rajput miniatures - art during the colonial period - modern Indian Art.

TOTAL: 30 Hrs

COURSE OUTCOMES:

CO 1: Ability to understand and appreciate art as a fundamental human expression.
CO 2: Awareness of important art productions in the West and India.
CO 3: Sensitivity towards individual and collective human cultural productions as uniqueexpressions of historical and geographic context.
CO 4: Ability to understand art through ages with different approaches.
CO 5: Understood the traditional context, art forms through various works.

TEXT BOOKS:

1.Fred, S. Kleiner, 'Gardener's Art through Ages', Harcourt College Publishers, 2001.
2.Bernard S. Myers, 'Understanding the Arts', Holt Rinehart and Winston Inc, 1964.
3.H.H. Arnason, 'History of Modern Art', Thames and Hudson, 1977. 4.ParthaMitter, 'Indian Art', Oxford University Press, 2001.

REFERENCES:

1.Peter and Linda Murray, 'The Penguin Dictionary of Art and Artists', Penguin, 1989.
2.E.H. Gombrich, 'The Story of Art', Phaidon, 2002.
3.E.H. Gombrich, 'Art and Illusion', Phaidon, 2002. 'Indian Art since the early 1940s- A Search for Identity', Artists Handicrafts Association of Cholamandal Artists Village, Madras,1974. A.K.Coomaraswamy, Fundamentals of Indian Art, Historical Research Documentation Programme, Jaipur, 1985.

														Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Ability to understand and appreciate art as a fundamental human expression	2	2	3	-	-	-	-	-	-	-	-	-	3	2	-
CO2	Awareness of important art productions in theWest and India	1	1	3	-	-	-	-	2	-	-	1	-	3	2	-
CO3	Sensitivity towards individual and collective human cultural productions as unique expressions of historical and geographic context.	1	2	2	-	-	-	-	3	2	-	-	-	3	2	-
CO4	Ability to understand art through ages with different approaches.	-	-	1	1	-	-	-	2	-	-	1	-	3	2	-
CO5	Understood the traditional context, art forms through various works.	2	-	2	-	1	-	-	2	-	-	-	-	3	2	-

218ART01 **MECHANICS OF STRUCTURES- I** **L T P C**

2 2 0 3

COURSE OBJECTIVES:

- To enable a student to understand the effect of action of forces on a body and the conceptof equilibrium of the body through exercises.
- To determine the internal forces induced in truss members due to external loads by workingout problems.
- To calculate the structural properties (centroid, moment of inertia, section modulus and radius of gyration) for various sections by working out problems.
- To study the stress – strain behaviors of steel and concrete due to axial loads and to determine the stresses and strains developed in solids due to external action through select problems.
- To drive the relationship between elastic constants and solving problems.

UNIT I FORCES AND STRUCTURAL SYSTEMS **9 Hrs**

Types of force systems - Resultant of forces- lami's theorem- principle of moments - varginon's theorem - principle of equilibrium (no reaction problems) - simple problems

UNIT II ANALYSIS OF PLANE TRUSSES **9 Hrs**

Introduction to Determinate and Indeterminate plane trusses - Analysis of simply supported and cantilevered trusses by method of joints.

UNIT III PROPERTIES OF SECTION **9 Hrs**

Centroid- Moment of Inertia - Section modules – Radius of gyration - Theorem of perpendicularaxis - Theorem of parallel axis –simple problems.

UNIT IV ELASTIC PROPERTIES OF SOLIDS **9 Hrs**

Definition for stress, strain and its types – young's Modulus, Poisson's Ratio - Stress strain diagram for mild steel – Compound bars.

UNIT V ELASTIC CONSTANTS **9 Hrs**

Elastic constants - Relation between elastic constants - Application to problems.

TOTAL: 45 Hrs

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

COURSE OUTCOMES:

At the end of the course, the student should be able to:

CO 1: Apply the concepts of action of forces on a body and should be able to apply the equilibrium concepts.

CO 2: Analyze any type of determinate trusses with different end conditions.

CO 3: To solve the sectional properties for any geometrical shapes.

CO 4: The concepts of elastic constants and its applications for various types of problems. Thorough understanding of stresses and strain.

CO 5: To Understand the relationship between elastic constants and solving problems.

TEXT BOOKS:

1. Bansal R.K.– A text book on Engineering Mechanics, Laxmi Publications, Delhi, 2005.
2. Bansal R.K. – A textbook on Strength of Materials, Lakshmi Publications, Delhi 2007.

REFERENCES:

1. Punmia P.C., "Strength of Materials and Theory of Structures"; Vol. I, Lakmi Publications, Delhi, 1994.
2. Ramamrutham S., "Strength of Materials", Dhanpatrai & Sons, Delhi, 1990.
3. Nash W.A., "Strength of Materials" – Schaums Series, McGraw Hill Book Company, 1989.
4. Rajput R.K., "Strength of Materials", S. Chand & Company Ltd., New Delhi, 1996.
5. W.A.Nash, Strength of Materials – Schaums Series – McGraw Hill Book Company, 1989.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Apply the concepts of action of forces on a body and should be able to apply the equilibrium concepts.	3	-	-	-	-	3	-	-	-	-	-	-	3	-	-
CO2	Analyze any type of determinate trusses with different end conditions.	3	-	-	-	-	3	-	-	-	-	-	-	3	-	-
CO3	To solve the sectional properties for any geometrical shapes.	3	-	-	-	-	3	-	-	-	-	-	-	3	-	-
CO4	The concepts of elastic constants and its applications for various types of problems. Thorough understanding of stresses and strain.	3	-	-	-	-	3	-	-	-	-	-	-	3	-	-
CO5	To Understand the relationship between elastic constants and solving problems	3	-	-	-	-	3	-	-	-	-	-	-	3	-	-

218ART02 **PRINCIPLES OF ARCHITECTURE** **L T P C**

3 0 0 3

COURSE OBJECTIVES:

- To provide the student of architecture a foundation in the conception of forms, spatial aspects, compositions and their analysis in buildings.
- To develop the understanding of basic elements in Architecture.
- To introduce the basic principles of Architecture which lends meaning to architectural expression.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

- To make students understand the interaction that happens between form and spaces resulting in definite relationships, and the way various forms of organization influence the concept of design.
- To make student understand how movement and circulation is enhanced in and around buildings through appropriate examples.

UNIT I INTRODUCTION TO ARCHITECTURE 9Hrs

Origin and Definitions of Architecture –Architecture as a discipline – context for architecture as satisfying human needs: functional, aesthetic and psychological-outline of components and aspectsof architectural form-site, structure, skin, materials, services, use, circulation, expression, character, experience – Introduction to the formal vocabulary of architecture.

UNIT II ELEMENTS AND PRINCIPLES OF ARCHITECTURE 9Hrs

Understanding fundamental elements such as point, line, plane, form and space, shape, pattern, light, colour, surface and texture with reference to the evolution of architectural form and space. Basic principles of visual perception.

Ordering principles- their need and application in Architecture.Understanding fundamental principles such as Axis, Symmetry / Asymmetry, Hierarchy, Datum, Rhythm, Repetition, Harmony, Transformation, Balance, Contrast, Unity, Pattern, Scale & Proportion, Dominance, Climax – Application of order, Golden section, modular section with examples.

UNIT III FORM AND ARCHITETCURE 9Hrs

Understanding perceptual effects of specific geometric forms such as sphere, cube, pyramid,cylinder and cone- its sections - derivatives of forms - transformation of forms with respect to Architecture- Articulation of forms.Form and function in architecture

UNIT IV SPATIAL ORGANISATION 9 Hrs

Understanding the space definingelements- Wall plane, Base plane, Roof plane;openings in spacedefining elements;Internal and External Enclosures - Spatial organization:Centralized, Linear, Radial, Clustered, Grid. Exercise based on works of Architects.

UNIT V SPATIAL RELATIONSHIP AND CIRCULATION 9 Hrs

Understanding perceptual effects of specific configuration of architectural spaces –Continuous spaces – Spatial relationship and its types, – built form and open space relationships.

Function of building circulation, components of building circulation -The building approach, the building entrance, configuration of the path, path space relationship, form of circulation space withexamples. Simple circulation diagram for buildings. Exercise based on works of Architects.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: A thorough understanding on the definition of architecture; elements of architectures of form and space.
CO 2: An exposure to the basic elements of architecture and applications of the same in buildings.
CO 3: Explore the principles of architecture and applications of the same in buildings.
CO 4: More Understanding of the interaction that happens between form and spaces in building.
CO 5: Getting more knowledge on how movement and circulation is enhanced in and around buildings

TEXT BOOKS:

1. Francis D.K.Ching, Architecture-Form, Space and Order, Van Nostrand ReinholdCompany, New York, 2007.
2. Simon Unwin, Analysing Architecture, Rouledge, London, 2003. 3. V.S.Pramar, DesignFundamentals in Architecture, Somaiya Publications Private Ltd., New Delhi, 1973.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

REFERENCES:

1. Leland M.Roth - Understanding Architecture, its experience history and meaning,Craftsman house, 1994.
2. Steen Eiler Rasmussen - Experiencing architecture, MIT Press, 1964
3. Peter von Meiss -Elements of architecture - from form to place, Spon Press 1992.
4. Rudolf Arnheim- The dynamics of architectural form, University of California Press 1977 5. Neils Prak, Mounton & Co 1968 The language of Architecture
5. Paul Alan Johnson - The Theory of Architecture - Concepts and themes, Van Nostrand Reinhold Co., New York, 1994. Helen Marie Evans and Carla David Dunneshil, An invitiation to design, Macmillan Publishing Co. Inc., New York, 1982.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	A thorough understanding on the definition of architecture; elements of architectures of form and space	3	3	3	1	3	-	-	-	3	1	-	-	-	-	1
CO2	An exposure to the basic elements of architecture and applications of the same in buildings.	3	2	3	2	3	2	2	-	3	1	-	1	1	-	1
CO3	Explore the principles of architecture and applications of the same inbuildings.	3	2	3	2	3	2	2	-	3	1	-	1	-	-	1
CO4	More Understanding of the interaction that happens between form and spaces in building.	3	3	3	2	2	3	2	1	3	1	1	1	-	-	1
CO5	Getting more knowledge on how movement and circulation is enhanced in and aroundbuildings	3	3	3	3	3	2	1	-	3	3	1	1	3	-	-

218ART03 HISTORY OF ARCHITECTURE AND CULTURE - II L T P C

3 0 0 3

COURSE OBJECTIVES:

- To understand Indian architecture as evolving within specific cultural contexts includingaspects of society, religion, politics and climate
- To gain knowledge of the development of architectural form with reference to technology,style and character of Hindu architecture in various parts of the country.
- To understand the Islamic principles, philosophy & its relevance to various built forms, and the influence of Islamic architecture on Indian subcontinent. Architecture of various provinces under sultanate rule.
- To give an overall understanding of the architecture in India up to the colonial period as parallel and sequential productions rising from the cumulative effect of forces operating and intersecting in the Indian subcontinent
- To understand more about the regional Islamic architecture and its style of building.

UNIT I EARLY INDIA AND ITS CULTURAL PRODUCTIONS 7 Hrs

Overview of early history of the Indian subcontinent bringing out different conjectures. Vedic culture, settlements and Architecture through textual and inscriptional sources as well as conjectures. Outline of textual sources related to architecture and town planning in ancient India. Early Hindu temple architecture- evolution of temple form- meaning, symbolism, ritual and social importance of temple and elements of temple architecture. Gupta and Chalukyan periods, Tigawa temple – Ladhkhan and Durga temple, Aihole – Papanatha, Virupaksha temples, Pattadakal – Kailasanatha temple, Ellora.

UNIT II HINDU ARCHITECTURE OF SOUTHERN INDIA I 12 Hrs

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

Outline history of South India with particular emphasis on Bhakthi movement and evolution of temple townurbanism and architecture. Dravidian Order – evolution and form of Gopuram. Art and architecture under pallavas, Cholas, Pandyas, Nayaks and Vijayanagara kingdom with specific focus on Hindu temple architecture. Influence of social and political history on them. Hoysala architecture- Study of important monuments for all the above.

Rock cut productions under Pallavas: Shore temple, Mahabalipuram and Kailasanatha temple, Kanchipuram. Chola Architetcure: Nartamalai, Brihadeeswara, Gangaikonda Cholapuram and darasuram temple – temple gateways of Madurai and Chidambaram – temple towns : Madurai, Srirangam and Kanchipuram. Hoysala architecture: Belur and Halebid.

UNIT III HINDU ARCHITETCURE OF SOUTHERN INDIA II 7 Hrs

Temple architecture of Gujarat, Orissa, Madhyapradesh and rajasthan – their salient features. Lingaraja temple, Bhuvaneswar – Sun temple, Konark, Somnatha temple, Gujarat Surya kund, Modhera khajuraho, Madhya Pradesh – Dilwara temple, Mt. Abu. Architecture of step wells in middle India and their socio- cultural importance.

UNIT IV INTRODUCTION TO ISLAMIC ARCHITECTURE AND EARLY ISLAMIC ARCHITECTURE IN INDIA 8hrs

Brief history of Islam. Islamic architecture of the world as rising as a socio- cultural and political phenomenon. Evolution of building typed in terms of forms and functions. Principles and characteristics of Islamic architecture – to include aspects of religion, geometry, structure, materials, decoration, light. Early political history of Islam in India. Evolution of islamic architecture under the Delhi Sultanate – Slave, Khaji, tughlaq, Sayyid and lodi dynasties, tombs in Punjab – important examples for each period.

UNIT V REGIONAL ISLAMIC ARCHITECTURE, MUGHAL ARCHITECTURE 12 Hrs

Shift of power to the provinces and evolution of regional architecture with their own unique influence: geographic, cultural, political. important examples for each region, Gujarat, Bengal, malwa, Deccan (Gulbarga, Bidar, Golconda and Bijapur)

Political history of the Mughals. Evolution of architecture and outline of Mughal cities and gardens under the Mughal rulers: Babur, Humayun, Akbar, Jahangir, Shahjahan, Aurangazeb – study of important examples – decline of the Mughal Empire.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: The students understood Indian architecture as a response to the political and socio cultural conditions present in India at different points of time.

CO 2: An understanding of the diversity of architecture in India and sensitivity towards its syncreticaspects.

CO 3: Ability to appreciate particular cultural, symbolic, spatial and material qualities in architecture and cities as givers of meaning and continuity.

CO 4: The architectural responses were understood with respect to technology style and character

CO 5: More understanding on regional Islamic architecture and its style of building.

TEXT BOOKS:

1. Percy Brown, “Indian Architecture (Buddhist and Hindu Period)”, Taraporevala and Sons, Bombay, 1983.
2. Satish Grover, “The Architecture of India (Buddhist and Hindu Period)”, Vikas PublishingHousing Pvt. Ltd., New Delhi, 2003.
3. Christoper Tadgell, “The History of Architecture in India from the Dawn of civilization to the End of the Raj”, Longmon Group U.K.Ltd., London, 1990.
4. Satish Grover, “Islamic Architecture in India”, CBS Pub, New Delhi, 2002

REFERENCES:

1. George Michell, “The Hindu Temple”, BI Pub., Bombay, 1977.
2. Stella Kramrisch, “The Hindu Temple”, Motilal Banarsidass, 1976.
3. Parameswaranpillai V.R., “Temple culture of south India”, Inter India Publications.

4. George Michell Ed, “Temple Towns of Tamil Nadu”, Marg Pubs, 1995.
5. Raphael D., “Temples of Tamil Nadu Works of Art”, Fast Print Service Pvt Ltd., 1996.

Course Outcome		Program Outcome												Program Specific Outcome		
CO’s		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	The students understood Indian architecture as a response to the political and socio cultural conditions present in India at different points of time.	1	-	2	1	1	-	1	3	-	2	3	-	3	3	3
CO2	An understanding of the diversity of architecture in India and sensitivity towards its syncretic aspects.	3	1	2	-	1	-	1	3	-	-	1	-	3	3	3
CO3	Ability to appreciate particular cultural, symbolic, spatial and material qualities in architecture and cities as givers of meaning and continuity.	1	2	2	-	2	-	1	3	-	-	1	-	2	-	3
CO4	The architectural responses were understood with respect to technology style and character givers of meaning and continuity.	2	2	2	2	2	-	1	3	-	-	2	-	2	-	-
CO5	More understanding on regional Islamic architecture and its style of building.	1	-	1	-	1	1	-	3	2	-	2	-	2	-	1

218ART04 **ARCHITECTURAL DRAWING– II** **L T P C**

1 0 4 3

COURSE OBJECTIVES:

- To involve students in a number of exercises that will help them develop the skill of representation in advance drawing techniques involving perspective and sciography.
- To involve students in a number of exercises that will help to understand the measured drawing method to document buildings of architectural interest using simple and advanced techniques of representation.
- To develop the skill of representation in advanced drawing techniques and building documentation.
- To explore the student about the sciography for various building

UNIT I PLANS & SECTIONS OF BUILDINGS **15Hrs**

Introduction to the basic principles of drawing - scale conversion. Graphical representation ofplans and sections of buildings. Floor plans, elements above and below plan cut, reflected ceiling plan, site plan with contours, site sections, building elevations, section of buildings.

UNIT II PERSPECTIVE: SCIENTIFIC METHOD **15 Hrs**

Concepts and methods of perspective drawing. One point and two point perspective of simple geometrical shapes like cube, prism, combination of shapes, simple one, two and three-point perspective of building interiors and exteriors. Adding of figures, trees furniture, shade and shadows and applying rendering techniques.

UNIT III PERSPECTIVE: SHORT CUT METHOD **15 Hrs**

Introduction to short cut perspective method. Adding of figures, trees furniture, shade and shadows and applying rendering techniques.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

UNIT IV SCIOGRAPHY **15 Hrs**

Principles of shade and shadow – construction of shadow of simple geometrical shapes – construction of sciography on building, shadows of architectural elements.

TOTAL: 60 Hrs

COURSE OUTCOMES:

CO 1: The techniques and skills gained learned through this subject Architectural drawing II isvery useful to their profession

CO 2: Able to construct the perspective drawings of the buildings and 3d views as well the Documentation of buildings through drawings.

CO 3: Got exposed to the perspective method.

CO 4: Gained Knowledge on the principle of shade and shadows.

TEXT BOOKS:

1. John M.Holmes, Applied Perspective, Sir Isaac, Piotman and Sons Ltd., London 1954.
2. Robert W.Gill, Basic Perspective, Thames and Hudson, London, 1974.
3. C.Leslie Martin, Architectural Graphics, The Macmillan Company, New York, 1964.
4. Francis Ching, Architectural Graphics, Van Nostrand and Reinhold Company, NY 1975

REFERENCES:

1. Claude Batley, Indian Architecture, D.B.Taraporevale Sons and Co., Ltd., Bombay
2. William Kirby Lockard, Drawing as a Means to Architecture, Van Nostrand, Reinhold Company, New York.
3. George A Dinsmore, Analytical Graphics – D.VanNostrand, Company Inc., Canada.
4. Interiors: Perspective in Architectural Design Graphic - SMA Publishing Co. Ltd., Japan, 1967.
5. Ernest Norling, Perspective drawing, Walter Fostor Art Books, California, 1986.
6. Bernard Alkins- 147, Architectural Rendering, Walter Foster Art Books, 1986.
7. RoberW.Gill, Advanced Perspective, Thames and Hudson, London, 1974

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	The techniques and skills gained learned through this subject Architectural drawingII is very useful to their profession	2	1	3	2	-	-	1	-	3	-	-	-	3	-	3
CO2	Able to construct the perspective drawings of the buildings and 3d views as well the Documentation of buildings through drawings.	2	1	3	2	-	-	-	-	3	-	-	-	3	-	3
CO3	Got exposed to the perspective method.	1	2	3	1	-	-	-	-	3	-	-	-	2	-	3
CO4	Gained Knowledge on the principle of shade and shadows.	3	2	3	1	-	-	-	-	1	-	-	-	3	-	2

218ART05 **MATERIALS & CONSTRUCTION II** **L T P C**

1 0 4 3

COURSE OBJECTIVE:

- To introduce the students to various assembly systems of timber and plywood, its defects and preservation process in architectural applications.
- To enable a student draw joinery details, the various use in building industry its structural application, and furniture through select exercises.
- To understand cost efficient techniques of construction using different materials by drawing

exercises.

- To enable the students to know more about the elements, components, materials and construction techniques to develop strong sense of visualization. The students have to learn the applications and various components through scaled drawings.

UNIT I TIMBER IN CONSTRUCTION **18 Hrs**

Timbers -Methods of construction using natural timber in joinery works including methods of fixing and options for finishing - Softwood and hardwood - Secondary timber - Physical properties and uses - Defects, Conversion, Seasoning, decay and preservation of timber - Fire retardant treatment, anti-termite treatment. Industrial timbers - plywood, blackboard, particle board, fiber boards. Manufacture and uses - current developments.

UNIT II TIMBER DOORS AND WINDOWS **19 Hrs**

Different types and joinery details-Doors (Paneled, Battened, Sliding), Windows (paneled, glazed, pivoted and sliding windows)- Ventilators (top hung, louvered, and glazed)- fixtures for doors, windows and ventilators and application for a simple structure with schedule of joinery.

UNIT III TIMBER ROOF AND STAIRCASE **19 Hrs**

Types of Timber roofs (Flat, Pitched, Lean to)- Components of Timber roof joineries - Types of Roof trusses (King post, Queen post, Open plan. Storage, Scissor, Slope)- Understanding the different slopes and its ratios. Timber staircases- Basic principles and design details including detailing of handrail and baluster- Exercises - drawings on Dog legged and spiral staircase.

UNIT IV TIMBER WALLS, PARTITIONS AND FLOORS **19 Hrs**

Methods of construction using natural timber in walls and floors- ply woods, block boards, in fixedpartitions, sliding/folding partitions, wall paneling/Cladding- Exercises of the above through drawings based on current scenario.

TOTAL: 75 Hrs

COURSE OUTCOMES:

CO 1: An understanding of timber products and methods of construction and detailing.
CO 2: Exposed the students to various wooden joinery details of furniture's.
CO 3: An Understanding of cost effective building technologies.
CO 4: With the above knowledge students got to know more about partition details.

TEXT BOOKS:

1. Don A. Watson, "Construction Materials and Processes", McGraw Hill, 1972.
2. W.B. McKay, "Building Construction", Vol, 1 and 2, Longmans, UK, 1981.
3. S.C Rangwala "Building Construction", Charotar Publishing House, India, 2000
4. S.K.Sharma, "A Text book of Building Construction", S.Chand & Co Ltd., New Delhi,1998

REFERENCES:

1. S.C.Rangwala, Engineering Materials, CharotarPub.House, Anand, 1997.
2. W.B.Mckay, 'Building Construction', Vol.1, 2, 3 Longmans, U.K. 1981.
3. Don A.Watson, Construction Materials and Processes, McGraw Hill Co., 1972.
4. Alanwerth, Materials, The Mitchell Pub. Co. Ltd., London, 1986.
5. R.Chudleu, 'Building Construction Handbook', British Library Cataloguing in PublicationData, London, 1990.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	An understanding of timber products and methods ofconstruction and detailing.	2	-	3	3	1	3	1	-	3	-	1	-	3	2	3
CO2	Exposed the students to various wooden joinerydetails of furniture's.	1	-	3	3	1	3	-	-	3	-	2		3	3	-

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

CO3	An Understanding of cost effective building technologies.	1	2	3	3	2	3	1	-	3	-	1	-	3	3	3
CO4	With the above knowledgestudents got to know more about partition details.	1	2	3	3	2	3	1	-	2	-	1	-	2	3	3

218ARP06 **ARCHITETURAL DESIGN STUDIO I** **L T P C**

0 0 10 5

COURSE OBJECTIVES:

- To involve students in a design project(s) that will involve simple space planning and the Understanding of the functional aspects of good design.
- To enable the conceptualization of form, space and structure through creative thinking and to initiate architectural design process deriving from first principles.
- To involve students in building case study by choosing appropriate examples to enable them to formulate and concretize their concepts and architectural program.
- To enable a student, understand the basics of anthropometrics, its application in articulatingvertical, horizontal space and later on in simple buildings including considerations for physically challenged through a design process resulting in specific typologies, as specified.

Measured Drawing-Combined study of historic document along with small buildings by using simple measuring tools like tapes, photograph.

Basic anthropometrics- human functions and their implications for space requirements.Spatial interpretations – various activities and their relationship with spaces. Anthropometry as related to physically handicapped and elderly persons are required to be studied. Functional furniture layout, circulation, lighting and ventilation for spaces.

Design communication and graphics -Importance of graphics in architectural design. Types of diagrams – graphic metaphors, are diagram, matrix diagram, network diagram, bubble diagram, circulation diagram, analytical diagram, schematic – symbol, sign, arrows – concept diagrams.Study of site plans, city plans, conceptual drawings. Interpretation of architects' conceptual sketches and the respective buildings.

Scale and Complexity- projects involving small span, single space, single use spaces with simplemovement, predominantly horizontal, as well as simple function public buildings of smallscale.

Examples of exercises include

a) Toilet for a physically handicapped person. Hostel room, bed room, kitchen, living/dining,
b) Shop, Workshop, pavilions, snack bar
c) Residence, petrol bunk, fire station, police station, cottage for an elderly couple
d) Architect's office, Doctor's clinic.
e) Design of simple building elements such asEntrance portal,Garden pavilion, Memorial, edifice,Bus shelter, snack kiosk and layout of parks.

TOTAL: 180 Hrs

COURSE OUTCOMES:

CO 1: The characteristics of site, importance of site planning and built form/open space relationship has been understood.
CO 2: User group responses were ascertained through case-studies.
CO 3: Presentation of concepts was enabled through 2D drawings, sketches of model.
CO 4: To develop the ability to translate abstract principles of design into architectural solutions for simple problems.

TEXT BOOKS:

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

1. Joseph De Chiara, Michael J Crosbie, “Time Saver Standards for Building Types”, McGraw Hill Professional, 2001.
2. Julius Panero, Martin Zelnik, “Human Dimension and Interior Space”, Whitney Library ofDesign, 1975
3. Joseph De Chiara, Julius Panero, Martin Zelnik, “Time Saver Standards for Interior Design and Space Planning”, McGraw Hill, 2001.
4. Ernst Neuferts, “Architects Data,” Blackwell, 2002.
5. Ramsey et al, “Architectural Graphic Standards”, Wiley, 2000.

REFERENCES:

1. Richard P. Dober, “Campus Planning” - Society for College and University Planning, 1996.
2. AchyutKanvinde, “Campus design in India”, American year Book, 1969
3. Kevin Lynch, “Site planning”, MIT Press, Cambridge, 1967
4. Sam F. Miller, “Design Process: A Primer for Architectural and Interior Design”, Van NostrandReinhold, 1995.

Course Outcome		Program Outcome												Program Specific Outcome		
CO’s		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	The characteristics of site, importance of site planning and built form/open space relationship has been understood.	3	3	3	3	2	3	1	-	3	2	2	-	3	3	3
CO2	User group responses were ascertained throughcase-studies.	2	3	3	2	3	2	1	-	3	2	3	-	3	2	2
CO3	Presentation of concepts was enabled through 2D drawings, sketches of model.	3	2	3	3	1	2	-	-	3	2	2	-	3	2	-
CO4	To develop the ability to translate abstract principles of design into architectural solutions for simple problems.	3	2	3	3	1	2	-	-	3	2	2	-	1	2	3

218ARE01 **CLAY MODELING** **L T P C**

1 0 4 3

COURSE OBJECTIVES:

- To introduce various fabrication skills and techniques necessary to produce scale models and to encourage preparation of models as an essential phase in design development andevaluation.
- The explore the students about the space related visual skills, and to promote the understanding of relation between space elements.
- To understand the physical and anatomical elements used in the real or virtual three- dimensional animation designing and provides the foundation and capability to represent the concepts three dimensionally.
- To enable the students make understand about the various form of buildings and itscharacteristics.
- To expose the students to 3D form and its basic sense of geometric sculptural structures.

Clay Art – Overview- significance, scope & purpose; material types, source, composition, properties, tools & equipment, techniques, processes, finishing; applications. Utilitarian/ Non- utilitarian products, pottery, sculpture, wall art, garden art, sign art, accessories.

Plane drawing of composition- Non-figurative Composition.

a) In clay. b) Direct in plaster of Paris.Methods and Materials of the following: a) Portrait armature

b) Molding c) Casting d) Direct plaster of Paris technique

Introduction to model making-Need; role of scale models in design: general practices; Digital models.

Essentials of model making: understanding of various tools and machines employed, best practices involved in operating the tools and the techniques. Introduction to the Ceramic materials used for model making – clay, types and mixtures, properties. Hand building techniques- making abox with a lid- hollowing out, pinch pots – making a bowl, coiling – making a cylindrical pot, slab-building – making a cube shaped box, hand building with clay strips- making a vase. Introduction to molds – waste mold, press mold – walling up the model, plate. Hollow casting – a vase. The potter's wheel – kneading the clay, function of hands in throwing. Learning basic techniques in making different objects like bowl, plate, cylinder, vase, lids.

Structure & character study- Operational problems in building up structure – Foliage & Trunk Study for basic understanding of structure- Bending, Twisting, Curving Forms created from nature- Expanding structure through unit.

- Three-dimensional practices (nature study)

✓ Leaf and flower study. (ii) Clay modeling of leaf and flower from plaster cast.

Medium – Clay, photographs for document. Organic & Inorganic form - Study & Composition Drawing & exercise – composition – sculpture for Basic understanding of 3D Sculpture – Armature –Positioning – spacing – rounding; Found Vitality of the built images. Figurative & Non

– Figurative Its high / low relief works by Clay medium – Terracotta – Preparation of clay, using Clay tools, ling, texture, shapes, high & low cut – imposing and Extracting from plates – firing – basic understanding of Relief works.

Sculpture geometrical 3D object study-To develop the basic sense of sculptural structure – detaildrawings in various positions and angles – develop & understand basic Shapes and Forms – any twisting form and its detail study.

- Known and Unknown 3D Form. Medium – Wire, Plaster of Paris, Clay. Study from Found Objects Intricate Drawing, enlarging images a complete 3D sculpture making to developthe sense & handle true to realism as referred in the found object.

EXERCISES:

Introduction to paper sculpting, Basic shapes, sculpting simple forms from paper, Increasing the form's complexity, Designing the own model, Creating the model, Creating the model, Designing the motion, creating a short stop motion, Editing, adding sound, Workshop/consultation.

TOTAL: 75 Hrs

COURSE OUTCOMES:

CO 1: Experiments through various types of materials combinations.

CO 2: Dexterity; gain knowledge of materials used and their properties, craft skills; visualizationskills.

CO 3: With the above knowledge the students should make a useful interior product or sculpturewith necessary detail.

CO 4: Students got exposed to various forms of structure and its characteristics.

CO 5: An Expressive thoughts to the 3D sculpture.

TEXT BOOKS:

1. Architectural model building- Roark T. Congdon
2. Architectural Echoes in clay- Susen Lefler.
3. Model Making Guidelines- shaping spaces.
4. Modelling Guide – E. Lanteri.

REFERENCES:

1.https://www.rjmodels.com.hk/architectural-models-guide/

2.www.architecturalclayproducts.com/

Course Outcome	Program Outcome												Program Specific Outcome		
CO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3

CO1	Experiments through various types of materialscombinations.	2	-	2	3	-	-	-	-	1	-	-	-	3	-	3
CO2	Dexterity; gain knowledge of materials used and theirproperties, craft skills; visualization skills.	2	1	2	3	-	-	-	-	1	-	-	-	3	2	3
CO3	With the above knowledge the students should make a useful interior product orsculpture with necessary detail.	2	2	3	3	-	-	-	-	1	-	-	-	2	-	3
CO4	Students got exposed to various forms of structure and its characteristics.	2	2	3	3	-	3	-	-	1	-	-	-	3	3	3
CO5	An Expressive thoughts to the 3D sculpture.	1	1	2	3	-	1	-	-	2	-	-	-	3	3	2

218ARE02 **PRESENTATION AND RENDERING TECHNIQUES** **L T P C**
1 0 4 3

COURSE OBJECTIVES:

- To familiarize the students with the various mediums and techniques of art through whichartistic expression can be achieved.
- To familiarize the students with the grammar of art by involving them in a series of freehand exercise both indoor and outdoor to understand form, proportion, scale.
- To elaborate upon the importance of model making.
- To acquire the skills in constructing three dimensional forms using different model makingmaterials and equipment, using different scale.
- To develop dexterity of hand in manipulation of different materials.

Drawing skills and Graphical representation - Freehand exercise on artistic expression through One Point Perspective, Two Point Perspective and Three Point Perspective- Both Interior &Exterior of the buildings and Nature-Scale drawing.Sketching Memory drawing and Creative Sketching, Outdoor sketching Methods and techniques using Pencil, Pen and Ink to prepare drawings in Outdoor areas. Techniques of rendering with pen and ink- Graphical representation of building and Landscape such as Tree, laws, Shrubs, Paving, Pathway, Flowerbed, Water fools, Human figures, Vehicles.

Introduction to Rendering techniques – Introduction of art- Elements and principles of Art- Types of arts & painting visual effects of drawing –Composition-Approach to sketching- Study of light and shadow. Drawing skills- Freehand exercises on artistic expression, nature- Scale drawing.Rendering techniques for architectural drawing- Building perspective, Interior and Exterior in various medium like Pencil, Ink, Pastel, Water colors- Opaque and TransparentPaintingmethod in which the paints are made of pigments. Drawing from imagination Exercises for gainingconfidence and enhancing the creativity.

TOTAL: 75Hrs

EXERCISES:

- Representing various surface finishes like Brick/Stone representation, Stucco finish.
- Various site elements contours representation, Roads/Pavements, Trees/Shrubs, Lawn,Water bodies, Street furniture, Fencing.

COURSE OUTCOMES:

At the end of the course, the student should be able to:

CO 1: Gain knowledge on the rendering techniques and presentation skills.

CO 2: Explore different materials in model making of small scale building components.

CO 3: Developed the presentation skills, visual expression and representation, imaginativethinking and creativity through a hands on working with various mediums and materials.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

CO 4: Exposed to various medium and its applicability.
CO 5: Developed the dexterity of hand in manipulation of different materials.

TEXT BOOKS:

1. Ching Francis, Drawing a creative process, Van Nostrand Reinhold , New York,1992.
2. Alan Swann, Graphic Design School, Harper Collins,1991
3. Molva Hunty, The Artist drawing book, David & Charles, U.K.,1994.
4. John Harmilton, The complete Book of Sketching, Chancellor Press,2003.

REFERENCES:

1. Jannsen, Constructional Drawings & Architectural models, Kari Kramer Verlag Stuttgart,1973.
2. Harry W.Smith, The art of making furniture in miniature, E.P.Duttor Inc., New York, 1982.
3. Thames and Hudson Manual of Rendering with Pen and Ink-Robert W Gill.
4. Model building for Architects & Engineers by John Taylor.5.Architectural Models by Rolf Janke.
5. Architectural Graphics by Ching Frank.
6. Geometrical & Building Drawing by Kelsey W.E.
7. Architectural Graphics by Martin C. Leslie.
8. Rendering with pen and ink by Gill Robert.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Gain knowledge on the rendering techniques and presentation skills.	2	-	3	2	-	-	-	-	3	-	-	-	3	2	-
CO2	Explore different materials in model making of small scale building components.	1	1	2	3	-	1	-	-	3	-	-	-	3	2	-
CO3	Developed the presentation skills, visual expression and representation, imaginative thinking and creativity through a handson working with various mediums and materials.	3	2	3	3	1	-	-	-	3	-	-	-	3	2	3
CO4	Exposed to various medium and its applicability.	-	-	2	2	-	1	-	-	2	-	-	-	3	3	3
CO5	Developed the dexterity of hand in manipulation of different materials.	1	-	2	2	-	-	-	-	1	-	-	-	3	2	2

218ARE03 **MODEL MAKING** **L T P C**

1 0 4 3

COURSE OBJECTIVES:

- To introduce students to analytical and illustrative drawing techniques as tools in the materialization and expression of thoughts.
- To introduce model making as a generative process, a tool in Design generation.
- To inculcate the dynamic act of constructing in thinking process.
- To understand the challenges of proper craftsmanship.
- To guide the students on model making and general principles of use of basic materials for constructional purposes for developing art skills.

Introduction to model making- Introduction to various materials and tools to be used for model making. Material exploration- explorations (both in traditional materials like mount, foam, thermacoel, clay, plaster of Paris, paper Mache, wood and new age materials like polystyrene, Aerocon blocks, plastics, meshes, and processes like carpentry, casting, molding, welding, laser cutting for study of forms.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

Surface study - Development of surfaces of simple and composite forms using paper, wire.Experiments with various materials and equipment in terms of preparation of basic forms /geometrical forms with appropriate scale and dimensions.

Joinery - Models in appropriate materials for understanding joinery in wooden construction and bonds in masonry based on the programme of building, construction**.**

Scale of Model - Exploration in varying scales of models through instruction in techniques- Residential to urban - Historic / Contemporary buildings**.** Exploration of the physical model as a tool through all phases of architectural design process, ranging from conceptual to specific design solutions- such as site model, study model, block model and finished presentation models. Study and preparation of model of a complete built structure.

Examples of exercises include

a) Involve research through a process for example nature to structure and the evolution of a structural system that can be fabricated to scale.

b) Presentation models - Topography, textures, landscapes, human elements.

TOTAL :75Hrs

COURSE OUTCOMES:

CO 1: Exploration of conventional and less conventional techniques of representation in anattempt to creative visualization and to understand drawings as vehicles of thinking.
CO 2: Versatility in making models ranging from study to presentation and in varying scales andmaterials.
CO 3: Gained knowledge on the dynamic act of constructing in thinking process.
CO 4: Exposed students to proper craftsmanship.
CO 5: Students experienced the tools and techniques use in model making.

TEXT BOOKS:

1. A pattern Language by Alexander Christopher
2. Structure in Architecture – Heller Robert and Salvadori Mario
3. Total Architecture- Walter Gropius
4. Design Fundamentals in Architecture- Pramar
5. Structure in Nature- Strategy for Design – Peter Pearce
6. Patterns in Nature- Peter Streens
7. Elements of Architecture – Meiss Pieree Von
8. Visual Thinking- Am heim Rudolf
9. Architecture: form, space and order - Francis D.K.Ching
10. Robert. W Gill – Rendering with Pen + Ink - Thames, and Hudson – 2007.

REFERENCE:

1. A.J. Metric Handbook, editors, Jan Bilwa and Leslie fair weather
2. Architectural Graphic standards editor- Boaz Joseph
3. Planning- the Architect's handbook by E and O.E.
4. Dernst Neufert's Architect's data
5. Time saver standards for Architectural Design Data, Editor John Callender
6. Time saver standards for building types, editor Joseph D.C. and John Callender.
7. Wenninger (Magrus.J.) Spherical Models, Cambridge University Press, 1979
8. John W. Mills, The Technique of Sculpture, B.T.Batsford Ltd., New York Reinhold Publishing Corpn.,London, 1966
9. Marco Frascari - Eleven Exercises in the art of Architectural Drawing, Routledge, 2011
10. Natascha Meuser, Construction and manual Architectural Drawings, DOM Publisher, 2012
11. Rendow Yee, Architectural Drawing A visual Compendium of Types and Methods, Wiley, 2013
12. David Dernie, Architectural Drawing, Laurence King, 2010.
13. Lorraine Farrelly, Representational Techniques, AVA, 2011.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Exploration of conventional and less conventional techniques of representation in an attempt to creative visualization and to understand drawings as vehicles of thinking.	2	2	3	3	1	3	1	-	3	-	-	-	3	2	-
CO2	Versatility in making models ranging from study to presentation and in varying scales and materials.	2	1	3	3	1	2	1	-	3	-	-	-	3	2	-
CO3	Gained knowledge on the dynamic act of constructing in thinking process.	2	1	3	3	1	1	1	-	3	-	-	-	3	2	3
CO4	Exposed students to proper craftsmanship.	1	2	3	3	-	2	-	-	2	-	-	-	-	3	1
CO5	Students experienced the tools and techniques use in model making.	1	1	2	3	-	3	1	-	1	-	-	-	3	2	2

218ARE04 **CREATIVE WORKSHOP** **L T P C**

1 0 4 3

COURSE OBJECTIVES:

- To enable students to learn about different materials for model making with basic shapes.
- To the subject, foreground & background of any given architectural frame.
- To encourage and enable the students to understand relation between scale and proportion.
- To enable them to learn sculptress software to know the basics of character modeling.
- To equip students with the basic skills necessary to represent their ideas in a rudimentary model format using simple materials like paper, thermocol, hardwood, Metals, glass fiber.To sensitize students on how structural resolutions become important in realization ofarchitecture design concept

Carpentry –Introduction to the carpentry tools, processes and wood working machines.
Joints – Different types of joints, joinery details (which are commonly used in timberconstruction and interiors). Preparation of various carpentry joints, fixing of plywood, blackboards, commercial boards and their application in furniture. woods viz ply, block boards,
particle boards,
Finishes - Engraving and carving, Polishing and painting - classification of paints, Application of veneers/laminates on different types of timber surfaces i.e., Teak and commercial, varnishesingredients of paints, painting methods-brush, spray, hot spray, Clay Work, -Marking of geometrical forms on the ground.
Design - Making of three dimensional forms such as cubes, pyramids, cones.
Material - Using different types of materials such as paper, card board, mount board, balsa wood, wax, plaster of Paris.
Examples of exercises include
Cutting, finishing and joinery with simple blocks, composition of basic geometrical forms and evaluation shall be done on Simplicity, honesty of material, originality, workmanship, junction,structure.

TOTAL :75 Hrs

COURSE OUTCOMES:

At the end of the course, the student should be able to:
CO 1: Understanding of different types of materials and its feasibility in model making.
CO 2: Understand the basic relations of frames in architecture.
CO 3: Students shall be exposed to forces, moments, and resolution that are to be resolved.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

CO 4: Experienced **s**imultaneously workshop exercises involving real and abstract models to familiarize students with such skills

CO 5 Exposed the relation between structural resolution and architectural design concept.

TEXT BOOKS:

1. Bansal R.K.– A text book on Engineering Mechanics, Laxmi Publications, Delhi, 2005.
2. Bansal R.K. – A textbook on Strength of Materials, Lakshmi Publications, Delhi 2007.
3. Model building for Architects & Engineers by John Taylor.
4. Architectural Models by Rolf Janke.

REFERENCES:

1. Punmia P.C., "Strength of Materials and Theory of Structures"; Vol. I, Lakmi Publications, Delhi, 1994
2. Ramamrutham S., "Strength of Materials", Dhanpatrai & Sons, Delhi, 1990.
3. Nash W.A., "Strength of Materials" – Schaums Series, McGraw Hill Book Company, 1989.
4. Rajput R.K., "Strength of Materials", S. Chand & Company Ltd., New Delhi, 1996.
5. W.A.Nash, Strength of Materials – Schaums Series – McGraw Hill Book Company, 1989.
6. "Art of architectural Model" by Akto Busch
7. "Unfold paper in Design,Art,Architecture & Industry" by Petra Schmidt & Nicola Stattman

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Understanding of different types of materials and its feasibility in model making.	1	1	2	3	-	-	-	-	2	-	-	-	3	-	-
CO2	Understand the basic relations of frames in architecture.	1	1	2	3	-	-	-	-	2	-	-	-	3	2	-
CO3	Students shall be exposed to forces, moments, and resolution that are to be resolved.	-	-	2	1	2	-	-	-	2	-	-	-	3	3	3
CO4	Experienced **s**imultaneously workshop exercises involving real and abstract models to familiarize students with such skills	-	-	1	3	-	-	-	-	2	-	-	-	3	2	-
CO5	Exposed the relation between structural resolution and architectural design concept.	2	2	3	3	2	3	-	-	3	1	-	-	3	2	-

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

318ART01 **MECHANICS OF STRUCTURES – II** **L T P C**
2 1 0 3

COURSE OBJECTIVES:

- The student would learn how to work out shear force and bending moment on beamssubjected to different loading conditions.
- The student would understand shear stress and bending stress distribution in beam sections.
- They would learn to find slope and deflection of beams.
- They learn behavior of long and short columns using Euler's and Rankin's formula.
- They learn the behavior of continuous beams, fixed beams and portal frames.

UNIT I SHEAR FORCE AND BENDING MOMENT **10 Hrs**

Basic concepts- Shear force and bending moment diagrams for cantilever and simply supported beams subjected to various types of loadings (Point load & Uniformly distributed load)– Point of contraflexure.

UNIT II STRESSES IN BEAMS **5 Hrs**

Theory of simple bending -bending stresses and shear stresses in beams - examples on simple sections. Stress distribution diagrams.

UNIT III DEFLECTION OF BEAMS **10 Hrs**

Slope and deflection at a section - Double Integration method for simply supported and cantilever beams for point loads and uniformly distributed loads.

UNIT IV THEORY OF COLUMNS **10 Hrs**

Short and long columns - Euler's theory- assumptions and limitations –load carrying capacity of columns with different end conditions – Rankine's formula for columns (No derivations) – simple problems.

UNIT V ANALSIS OF PERFECT FRAMES AND SLABS **10 Hrs**

Introduction- Types of frames- Assumptions- Analysis of a frame- Slabs- Types of slabs - Loading distribution on slabs (only theory).

TOTAL: 45 Hrs

COURSE OUTCOMES:

At the end of the course, the student should be able to:

CO 1: Apply the concepts of determining the techniques of finding the stresses.
CO 2: Use the theory of simple bending theory to find the deflection in beams.
CO 3: Analyze and solve the different types of columns.
CO 4: Analyze the different types of indeterminate beams.
CO 5: Understand the concepts of slab.

EXERCISES:

- Students are expected to present simple models for types of beams using differentmaterials for varying span.
- They are expected to submit a report on existing structures by doing field visit.

TEXT BOOKS:

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

1. R.K. Bansal, “A Text Book on Strength of Materials”, Laxmi Publications, New Delhi,2006.
2. B.C. Punmia, “SMTS-I, Strength of Materials”, Laxmi Publications, New Delhi, 1994.

REFERENCES:

1. M.M. Ratwani& V.N. Vazirani, “Analysis of Structures”, Vol. 1, Khanna Publishers,Delhi, 2012.
2. Timoshenko, S.P. and D.H. Young, “Elements of Strength of Materials”, Fifth edition, East West
Press, 2011.
3. R.K. Rajput “Strength of Materials”, S.Chand, 2006.
4. Timoshenko, S.P., and D.H. Young, Elements of Strength of Materials, Fifth edition, East West Press, 1993.

Course Outcome		Program Outcome												Program Specific Outcome		
CO’S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Apply the concepts of determining the techniques of finding the stresses.	1	3	-	3	-	3	-	-	-	-	-	-	2	-	1
CO2	Use the theory of simple bending theory to find the deflection in beams.	1	3	-	3	-	3	-	-	-	-	-	-	2	-	1
CO3	Analyze and solve the different types of columns.	1	3	-	3	-	3	-	-	-	-	-	-	2	-	1
CO4	Analyze the different types of determinate beams.	1	3	-	3	-	3	-	-	-	-	-	-	2	-	1
CO5	Understand the concepts of slab.	1	3	-	3	-	3	-	-	-	-	-	-	2	-	1

318ART02 HISTORY OF ARCHITECTURE – III L T P C
3 0 0 3

COURSE OBJECTIVES:

- To understand Church architecture as evolving within specific cultural contexts including aspects of society, religion, politics and climate
- To gain knowledge of the development of architectural form with reference to technology, style and character in the Western World through the evolution of the church from early Christian times up to the Renaissance period.
- To enable the student to understand as to how, in the gothic period in France structure and Aesthetics were synthesized by study of select buildings.
- To study how social and cultural influences contributed to Renaissance architecture in Italy through select examples.
- To study the philosophy of renaissance architects of France and England, as to how they designed world renowned buildings.

UNIT I EARLY CHRISTIAN 9 Hrs

Birth and spread of Christianity – transformation of the Roman Empire – early Christian worship andburial.Church planning – basilican concept: St. Clement, Rome; St. Peters Rome,
- Centralized planconcept: S, Vitale, Ravenna; S. Hagia Sophia, Constantinople; St. Marks, Venice.

UNIT II EARLY MEDIEVAL PERIOD - ROMANESQUE 9 Hrs

The medieval ages -Factors influencing architecture - outline of architectural character of Italy, France and England– feudalism & rural manorial life – papacy – monasticism - craft & merchant guilds –

medieval domestic architecture – medieval monasteries –- Romanesque churches – development of vaulting.
Examples: Pisa group, Italy Abbey aux Hommes, Caen, Tower of London.

UNIT III LATE MEDIEVAL PERIOD 9 Hrs

Religious and social influences: Re-emergence of the city – Crusades - Scholasticism. Development of Gothic architecture -evolution of vaulting, Church plan, development of structural systems in France, England and Italy- outline of Architectural character - Examples: Notre Dame, Paris, Westminster Abbey, HamptonCourtPalace, London, DogesPalace, Venice,Milan Cathedral.

UNIT IV RENAISSANCEARCHITECTURE 12 Hrs

The idea of rebirth and revival of art – Factors influencing renaissance architecture -Outline of Architectural character during the early Renaissance, High Renaissance and Mannerism - Italian Renaissance - Palazzo Ricardi - Study of the contributions of thefollowing architects: Brunelleschi, Michelangelo and Andrea Palladio - Examples - St. Peters basilica atRome, Villa capra in Vicenza. Factors influencing French renaissance - Architectural character duringthe classical & Rococo periods - Examples - Chateau de Chambord and the Louvre at Paris.
Factors influencing English renaissance - Study of the works Sir Christopher Wren & Inigo Jones, Examples - St. Paul's Cathedral at London.

UNIT V BAROQUE AND ROCOCO 6 Hrs

Protestantism – Counter Reformation – French Revolution – Monarchy and growth of nations. Roman Baroque churches: The central plan modified – St. Peters, Rome; French Baroque: Versailles – English baroque – Sir Christopher wren; St. Paul's London – Domestic Architecture in England. Rococo Architecture – Interiors – hotels.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: A detailed understanding of western (Christian) architecture.
CO 2: An understanding about the spatial and stylistic qualities associated with church architecture
CO 3: An understanding of the architecture as an outcome of various social, political and economic upheavals, and as a response to the cultural and climate conditions.
CO 4: Understand about the impact of renaissance architecture.
CO 5: Knowledge gained on French revolution.

EXERCISES:

- Detail study of any one example from renaissance Architecture in Italy, France, and England with study model.
- Biography of any 2 Architects who have contributed in development of Architecture. The students shall submit informative notes about their life, philosophy and work with example.

TEXT BOOKS:

1. Sir Banister Fletcher, "A History of Architecture", CBS Publishers, 1996.
2. Spiro Kostof, "A History of Architecture - Setting and Rituals", Oxford University Press, London, 1995.

REFERENCES:

1. Pier Luigi Nervi, General Editor, "History of World Architecture" - Series, Harry N.Abrams, Inc.Pub., New York, 1972.
2. S.Lloyd and H.W.Muller, " History of World Architecture" - Series, Faber and Faber Ltd., London, 1986.

3. Leland M Roth; “Understanding Architecture”: Its elements, history and meaning; CraftsmanHouse, 1994.
4. White J.F, White S.J., “Church Architecture: Building and Renovating for Christian worship”, OSLPublications, 2008

Course Outcome		Program Outcome												Program Specific Outcome		
CO’S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	A detailed understanding of western (Christian) architecture	1	-	2	-	-	-	-	3	3	2	-	-	-	-	1
CO2	An understanding about the spatial and stylistic qualities associated with church architecture.	1	-	2	-	-	-	-	3	3	2	-	-	-	-	1
CO3	An understanding of the architecture as an outcome of various social, political and economic upheavals, and as a response to the cultural and climate conditions.	1	1	2	-	1	-	-	3	3	2	2	-	-	-	1
CO4	Understand about the impact of renaissance architecture.	1	-	2	-	-	-	-	3	3	2	1	-	-	-	1
CO5	Knowledge gained on French revolution.	1	-	2	-	1	-	-	3	3	1	1	-	-	-	1

318ART03 CLIMATE RESPONSIVE ARCHITECTURE L T P C
2 1 0 3

COURSE OBJECTIVES:

- To provide information on factors that contributes to climate.
- To enable the student to understand the movement of sun in various parts of the globe, its paths, angels, the radiation levels and how to overcome the harmful effects through certain shading devices.
- The students are to be exposed to air movements in and around the buildings resulting in various effects.
- To study the various methods & techniques to incorporate solar passive heating & cooling system through selective examples with stress on materials & design strategies.
- To provide information on various design consideration and parameters that are required for various climatic zones.

UNIT I INTRODUCTION TO CLIMATE 8Hrs

Climate and its components -Factors that determine climate - Methods of recording Climatic data and Instruments used to record various components of climatic conditions- Characteristics of climatic types with examples. Introduction to Micro climate, effects of local factors–Urban heat island.

UNIT II SOLAR CONTROL 9Hrs

Apparent movement of the sun, sun path diagram. Solar geometry - solar chart - Sun angles and shadow angles - Design of solar shading devices. Understanding the sun path & shading devices, orientation of building, openings- sizes, position.

UNIT III HEAT FLOW THROUGH BUILDING MATERIALS 9Hrs

Basic principles of Heat Transfer -Thermal balance of the human body, Thermal Comfort indices -

Effective temperature, CET, comfort zone - Periodic heat flow in building. Conductivity, Resistivity, Specific heat, Conductance, Resistance and Thermal capacity – Surface resistance and air cavities – Air to air transmittance (U value)- time lag & decrement factor. Building materials with its U value and their application.

UNIT IV AIR MOVEMENT 9Hrs

Air movement in tropical region -The effects of topography on air movement- wind rose diagram, wind pressure, wind velocity, wind shadow. Functions of ventilation - Air movement through & around buildings - factors affecting indoor air flow, stack effect due to the thermal forces.

UNIT V PASSIVE DESIGN TECHNIQUES 10 Hrs

General principles of heating- Direct gain - Thermal storage wall - Sunspace -Convective air loop. General principles of cooling- Ventilation - Radiation - Evaporation and Dehumidification - Mass effect. Case examples of buildings. Design considerations, building design & layout planning consideration for warm humid, hot dry, composite and upland climates.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: Understanding of climate and its factors.
CO 2: Conceptual understanding of designing the solar shading in Buildings.
CO 3: Understanding of Thermal balance in Human beings.
CO 4: Conceptual understanding of Air flow in Buildings.
CO 5: Designing Climate responsive structure.

EXERCISES:

- Information collection regarding the thermal properties of contemporary materials suitedfor various climatic zones.
- Calculations of shading devices using solar protractor &sun path diagrams.
- Conceptual understanding of Air flow in Buildings.

TEXT BOOKS:

1. O.H. Koenigsberger and Others, “Manual of Tropical Housing and Building” – Part I - Climate design, Orient Longman, Madras, India, 2010.
2. Bureau of Indian Standards IS 3792, “Hand book on Functional requirements of buildings other than industrial buildings”, 1987.

REFERENCES:

1. Martin Evans, “Housing Climate and Comfort”, Architectural Press, London, 1980
2. B. Givoni, “Man, Climate and Architecture”, Architectural Sciences Series – Applied Science Publishers Ltd., London, 1981.
3. B. Givoni, “Passive and Low Energy Cooling of building”, Van Nortrand Reinhold NewYork, USA, 1994.
4. Galloe, Salam and Sayigh A.M.M., “Architecture, Comfort and Energy”, Elsivier Science Ltd., Oxford, U.K., 1998.
5. Donald Watson and Kenneth Labs., “Climatic Design” – McGraw-Hill Book Company - NewYork - 1983.
6. Joseph de chiarra and Le Copplemann– “Planning and Design Criteria” – McGraw-Hill, New York 1983.
7. B. Givoni, “Passive and Low Energy Cooling of building”, Van Nortrand Reinhold NewYork, USA, 1994.
8. The climate dwelling – “An introduction to climate responsive residential” – by egin o cofaigh,

john aolley- 1996
9. "Energy-efficient buildings in India" – by milimajumdas, tata energy research institute –ministry of non-conventional resources.

Course Outcome		Program Outcome												Program Specific Outcome		
CO'S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Understanding of climate and its factors.	1	3	3	3	2	-	-	1	3	3	-	-	-	-	1
CO2	Conceptual understanding of designing the solar shading in Buildings.	1	2	2	3	2	-	-	1	3	3	-	-	-	-	1
CO3	Understanding of Thermal balance in Human beings.	1	-	2	3	-	-	-	-	3	3	-	-	-	-	1
CO4	Conceptual understanding of Air flow in Buildings.	1	1	2	3	2	-	-	-	3	1	-	-	-	-	1
CO5	Designing Climate responsive structure.	1	2	2	3	2	-	-	-	3	3	-	-	-	-	1

318ART04 **MATERIALS AND CONSTRUCTION - III** **L T P C**
1 0 4 3

COURSE OBJECTIVES:

- To provide basic theoretical knowledge on cement and its types, properties and application to buildings.
- To expose the students on theoretical knowledge on preparation of concrete, grading of the same, need for and types of reinforcement and applications at the site.
- To enable the students to understand application of concrete in foundations, floors, walls, columns, beams and slabs through theory and practical knowledge through scaled construction drawings.
- To provide adequate theoretical exposure on various factors involved in staircase design, their types, structural supports required and finishing details. Practical knowledge on types, foundations, fixing and finishing details will be through scaled construction drawings.

UNIT I CEMENTAND ITS PROPERTIES **6 Hrs**

Cement:Types of Cement, Manufacturing of cement, composition, properties and uses –Mortar mixing ratios- tests for cement - mortar thickness for various building works; External and Internal plastering.

UNIT II CONCRETE, PROPERTIES AND CONSTRUCTION -I **16 Hrs**

Suitability requirements for aggregates, grading of aggregates – water mix in concrete-reinforcement – admixtures.

Concreting process its properties - mix proportioning - batching, mixing, transporting, placing, compaction, curing, formwork - quality control - tests for concrete - joints in concrete - concrete finishes. **CONCRETE IN FOUNDATION:** Isolated, combined, continuous and mat footing and Foundation **(I- section)CONCRETE FLOORING:** RCC floor and RCC Road **CONCRETE SLAB:** one-way slab and two slab and Concrete lintels with sunshade

UNIT III RCC CONSTRUCTION-II **27 Hrs**

CONCRETE WALL: RCC Bank strong room, RCC Retaining wall and concrete culvert. **CONCRETE STAIRCASES:** foundation of staircase, Straight flight, Folded Staircases, Stinger beam in staircase and cantilever staircases

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

UNIT IV CONCRETE IN STEEL & GLASS COMPOSITE SYSTEMS 26 Hrs

Applications of concrete using Steel & Glass in building components - **CONCRETE & STEEL:** Concrete Fence Post, Composite girder, Composite column and composite slab. **FLOORING:** Composite flooring decks and structural glass floors.**WALL:** Ferro cement walls**,** steel-plate composite wall system and structural glass walls. **ROOF:** Metal roof and structural glass Roof.

TOTAL: 75 Hrs

COURSE OUTCOMES:

CO 1: Understanding the properties of cement and its uses in building component.

CO 2: Understanding the properties and grading of concrete in buildings & an exercise tounderstand the concrete foundation, flooring and slabs.

CO 3: Understanding through detail construction techniques of walls and staircases.

CO 4: Understanding through detail construction techniques of composite systems of wall, flooring and roof & its detailing of various components.

EXERCISES:

- Students are asked to collect materials and document the properties of concrete Exercisesinvolving construction of stair cases.

TEXT BOOKS:

1. M.S.Shetty, "Concrete Technology", S.Chand&Co.ltd, New Delhi, 1986.
2. Dr. B.C.Punmia, "A Text book of Building Construction", Laxmi Publications Pvt. Ltd., New Delhi, 2005.
3. T.D Ahuja and G.S. Birdie, "Fundamentals of Building Construction", DhanpatRai PublishingCompany Pvt. Ltd., New Delhi, 1996
4. S.P Arora and S.P Bindra, "A Text Book of Building Construction", DhanpatRaiPublishing Company Pvt. Ltd., New Delhi, 1990
5. Alan Blanc, "Stairs, Steps and Ramps", Butterworth, Heinemann Ltd., 1999

REFERENCES:

1. Francis D.K. Ching, "Building Construction illustrated", John Wiley & Sons, 2000
2. W.B. McKay, "Building Construction", Vol 1 and 2, Longmans, UK, 1981.
3. Barry, "Construction of Buildings", Volume 1&2, Blackwell Publishing Ltd., Oxford, 2005
4. Pamphlet and Manuals supplied or published by SERC, BMPTC, HUDCO and Otherresearch
5. organization
6. R.M. Davis, "Plastics in Building Construction", Battersea College of Technology,Blackie,
7. London, 1966
8. S.C.Rangwala, Engineering Materials, Charotar Publishing House, India, 1997.
9. Alan Banc, Stairs, Steps and Ramps, Butter worth Heinemann ,1996
10. M.S.Shetty, Concrete Technology, S.Chand& Co. Ltd., New Delhi, 1986.

Course Outcome		Program Outcome												Program Specific Outcome		
CO'S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Understanding the properties of cement and its uses in building component.	1	-	3	3	2	3	-	-	3	-	-	-	-	-	1
CO2	Understanding the properties and grading of concrete in buildings &	1	-	2	3	-	3	-	-	3	-	-	-	-	-	1

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

	an exercise to understand the concrete foundation, flooring and slabs.															
CO3	Understanding through detail construction techniques of walls and staircases.	1	2	2	3	-	3	-	-	3	-	-	-	-	-	1
CO4	Understanding through detail construction techniques of composite systems of wall, flooring and roof & its detailing of various components.	1	2	2	3	1	3	-	-	3	-	-	-	-	-	1

318ARP06 **COMPUTER AIDED DESIGN STUDIO** **L T P C**
0 1 4 3

COURSE OBJECTIVES:

- To enable the student, understand of computers and printers.
- To enable the student, understand basic interface and editing necessary for creating 2D objects.
- To enable the student an understanding of tools for creating 3D objects and understanding of modification tools for the same.
- To enable the student an understanding of finishing and output of the 3D model construction of a 3D model.

UNIT I INTRODUCTION TO COMPUTER **15 Hrs**

Technology of small computer system, computer terminology operation principles of P.C., introduction to application software, and graphic system, and use of printers, scanner, plotter, File management.

UNIT II INTRODUCTION TO COMPUTER AIDED 2D DRAFTING **20 Hrs**

Understanding the use of drawing tools, object editing, drawing objects, filing and setting drawing units, scales, limits that size and dimensioning, texting-Advance commandprogramming - transparent overlays hatching utilities, assigned colour and line type, use of multiline, style, block, symbol Library manipulation for accurate drawing

Exercise:

Setting up of drawings of various simple architectural objects with complete text anddimensioning.

UNIT III INTRODUCTION TO COMPUTER AIDED 3D **20 Hrs**

Introduction to tools of productivity -blocks, slide facilities, script files, attributesUnderstanding concepts of V.Port, concept of object linking, and editing session

Exercise:

3D surfaces setting up elevation thickness and use of dynamic projections.

UNIT IV 3D RENDERING AND SETTING **20 Hrs**

Project: Visualize a building. Explore the potential of lights and camera and use the same in themodel created for the final submission. Tools: Rendering and scene setting to create a photo realistic picture, understanding materialmapping, environment setting and image filling. Exercise to identify and visualize a building usingthe above said utilities.

Exercise:

Rendering and scene setting to create a photo realistic picture, understanding materialmapping, environment setting and image filing.

TOTAL: 75Hrs

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

COURSE OUTCOMES:

CO 1: The students benefit by learning software which helps them to better visualizecomplicated forms

CO 2: To introduce to tools of productivity, concept of object linking and editing session, with a thrust on 2D drafting

CO 3: Gained knowledge on construction planes, 3D surfaces, use of dynamic projections, techniques of setting to create photo realistic pictures.

CO 4: It is also proposed to cover environment setting and image filing as an additional presentation technique and also helps in producing photo realistic images of those 3D forms and it's rendering as a necessity for architects

TEXT BOOKS:

1. Deke McClelland, "Photoshop 7 Bible Professional Edition", Wiley John & Son INC, New York, 2000.
2. A. Watt, "Fundamentals of Three-Dimensional Computer Graphics", Addison Wesley, Massachusetts, 1989.
3. Aouad, "Computer Aided Design guide for Architecture, Engineering and construction", Spon process, 2012

REFERENCES:

1. Sham Tickoo, Advance Technique in AutoCAD Re.14 - 1997
2. V.Rajaraman, Principles of Computer Programming - Prentice Hall of India.
3. Byron S.Gottfried, Theory and problems of programming with C.Schaum's outlineseries, McGraw-Hill Publishing Co.
4. AutoCAD reference manual - Autodesk UNC, 1998.
5. AutoCAD architectural users guide - Autodesk Inc., 1998.
6. Sham Tickko, Understanding AutoCAD - 14 (Windows) - 1997.
7. Deke McClelland, "Photoshop 7 Bible Professional Edition", Wiley John & Son INC, New York, 2000.
8. A. Watt, "Fundamentals of Three-Dimensional Computer Graphics", Addison Wesley, Massachusetts, 1989.
9. Aouad, "Computer Aided Design guide for Architecture, Engineering and construction", Spon process, 2012

Course Outcome		Program Outcome												Program Specific Outcome		
CO'S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	The students benefit by learning software which helps them to better visualize complicated forms	1	2	3	-	-	-	-	-	1	-	-	-	-	-	1
CO2	To introduce to tools of productivity, concept of object linking and editing session, with a thrust on 2D drafting	1	-	3	-	-	-	-	-	2	-	-	-	-	-	1
CO3	Gained knowledge on construction planes, 3D surfaces, use of dynamic projections, techniques of setting to create photo realistic pictures.	1	-	3	1	-	-	-	-	2	-	-	-	-	-	1
CO4	It is also proposed to cover environment setting and image filing as an additional	1	2	3	2	-	-	-	-	3	2	-	-	-	-	1

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

	presentation technique and also helps in producing photo realistic images of those 3D forms and it's rendering as a necessity for architects															

318ARP07 **ARCHITECTURAL DESIGN – II** **L T P C**
0 0 10 15

COURSE OBJECTIVES:

- To enable student to familiarize with the given design topic by choosing, relevant and appropriate case studies within the region visiting the sites and analyzing the same.
- To expose students to familiarize with the given topic of design by arranging special lectures from architects.
- To expose him/her to knowledge available on the relevant design at international level, through books and websites.
- To enable the students to understand and develop the Aesthetic components involved in the Design subject.

CONTENT:

Designing a built environment requires the development of individual capacity for thought with respect to subjective and objective aspects.

Studying and designing projects of small scale that involve a more immediate and basic experience is important in this context.

The study and project exploration will involve the following aspects from first principles as well as through live studies and theory – human behaviour, activities and needs for various purposes, role of specific form/space in creating particular experiences and effects, built form- open space relationships, spatial organization, environment behaviour aspects (especially those relating to children), site as a positive tool in all scales, potential of materials and construction.

Through this, both the qualitative and quantitative attributes of design can be understood and engaged. This would give training in the ingenious use of architecture to fulfill goals towards a responsive and stimulating environment.

The techniques used for study and presentation can align themselves towards the above, such as cognitive maps, sketches, manual drawings, physical models with simple materials.

The scale and complexity of projects will be commensurate with this - small to medium size projects involving buildings/ small campuses with simple circulation, passive energy, multiples of single unit space, single use buildings.

Some suggestive projects are small buildings or small campuses involving civic/ cultural use, uses related to children such as schools, facilities for people with special requirements. The number of projects is left to the discretion of the faculty based on scale and complexity.

TOTAL: 180 Hrs

COURSE OUTCOMES:

CO 1: The students were exposed to the various components and aspects associated with design concepts and its evolution in public spaces.

CO 2: They were also explored to the anthropometric detail for physically handicapped persons in public buildings.

CO 3: Students were also asked to document and present the related details collected for the design and are to be given exposure in computer usage.

CO 4: The students were exposed into the process of design articulate; glorify spaces in respect of buildings of small scale, small span, horizontal and vertical movements (two or three levels), incorporating barrier free elements and details.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

TEXT BOOKS:

1. Joseph De Chiara, Michael J Crosbie, “Time Saver Standards for Building Types”,McGraw
i. Hill Professional, 2001.
2. Julius Panero, Martin Zelnik, “ Human Dimension and Interior Space”, Whitney Libraryof
i. Design, 1975 Joseph De Chiara, Julius Panero, Martin Zelnik, “Time Saver Standards for Interior Design and Space Planning”, McGraw Hill, 2001.
3. Ernst Neuferts, “Architects Data,” Blackwell, 2002.
4. Ramsey et al, “Architectural Graphic Standards”, Wiley, 2000.

REFERENCES:

1. Ed.by. Quentin Pickard RIBA - The Architects' Hand Book - Blackwell Science Ltd. -2002.
2. De Chiara and Callender, Time Saver Standards Building Types, McGraw-Hill Co., 2nd Edition, 1980.
3. Edward D.Mills,Planning- The Architects Handbook - 10th Edition, British Library C Taloguing in Publication Data, 1985.P&D Act 1995.
4. Neufet Architect's Data, RudollHerg, Crosby Lockwood and Sons Ltd., 1970.
5. Wakita\Linde, The Professional practice of Architectural working, drawing John Wiley & Sons, 1984.
6. Andrew Alpern, Handbook of Speciality Elements in Architecture, McGraw HillBook Co., 1982.
7. Julius Panero& Martin Zelnik, Human Dimension and Interior Space, Whitney Library of Design Publication, 1979.

Course Outcome		Program Outcome												Program Specific Outcome		
CO’S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	The students were exposed to the various components and aspects associated with design concepts and its evolution in public spaces.	2	3	3	3	3	3	2	2	3	3	1	-	-	-	1
CO2	They were also explored to the anthropometric detail for physically handicapped persons in public buildings.	3	3	3	3	3	3	2	2	3	1	1	-	-	-	1
CO3	Students were also asked to document and present the related details collected for the design and are to be given exposure in computer usage.	3	2	3	3	2	1	-	-	3	1	1	-	-	-	1
CO4	The students were exposed into the process of design articulate; glorify spaces in respect of buildings of small scale, small span, horizontal and vertical movements (two orthree levels), incorporating barrier free elements and details.	3	3	3	3	1		1	1	3	-	-	-	-	-	1

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

3 0 0 3

COURSE OBJECTIVES:

- To expose the students to the relationship between man and his larger environment, with special emphasis on aspects that are likely to affect intervention in or creation of, the built environment.
- To familiarize the students with basic concepts/ theories of psychology as relevant to architecture.
- To understand the multiplicity of living patterns, activities, geometric patterns in space and designing for the same.
- To gain Knowledge about the behavioral design process, techniques and design contexts.

UNITI INTRODUCTION TO BEHAVIORAL ARCHITECTURE 6 Hrs

Introduction to the discipline environmental psychology, its importance in the field of architecture, understanding the principles of psychology, the roots and Edges of environmental psychology- Theories and approaches in Environmental Psychology.

Designing for pattern and activities – Archetypal activities / Archetypal spaces - planning of public spaces with reference to age groups and activities.

UNIT II SPACE AND HUMAN BEHAVIOR 12 Hrs

Concept of personal spaces, personal space and human behavior. Personal space and environmental design. Concept of territoriality, territoriality and human behavior &territoriality and environmental design.

Residential environment- Concept of Home. Neighborhood concept& Neighborhood satisfaction. Place attachment theory, Work place environment and behavior. Application of the knowledge in design of a residence, community neighborhood and other built environments.

UNIT III BUILDING SYSTEMS 8 Hrs

Geometry of spaces, their meaning & connotations – Social organization of buildings – Behavioral assumptions in the planning of new towns and neighborhoods – borrowed space. Room use – geometry & meaning – hidden behavioral assumptions – adjacencies – vertical bypass & horizontal bypass - various stages in the design of building subsystems

UNIT IV BEHAVIORAL DESIGN 10 Hrs

Process organization chart – affinity matrices, pictograms – behavioral design process model – design context – activity / adjacency relationship – evaluation chart – Area use frequency program – simultaneous use- community utilization map, occupancy load profile – defensiblespace, EDRA etc.,

UNIT V URBAN ENVIRONMENT 9Hrs

Patterns of activity in time and space – the ecology of a neighborhood park and playground – cross cultural issues – social & psychological issues in the planning of new towns – environmental perceptions and migration – awareness and sensitivity to open spaces – environmental cognition.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: The students were made to understand the behavior in built environment and analysishow the space making is done.

CO 2: Understood the interaction with the personal space and human behavior.

CO 3: Gained knowledge about this relatively new field, born out of the synthesis betweenarchitecture and behavioral psychology.

CO 4: Understood with behavioral design process model for different environment.

CO 5: To analyze and do a presentation on psychological issues of urbanenvironment considering the

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

neighborhood contexts.

TEXT BOOKS:

1. Christopher Alexander et al. – A pattern language – Oxford university press, NewYork, 1977.
2. Kevin Lynch – The image of a city – Cambridge MIT, 1973.
3. Morgan, T., & Clifford, "Introduction to Psychology", Tata McGraw-Hill Publications, New York,2001

REFERENCES:

1. Clovis Heimsath – Behavioral architecture – Mcgraw hill, 1977
2. David canter & Terence lee – Psychology and the built environment – Halstead press,New York, 1974.
3. Charles Burnette – Architecture for human behavior: collected papers from a miniconference
4. Philadelphia chapter of AIA, 1971.
5. Gifford, Robert. Environmental Psychology: Principles and Practice, Optimal books,2002.

Course Outcome		Program Outcome												Program Specific Outcome		
CO'S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	The students were made to understand the behavior in built environment and analysis how the space making is done.	1	3	2	1	-	-	-	-	3	1	1	-	-	-	1
CO2	Understood the interaction with the personal space and human behavior.	2	3	2	1	-	-	-	-	3	-	-	-	-	-	1
CO3	Gained knowledge about this relatively new field, born out of the synthesis betweenarchitecture and behavioral psychology.	2	-	-	1	2	-	2	1	3	-	-	-	-	-	1
CO4	Understood with behavioral design process model for different environment.	2	1	2	1	-	-	-	-	-	-	-	-	-	-	1
CO5	To analyze and do a presentation on psychological issues of urban environment considering the neighborhood contexts.	-	2	-	1	1	-	-	-	-	-	-	-	3	2	2

318ARE02 **MODULAR CONSTRUCTION TECHNIQUES** **L T P C**
3 0 0 3

COURSE OBJECTIVES:

- To provide an introduction to conventional modular principles and practices in India and abroad.
- To provide knowledge on modular architecture.
- To ensure the dimensional co-ordination between installation and erection.
- To Study of historical background of industrialized building in other countries and Indian experience.
- To enable buildings to be so dimensioned that they can be erected standard components without undue restriction on freedom of design.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

UNIT I INTRODUCTION TO MODULAR SYSTEMS 8Hrs

Various elements of buildings that could be modular walls, roofs, doors and windows, partitions, etc. Various materials used in modular architecture. Pre-stressed and post- tensioned modular systems.

UNIT II DEVELOPMENT OF MODULAR ARCHITECTURE 4 Hrs

Development of theories of modular architecture. Advantages, scope and limitations ofmodular architecture.

UNIT III MODULAR ARCHITECTURE AND CO-ORDINATION 8 Hrs

Basic management policies in modular co-ordination. Prefabricated structures: their useswith examples and techniques of constructions.

UNIT IV INTRODUCTION & ORIGINS OF THE INDUSTRIALISED CONCEPT 14 Hrs

Principles of prefabrication of cellular structures, Space frames, tensile structure, pneumatic structure. Definition of Industrialization. Study of historical background of industrialized building in other countries and Indian experience. Study of CBRI and SERC works. Use of latest construction techniques like Tunnel form system, Triple S System, etc.

UNIT V ASPECTS OF INDUSTRIALISATION 11 Hrs

Case Studies of Industrialised Buildings in India and abroad. Scope & limitations on applicability in industrial housing etc. Socio-economic situations, spatial requirements. Application of Industrialisation in Mass Housing.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: The students understood the role of different material and techniques adopted in modular construction.

CO 2: They were made aware of various aspects in prefabricate structures.

CO 3: Gained knowledge on the latest construction techniques and presentation to be done onthe live case studies of the known architects.

CO 4: Understood model making on tensile structures, space frames etc to get the get better understating.

CO 5: Exposed to the impact of industrialization on the space requirements.

TEXT BOOKS:

1. Akvert, G.H Dietz Culter Lawrence (ed) 'Industrial Building system for Housing'
2. Bauverlag& Wiesbaden 'Manual of Precast Concrete Construction System Buildings with Large panels'

REFERENCES:

1. W. Minich, J. Pekala, Modular Coordination in Industrial Building: Standard Regulations; Preliminary Scheme; ISO/TC 59
2. National Building Code of India, 1983
3. Heki.K (ed) 'Shells, Membranes and space frames' Elsevier, .Sarja A. 'Open and industrial Buildings'
4. Gabind , Fracols 'Beyond the Cube The Architecture for Space Frames andPolyhedral'

Course Outcome		Program Outcome												Program Specific Outcome		
CO'S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	The students understood the role of different	1	1	2	3	-	2	-	-	3	-	-	-	-	-	1

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

	material and techniques adopted in modular construction.															
CO2	They were made aware of various aspects in prefabricate structures.	-	-	-	3	1	2	-	-	3	-	-	-	-	-	1
CO3	Gained knowledge on the latest construction techniques and presentation to be done onthe live case studies of the known architects.	-	1	2	3	-	2	-	-	2	-	-	-	-	-	1
CO4	Understood model making on tensile structures, space frames etc to get the get better understating.	-	-	3	3	-	1	-	-	2	-	-	-	-	-	1
CO5	Exposed to the impact of industrialization on the space requirements.	-	1	2	3	-	1	-	-	1	-	-	-	1	-	2

318ARE03 VERNACULAR ARCHITECTURE OF INDIA L T P C
3 0 0 3

COURSE OBJECTIVES:

- To study the approaches, definition, concepts and typologies of the vernacular architecture of a region for better understanding, comprehension and interpretation.
- To understand the role of locally available or indigenous materials and climate in the architecture expression of Northwestern India through case studies.
- To understand the regional expression in the architecture of southern India through the study at settlements and unit levels through case studies.
- To study the colonial influences in India and understand the character of the multi cultured architectural expression through case studies.
- To understand the elements and character of vernacular architecture in the public and royal buildings of Northwestern India.

UNIT I INTRODUCTION 9Hrs

Definition and classification of Vernacular architecture - Different approaches and concepts to the study of vernacular architecture - Cultural and contextual responsiveness of vernaculararchitecture– Aesthetic, Architectural and anthropological studies in detail

UNIT II TRADITIONAL PRINCIPLES OF SETTLEMENT PLANNING 9 Hrs

Historical, Cultural and Vernacular Influences in settlement planning - Town planningprinciples of the towns of Jodhpur, Jaipur, Jaisalmer, Gwalior – Settlement pattern

UNIT III VERNACULAR ARCHITECTURE OF WESTERN & NORTH INDIA 9 Hrs

Deserts of Kutch and Rajasthan; Havelis of Rajasthan - Rural and urban Gujarat; wooden mansions (havelis); Havelis of the Bohra Muslims - Geographical regions of Kashmir; house boats (Dhungas)- with materials & Construction methods

UNIT IV VERNACULAR ARCHITECTURE OF SOUTH INDIA 10Hrs

Religious and Domestic Architecture of Kerala – Example: Padmanabhapuram palace -Traditional houses of Tamil Nadu - Chettinad houses and Agraharams - Vernacular architecture of Malanad – Karnataka. - Principles of Planning, Climatic influences,religious practices, beliefs & culture, materials of construction & construction detail.

UNIT V WESTERN INFLUENCES ON VERNACULAR ARCHITECTURE 8Hrs

Colonial influences on the Tradition Goan house - Evolution of the Bungalow from thetraditional bangla,

Victoria Villas – Planning principles and materials and methods of construction. Settlement pattern and house typologies in Pondicherry and Cochin.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: Students will be able to understand the character of the multi cultured architectural expression through case studies.

CO 2: Documented and presentation on planning principles of different towns for their better understanding of local culture.

CO 3: Gained knowledge on various manmade and nature forces behind the evolution of traditional architecture.

CO 4: Also understood the overlapping and the influence of anthropology, sociology and culture in the architecture style and character of a region.

CO 5: Enabled them to understand the impact of colonial architecture on settlement pattern and houses.

TEXT BOOKS:

1. Paul Oliver, Encyclopedia of Vernacular Architecture of the World, Cambridge University Press, 1997
2. Amos Rapoport, House, Form & Culture, Prentice Hall Inc. 1969.
3. R W Brunskill: Illustrated Handbook on Vernacular Architecture, 1987.

REFERENCES:

1. G.H.R. Tillotsum-The tradition of Indian Architecture Continuity, Controversy - Change since 1850, Oxford University Press, Delhi, 1989.
2. V.S.Praman, Havali- Wooden Houses & Mansions of Gujarat, Mapin Publishing Pvt. Ltd., Ahmedabad, 1989.
3. Kullrishan Jain &Minakshi Jain - Mud Architecture of the Indian Desert, Aadi Centre, Ahmedabad, 1992.
4. Carmen Kagal, VISTARA - The Architecture of India, Pub: The Festival of India,1986

Course Outcome		Program Outcome												Program Specific Outcome		
CO'S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Students will be able to understand the character of the multi cultured architectural expression through case studies.	1	2	2	-	-	-	2	2	-	-	-	-	-	-	1
CO2	Documented and presentation on planning principles of different towns for their better understanding of local culture.	1	-	2	-	-	-	2	2	-	-	-	-	-	-	1
CO3	Gained knowledge on various manmade and nature forces behind the evolution of traditional architecture.	-	-	-	2	1	-	1	2	2	1	-	-	-	-	1
CO4	Also understood the overlapping and the influence of anthropology, sociology and culture in the architecture style and character of a region.	3	1	-	1	1	-	-	3	1	1	-	-	-	-	1
CO5	Enabled them to	2	1	-	-	-	-	1	3	-	-	-	-	1	-	1

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

	understand the impact of colonial architecture on settlement pattern and houses.															

318ARE04 **THEORY OF DESIGN** **L T P C**
3 0 0 3

COURSE OBJECTIVES:

- To understand design and the role of the designer in changing society.
- To familiarize the students with methodologies, theories and models of the design process.
- To inform students about the term creativity and introduce techniques which will enable creative thinking.
- To inform the approaches that generates ideas for architectural design and the importance of the participatory approach to design.
- To expose student to design process, the various stages, considerations in design, methodology.

UNIT I INTRODUCTION TO DESIGN **6 Hrs**

Definition of design, understanding of design, purpose of design, nature of good design and evaluation of design, types of design classifications, role of designer, design in history.

UNIT II DESIGN PROCESS **6 Hrs**

Context for architectural design problems, design process, stages in the design process from different considerations, different ideas of design methodology.

UNIT III DESIGN PROBLEMS AND SOLUTIONS **12 Hrs**

Different approaches to design, problem solving or intuitive, formulation of problems, nature of creative design problems, goals in design. Concept of pattern language- participatory approach to design

UNIT IV DESIGN THINKING **15 Hrs**

Understanding the terms creativity, imagination, etc. Theories on thinking, convergent and divergent thinking, lateral and vertical thinking, creative techniques like checklists, brainstorming, syntactic, etc. design puzzles and traps, blocks in creative thinking.

UNIT V DESIGN CONCEPTS, PHILOSOPHIES AND STRATEGIES **6 Hrs**

Various approaches to generate ideas for architectural design - types of concepts, personal philosophies and strategies of individual designers, channels to creativity in architecture with examples of renowned Architects.

Total: 45 Hrs

COURSE OUTCOMES:

CO 1: They'll be able to analyze various stages of design process and implement the same intheir design.
CO 2: They'll get exposed to the works of eminent architects and be able to analyses thedesign thinking process.
CO 3: The students were made to understand how architectural design solutions generatedare linked to philosophy, strategies that lead to creativity in architecture.
CO 4: Exposed on the design solution based on intuition, creativity and goals.
CO 5: Understood on how architectural design solutions generated are linked to philosophy, strategies that lead to creativity in architecture.

TEXT BOOKS:

1. Geoffrey Broadbent, "Design in Architecture, Architecture and the Human sciences", John Wiley & Sons, New York, 1981.
2. Bryan Lawson, "How Designers Think", Architectural Press Ltd., London, 1980.

3. Anthony Antoniades, “Poetics of architecture”, Theory of design, John Wiley & sons,1992.
4. Paul - Alan Johnson, “Theory of Architecture: Concepts, Themes”, Wiley 2008 VNR,1994
5. Christopher Alexander, “Pattern Language”, Oxford University Press, 1977

REFERENCES:

1 Edward De Bono, “Lateral Thinking”, Penguin, 1990
2. Christopher Jones “Design methods”, Wiley, 1980.
3. Tom Heath, “Method in Architecture, John Wiley & Sons, New York, 1984.
4. Nigel Cross, “Developments in Design Methodology”, John Wiley & Sons, 1984.
5. Helen Marie Evans, Dumesnil, Carla Davis, “An Invitation to Design”, Macmillan Publishing Co., New York, 1982
6. James C.Snyder, Anthony J.Catarex- Introduction to Architecture, McGraw-Hill Inc.,1979.
7. Allen Mave Evans &Caula David Dumes Nil, An Invitation to Design, Macmillan Publishing Co., New York, 1982.
8. Design methods- Christopher Jones
9. Helen Marie Evans, Dumesnil, Carla Davis, “An Invitation to Design”,Macmillan Publishing Co., New York, 1982

Course Outcome		Program Outcome												Program Specific Outcome		
CO’S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	They’ll be able to analyze various stages of design process and implement the same intheir design.	1	2	3	-	-	-	-	-	2	-	-	-	-	-	1
CO2	They’ll get exposed to the works of eminent architects and be able to analyses the design thinking process.	1	3	2	1	1	-	-	-	2	-	-	-	-	-	1
CO3	The students were made to understand how architectural design solutions generated are linked to philosophy, strategies that lead to creativity in architecture.	1	2	-	1	3	-	1	-	3	-	-	-	-	-	1
CO4	Exposed on the design solution based on intuition, creativity and goals.	1	3	-	1	3	-	-	-	3	-	-	-	-	-	1
CO5	Understood on how architectural design solutions generated are linked to philosophy, strategies that lead to creativity in architecture.	-	2	-	1	2	-	-	-	3	-	-	-	1	2	2

418ART01 **ANALYSIS & DESIGN OF STRUCTURES – I** **L T P C**
2 2 0 3

COURSE OBJECTIVE:

- To introduce the design of various steel components in a building.
- To understand the types, efficiency, strength, advantages and disadvantages of Riveted,Bolted and welded joints in steel.
- To enable students in understanding the design of Tension (beams) PRINCIPAL compression

(columns) steel members under various conditions.

- To study the properties and various design methods of concrete.
- To understand the design of reinforced concrete one way and two way slabs.

UNIT I STEEL STRUCTURES – RIVETED, BOLTED AND WELDED JOINTS **12 Hrs**

Introduction -Properties of rolled steel sections. Types and failure of connections – rivet, bolt and weld. Applications, advantages and disadvantages of rivet, bolt and weld connections -Design of rivet, bolt and weld Joints for Axially Loaded Members (Excluding eccentric connections).

UNIT II TENSION MEMBERS AND STEEL BEAMS **12 Hrs**

Introduction – Net sectional area – Permissible stresses. Design of Axially loaded Tension member – Lug angle – Tension splice. Introduction on steel beams – laterally supported and unsupported beams - Allowable stresses - General specifications. Design of laterally supported beams.

UNIT III STEEL COLUMNS **12 Hrs**

Introduction – various shapes – built up section - Allowable stresses. Design of axially loaded columns (Excluding eccentric connections).

UNIT IV PROPERTIES OF CONCRETE AND VARIOUS DESIGN METHODS **12 Hrs**

Concrete- Introduction, types and properties – Grades, strength & durability of concrete - -Concept of Working stress method, Ultimate Load Method and Limit State Method -Advantages of Limit State Method over other methods. Various limit stages - characteristic load and characteristic strength of materials - partial safety factor – stress -strain relationship of steel and concrete - safety and serviceability requirements.

UNIT V LIMIT STATE DESIGN OF SLABS **12 Hrs**

Design of one-way two-way and continuous slabs using IS Code co-efficient for various edgeconditions.

Exercise on One-way and Two- way slab with drawing.

TOTAL: 60 Hrs

COURSE OUTCOME:

At the end of the course, the students will be able to understand:

CO 1: Design of steel joints for maximum efficiency and strength.

CO 2: Tension members and columns are designed for various conditions by applying the codal provisions.

CO 3: Design of axially loaded steel columns.

CO 4: Basic knowledge about concrete.

CO 5: Design of one way and two way RC slabs.

TEXT BOOKS:

1. M.R. Shiyekar, “Limit State Design in Structural Steel”, PHI Learning Private Limited, 2010.
2. N. Subramanian, “Design of Steel Structures”, Oxford Higher Education, 2008.
3. P.Dayaratnam, “Design of Reinforced Concrete Structures”, Oxford and IBH Publishing Co.,1983.

REFERENCES:

1. S.K. Duggal, “Limit State Design of Steel Structures”, McGraw Hill Education, PrivateLimited, 2010.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

2. Dr. V. L. Shah, Prof. Veena Gore, "Structures Publications", Pune, 2012.
3. S.S. Bhavikatti, "Design of Steel Structures" by Limit State Method as per IS800-2007, I.K. International Publishing House Pvt, Ltd, 2012.
4. Ramachandra S., Design of Steel Structures, Standard Book House, Delhi, 1984.
5. Gurucharan Singh, Design of Steel Structures, Standard Publishers, New Delhi, 1982.
6. Negi "Design of steel Structures", Tata McGraw-Hill Book Company, New Delhi 1997.
7. Dr. B.C. Punmia, "Reinforced Concrete Structures", Vol, 1 & 2 Laxmi publication, Delhi, 2004.
8. IS 456 "Indian Standard, Plain and Reinforced Concrete, Code of Practice, Bureau of Indian Standards, 2000.

Course Outcomes		Program Outcomes												Program Specific Outcomes		
CO's		PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO 1	Design of steel joints for maximum efficiency and strength.	1	3	-	-	-	3	-	1	-	-	1	-	3	-	3
CO 2	Tension members and columns aredesigned for various conditions by applying the codal provisions.	1	3	-	-	-	3	-	1	-	-	1	-	3	-	3
CO 3	Design of axially loaded steel columns.	1	3	-	-	-	3	-	1	-	-	1	-	3	-	3
CO 4	Basic knowledge about concrete.	1	3	-	-	-	3	-	1	-	-	1	-	3	-	3
CO5	Design of one way and two way RC slabs.	1	3	-	-	-	3	-	1	-	-	1	-	3	-	3

418ART02 **ENVIRONMENTAL SCIENCE AND SERVICES** **L T P C**

3 0 0 3

COURSE OBJECTIVES:

- To make students understand the basic fundamentals of Environment and its Ecosystem and its Bio-diversity.
- To enable students to understand about various kinds of environmental pollution and its preventionand protection acts and policies.
- To make students understands the importance of water quality, its purification treatments at city level and distribution in small towns and at individual building level.
- To expose the students to the fundamentals of sewage treatment, their collection and disposal at building and town level and their construction system involved in services.
- To make students understand other city level disposal collection, conveyance, recycling, storm water drains and disposals along with new sustainable methods.

UNIT I ENVIRONMENT, ECOSYSTEMS AND BIODIVERSITY **10 Hrs**

Definition, scope and importance of environment – need for public awareness - concept of an ecosystem – structure and function of an ecosystem –Introduction to biodiversity– Case study of simple ecosystems – pond, river, hill slopes.. Biogeographically classification of India – value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values – Biodiversity at global, national and local levels – India as a mega-diversity nation – hot-spots of biodiversity with case examples – threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts – endangered and endemic species of India – conservation of biodiversity: In-situ and ex-situ conservation of biodiversity.

UNIT II ENVIRONMENTAL POLLUTION AND ACTS **8 Hrs**

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

Definition – causes, effects and control measures of: (a) Air pollution (b) Water pollution (c) Soil pollution (d) Marine pollution (e) Noise pollution (f) Thermal pollution (g) Nuclear hazards –Role of an individual in prevention of pollution – pollution case studies . Case study of local polluted site – Urban / Rural / Industrial / Agricultural. Effects of modern agriculture. Environmental protection Act. Air (prevention and control of Pollution) Act. Water (prevention and control of Pollution) Act. Wildlife protection Act. Forest conservation Act. Issues involved in enforcement of environmental legislation.

UNIT III WATER SOURCE MANAGEMENT TREATMENT AND DISTRIBUTION **8 Hrs**

Surface and ground water sources - quality/quantity - nature of impurities Types of pipes used - Laying, Jointing, testing internal water supply in buildings - Municipal byelaws, regulations, standards. Treatments - water supply systems - treatment systems - centralized treatment - uses and treatment - Desalination - ionization - reverse osmosis. - Distribution system in small towns - Water conservation, rainwater collection - methods of harvesting - storm water drains in layouts, towns and cities - Waste water recycling.

UNIT IV SEWAGE TREATMENT AND DISPOSAL SYSTEMS **10 Hrs**

Environmental sanitation -Sanitation in buildings. Primary and secondary treatment Activated sludge - Sequencing Batch Reactor(SBR) and Moving Bed Bio film Reactor (MBBR)/ Fluidized Aerobic Bioreactor- Arrangement of sewerage systems in Housing, large factories, shopping centres - sewage pumping station, causes and control of solid waste. Sewage disposal, construction details of sewers and connections. collection, conveyance, recycling and disposal of town refuse system - sanitation in unsewered areas of cities - alignment of storm water drains in residential areas and cities.

UNIT V INNOVATIVE PRACTICES **9 Hrs**

Sustainable development – urban problems related to energy – water conservation, rain water harvesting, and watershed management – resettlement and rehabilitation of people; its problems and concerns, case studies – role of non-governmental organization- environmental ethics: Issues and possible solutions – climate change, global warming, acid rain, ozone layer depletion, case studies. – Wasteland

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: The students are exposed about environment and its ecosystem to Indian geographical context.

CO 2: They are also exposed to various issues and pollutions related to environment and acts and policies to protect environment.

CO 3: Students understood various techniques and methods involved in water treatment and disposal

CO 4: Gained knowledge on modern techniques of sewage disposal and storm water.

CO 5: Knowing alternate Sustainable practices for Water harvesting and environmental challenges.

TEXTBOOKS:

1. Benny Joseph, 'Environmental Science and Engineering', Tata McGraw-Hill, New Delhi, 2006.
2. Gilbert M.Masters, 'Introduction to Environmental Engineering and Science', 2nd edition, PearsonEducation, 2004.
3. S.C.Rangwala, Water Supply and Sanitary Engineering, Charotar Publishing House, Anand 388 601,1989.
4. G.M.Fair, J.C.Geyer and D.Okun, Water and Waste Water Engineering, Vol. II, John Wiley & Sons, Inc., New York, 1968.
5. Manual of Water supply and Treatment, Second Edition, CPHEEO, Ministry of Works and Housing,New Delhi, 1999.
6. Manual on Sewerage and Sewage Treatment, CPHEEO, Ministry of Works and Housing, New Delhi,2013.

7. Manual on Strom water drainage system, CPHEEO, Ministry of Works and Housing, New Delhi,2019.

REFERENCES:

1. Dharmendra S. Sengar, 'Environmental law', Prentice hall of India PVT LTD,New Delhi, 2007.
2. Erach Bharucha, "Textbook of Environmental Studies", Universities Press(I) PVT, LTD, Hydrabad, 2015.
3. G. Tyler Miller and Scott E. Spoolman, "Environmental Science", Cengage Learning India PVT, LTD, Delhi, 2014.
4. Rajagopalan, R, 'Environmental Studies-From Crisis to Cure', Oxford University Press, 2005.

Course Outcomes		Program Outcomes												Program Specific Outcomes		
CO's		PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO 1	The students are exposed about environment and its ecosystem to Indian geographical context.	-	3	3	1	-	-	-	1	3	2	-	-	2	2	2
CO 2	They are also exposed to various issues and pollutions related to environment and acts and policies to protectenvironment.	-	-	1	2	1	1	-	-	3	-	-	-	2	1	-
CO 3	Students understood varioustechniquesand methods involved in water treatmentand disposal	1	3	1	2	1	1	-	-	3	-	-	-	2	-	-
CO 4	Gained knowledge on modern techniques of sewage disposal and storm water.	-	3	1	2	1	1	-	-	3	-	-	-	3	2	-
CO 5	Knowing alternate Sustainable practices for Water harvesting and environmental challenges.	-	2	2	2	1	1	-	-	3	-	-	-	3	2	-

418ART03 **SITE PLANNING & ANALYSIS** **L T P C**
2 0 2 3

COURSE OBJECTIVES:

- To understand the importance of survey equipments and its applications.
- To orient the students towards several influencing factors which govern the sitting of a Building or group of buildings in a given site.
- To teach various techniques of site analysis through exercises and case studies.
- To teach the students the methodology of preparing a site analysis diagram and regulations
- To provide an insight of integrity the site features in planning roads and parking.

UNIT I INTRODUCTION **6 Hrs**

Definition of plot, site, land and region, units of measurements. Introduction to survey, Importance's of survey, methods of surveying and its related cases study. Understanding Survey equipment's and with their application. Understanding the administration maps and site drawings, including F.M.B. . Introduction to master plans and land use for cities, development control rules.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

UNIT II SITE DRAWINGS **8 Hrs**

Introduction to measuring a site, drawing out from measurements and Computation area by geometrical figures and other methods. Drawing marking out plan, layout plan and centerline plan – Importance, procedure for making these drawings and dimensioning. Setting out the building plan on site – Procedure and Precautions. Exercises on the above.

UNIT III SITE ANALYSIS **15 Hrs**

Site Inventory: natural, cultural, man-made and aesthetic factors. Importance of site analysis as offering potential and limitation to architectural design factors- such has on-site/ off- site, topography,hydrology, soils, vegetation and climate and microclimate**. Analysis of site landform**: Characteristics of contours, direct and indirect methods of contouring, interpolation, slope analysis, grading process, grading criteria, functional and aesthetic. Preparation of maps of matrix analysis & composite analysis – Case studies and exercises on the above.

UNIT IV ANALYSIS OF SITE SERVICES **8 Hrs**

Site services –surface drainage, irrigation system - sources of water supply and means of waste disposal system Principles of positive drainage and grading for drainage in a site. Location and designof sewage treatments. Methods to control soil erosion. Planning for rain harvesting. Understanding the above through site analysis diagram.

UNIT V SITE LAYOUT PRINCIPLES **8 Hrs**

Organization of vehicular and pedestrian circulation, Geometric calculation for movement. Types of roads, hierarchy of roads, networks, road widths and parking, regulations. Turning radii & street intersections. Site selection criteria for different building typologies, impact of building development on the surroundings including aspects such as traffic, noise, pollution, microclimate. Site selection criteria for commercial and institutional projects. The project will be explored through analysis / models/ sketches/ drawings.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: The contextual importance on site analysis can be understood based on the various site factor with respect to the study area.
CO 2: Various scientific and analytic site analysis techniques is understood.
CO 3: To document on-site and off-site factors, site analysis diagram.
CO 4: To prepare the contour analysis, understood the development control regulation, understood the building surrounding analysis.
CO 5: To prepare site analysis diagram from the above units for commercial and institutional projects.

TEXT BOOK:

1. Kevin Lynch, “Site planning”, MIT Press, Cambridge, MA, 1984.
2. Edward. T. Q., “Site Analysis”, Architectural Media, 1983.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

REFERENCES:

1. B.C.Punmia, Ashok K. Jain, Ashok Kr. Jain, Arun Kr. Jain, "Surveying", Vol.I, Firewall Media, 2005.
2. P.B.Shahani, "Text of surveying", Vol. I, Oxford and IBH Publishing Co, 1980
3. Joseph De.Chiarra and Lee Coppleman, "Urban Planning Design Criteria", Van Nostrand Reinhold Co., 1982.
4. Storm Steven, "Site engineering for landscape Architects", John wiley& Sons Inc, 2004.
5. Second Master Plan – Development Regulations – CMDA, 2008.
6. Introduction to Landscape – John Moltoch

Course Outcomes		Program Outcomes												Program Specific Outcomes		
CO's		PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO 1	The contextual importance on site analysis can be understood based on the various site factor with respect to the study area.	3	2	3	2	2	-	1	1	3	-	1	1	2	1	2
CO 2	Various scientific and analytic site analysis techniques is understood.	3	3	3	3	2	-	1	1	3	-	1	1	-	-	-
CO 3	To document on-site and off-site factors, site analysis diagram.	3	3	3	2	2	-	-	1	3	-	1	1	-	-	1
CO 4	To prepare the contour analysis, understood the development control regulation, understood the building surrounding analysis.	3	3	3	2	1	-	-	1	3	-	1	1	2	1	1
CO 5	To prepare site analysis diagram from the above unitsfor commercial and institutional projects.	3	3	3	2	2	-	-	1	3	-	1	1	-	-	-

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

418ART04 **MATERIALS & CONSTRUCTION - IV** **L T P C**
1 0 4 3

COURSE OBJECTIVE:

- To study ferrous and non ferrous materials in construction. To have an understanding of the properties, characteristics, strength, manufacture, processing and application of materials suchsteel and steel alloys. (Theory Only)
- To understand in detail through drawings, the types of sections in steel, joints, application in columns, beams, steel components and trusses.
- To understand aluminum and aluminum alloys, its properties, products and non-ferrous product are used in construction industry. (Theory only)
- To understand in detail through working drawings, the various types of aluminum doors, windows, ventilators and roofing system as applied in construction industry.
- To enable the students to understand that Ferrous metals and Non-Ferrous metals are equally important in construction industry by studying their manufacture properties, applications and uses and current trends in terms of theory and thereby enabling them to represent the different building components through relevant drawings.

UNIT 1 FERROUS METALS **12 Hrs**

Properties and uses of cast iron, wrought iron, pig iron and steel. Market forms of steel: structural steel, stainless steel, steel alloys – properties and uses- Current development.

UNIT 2 STEEL SECTIONS JOINTS AND STEEL CONSTRUCTIONS **26 Hrs**

Drawings: Steel joints and connections. - Design exercises using structural steel sections for column and beam Connections.

Steel components: Steel doors: (Framed & Sliding), steel windows: (Casement window & Sliding window), Steel grill designs for windows**, Steel stairs:** (spiral stair), and steel hand rails and balustrade.

Steel Roof trusses - simple trusses in steel. (King post truss, Queen Post truss).

Gates: entrance gate, rolling shutter. Composite materials design details for Steel and Glass.

Exercises of the above components and drawings.

UNIT 3 NON FERROUS METALS **12 Hrs**

Properties and uses of Aluminum and Aluminum Alloys. Market forms of Aluminum: extrusions, foils, castings, sheets - Study of protection to non- Ferrous metals and product such as anodizing, powder coating and chromium plating-current developments.

UNIT 4 ALUMINIUM CONSTRUCTIONS **25 Hrs**

Drawings: Design exercises using Aluminum doors and windows - design details for doors: openable, sliding, pivoted and fixed - Design details for windows: openable, sliding, fixed, louvered – Design details for Ventilators (top hung, pivoted and louvered).

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

Aluminum roofing: North lighting, glazing bar, roofing sheets and construction details for gutter. Composite materials design details for Aluminum and Glass.

Exercises of the above components and drawings.

TOTAL: 75 Hrs

COURSE OUTCOMES:

CO 1: An Understanding of ferrous metals in terms of its properties, manufacture and theirapplications in architectural construction.

CO 2: The students are able to understand in detail the method of construction of various building components using steel and steel components.

CO 3: An Understanding of Non-ferrous metals in terms of its properties, manufacture and their applications in architectural construction.

CO 4: This also helps the student to understand the different construction practices adapted for the various components specific to the material in which it's made.

CO5: Students to understand that ferrous metals and Non-Ferrous metals are equally important in construction industry

TEXT BOOK:

1. Dr. B.C. Punmia, "A Text book of Building Construction", Laxmi Publications Pvt. Ltd., New Delhi, 2004.
2. T.D Ahuja and G.S. Birdie, "Fundamentals of Building Construction", Dhanpat Rai Publishing Company Pvt. Ltd.,New Delhi, 1996.
3. W.B. Mickay – Building construction Vol 1, 2 and 3 – Longmans, UK 1981.

REFERENCES:

1. Alan Blanc, "Architecture and Construction in Steel", E & FN Spon, London, 1993
2. Alan Blanc," Stairs, Steps and Ramps", Butterworth, Heinemann Ltd., 1999
3. W.B. McKay, "Building Construction" Vol. 1 and 2, Longmans, UK, 1981.
4. Barry, " Introduction to Construction of Buildings", Blackwell Publishing Ltd., Oxford, 2005
5. Alan J. Brookes, "Cladding of Buildings", E & FN Spon, London, 1998
6. R.Chudley – Building Construction Handbook – BLPD, London 1990.
7. S.C.Rangwals – Engineering materials – Charotar Publishing, Anand.8.Francis D.K.Ching – Building Construction illustrated. VNR, 1975.
8. Gorenc, Tinyou Syam, : Steel Designer's handbook", CBS Publishers and Distributors, New Delhi, Bangalore ,200510.Don A.Waston, " Construction Materils and Porcess", McGraw Hill Co., 1972.
9.

Course Outcomes		Program Outcomes (PO's)												Program Specific Outcomes PSO's		
CO's		PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO 1	An Understanding of ferrous metals in terms of its properties, manufacture and their applications in architectural construction.	-	2	3	3	2	-	2	-	3	1	1	-	-	3	-

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

CO 2	The students are able to understand in detail the method of construction of various building components using steel and steel components.	3	-	-	3	-	1	-	3	2	1	1	-	-	-	-
CO 3	This also helps the student tounderstand the different construction practices adapted for the various components specific to the material in which it's made.	2	3	3	-	3	-	2	-	3	1	1	-	-	3	-
CO 4	Students to understand that ferrous metals and Non-Ferrous metals are equally important in constructionindustry	3	2	3	3	2	1	-	3	3	1	1	-	-	-	-

418ARP05 **ARCHITECTURAL DESIGN - III** **L T P C**

0 0 16 8

COURSE OBJECTIVES:

- To create a holistic understanding of the socio-cultural, geographic and economic aspects that shape the built environment as well as to expose the students towards the design of simple community oriented buildings.
- To make a comprehensive study of a rural settlement that is an exemplar of collective design evolved organically over a period of time.
- To expose the students on the methodology of conducting various surveys covering, physical, visual characteristics and demographic aspects.
- To understand the vernacular / traditional architecture involving local materials and construction techniques.
- To emphasis on the importance of designing built form and open spaces that meet the aspirations of the community.

1. DESIGN STUDIO - RURAL PROJECT **105 Hrs**

Documentation and analysis related to rural precincts - visits to selected villages - surveys on visual, socioeconomic and environmental behavior studies – Physical & technical aspects of rural design elements & Planning methods - study existing conditions - analysis of survey data - preparation of report. Comprehensive analysis of rural settlement in a hierarchical manner. Preparation of design solution for housing & community facilities. Single level planning in small scale- presentation of report & design.

2. SUGGESTIVE TYPOLOGIES/ PROJECTS: **75 Hrs**

Rural projects that involve studies and design at settlement and building level- noon meal centre, market, primary health centre; department store, higher secondary school, campus students centre, Co-operative societies, community centre.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

TOTAL - 180 Hrs

COURSE OUTCOMES:

CO 1: Student's ability to understand the concept of community and settlement evolution and the built environment as influenced by Socio-economic, Cultural, Environmental and Technical factors.

CO 2: Ability to provide a sensitive approach to the design of the built environment taking into account the above mentioned factors.

CO 3: Educated the student into the process of design in different context (Rural) by choosing relevant topics of community or civic importance.

CO 4: Thrust was given on rural materials, construction techniques and design details.

CO 5: Students gained knowledge the physical, technical and visual characteristics of a settlements at micro level.

TEXT BOOK:

1. Joseph De Chiara, Michael J Crosbie, " Time Saver Standards for Building Types", McGraw Hill Professional 2001.
2. Julius Panero, Martin Zelnik, "Human Dimension and Interior Space", Whitney Library of Design, 1975
3. Joseph De Chiara, Julius Panero, Martin Zelnik, " Time Saver Standards for Interior Design and Space Planning",McGraw Hill, 2001.
4. Ernst Neufert "Architects Data", Blackwell 2002
5. Ramsey et al, "Architectural Graphic Standards", Wiley, 2000

REFERENCES:

1. Richard P. Dober, "Campus Planning", Society for College and University Planning, 1996.
2. Kanvinde, "Campus design in India", American year Book, 1969
3. Kevin Lynch, "Site planning", MIT Press, Cambridge, 1984
4. Sam F. Miller, " Design Process: A Primer for Architectural and Interior Design", Van Nostrand Reinhold, 1995

Course Outcomes		Program Outcomes (PO's)												Program Specific Outcomes PSO's		
CO's		PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO 1	Student's ability to understand the concept of community and settlement evolution and the built environment as influenced by Socio-economic, Cultural, Environmental and Technical factors.	1	3	3	3	3	-	1	-	3	1	-	-	3	1	-
CO 2	Ability to provide a sensitive approach to the design of the built environment taking into account the above mentioned factors.	2	3	3	3	2	1	1	-	3	-	-	-	3	1	-

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

CO 3	Educated the student into the process of design in different context (Rural) by choosing relevant topics of community or civic importance.	3	3	3	3	2	1	-	-	3	-	1	-	3	2	-
CO 4	Thrust was given on rural materials, construction techniques and design details.	2	2	3	3	2	2	-	-	3	-	-	-	3	2	-
CO 5	Students gained knowledge the physical, technical and visual characteristics of a settlements at micro level.	2	2	3	3	2	1	-	-	3	-	1	-	3	2	-

418ARE01 **ENERGY EFFICIENT ARCHITECTURE** **L T P C**
3 0 0 3

COURSE OBJECTIVE:

- To trace out evolution of energy conscious buildings and tepchniques from historic period based on climatic zone of the world.
- To enable students understand solar geometry and heat transfer mechanism in buildings and energy conservation.
- To study methodologies to incorporate solar passive heating system in buildings through select case studies with stress on materials and techniques.
- To study ways to incorporate solar passive cooling systems through select examples with stress on materials and techniques.
- To enable student to understand importance of site planning, vegetation types, water bodies as factors inspiring concepts of design.
- To make the students aware of the future trends in creating sustainable built environment.

UNIT I CLIMATE AND SHELTER **6 Hrs**

Climate responsive design features in Historic Perspective - Examples of traditional architecture of various places in different climate zones.

UNIT II SOLAR ENERGY AND BUILDINGS **7 Hrs**

General principles and techniques – solar passive architecture.Methods of energy conservation techniques.Solar water heating system.Heat transfer and Thermal Performance of Walls and Roofs. Future Trends - Photo Voltaic Cells and Thermal Energy Storage.

UNIT III PASSIVE SOLAR HEATING **10 Hrs**

General principles –Various methods of Maximizing exposure to solar radiation in cold & temperate climate. Direct gain systems - Glazed walls, Bay windows, Attached sun spaces. Indirect gain systems – Trombe wall, Water wall, Solar Chimney, Transwall, Roof pond, Roof radiation trap, Solarium. Isolated gain systems – Natural convective loop. Case studies on buildings designed with passive heating techniques.

UNIT IV PASSIVE COOLING **10 Hrs**

General principles – Various techniques of shading to reduce heat gain in tropical climate Evaporative cooling, Nocturnal radiation cooling, Passive Desiccant cooling, Induced ventilation, Earth sheltering, Earth Berming, Wind Towers, Earth Air tunnels, Curved Roofs & Air Vents, Insulation. Case studies on buildings designed with passive cooling techniques.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

UNIT V ENERGY EFFICIENT DESIGN CONCEPTS **12 Hrs**

Design Considerations involving Site Conditions, Land form & orientation – Vegetation type & Pattern – Water Bodies – Open Space & Built form - Plan form &Elements – Roof form – Fenestration pattern & Configuration – Building envelope & finishes. Daylight Factor and Analysis. Contemporary Trends in Energy Efficient Architecture.

TOTAL: 45 Hrs

COURSE OUTCOME:

CO 1: The students are exposed to alternative sources of energy and are exposed to passive design considerations

CO 2: An understanding on site design conditions for various climatic zones in creating sustainablebuilt environment. Also gained knowledge in passive heating techniques for various building.

CO 3: Understood the concepts of passive cooling techniques satisfying the demand of future needs.

CO 4: Exposed the students to various design concepts with model making.

CO 5: To understand the importance of Energy conservation in general and solar energy particularlyand to incorporate energy efficient techniques in Planning, design and detailing of buildings.

TEXT BOOKS:

1. MiliMajunder, Teri – Energy – Efficient Bldg in India – Thomson Press , New Delhi – 2001
2. J.K Nayak&Others , Energy Systems Energy Group,- Isa Annal Of Passive Solar Architecture.
3. Manual on Solar Passive Architecture, IIT Mumbai and Mines New Delhi, 1999
4. Arvind Krishnan & Others, " Climate Responsive Architecture", A Design Handbook for
5. Energy Efficient Buildings, TATA McGraw Hill Publishing Company Limited, New Delhi, 2001
6. Majumdar M, "Energy-efficient Building in India", TERI Press, 2000.
7. Givoni .B, " Passive and Low Energy Cooling of Buildings", Van Nostrand Reinhold, New York, 1994

REFERENCES:

1. Fuller Moore, "Environmental Control Systems", McGraw Hill INC, New Delhi - 1993
2. Sophia and Stefan Behling, Solpower, "The Evolution of Solar Architecture", Prestel, New York, 1996
3. Patrick Waterfield, "The Energy Efficient Home: A Complete Guide", Crowood press ltd, 2011.
4. Dean Hawkes, "Energy Efficient Buildings: Architecture, Engineering and Environment", W.W. Norton &Company, 2002
5. David Johnson, Scott Gibson, "Green from the Ground Up: Sustainable, Healthy and Energy efficient homeconstruction", Taunton Press, 2008
6. "Climatically Responsive Energy Efficient Architecture", PLEA/SPA, New Delhi 1995.
7. Ms.Sudha, N.K.Bansal and M.A.S.Malik, "Solar Passive Building", Pergamon press.
8. James D. Ritchie – Successful Alternate Energy Methods – Structures Publishing Co . Michigan 1980.
9. George Basid& Others – Energy Performance of Bldg – CRC Press, Florida 1984.
10. Ralph M .Lebens – Passive Solar Architecture in Europe – 2, Architecture Press, London 1983.

Course Outcomes		Program Outcomes												Program Specific Outcomes		
CO's		PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO 1	The students are exposed to alternative sources of energy and are exposed to passive design considerations	1	3	3	2	2	-	1	1	3	2	-	-	1	2	

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

CO 2	An understanding on site design conditions for various climatic zones in creating sustainable built environment. Also gained knowledge in passive heating techniques for various building.	1	3	3	2	1	-	1	-	3	2	-	-	-	1	2
CO 3	Understood the concepts of passive cooling techniques satisfying the demand of future needs.	1	3	2	3	2	-	2	-	3	2	-	-	-	3	-
CO 4	Exposed the students to various design concepts withmodel making.	3	3	2	3	1	-	2	3	3	2	-	-	-	3	-
CO 5	To understand the importance of Energy conservation in general and solar energy particularly and to incorporate energy efficient techniques in Planning, design and detailing of buildings.	1	3	3	2	3	-	2	-	3	2	-	-	3	-	-

418ARE02 **TRADITIONAL INDIAN ARCHITECTURE** **L T P C**
3 0 0 3

COURSE OBJECTIVE:

- To make student understand the definition of architecture as a creative activity, the practice in various levels and contribution in India.
- To expose to student on traditional understanding of a good site, the zoning of site to relate to human and how space could be articulated for bringing life into the building.
- To expose students on the unique system of measurement based on music and space interval as adopted in buildings.
- To enable students understand how buildings could be designed to vibrate with energy.
- To make students understand about the importance of orientation natural features in and around site and how the celestial grid types could be used at different context.
- To promote them in understanding of positive and negative energy in the site.

UNIT I INTRODUCTION **7 Hrs**

Definition, Planning, designing & construction aspects of traditional Architecture in India- evaluationwith the Understanding of context- relevance.Importance of cardinal and ordinal direction.

UNIT II CONCEPTS OF VASTUVIDYA **10 Hrs**

Basic geometry: Planning, design &construction of temples & halls, secular buildings.Resourcematerials; Roles & duties of Silpis evolutionary nature of the discipline, basic unit of measurements-purushapramanam, Hastham, Padmam, angulam&yavam; vertical proportioning &Thalam concept.

UNIT III SPACE THEORY **8 Hrs**

Featuresof good building site - good building shapes-macro, micro, enclosed and material spaces-relationship between built space, living organism and universe impact of built space on humanpsyche.

UNIT IV VASTU PRINCIPLES **10 Hrs**

Fundamental principles- dikinirnaya, vaastupurusha mandala, maana, aayadi, chakra,echnology in

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

Vastuvidya, classification of materials, brief description of the characteristics & uses of sila, istaka, daru, loha, mrilsna, sudha, Assembly & joinery.

UNIT V MANDALA CONCEPT IN TOWN PLANNING **10 Hrs**

Concept of Mandala and its types,Classification of villages & towns;town planning, types of planned settlements, Landuse patterns; position of temples & other uses, street patterns; Planning of residential buildings, Evolution of residential types from Vastupurusha Mandala.

TOTAL: 45 Hrs

COURSE OUTCOME:

CO 1: The students are exposed to the traditional architecture of India, which is rooted in its history.

CO 2: Gained knowledge on concept of vastu with examples.

CO 3: Understood about different space from site level to building level.

CO 4: An understanding on site design conditions for various vastu principle based on energy in creating a suitable built environment.

CO 5: The students are enabled to incorporate the traditional unique system of measurement in design of buildings.

TEXT BOOKS:

1. Dr. V. GanapathiSthapathi - Sthapathy Veda - Dakshina Publishing House - Chennai - 2001.
2. K.S.SubramanyaSastri Maya MatamThanjavur Maharaja SarjojisaraswathiMahal Library Thanjavur 1966.
3. Tillotsun G.H.R., 'The Tradition of Indian Architecture Continuity, Controversy and change since 1850',Oxford University Press, Delhi, 1989.

REFERENCES:

1. Dr.Prasanna Kumar AcharyaManasara Oxford University Press 1927 (English version)
2. Stella KramreshThe Hindu Temple Vol. I & II MotitalBanarsidass Publishers Pvt. Ltd., Delhi 1994.
3. Bruno DagensMayamatam, Vol.I& II IGNCA and MotilalBamarsidars Publishers Pvt. Ltd., Delhi
4. Carmen K'agal, 'VISTARA- The Architecture of India', published by The Festival of India, 1986.

Course Outcomes		Program Outcomes (PO's)												Program Specific Outcomes PSO's		
CO's		PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO 1	The students are exposed to the traditional architecture of India, which is rooted in itshistory.	1	2	3	2	2	-	1	3	3	2	-	-	-	2	-
CO 2	Gained knowledge on concept of vastu with examples.	-	1	2	3	2	-	1	3	2	-	-	-	-	-	2
CO 3	Understood about different space from site level to building level.	2	3	3	2	1	-	2	1	3	-	-	-	-	-	-
CO 4	An understanding on site design conditions for various vastu principles based on energy in creating a suitable built environment.	1	2	3	2	1	-	2	2	1	-	-	-	-	2	-

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

CO 5	The students are enabled to incorporate the traditional unique system of measurement in design of buildings.	1	2	3	3	1	-	1	-	1	-	-	-	-	-	2

418ARE03 **ERGONOMICS IN BUILDING DESIGN** **L T P C**
3 0 0 3

COURSE OBJECTIVES:

- To understand the principles of human factors and the relationship to environmental design.
- To understand issues of ergonomic design with built environment.
- To orient the student towards the criteria to be considered in the built environment for thephysically challenged individuals.
- To learn metrological analysis of the anthropometrics relationship to ergonomicenvironmental design.
- To enable the students in understanding the psychosocial aspects of ergonomic necessities indesign.

UNIT I INTRODUCTION TO HUMAN FUNCTION **8 Hrs**

Human being in the manmade world and importance of ergonomics, Gross human anatomy, Ergonomics for children and old people.

UNIT II ERGONOMICS AND DESIGN **12 Hrs**

Introduction to Anthropometrics – static and dynamic, Muscles and work physiology, Static and Dynamic work including maximum capacity. Anthropometric dimensions for designing interior spaces and products for children, men, women and elderly.

UNIT III INCLUSIVE DESIGN **10 Hrs**

Spatial Requirements for the physically handicapped – Ramp, toilets and corridor design-Design issues in the design of old age homes – Criteria to be considered in the Built environment when designing for the blind and physically challenged individuals and universal design principles.

UNIT IV ENVIRONMENTAL ERGONOMICS **8 Hrs**

Simulation and Responses in various environmental conditions including, thermal, illumination, noiseand vibration-Importance of ergonomic design in the built environment.

UNIT V ADVANCED ERGONOMICS **7 Hrs**

Ergonomics and its application - Workstation, Physical Environment and Materials Handling.Psychosocial aspects of Design and aesthetical incorporation of ergonomic necessities in design.

TOTAL: 45 Hrs

COURSE OUTCOME:

CO 1: Understand the relevance of human factors and anthropometrics to environmental design.

CO 2: Explain the importance of ergonomic design in the built environment.

CO 3: Analyze anthropometric dimensions for designing interior spaces and products for children,men, women, elderly and physically challenged individuals.

CO 4: Demonstrate design analysis that follows the principles of human factors/ergonomics.

CO 5: This also helps the student to understand the ergonomic necessities in design.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

TEXT BOOKS:

1. Sanders, M.M. & McCormick, E.J. (1993) Human Factors in Engineering & Design, 7th ed. McGrawHill, NY.
2. Human factors/ergonomics for building and construction Martin Helander
3. Body space: Anthropometry, Ergonomics and the Design of Work, 3rd edition, CRC. Ulijaszek, S. &Mascie-Taylor, N. (1994)
4. Anthropometry: The Individual and the Population (Cambridge Studies in Biological and EvolutionaryAnthropology) Cambridge University Press.

REFERENCES:

1. Sanders, M.M. & McCormick, E.J. (1993) Human Factors in Engineering & Design, 7th ed. McGrawHill, NY.
2. NLS. Eligibility of Blind and Other Physically Handicapped Persons for Loan of Library Materials.
3. "Eligibility of Blind and Other Physically Handicapped Persons for Loan of Library Materials". L*oc.gov. 2013-06-28*. Retrieved 2013-07-28.
4. Panero, J. &Zelnick, M. (1979). Human Dimension and Interior Space:
5. A Source Book of Design Reference Standards, Watson-Guptill. Salvendy, G. (2006).
6. Hand book of Human Factors and ergonomics, 3rd edition, Wiley.Lang, J. (1987). Lang, J. (1987).
7. Creating architectural theory: The role of the behavioral sciences in environmental design, NY: Van NostrandReinhold. Pheasant, S. &Haslegrave, C. (2005)
8. Alvin R. Tilley (2001). The Measure of Man and Woman: Human Factors in Design, Henry Dreyfuss AssociatesZar, J. (1999).
9. Biostatistical analysis, 4th edition, NJ: prentice Hall. Gordon, C. (1990). 1988

Course Outcomes		Program Outcomes (PO's)												Program Specific Outcomes PSO's		
CO's		PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO 1	Understand the relevance of human factors and anthropometrics to environmental design.	3	3	3	2	2	-	1	1	3	2	-	-	-	2	-
CO 2	Explain the importance of ergonomic design in the builtenvironment.	3	3	3	2	2	-	1	1	2	1	-	-	-	-	2
CO 3	Analyze anthropometric dimensions for designing interior spaces and products for children, men, women, elderly and physically challenged individuals.	2	3	1	2	-	2	1	2	2	1	-	-	2	-	-
CO 4	Demonstrate design analysis that follows the principles of human factors/ergonomics.	3	3	2	3	2	3	2	1	2	1	-	-	2	-	-
CO 5	This also helps the student to understand the ergonomic necessities in design.	3	3	3	3	1	2	2	3	1	1	-	-	2	-	-

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

418ARE04 **SPATIAL PLANNING STRATEGIES** **L T P C**
3 0 0 3

COURSE OBJECTIVES:

- To acquire the knowledge to design a space for the user based on his perception and behavior to the space.
- To integrate psychology and user behavior in space planning.
- To familiarize the students with basic concepts or theories of psychology as relevant to architecture.
- To introduce students to key issues in historical and contemporary global and urban psychology.
- To provide an Overview of the relationship between man and space and behavior patterns of human beings in space planning.

UNIT I INTRODUCTION **8 Hrs**

Introductory: Nature of relationship between psychology and spatial behavior with special reference to Architecture, Urban Design and Physical Planning. Perception of space through understanding associative aspects relating to space

UNIT II SPACE MAKING **10 Hrs**

Understanding cognitive theories and Gestalt principles of psychology related in the field of space making to develop an understanding of place making. Concepts ethnological Basis, Function. Territorial organization among Humans, Three Major Types of territorial space: Micro Space, Meso-Space and Macro-space.

UNIT III SPATIAL ELEMENTS **7 Hrs**

Relationship of spatial elements like floor, column, wall, window, door, stair, roof, light, color, and texturesto the psychology and perception of space.

UNIT IV BEHAVIOR ANALYSIS **10 Hrs**

Kinesthetic – Understanding perception while in movement and space organization. Human being and his behavior in various public and private areas – change of patterns in various cultures. Analysis of human mind and his/her image of the world - social behavior patterns, traditional thinking and behavior and reflection of social world into physical environment.

UNIT V PERCEPTION OF SPACE **10 Hrs**

Phenomenal Environment: Physical various types of environment and related patterns of behavior: Street Home, Work Place, School, Prison, Residence conditions for positive interaction thorough Architectural Designing Behavior- setting and behavior – nature of relationship. Case Studies and Exercises related to the above.

TOTAL: 45 Hrs

COURSE OUTCOME:

CO 1: Space planning for public areas- restaurant, café, theatre lounge, waiting rooms, hotel foyer based on analysis of human behavior and perception of space.
CO 2: Understanding the Human behavior in various public and private areas.
CO 3: Study on Relationship between spatial elements and human behavior.
CO 4: Understood the key issues in historical and contemporary global and urban psychology.
CO 5: Gained knowledge about the relationship between man and space through the behavioralpattern

TEXT BOOKS:

1. Bryan Lawson, Language of Space, Architectural Press, 2001.
2. Making Space-How the Brain Knows Where Things Are-Jennifer M. Groh

3. Architecture: Form, Space, And Order- Francis D.K. Ching
4. Concepts of Space In Traditional Indian Architecture by YatinPandya (Author)
5. Architecture of the Home by Ola Nylander

REFERENCES:

1. Yi- Fu Tuan, Steven Hoelscher, Space and Place : The perspective of experience, University of Minnesota Press,2001.
2. Setha . M. Low, Denise Lawrence – Zunigias, Anthropology of Space and place : Locating Culture, Wiley –Blackwell publishers, 2003.
3. Irwin Altman &Erwin . H. Zube, Public spaces and places, (Human Behavior and environment), Springer link,1989.
4. Roger Downs, David Stea, Kenneth . E. Boulding, Image and environment, Transaction Publishers, 2005.
5. Porteous, J. Douglas (1977), Environment and Behaviour Reading (Mass) Addison-
6. Advanced Reading Suggested (Reference), Rapoport, Amos (1977): Human Aspects of Urban Form, Oxford,Pergamon Press

Course Outcomes		**Program Outcomes (PO's)**												**Program Specific Outcomes PSO's**		
CO's		PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO 1	Space planning for public areas- restaurant, café, theatre lounge, waitingrooms, hotel foyer based on analysis of human behavior and perception of space.	2	3	3	2	2	-	1	-	3	-	1	-	-	2	-
CO 2	Understanding the Human behavior in various public and private areas.	2	2	3	2	1	2	-	-	3	-	1	-	2	-	-
CO 3	Study on Relationship between spatial elements and human behavior.	3	-	1	2	2	1	-	2	3	-	1	-	2	-	-
CO 4	Understood the key issues in historical and contemporary global and urban psychology.	2	2	3	3	2	2	2	1	3	2	1	-	2	3	-
CO 5	Gained knowledge about the relationship between man and space through the behavioral pattern.	2	1	3	-	-	-	-	-	3	-	1	-	2	2	-

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

518ART01 **ANALYSIS&DESIGNOFSTRUCTURES– II** **L T P C**

2 1 0 3

COURSEOBJECTIVES:

- Toenablestudentslearntheconceptsandthedesignofslabsandintroductiontoshellandfoldedplates.
- Be acquainted with the knowledge of limit state design of be a including singly reinforced, doubly reinforced
- To understand the design and detailing of short RC columns by limit state design.
- To understand the design of dog legged staircase
- To understand design of isolated column footing and combined footing.

UNIT I CIRCULAR SLABS ANDFLATSLABS **14 Hrs**

Design of RCC Circular slabs - simply supported and fixed slabs with uniformly distributed loads. Designprinciplesofflatslabs(onlytheory)-Introductiontoshellsandfoldedplatesandclassificationofshells.**Exerciseon flat slabs with drawings.**

UNITII LIMIT STATEDSIGNOFBEAMS **14 Hrs**

Analysis and Design of rectangular sections for bending-singly reinforced, doubly reinforced, and continuous beams. **Exercise on beams with drawings**

UNIT III LIMITSTATEDESIGNOFRCCCOLUMNS **8 Hrs**

Code provisions –Design of axially loaded short and long columns of rectangular and circular sections-ties and spiral reinforcements.

UNITIV LIMIT STATEDESIGNOFFOUNDATION **12 Hrs**

Types of foundations - Isolated pad footings - combined footings for simple design problems. Design principles for raft and pile foundation (No Design calculations).

UNITV LIMITSTATEDESIGNOFSTAIRCASEANDBRICKMASONRY **12 Hrs**

Types of staircases-Design of dog legged staircase. Analysis and Design of brick masonry, load bearing walls-codal requirements.

TOTAL: 60 Hrs

COURSE OUTCOMES:

At the end of day the students will be able to understand and

CO1: Gain basic knowledge about RCC column.
CO2: Design of dog legged staircase
CO3: Design of isolated column footing and combined footing.
CO4: Understanding the various methods in designing the members such as beams and slabs.
CO5: Apply the limit state design methodsto design RCC beams and slabs and present the same.

TEXTBOOKS:

1. P.Dayaratnam,''Designofreinforcedconcretestructures'',OxfordandIBHPublishingCo.,1983.
2. C.SinhaandS.KRoy,''FundamentalsofReinforcedConcrete'',S.Chand&Co.,NewDelhi,198
3. Vazirani andRatwani,ConcreteStructures,KhannaPublishers,NewDelhi1969.

REFERENCES:

1. Dr,B.C.Punmia,''ReinforcedConcreteStructures'',Vol1&2Laxmipublication,Delhi,2004.IS 456 ''Indian Standard, Plain and reinforced concrete, Code of Practice, Bureau of IndianStandards,2000.
2. S.UnnikrishnanPillaiandDevadosMenon,''ReinforcedConcreteDesign '' –TataMcGraw
3. ISCodeofpracticeforPrestressedconcrets,IS:1343–1980,GovtPublications.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

Course Outcome		Program Outcome												Program Specific Outcome		
CO'S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Gain basic knowledge about RCC column.	1	-		3	-	3	-	-	-	-	1		-	-	1
CO2	Design of doglegged staircase	1	-		3	-	3	-	-	-	-	1		-	-	1
CO3	Design of isolated column footing and combined footing.	1	-		3	-	3	-	-	-	-	1		-	-	1
CO4	Understanding the various methods in designing the members Such as beams and slabs.	1	-		3	-	3	-	-	-	-	1		-	-	1
CO5	Apply the limit state design methods to design RCC beams and slabs and present the same.	1	-		3	-	3	-	-	-	-	1		-	-	1

518ART02 HISTORY OF MODERN ARCHITECTURE L T P C

3 0 0 3

COURSEOBJECTIVES:

- ToprovideanunderstandingandappreciationofContemporarytrendsinIndianandWesternArchitecture in terms of Ideas and directions, design processes characterizing through the works of out standing architects.
- To acquaint students with capacity to critically analyze the critiques of modern architecture and the evolution of new approaches.
- To understand the trajectory of architecture in India from colonial rule to the contemporary period with works of Indian Architects.
- To expose the students to the rapid developments after independence, the design of capital cities by famous architects.
- To impart the understanding of the search for new directions by architects of India. Thrust will also laid on the relevance of appropriate technologies in the Indian context.

UNIT I INDUTRIALREVOLUTION-LEADING TOANEW ARCHITECTURE 11 Hrs

Beginnings of modernity –Origin and development of Neo Classicism, Romantic Neoclassicists: Ledoux ,Boulle and Jefferson- Industrialization and its impact. Emergence of new building / space types-Growingneedformasshousing-DevelopmentofIndustrialmaterialandconstructiontechnologies- concrete, glass and steel- structural engineering, standardization-Industrial exhibitions- Chicago School andskyscraper development.Reactions to industrialisation in design. Arts and Crafts in Europe and America.WorksofMorrisandWebb.ArtNouveau-WorksofGaudiandMackintosh.ViennaSecession-Hoffman,Olbrich.

UNIT II EVOLUTIONOFMODERNARCHITECTURE-IDEOLOGIES, MOVEMENTS AND STYLES 8Hrs

EarlymodernisminEuropeandAmerica.Modernartandarchitecture–ExpressionismMendelsohn, Taut.Futurism, Constructivism, Cubism, SuprematismandDe Stijl. ArtDeco. Functionalism. Bauhaus.CIA2. International Style. Outline of works and architects associated with all the above. Ideas, works andevolutionof Gropius, Corbusier, Aalto, Wright, Mies.

UNIT III COLONIALARCHITECTURE ININDIA 8Hrs

Colonialism and its impact- early colonial architecture: forts, bungalows, cantonments, colonial urbanism ,civic buildings,buildingsofinfrastructure,education,power,tradeandothertypologies.– Stylistictransformations: Neo- classicism, Gothic Revival and Indo Saracenic - PWD and institutionalization ofarchitecture - Building of New Delhi showcasing imperial power. Art Deco and modern architecture in pre-independence India.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

UNIT IV CRITIQUINGMODERNISMAND EVOLUTIONOFPOSTMODERNISM 10Hrs

Brutalism. Team X. Ideas, works and evolution of Philip Johnson, Louis Kahn, I.M.Pei. Chandigarh andCorbusier'sotherworksinIndia.WritingsofRobertVenturi-JaneJacobs-AldoRossi-ChristopherAlexander. Historic Revivalism - Pop Architecture ; works of Charles moore – High Tech Architecture:Richard Rogers and Renzo Piano– Deconstructivist theory and practices- Gehry, ZahaHadid, DanielLibeskind.

UNIT V REGIONAL APPROACH INCONTEMPORARYDESIGN 8Hrs

Critical Regionalism as a category of architecture. Ideas and works of Fathy, Ando, Bawa. Evolution of thearchitecture ofDoshi, Kanvinde ,Correa, Raj Rewal. Philosophy and works of Nari Gandhi, Laurie Baker. .Debates on Tradition as a source and burdern. Nature of contemporary society, Ideas and works ofZHA,,OMAand Rem Koolhaas, Steven Holl,, Zumthor,

TOTAL: 45 Hrs

COURSE OUT COMES:

CO1: An insight into the development of modern architecture and its transformation across the world.

CO2: Presentation on various other philosophies like futurism, expressionism, brutalism, constructivism, and the pioneers of these Philosophies through study of select works of them.

CO3: Able to analyze the Bahaus school of thought and understand contemporary trends in Indian and western architecture in terms of ideas and direction through the works of outstanding architects.

CO4: An understanding of architecture in India under influence of colonialism and colonial modernity.

CO5: Gain knowledge about the "Art Nouveau Movement" the pioneers of the movement and early architecture works of architect with documents and present the same.

TEXTBOOKS:

1. KennethFrampton,ModernArchitecture: ACriticalHistory,Thames& Hudson,London,1994
3. ManfredoTafuri.,ModernArchitecture,HarryN.AbramsInc.
4. LeonardoBenevolo,HistoryofModernArchitecture,2Vols.,Routledge&Keganpaul,London,1971
5. MikiDesai.,Architectureandindependence,OxfordUniversityPress,2000.
6. SigfriedGiedion,SpaceTimeandArchitecture:TheGrowthofaNewTradition,HavardUniversityPress, 1978.
7. BillRisebero,ModernArchitectureandDesign.
8. VikramBhattandPeterScriver,ContemporaryIndianArchitecture:AftertheMasters,Mapin.
9. Lang,Desai,Desai–Architecture&Independence,OxfordUniversityPress,NewDelhi.
10. SarbjitBahga,ModernArchitectureinIndia,GalgotiaPublishingCompany,NewDelhi
11. WilliamJ.Curtis,"ModernArchitecturesince1900",PhaidonPress,1982.
12. DianeGhirardo,"ArchitectureafterModernism",Thames&Hudson,London,1990.
13. ChristopherAlexander,"PatternLanguage",OxfordUniversityPress,Oxford,1977.
14. RobertVenturi,"ComplexityandContradictioninArchitecture",1977.

REFERENCES:

1. ThomasMetcalf,AnimperialVision,Faber&Faber/Electa,1980.
2. ChristianNorburgSchulz.,MeaninginWesternArchitecture,StudioVista
3. WilliamJ.Curtis–ModernArchitecturesince1900.
4. "ContemporaryArchitecture"byMorgan,AnnLee&TaylorColin
5. "ModernArchitecturein India"byBahga, BahgaandBahga.
6. AldoRossi,TheArchitectureoftheCity,MITPress,Massachusetts,1982.
7. CharlesJencks,TheLanguageofPost-ModernArchitecture,1984.
8. JaneJacob,"DeathsandLifeofGreat AmericanCities",Vintage,2003.
9. D.Ghirardo,ArchitectureAfterModernism,ThamesandHudson,London,1990.
10. RobertVenturi,ComplexityandContradictioninArchitecture,TheArchitecturalPress,London,1977.
11. MikiDesaiet.al,ArchitectureandIndependence,OxfordUniversityPress,NewDelhi,1998.
12. KennethFramptoned,"CharlesCorrea",ThePerennaiPress,1998.
13. WilliamJr.Curtis,"BalkrishnaDoshi,AnArchitectureforIndia".Rizzoli,1988.
14. JamesSteele,"HassanFathy",AcademyEditions,1985.
15. MichealHaysed.,"ArchitectureTheory"since1968,CBA,1999.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

Course Outcome		Program Outcome												Program Specific Outcome		
CO'S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	An insight into the development of modern architecture and its transformation across the world.	2	-	2	2	2	-	1	3	1	-	-	-	3	3	3
CO2	Presentationonvariousotherphilosophieslikefuturism,expressionism,brutalism,constructivism,and the pioneers of these Philosophies through study of select works of them.	3	-	2	1	2	-	1	3	1	-	-	-	3	3	2
CO3	Able to analyze the Bahaus school of thought and understand contemporary trends in Indian and western architecture in terms of ideas and direction through the works of outstanding architects.	1	1	-	1	-	-	2	-	1	-	-	-	1	3	2
CO4	An understanding of architecture in India under influence of colonialism and colonial moderniy.	3	3	2	1	-	-	-	-					-	1	-
CO5	Gain knowledge about the "Art Nouveau Movement"thepioneers ofthemovementandearly architectureworksofarchitectwithdocumentsand presentthesame.	2	2	2	-	2	-	1	1					3	3	3

518ART03 **MATERIALS&CONSTRUCTION V** **L T P C**

1 0 4 3

COURSEOBJECTIVES:

- To understand the various materials and membranes for damp and water – proofing their method of application depending on the context like residential building and swimming pool, through detail drawing.
- To study the heat transfer into buildings in floors, walls and roofs, through detail drawing.
- To understand the various floor and wall finishing materials, their properties, method of laying and making them to adopt for barrier free environment, through detail drawing.
- To understand the properties, uses and applications of various insulations, thermal, acoustic and their varieties for contextual application in buildings.

UNIT I DAMPAND WATER PROOFING **20 Hrs**

Damp proofing- Hot application and coldapplication, Properties of Materials for DPC, Classification ofmaterial- Flexible material- bitumen felts,fiber/glass fiber based, plastic DPC Membrane (polythene sheet),Semi rigid materials- mastic asphalts, Rigid materials- first class bricks, stones, slates, cement concrete,Grout materials - cement slurry and acrylic based chemical or polymers, Selection of Materials for DampProof Course in Buildings- Hot bitumen, Mastic asphalt,Bituminous felts, Metal sheets, Combination ofsheetsand felts, Stone, Bricks, Mortar,Cementconcreteand Plastic sheets.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

Water Proofing- Cementitious Waterproofing, Liquid Waterproofing Membrane, Bituminous Membrane,Bituminous Coating, Polyurethane Liquid Membrane. Application of the aboveunder various situations-casestudy andexercise involving in theabove.
ExerciseonDamp-ProofingIn ResidentialBuilding,Swimming Pool.

UNIT II THERMAL INSULATION: 14 Hrs

Heat Transfer-conduction, convection, and radiation and Heat gain by building and materials- methods ofheat insulation or thermal insulation-Roofs, exposed walls andexposed windows, doors & ventilators etc.InsulationMaterials&Systems-U-valueforcommonmaterials-Fibrous/MineralInsulationMaterials-Rockwool,GlasswoolandSlagwool-**RigidInsulations**-ExtrudedPolystyreneFoam,PolyurethaneFoam ,Polyisocyanurate Foam and Expanded Polystyrene Foam, Application Areas for Insulation- Roofs, wallinsulation(Internal and External).
Exercise on Commercial building and Coldstorage.

UNIT III ACOUSTIC INSULATION: 19 Hrs

Acoustic insulation Materials- Types of Acoustic Insulation- **Gypsum**-Properties and uses, Plaster of Parisandhydride Gypsum. **Blankets andBatts**-fiberglassand mineral fiber. **GypsumPanels**-Ecophon,MetalCeilingTiles,**AcousticPanels**-AcousticFabricWrappedPanels,Acoustic Panel Room, Cotton Acoustic Panels, Foam Acoustic Panels, Art Acoustic Panels and indoor andoutdooracoustic panels-straw panels,Foam egg-cratepanels. **Viscoelastic Products**- plywood, drywall or cement board- Brief case study on uses in building industry oftheabove.
ExerciseonRecordingStudios,performancehalls,conferencespaceetc.,

UNIT IV FLOOR AND WALLCOVERING: 22 Hrs

FloorCovering: Flooring-Softwood,Hardwood-Resilientflooring-linoleum,asphalt,vinyl(compositionandsolid), rubber,cork tiles-Properties, usesand laying methods.
WallCovering: Porcelain,enameledmetal.Woodveneer,vinyl,plasticsurfacedpaneling-Properties,usesand layingmethods.
WallandFloortiles-CeramicGlazed,Mosaic,QuarryandCementtiles-Properties,usesandlayingmethods.Detailingfor physicallyhandicapped.Brief casestudyon usesinbuilding industryofthe above.
ExerciseonColdstorage,ClassRoom,performancehalls,Gymspace,Hospitalandinteriorofrestaurantandoffic espace,etc.,

TOTAL: 75 Hours

COURSE OUTCOMES:
CO 1: The students understood various components of buildings in terms of damp proofing andwaterproofingthroughcasestudyofswimmingpoolandcollectionsofmaterialsandcatalogue.
CO2: The construction techniques of thermal insulation in a cold storage to be presented as a report.
CO 3: Analyze and present the different construction practices adapted for the various components specific to the material and finishes in the floor and wall coverings.
CO 4: The students are asked to the documentation through materials, catalogue, photograph and video presentation the various exterior finishes of paints, cladding, structural glazing and their contextual application in buildings.

TEXTBOOKS:

1. S.C.Rangwala,BuildingConstruction(SixteenthEdition)CharotarPublishingHouse,Anand,India,1997.
2. BasicCivilEngineeringbySatheeshGopi

REFERENCES:

1. JackM.Launders,ConstructionMaterials,Methods,careerspub,J.Holland,IllinoisWileoxCo.,Inc.1983.
2. ArthurR.Llons,Materialsforarchitectsandbuilders An introduction, Holder Headline group, Great Britain, 1997.
3. Don.A.Watson,ConstructionMaterialsandProcesses,McGraw-Hill BookCo.,1972

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

4. W.B.McKay,Buildingconstruction,Longman,U.K.
5. Francis.D.K.Ching–AVisual DictionaryofArchitecture –VanNostrand Reinhold –1997

Course Outcome		Program Outcome												Program Specific Outcome		
CO'S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Thestudentsunderstood variouscomponentsofbuildingsintermsofdampproofingandwaterproofingthroughcasestudyofswimmingpool And collections of materials and catalogue.	2	2	2	3	1	2	-	-	3	-	-	-	3	3	3
CO2	The construction techniques of thermal Insulation in a cold storage to be presented as a report.	1	2	3	3	2	-	-	-	2	-	-	-	3	3	3
CO3	Analyze and present the different construction practices adapted for thevariouscomponentsspecifictothematerialandfinishesinthefloorand wallcoverings.	1	2	3	3	1	-	-	-	2	-	-	-	3	3	2
CO4	The students are asked to the documentation through materials, catalogue, photograph and video presentation the various exterior finishes of paints, cladding, structural glazing and their contextual application In buildings.	-	3	3	3	2	-	-	-	2	-	-	-	1	3	2

518ART04 **BUILDINGSERVICESI** **L T P C**

2 0 2 3

COURSEOBJECTIVES:

- To give detailed input on low and high voltage supplies, precautionary methods required for safety, electrical circuit supply and distribution and knowledge on Sub-station required for public buildings and campuses.
- To enable students, understand the importance of lighting in buildings for visual appreciation, factors and laws involved in illumination.
- To give additional knowledge on sources of light, its classification and intensities required for various types of gad jets, their advantages and disadvantages in usage.
- To understand the basic fundamental properties of acoustics & electrical services.
- To distinguish between sounds and noise its types, transmission, control its insulation and remedial measure in buildings and the corrective acoustic measures required to floors, walls, ceilings, windows and doors for effective articulation.

UNIT I ELECTRICAL SYSTEMS AND LAYOUTS IN BUILDING 9 Hrs

Basics of electricity - Single/Three phase supply - Protective devices in electrical installations -Earthing for safety - Types of earthing- ISI specifications. Types of wires, wiring systems and their choice - Main anddistribution boards – transformers, sub stations and switch gears. Electronic and Communication systems – Communication and data systems-communication spaces, pathways, cabling systems, voice and data, communication, Electronic security systems, computerlabs/server rooms.

Exercises: Electricallayoutofasimpleresidence,school,commercialbuildingswithconcealedandsurfaceconcealedwi

ring withnecessary detail and drawings.

UNIT II FUNDAMENTALS OF LIGHTING 9 Hrs

Principles of light – Electromagnetic radiation, waves, nature of vision, measurement of lighting.Principlesofillumination:definitions,Visualtasks,Factorsaffectingvisual tasksUnitsoflight, definitionsofflux,solidangle,luminousintensity–utilizationfactor–depreciationfactor-MSCP–MHCP,brightness,glare.

UNIT III ILLUMINTAION &LIGHTING DESIGNOF BUILDINGS 9 Hrs

Electric light sources: characteristics and application of different types of lamps, Methods of mounting andlightingcontrolLuminariesclassification/-Lumenmethodfordesign–Roomreflectance/Glare–manufacturer's data on luminaries / luminaries cost Artificial light sources, spectral energy distribution,Luminousefficiency-LightingforOffice,Schools,Libraries,Residential,Hospital,Parking,Outdoor.Elementaryideasofspecialfeaturesrequiredandminimumlevelofilluminationforthephysicallyhandicapped and elderly in building types - Illumination level (NBC) nominal calculations of lighting forsmallapplication.

UNIT IV FUNDAMENTALS OF ARCHITECTURAL ACOUSTICS 9 Hrs

Fundamentals–Sound-classificationofsound,measureofsound-decibelscale-loudness-intensity-problems-Weber-Fechnerlaw-wavelength-frequency-period.Generationandpropagationofhighfrequencysoundwaves-Stationaryandprogressivewaves-LongitudinalandTransversewavemotion-transmission; reception of sound. Reverberation time – Sabine's formula for reverberation time (rate ofgrowthand decay)–Absorption coefficient-determinationofabsorption co-efficientand problems.

UNI V ACOUSTICS O FARCHITECTURAL SPACES 9Hrs

Factors affecting acoustics of building (optimum reverberation, loudness, focusing, echo, echelon effects,resonance and noise) and their remedies- principles to be observed in the acoustical design of an auditorium-Acoustical properties of building materials, choice of materials and treatment for interior surfaces-Noisepollutionand Noisereduction Acoustics and basic principles in designing open air theatres, cinemas, broadcasting studios, concert halls,class rooms, lecture halls, schools, residences, office buildings including constructional measures and soundreinforcementsystems for building types–casestudies.

TOTAL:45 Hrs

COURSE OUTCOMES:

CO 1: Electrical Drawing with the basics of Electricity and wiring system to be submitted for a residential building.
CO2: Catalogues on various types of lights Tobe collected and displayed.
CO3: Prepare, Design and estimate the electrical load required for any building.
CO4: Apply the illumination required for different occupancies and tasks.
CO 5: Case study visit to recording to understand the spatial design characteristics of studios and materials used.

TEXTBOOKS:

1. Philips,"LightinginArchitecturalDesign",McGrawHill.NewYork,1964.
2. R.G.Hopkenson&J.D.Kay,"The lightingofBuildings",Faber&Faber, London, 1969.
3. E.P.Ambrose,ElectricHeating,JohnWeley&SonsInc.,New York,1968
4. R.G.Hopkenson&J.D.Kay,ThelightingofBuildings, Faber&Faber, London,1969

REFERENCES:

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

1. HandbookofbuildingEngineersin metricsystems,NBO(India),1968
2. NationalBuildingCodeof India,2005(NBC 2005)
3. ElectricalEngineeringby Anwari.
4. ElectricalTechnologybyVHCotton
5. Electricalwiring,Estimationand Costing,byLUppal.

Course Outcome		Program Outcome												Program Specific Outcome		
CO'S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Electrical Drawing with the basics of Electricity and wiring system to be submitted for a residential building.	-	2	-	2	-	2	1	-	1	-	-	-	3	3	3
CO2	Catalogues on various types of lights Tobe collected and displayed.	-	2	1	3	2	1	1	-	1	-	-	-	3	3	2
CO3	Prepare, Design and estimate the electrical load required for any building.	1	2	3	3	1	2	2	-	1	-	-	-	1	3	2
CO4	Apply the illumination required for different occupancies and tasks.	-	1	2	2	-	1	1	1	-	-	-	-	-	1	-
CO5	Case study visit to recording to understand the spatial design characteristics of studios and materials used.	-	2	2	1	-	1	1	1	1	-	-	-	-	1	-

518ARP05 **ARCHITECTURALDESIGN -IV** **L T P C**

0 0 16 8

COURSE OBJECTIVES:

- To enable the students to understand the importance of spatial planning within the constraints of Development Regulations in force for urban areas.
- To enable the students to design for large groups of people in a socially and culturally sensitive manner, taking into account aspects such as user perception, crowd behaviour, large scale movement of people and identity of buildings.
- To make the student understand the complexity, functioning and salient features of the design project through organizing field visit, train them to document and present the findings.
- To emphasize on the importance of understanding the relationship between open space and built form, built form to built form and site planning principles involving landscaping circulation network and parking.
- To explore computer aided presentation techniques involving 2D and 3D drawings and models as required.

CONTENT

ScaleandComplexity:Buildingsandsmallcomplexesthataddressthesocialandculturalneedsofcontemporary urban life (residential. Commercial, institutional) with a thrust on passive and active energy.experiential qualities; multi bayed, multiple storied and circulation intensive; technology, structural clarityand services in terms of lighting, ventilation, movement, fire safety, security, water supply, sewage etc.Thrust will be also on use of computer for presentation skills and introducing elements and detail for makingbuilding barrier free. Application and use of relevant building bye-laws and provisions of National BuildingCode

Areas of concern/focus

- behavioralaspectsandusersatisfaction
- socio-culturalaspects
- designingforthedifferentlyabled

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

- Buildingbyelawsandrules
- Appropriatematerialsandconstructiontechniques
- Climaticdesign

Typology /project: Housing Projects- detached, semi-detached, row housing, cluster housing, apartment;housing and facilities for other user groups- Old age Home, orphanage, working women's hostel, home forphysically and mentally challenged; Museum/ Art centre, Educational campus, R & D centre, Shoppingcenters(Commercial), Health centers, Nursing homes (institutional)Etc.
Introduction to three-dimensional modeling of spaces using Computer. Construction and manipulation ofthree-dimensionalbuilding databases,Rendering3 Dimages andPresentation techniques.

TOTAL: 240 Hrs

COURSE OUTCOMES:

CO 1: Ability to provide a sensitive approach to the design of the built environment taking into the social and cultural needs of contemporary urban life.

CO 2: The various components and aspects associated with the urban environment in terms of physical infrastructure, socio cultural aspects, gender issues etc. are looked at ways to address them through their designs.

CO 3: Mapping and diagramming techniques were detailed in the design process to help them explore the design.

CO4: Student's ability to understand the DCR and its applications.

CO 5: An orientation to Computer Aided Drafting to explore the design of buildings addressing the socio –cultural& economic needs of contemporary urban society.

TEXTBOOKS:

1. JosephDeChiara,MichaelJCrosbie,TimeSaverStandardsforBuildingTypes,McGrawHillProfessional 2001.
2. JuliusPanero,MartinZelnik,HumanDimensionand InteriorSpace,WhitneyLibraryofDesign,1975
3. JosephDeChiara,JuliusPanero,MartinZelnik,TimeSaverStandardsforInteriorDesignandSpacePlanning,McGraw Hill 2001.
4. ErnstNeufertsArchitectsData,Blackwell2002
5. Ramseyetal,"ArchitecturalGraphicStandards",Wiley,2000.

REFERENCES:

1. RichardP.Dober, CampusPlanning
2. Kanvinde,CampusPlanninginIndia
3. KevinLynch,Siteplanning,MITPress,Cambridge,1967
4. SamF.Miller,DesignProcess:APrimerforArchitecturalandInteriorDesign,VanNostrandReinhold,1995
5. EdwardD.Mills,Planning,4volumes,Newnes, Butterworths,London,1976.2.P&DAct1995.
6. Eand O.E.Planning. LliffeeBooks Ltd.,London, 1973.
7. NationalBuildingCodeandBureauofIndianstandardpublications.
8. Ed.By.QuentinPickardRIBA -TheArchitects'HandBook-BladewellScienceLtd. -2002
9. DeChiaraCallender, TimeSaver Standard for BuildingTypes, McGraw-HillsCo., 1973.

Course Outcome		Program Outcome												Program Specific Outcome		
CO'S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Ability to provide a sensitive approach to the design of the built environment taking into the social and cultural needs of Contemporary urban life.	2	3	2	-	3	-	-	2	-	-	-	-	3	3	1
CO2	The various components	-	1	-	-	3	-	3	2	3	2	-				

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

	and aspects associated with the urban environment in terms of physical infrastructure, socio cultural aspects, gender issues etc. are looked at ways to address them through their designs.													3	3	-
CO3	Mapping and diagramming techniques were detailed in the design process to help them Explore the design.	2	3	3	2	3	1	3	3	2	3	2	-	2	3	-
CO4	Student's ability to understand the DCR and its applications.	1	1	2	1	2	-	3	3	2	3	3	3	2	3	3
CO5	An orientation to Computer Aided Drafting to explore the design of buildings addressing the socio–cultural& Economic needs of contemporary urban society	1	2	3	1	2	3	3	3	2	1	2	3	2	3	3

518ARE01 **STRUCTUREANDARCHITECTURE** **L T P C**

3 0 0 3

COURSE OBJECTIVES:

- To study evolution of structural systems through history.
- To familiarize the students with concepts of structural design through works of architects/ engineers.
- To integrate the contemporary structural design in the form making process of architectural design.
- To evaluate the understanding of the relationship between form & structure through a seminar.
- To study architectural expression through relevant case studied.

UNIT I HISTORY OF STRUCTURAL DESIGN IN THE PRE INDUSTRIAL ERA 9 Hrs

Development of monolithic and rock cut structures- trabeated construction-arcuate construction vaults andflying buttresses- tents and masted structures and bridges through ancient and medieval history.

UNIT II HISTORY OF STRUCTURAL DESIGN IN THEPOST INDUSTRIAL PERIOD 9 Hrs

Post Industrial modular construction of large span and suspension structures in steel and concrete-projectsof Pier Nuigi Nervi, Maillart, Candella, Buckminster Fuller and EeroSaarinen.

UNIT III CONTEMPORARY STRUCTURAL EXPRESSION THROUGH CASE STUDY – I 8 Hrs

The select case studies could include KCR Terminal at Hung Hom, Hong Kong, B3 Offices in Stockley Park , Sainsbury Centre forVisual Art, Renault Centre and Swindon UK by Norman Foster and Standsted Airport Terminal,London, UK by Fosters/Arup British Pavilion EXPO 1992, Seville, Spain and Waterloo International Terminal by NicholasGrimshaw

UNIT IV CONTEMPORARY STRUCTURAL EXPRESSION THROUGH CASE STUDY – II 9 Hrs

The select case studies could include Inmos Microchip Factory, Centre Commercial St. Herbtain, PA Technology, Princeton andFleetguard, Quimper UK by Richard Rogers, Athens Olympic Stadium and Village, Bridges and Public Bus Stop in St. Gallen , RailwayStation, Lyon, France and Stadelhofen Railway station, Zurich Schweiz by Santiago Calatrava. Kansai International Airport, UNESCO Workshop, the Jean-Marie Tjibaou Cultural Center, MenilMuseum, Thomson Optronics Factory, IBM Traveling Exhibition Pavilion, ColumbusInternational Exposition, Genoa Italy and Lowara Officers, Montecchio Maggiore Italia by RenoPiano Building Workshop

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

UNIT V SEMINAR **10 Hrs**

Seminar to present a study of architectural form and structural expression through select cases which will aid understanding of structural philosophy and analysis, building envelope and services and construction sequence.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: The structural design in the pre-industrial and post-industrial era is presented with detailed drawingsand sketches.

CO 2: Literature review and presentations of the world renowned buildings as case examples.

CO 3: A critique of any one case example of Architects works mentioned above to be discussed.

CO 4: It will encourage the student to exercise judgment in areas of structure, form and process.

CO 5: A seminar presentation including the structural expression, architectural form and building servicesto be presented in detail with case examples.

TEXT BOOKS:

1. Greene King Draught Beer Dept and Schlumberger Cambridge Research Centre, UK by Michael Hopkins
2. Design Center, Linz, Austria and Two Family House in Pullach Thomas Herzog
3. King Abdul Aziz International Airport, Haj Terminal by SOM

REFERENCES:

1. "Paper Arch" and Japan Pavilion at Expo 2000 in Hannover by Shigeru Ban
2. Pavilion of the Future, Expo 92, Seville by Martorell, Bohigas& Mackay (MBM)
3. Daring Harbour Expo Center, Sydney Australia by P. COX
4. Olympic Archery Building by EnricMiralle&CarmePinos
5. Eagle Rock House by Ian Ritchie
6. Le Grande Arche de La Defense by J O Spreckelsen

Course Outcome		Program Outcome												Program Specific Outcome		
CO'S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	The structural design in the pre-industrial and post-industrial era is presented with detailed drawings and sketches.	-	-	2	2	3	-	-	3	1	2	-	-	3	3	3
CO2	Literature review and presentations of the world renowned buildings as case examples.	1	1	2	-	3	-	3	-	-	-	-	-	3	3	1
CO3	Acritique of any one case example of Architects works mentioned above to be discussed.	1	1	2	-	1	-	-	2	3	-	-	-	1	3	2
CO4	It will encourage the student to exercise judgment in areas of structure, form and process.	-	-	2	3	2	2	1	-	2	-	-	-	-	1	-
CO5	A seminar presentation including the structural expression, architectural form and building services to be presented in detail with case examples.	-	2	2	3	2	3	1	-	3	-	-	-	-	1	-

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

518ARE02 **WASTE MANAGEMENT AND RECYCLING** **L T P C**

3 0 0 3

COURSE OBJECTIVES:

- To encourage the use of by products from the industrial waste as alternative building material andthereby reducing its impact on environment.
- To create awareness on categorization of waste and intelligent management of waste with dueconcern in protecting the environment.
- To enable them to understand about the alternative building materials and its application.
- To ensure sustainability through recycling the waste products/materials.
- To understand about the environment management and the efficient techniques.

UNIT I INTRODUCTION **6 Hrs**

Waste in built environment – Traditional practices of waste management. Current Scenario in India – Categorisation to solid, liquid and gaseous wastes – sectors responsible for waste generation.

UNIT II WASTE AND BUILT ENVIRONMENTAL **12 Hrs**

Solid and Liquid waste from residential and commercial buildings – Environmental significance – segregation and treatment of wastes. Industrial case studies, Experiments in construction industry– Role of NGOS in waste management.

UNIT III ALTERNATIVE BUILDING MATERIALS **10 Hrs**

Need for recycling industrial – byproducts as alternative building materials – use of fly ash, Furnace slag, Quarry dust, silica fume, waste lime and gypsum. Technology required for manufacturing , specification andapplication in construction industry.

UNIT IV RECYCING OF WASTES **10 Hrs**

Meaning of sustainable approach – Identification and workability of waste. Concept of recycling Solid and Liquid wastes in building industry – Solid waste recycling, Vermi Composting, Biogas production.Liquid waste recycling methods and practices.

UNIT V ENVIRONMENTAL MANAGEMENT AND ENERGY OPTIONS **7 Hrs**

Degradation of environment due to waste – Salient features of environmental laws.Rain water harvesting techniques. Biological and Thermal energy options – Refuse derived fuel and other options.

TOTAL : 45 Hrs

COURSE OUTCOMES:

The student should be able to

CO 1: Understood about the waste generation factor and traditional ways of disposing the waste.
CO 2: Created awareness about the role of NGO's and the waste from the residential sectors.
CO 3: Explore new alternative energy resources and building materials for healthy environmentsthrough literature studies.
CO 4: Ensure a sustainable design approach through waste recycling methods.
CO 5: Understand the significances of sustainable development and the need to enforce theenvironmental acts.

TEXT BOOKS

1. Tchobanoglous, G. &Kreith, F. (2002).Handbook of Solid Waste Management, 2nd ed. McGraw-Hill, New York.
2. Howard S. Peavy, Donald R. Rowe and George Tchobanoglous, "Environmental Engineering", McGraw - Hill Co., 1988.
3. Environmental Science- Towards a sustainable future by Richard T. Wright, PHI Learning, New Delhi.

Delhi 2008.
4. Textbook of Environmental Science & Technology by M.Anji Reddy, BS Publications, 2010.
5. Waste water engineering, treatment and reuse by Metcalf & Eddy, fifth edition, Tata Mcgraw Hill.

REFERENCES

1. Ravindrarajah, R.S, Tam. T.C. Properties of concrete made with crushed concrete a coarse aggregate, - Magazine of concrete Research, Vol-37, March 1985.
2. Arceivala. S.J., "Wastewater Treatment for pollution Control"- Tata-McGraw Hill, New Delhi, 1986.
3. ERM.UK Municipal Solid waste Management, Study for the MMA-Vol-1 Interim Report, August-1995.
4. R.Ambalavanan and A.Roja "Feasibility Studies on Utilisation of Wastelime, Gypsum with Fly Ash - The Indian concrete Journal – Vol. – 70 Nov-1996.
5. Standard handbook of Hazardous waste treatment and disposal by Harry M. Freeman, McGraw Hill1997

Course Outcome		Program Outcome												Program Specific Outcome		
CO'S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Understood about the waste generation factor and traditional ways of disposing the waste	-	-	-	-	2	-	-	-	2	-	-	-	3	3	3
CO2	Created awareness about the role of NGO's and the waste from the residential sectors.	-	-	-	-	1	-	-	-	1	-	-	-	3	3	1
CO3	Explore new alternative energy resources and building materials for healthy environments through literature studies.	-	2	2	3	3	1	2	-	2	-	-	-	1	3	2
CO4	Ensure a sustainable design approach through waste recycling methods.	-	2	-	-	-	-	-	-	2	3	-	-	1	3	2
CO5	Understand the significances of sustainable development and the need to enforce the environmental acts.	-	2	-	-	1	-	-	-	1	2	-	-	1	3	2

518ARE03 SAFETY SYSTEMS AND BUILDING MANAGEMENT L T P C

3 0 0 3

COURSE OBJECTIVES:

- To familiarize the student with minimum safety requirements for a high rise building with exposureto NBC.
- To impart the basic knowledge in fire alarm systems.
- To study on fire safety, security, fire suppression systems and their installation.
- To inform students of various types of security systems and their application in building.
- To outline the importance and objectives of an integrated building management system.

UNIT I SAFETY REQUIREMENTS 5 Hrs

Minimum safety requirements for a building, particularly for a high rise building as per the NationalBuilding Code.

UNIT II FIRE ALARM SYSTEMS 10 Hrs

Objectives of a Fire Alarm System, Essential components of a Fire Alarm System, Technology of detection,

Type of Statutory Standards followed in direction, Explanation on the essential clauses, various types of technologies employed in the Fire Alarm System, basic knowledge on how a Fire Alarm System is designed and installed

UNIT III FIRE SUPPRESSION SYSTEMS: 12 Hrs

Objectives of a Fire Suppression System, Explanation on fire triangle, Essential components of a Fire Suppression System, different types of Fire Suppression Systems, Type of Statutory Standards followed in Suppression, Explanation on the essential clauses and basic knowledge on how a Fire Suppression System isdesigned and installed.

UNIT IV SECURITY SYSTEMS 12 Hrs

Introduction to different types of Security Systems, Access Control, CCTV, Intruder Alarm and Perimeter protection Systems, Essential components of each system, various types of technologies employed in these Systems, basic knowledge on how they are designed and installed.

UNIT V INTEGRATED BUILDING MANAGEMENT SYSTEM 6 Hrs

The objectives of the Integrated Building Management System (IBMS), the list of utility, safety and security systems that are generally monitored and controlled through IBMS, the various components of IBMS, types of integration with the utility, safety and security systems and the basic knowledge on how they are designedand installed.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: Ability to understand the safety requirements for a high rise building as per the National Building Code.

CO 2: Identify and define the basic concepts of Fire Alarm System, Technology of detection, and Type of Statutory Standards.

CO 3: Students learn and use the basic knowledge about Design of Fire Alarm System and installation, Essential components of a Fire Suppression System, different types of Fire Suppression Systems.

CO 4: Ability to understand the different types of Security Systems and various types of technologies employed in these Systems and design and installation with suitable case studies.

CO 5: Apply the basic knowledge about Integrated Building Management System (IBMS) and design and installation of IBMS in any case and present the same.

TEXT BOOKS

1. Building Automation Systems – A Practical Guide to selection and implementation – Author : Maurice Eyke
2. National Building Code of India 1983 (SP 7:1983 Part IV) – Published by Bureau of Indian Standards
3. IS 2189 – Selection, Installation and Maintenance of Automatic fire Detection and AlarmSystem – Code of Practice (3rd Revision) – Published by Bureau of Indian Standards.

REFERENCES

1. The Principles and Practice of Closed Circuit Television – Author: Mike Constant and Peter Turnbull
2. Rules of Automatic Sprinkler Installation – 2nd Edition – Published by Tariff Advisory Committee.
3. Fire Suppression Detection System – Author : John L. Bryan
4. Design and Application of Security/Fire Alarm system – Author: John E. Traister.
5. CCTV Surveillance – Author: Herman Kruegle
6. Security Systems and Intruder Alarm Systems – Author: Vivian Capel

Course Outcome	Program Outcome												Program Specific Outcome		
CO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3

CO1	Ability to understand the safety requirements for a high rise building as per the National Building Code.	-	1	-	-	-	-	3	-	2	2	-	3	3	3	2
CO2	Identify and define the basic concepts of Fire Alarm System, Technology of detection, and Type of Statutory Standards.	-	-	-	2	2	-	3	-	2	2	-	3	3	3	3
CO3	Students learn and use the basic knowledge about Design of Fire Alarm System and installation, Essential components of a Fire Suppression System, different types of Fire Suppression Systems.	-	-	3	-	-	-	3	-	1	3	-	3	3	-	-
CO4	Ability to understand the different types of Security Systems and various types of technologies employed in these Systems and design and installation with suitable case studies.	-	-	2	2	-	-	3	-	2	-	1	3	3	3	2
CO5	Apply the basic knowledge about Integrated Building Management System (IBMS) and design and installation of IBMS in any case and present the same.	-	-	1	2	-	-	2	-	-	1	1	2	3	3	3

518ARE04 **CONTEMPORARY BUILDING MATERIALS** **L T P C**

3 0 0 3

COURSE OBJECTIVES:

- To introduce current materials and products in architecture that are eco-friendly, composite, durable,advanced, smart.
- To inform about innovations in materials and practices in building industry.
- To focus on materials and systems, their properties and connections, intrinsic relationship with structural systems and environmental performance.
- To understand the importance of Nano material and its role in the construction field.
- To expose the students to the various digital technologies and 3D Printing materials.

UNIT I INTRODUCTION **7 Hrs**

Introduction and need for ultra-performance materials in building design as a substitute to conventional materials. Newer application for special performance, thermal/ sound/ moisture protection, fitting, equipment and furnishing. Properties of contemporary materials – multidimensional, repurposed ,recombinant ,intelligent , interfacial, transformant, etc.

UNIT II ADVANCED CONCRETE AND COMPOSITE REINFORCEMENT **10 Hrs**

Types of advanced concrete and its applications. Workability and mechanical properties, durability and reliability of advanced concrete materials. Manufacturing and application in buildings. Bendable concrete, light transmitting concrete, translucent concrete, pervious concrete, eco-cement, etc., Introduction to manufacture, types, properties and performance of new reinforcement materials in concrete - Aramid fibres, bio-steel, carbon (Graphite) Fibres and fibre glass etc.

UNIT III COMPOSITE MATERIALS **10 Hrs**

Types, terminology and classification of composite materials based on particle reinforced, fiber reinforced, structural and composite benefit in building construction. Composite materials manufacturing process. Use of composite materials namely Polymer Matrix Composites (PMCs) and Fibre- Reinforced Polymers (FRPs) along with cement, steel, aluminium ,wood, glass, etc., for thermal insulation, fire protection, coating, painting and structural monitoring, etc.

UNIT IV NANO-MATERIALS AND NANO-COMPOSITES **9 hrs**

Definition, manufacture and types of nano materials. Properties, performance of nano materials in building construction, types and application of nano-materials like carbon, nanotubes etc., Nano composite used with cement, steel, aluminium, wood, glass for thermal insulation, fire protection, coating and painting and structural monitoring etc.. Nano technologies in building and construction.

UNIT V DIGITAL AND TENSILE MATERIALS **9 Hrs**

Types of materials and its constitution, manufacturing and construction technology requirement for 3D printed buildings structure and Extraterrestrial printed structures. Tensile fabric structure by digital printing. Translucent fabric, thin-film photovoltaics, texlon foil, PVC (poly vinyl chloride) coated polyester cloth and PTFE (poly tetra fluroethlene) (teflon) coated glass cloth.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: Exposure to the need and use of various contemporary materials in creating innovation and ultra-performance in building design.

CO 2: An understanding of characteristics and performance of the newer materials in terms of detailing andapplication to the context.

CO 3: Ability to know the application of composite material in various buildings.

CO 4: Insight to Nano material and its application in current scenario.

CO 5: The students gained knowledge on the various digital technologies.

TEXTBOOKS:

1. Christiane Sauer, 'Made of...New Materials Sourcebook for Architecture and Design', Prestel Pub, 2010.
2. Mel Schwart, 'Encyclopaedia of Smart Materials -Vol 1,2', Wiley-Interscience, 2001.
3. SenemÖzgönülŞensan, 'Smart Materials and Sustainability: Application of Smart Materials in Sustainable Architecture', LAP Lambert Academic Publishing, 2010.
4. Axel Ritter, 'Smart Materials in Architecture, Interior Architecture and Design', Birkhäuser Architecture, 2002.

REFERENCES:

1. Michelle Addington, & Daniel LSchodek, 'Smart Materials and New Technologies: for theArchitecture and Design Professions, Architectural Press, 2005.
2. Michael. F. Ashby, Paulo Ferreira, Daniel L. Schodek, 'Nanomaterials, Nanotechnologies andDesign: An Introduction for Engineers and Architects', Butterworth-Heinemann, 2009.
3. Blaine Brownell, 'Transmaterial 2', Princeton Architectural Press, 2008.
4. John Fernandez, 'Material Architecture: Emergent Materials for Innovative Buildings andEcological Construction', Taylor & Francis, 2006.

Course Outcome		Program Outcome												Program Specific Outcome		
CO'S		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Exposure to the need and use of various contemporary materials in creating innovation	-	1	-	3	2	-	3	3	3	1	-		3	3	3

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

	and ultra-performance in building design.															
CO2	An understanding of characteristics and performance of the newer materials in terms of detailing and application to the context.	-	1	2	3	2	-	2	3	2	1	-	-	-	2	3
CO3	Ability to know the application of composite material in various buildings.	-	-	2	3	2	-	-	2	-	1	-	-	3	3	2
CO4	Insight to Nano material and its application in current scenario.	-	2	1	3	1	3	-	-	1	-	-	-	-	-	3
CO5	The students gained knowledge on the various digital technologies	-	-	3	1	1	2	-	-	1	-	-	-	3	3	2

618ART01 SPECIFICATION, ESTIMATION AND BUDGETING L T P C

2 1 0 3

COURSE OBJECTIVES:

- To enable understanding with respect to quality and quantity of materials, quantity and classes ofskilled and unskilled labors, and tools and plants required for projects.
- To give an understanding of how to draw up specifications for the different items of civil engineering project and also to prepare the schedule of programming of the project.
- To give knowledge on how to prepare approximate as well as detailed estimates and to have a clear picture of the project expenditure.
- To help calculate the exact quantities of items of work done for effecting payment especially when direct measurements are difficult and also to determine the quantities of different materials required for various items of work.
- To give understanding of how to prepare valuation report of real and landed property.

UNIT I SPECIFICATION AND SPECIFICATION WRITING 10 Hrs

Necessity of specification, importance of specification. How to write specification. Types of Specification. Principles of Specification writing. Important aspects of the design of specification. Sources of information Classification of Specification. Brief Specification for1st class, 2nd class, 3rd class building. Detailed specification for earthwork excavation, plain cement concrete, reinforced concrete, first class and second class brickwork, damp proof course, ceramic tiles/marble flooring and dado, woodwork for doors, windows frames and shutters, cement plastering, painting & weathering course in terrace.

UNIT II ESTIMATION 9 Hrs

Types & purpose. Approximate estimate of buildings. Bill of quality, factors to be considered. Principles of measurement and billing. Contingencies. Measurement of basic materials like brick, wood, concrete and unit of measurement for various items of work. Abstract of an estimate. Costs associated with constructed facilities. Approaches to cost estimation. Type of construction cost estimates. Cost Indices. Applications of cost indices to estimating. Estimate based on engineer's list of quantities. Estimation of operating costs.

UNIT III DETAILED ESTIMATE 12 Hrs

Deriving detailed quantity estimates for various items of work for a single storied building. To include earthwork excavation, brick work, plain cement concrete, reinforced cement concrete works, wood work, iron works, plastering, painting, flooring, weathering course.

UNIT IV VALUATION 6 Hrs

Valuation. Explanation of terms. Types of values. Sinking fund. Years of purchase. Depreciation. Types of

depreciation. Valuation of real properties. Types, methods and purpose of valuation.

UNIT V BUDGETING **8 Hrs**

Elements of cash flow. Time value of money. Capital investment decision. Types of business firms. Budget and Budgetary Control. Types of Budgets. Preparation of financial budget.

TOTAL: 45 Hrs

COURSE OUTCOME:

CO 1: An understanding of the art of building construction through specification writing.
CO 2: Ability to work out the approximate estimate of building.
CO 3: An understanding on detailed estimate for small scale building projects and low cost housing.
CO 4: An understanding on valuation for building on sinking fund, purchase, and depreciation.
CO 5: An understanding on cash flow, capital investment and budget.

TEXTBOOKS:

1. Rangwala. S.C, 'Estimating, Costing and Valuation (Professional practice)', CharotarPublishing House, 1984
2. M.Chakraborthi,'Estimating Costing, Specification and Valuation in Civil Engineering, Chakraborthi, 1992.
3. B.W. Dutta, 'Estimating and Costing' UBS Publishers and Distributors, 1983.
4. S.SangaReddi and P.L.Meiyappan, 'Construction Management', Kumaran Publication, Coimbatore.
5. Gurcharan Singh and Jagdish Singh, 'Estimating Costing and Valuation', Standard Publishers Distributors, 2012.

REFERENCES:

1. 'I.S.1200-1968 Methods of Measurements of Buildings and Civil Engineering works'.
2. Latest schedule of rates of P.W.D.
3. Latest Data book of P.W.D.
4. PWD Standard Specifications. Govt Publication.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO3
CO1	An understanding of the art of building construction through specification writing.	-	-	-	3	1	-	-	3	-	-	-	-	-	-	1
CO2	Ability to work out the approximate estimate of building.	-	-	-	3	1	-	-	2	-	-	-	-	-	-	1
CO3	An understanding on detailed estimate for small scale building projects and low cost housing.	-	-	-	3	2	-	-	3	-	-	-	-	-	-	1
CO4	An understanding onvaluation for building on sinking fund, purchase, and	-	2	-	3	2	3	-	2	-	-	-	-	-	-	1

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

	depreciation.															
CO5	An understanding on cash flow, capital investment and budget.	-	-	-	-	-	-	-	-	-	-	-	3	-	-	1

618ART02 INTERIOR DESIGN PRINCIPLES L T P C

2 0 2 3

COURSE OBJECTIVES:

- To provide familiarity with the characteristics of interior spaces and furniture across history.
- To introduce the profession of interior design and bring out its role.
- To inform about the various components of interior space and give an understanding of the designaspects involved in each.
- To introduce the other components like lighting fixtures, objects of art, hard and soft landscapeelements for good articulation of space.
- To make students aware about the role of furniture's, types, as reflectors of life style and trends in thevalue systems of people.

UNIT I INTERIOR SPACES AND FURNITURE ACROSS HISTORY 8 Hrs

Outline of the characteristics of representative/ exemplary interior spaces, interior decoration and furniture in the Western world from the beginnings to twentieth century. Outline of characteristics of representative/ exemplary interior spaces, interior decoration and furniture in India across the ages, including living folk traditions.

UNIT II INTRODUCTION TO INTERIOR DESIGN 8 Hrs

Introduction to the professions of interior decoration, interior design and furniture design, bringing out their origin, evolution and current scope of work. Definition and process of interior design. Introduction to the design of interior spaces as related to typology, function and themes. Vocabulary of design in terms of elements (point, line, shape, form, space, colour, light, pattern, texture) and principles (balance, proportion, scale, rhythm, hierarchy, unity, contrast, harmony, emphasis, movement) with specific reference to examples from interior design.

UNIT III COMPONENTS OF INTERIOR SPACE I 12 Hrs

Role of interior treatment and finishes in the experience of interior spaces. Outline of the design of components such as floors, ceilings, walls, partitions, window treatments and accessories based on parameters such as context, function, ambience, materials, properties, methods of construction,colour, texture. Study of representative examples.

Exercises on Hotel room interiors, Music shop, Restaurant, Children's bedroom and show rooms.

UNIT IV COMPONENTS OF INTERIOR SPACE – II 8 Hrs

Role of lighting in the experience of interior spaces. Outline of different types of interior lighting systems and fixtures based on their effects and suitability in different contexts. Study of representative examples. Role of landscaping in the experience of interior space. Outline of interior landscaping elements such as rocks, plants, water, flowers, fountains, paving, artifacts. Their physical properties and effects on spaces. Study of representative examples.

Exercises on interior & exterior spaces, terrace gardens and courtyards.

UNIT V COMPONENTS OF INTERIOR SPACE - III 9 Hrs

Introduction to furniture design as related to parameters such as human comfort and function (including anthropometrics and ergonomics), built in or freestanding, materials and methods of construction, cultural particularities, changing trends and lifestyles, innovations and design ideas. Study of representative examples.

Exercises on live scale furniture design.

TOTAL: 45 Hrs

COURSE OUTCOME:

CO 1: An understanding of interior design as an integral part of architecture and as an interdisciplinary andallied field related to architecture.

CO 2: An overall exposure to the ways in which interior spaces can be enriched through the design of specific interior components.

CO 3: Understand the various components in interior space and present the same through drawings.

CO 4: Analysis of interior lighting through case study or video presentations.

CO 5: Provide interior landscape design with necessary details and drawings for terrace garden courtyardsetc.

TEXTBOOKS:

1. Francis D.K.Ching, 'Interior Design Illustrated', John Wiley & Sons, 2012.
2. Joseph DeChiara, Julius Panero, Martin Zelnik, 'Time Saver's Standards for Interior Design', McGraw-Hill Professional, 2001.
3. John F. Pile, 'Interior Design', Pearson Prentice Hall, 2007.
4. Jan Pieper, George Michell, 'The Impulse to Adorn- Studies in Traditional Indian Architecture', MargPublications, 1982.
5. Aronson J, 'The Encyclopaedia of Furniture', Potter Style, 1965.
6. Pat Kirkham, Susan Weber, Editors, 'History of Design: Decorative Arts and Material Culture, 1400-2000', Yale University Press, 2013.
7. John F.Pile, Judith Gura, 'A History of Interior Design', Wiley, 2013.

REFERENCES:

1. Helen Marie Evans, 'An Invitation to Design', Macmillan Pub Co, 1982.
2. Julius Penero and Martin Zelnik, 'Human Dimensions and Interior Space', Whitney Library of Design,1979.
3. Kathryn B. Hiesinger and George H. Marcus, 'Landmarks of Twentieth Century Design; Abbey VillePress, 1995.
4. Susanne Slesin and Stafford Cliff, 'Indian Style', Thames and Hudson,1990.
5. Rosemary Kilmer, W. Otie Kilmer, 'Construction Drawings and Details for Interiors: Basic Skills', JohnWiley & Sons, 2009.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	An understanding of interior design as an integral part of architecture and as an interdisciplinary and allied field related to architecture.	1	2	2	3	2	1	-	-	2	1	-	-	2	3	1
CO2	An overall exposure to the ways in which interior spaces can be enriched through the design of specific interior components.	1	2	2	3	2	1	-	-	2	1	-	-	2	3	1

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

CO3	Understand the various components in interior space andpresent the same through drawings.	2	2	3	3	-	-	1	-	3	2	-	-	3	1	-
CO4	Analysis of interior lighting throughcase study or video presentations.	1	2	3	2	-	-	1	-	2	3	-	-	3		3
CO5	Provide interior landscape design with necessary details and drawings for terrace garden courtyards etc.	-	2	3	2	-	-	2	-	-	3	-	-	1	2	3

618ART03 **BUILDING SERVICES III** **L T P C**

1 0 2 3

COURSE OBJECTIVES:

- To give exposure to the science behind air-conditioning systems, the different types and applications.
- To enable understanding of architectural aspects related to air-conditioning systems and take appropriate design decisions.
- To inform students on the cause of fire, need for protection, standards and norms involved, variousconsiderations in planning and making it barrier free.
- To inform about mechanical transportation systems for buildings and how to plan for the same
- To provide knowledge to students on vertical transportation systems in buildings and the design ofservice core.

UNIT I AIR CONDITIONING – PRINCIPLES AND SYSTEMS 14 Hrs

Thermodynamics. Transfer of heat. Refrigeration cycle components. Vapor compression cycle. Refrigerant, Compressor, condenser, evaporator, refrigerant control devices, electric motors, air handling units, cooling towers. Air conditioning systems for buildings of different scales and their requirements- window type, split system, package unit, direct expansion system, chilled water system, fan coil unit, district cooling systems. Energy efficient systems, environmental aspects and latest innovations. Understanding all the above through product literature/ field visits.

UNIT II DESIGN ASPECTS OF AIRCONDITIONING SYSTEMS 10 Hrs

Design criteria for selection of air conditioning. Configuring/ sizing of mechanical equipment, equipment and spaces for them. Horizontal and vertical distribution of services for large buildings. Exercise on the above through choice, calculations, layout, and drawings.

UNIT III FIRE AND SAFETY 12 Hrs

Causes of fire in buildings. Stages of fire and how it spreads. Fire drill. Heat/ fire/ smoke detection. Alarm and extinguisher systems. Fire safety standards. General guidelines for egress design for multi-storey buildings. Understanding all the above through product literature/ field visits. Exercise on design of fire safety systems for different building types through choice, calculations, layout and drawings.

UNIT IV MECHANICAL TRANSPORTATION SYSTEMS IN BUILDINGS 12 Hrs

Lifts and escalators - types and applications. Round trip time for lifts. Design of lift lobby and vertical transportation core. Conveyors, travelators, dumb waiters. Standards for all. Latest technologies in vertical transport systems. Integration of lifts and escalators with building automation systems. Understanding all the above through product literature/ field visits. Design exercise on the above through choice, calculations, layout and drawings.

UNIT V INTEGRATION OF SERVICES INTO ARCHITECTURAL DESIGN 12 Hrs

Principles of grouping and integrating of horizontal and vertical distribution of all services in a multi-storeyed building/ large building. Services to include vertical transportation, electrical, communication, air conditioning and fire safety. Integrating service requirements into architectural design on an appropriate

typology involving a simple scale project through sketches/ drawings.

TOTAL: 60 Hrs

COURSE OUTCOME:

CO 1: Familiarity with different air conditioning systems, their context of use and basics of planninginvolved.

CO 2: An understanding of fire safety, fire fighting, fire prevention and installations in buildings.

CO 3: An understanding of mechanical transportation systems in a building.

CO 4: Ability to integrate services in buildings.

CO 5: Exposed the students to specialized service in buildings like air-conditioning, its principles, components, applications, safety measures, fire-safety in buildings, fire resistant materials, devices for safety detection of fire, gadgets involved, precautionary measures, and integration of these in architectural design.

TEXTBOOKS:

1. William H. Severns and Julian R Fellows, 'Air conditioning and Refrigeration', John Wiley and Sons,London, 1988.
2. National Building Code - Bureau of Indian Standards.
3. 'ISHRAE Handbook for Refrigeration', 2015.
4. George R. Strakosch (Editor), Robert S. Caporale, 'The Vertical Transportation Handbook' 4th Edition,Wiley and Sons, 2010.
5. David Lee Smith, 'Environmental Issues for Architecture', Wiley, 2011.

REFERENCES:

1. A.F.C. Sherratt, 'Air Conditioning and Energy Conservation', The Architectural Press, London, 1980.
2. Andrew H Buchanan; 'Structural Design for Fire Safety', Wiley, 2001.
3. Swenson S. Don, 'Heating, Ventilating and Air Conditioning', American Technical Publishers, 1995.
4. ISHRAE, 'All about AHUs- Air Handling Units'.
5. CIBSE Guide D, 'Transportation Systems in Buildings',2010.
6. A.K.Mittal, 'Electrical and Mechanical Services in High Rise Building: Design and Estimation Manual',CBS, 2009.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Familiarity with different air conditioning systems, their context of use and basics of planning involved.	-	-	2	2	1	-	1	-	2	-	-	-	-	1	-
CO2	An understanding of fire safety, fire fighting, fire prevention and installations inbuildings.	-	-	2	3	2	-	-	-	3	-	-	-	-	-	-
CO3	An understanding of mechanical transportation systems in a building.	-	-	2	3	1	-	1	-	2	-	-	-	-	-	-
CO4	Ability to integrate services in buildings.	-	-	-	2	1	-	1	-	2	-	-	-	-	-	-
CO5	Exposed the students to specialized servicein buildings like air- conditioning, its principles, components, applications, safety measures, fire-safetyin buildings, fire resistant materials, devices for safety	-	-	-	2	1	-	1	-	2	-	-	-	-	-	-

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

	detection of fire, gadgets involved, precautionary measures, and integration of these in architectural design.															

618ART04 **MATERIALS & CONSTRUCTION - VI** **L T P C**
1 0 4 3

COURSE OBJECTIVE:

- To make students gain knowledge on innovative construction techniques adopted for floor, wall and roofing by research organization and its examples.
- To further inform students on advanced techniques in foundation with a thrust on pile and precast slabs application detail through construction drawing.
- To make the students understand the various types of vertical movement like lifts and escalators in terms of their varieties, installations in planning, contextual application with certain details for making them barrier free, through construction and detail drawings.
- To expose to the students other novel systems of horizontal movements like conveyors and moving walk – ways through basic input of theory and working drawing.
- To study on innovative structures for built-in furniture in the construction industry.

UNIT I CONSTRUCTION SYSTEMS DEVELOPED BY RESEARCH ORGANISATION 15 Hrs

Study of Construction Techniques through research organizations like CBRI, HUDCO, SERC and BMPTC. Floor, wall and roofing systems. - Ferrocement its properties, uses and application in building construction including the techniques of preparation, casting, curing.
Exercise on: column, Compound wall, security cabin & water tank.

UNIT II PRECAST STRUCTURES 15 Hrs

Pile foundation-different types of piles, details of pile capping, joints of precast piles, wall and columns. Precast and cast in-situ with reinforcement details for different types of flat grid / Waffle slabs.
Exercise on: Precast housing project and lobby design for shopping mall.

UNIT III VERTICAL MOVEMENT EQUIPMENTS IN BUILDINGS 30 Hrs

Elevators - Historical development of elevators or lifts. Elevators - size, capacity, positioning of core underplanning grid.
Types of elevators - Electric, hydraulic - passenger, hospital, capsule, freight. Dumb waiters, details of liftshaft and other mechanism.
Escalators -Historical development of Escalators. Escalators types -Parallel and criss cross escalators.
Exercise on: Passenger lift for high rise building, commercial building. Capsule lift for low rise building,Dump waiter for laundry and kitchen restaurants and Hospital lift.
Exercise on: Escalators details in shopping mall. Mechanism and working of Escalators with details.

UNIT IV HORIZONTAL MOVEMENT EQUIPMENTS IN BUILDINGS 15 Hrs

Conveyors and Travelator - Historical development of Conveyors and Travelator its types such as horizontal belt, horizontal moving walkways - concern for physically handicapped mechanical safety systems and automatic detailing and fitting for physically handicapped such provisions for the wheel chairs used in the Travelator.
Exercise on: cargo section understanding about top and ground Conveyors details. Moving walkways atAirports, Public transport and Supermarkets.

TOTAL : 75 Hrs

COURSE OUTCOMES:

The students should be able to understand:

CO 1: How to innovate better technology through the recent research building materials and its advantage inbuilding industry.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

CO 2: Knowing the advance and techniques used for the large precast foundation and large span slabs supports.
CO 3: Acknowledge on the Elevators and Escalators its function and their installation details.
CO 4: Exercise the knowing it on the Conveyors system in building and their advantage and usages.
CO 5: Understanding the modern usages of built- furniture and fitting, the aesthetic appeal and efficiency inbuilding construction.

TEXT BOOKS:

1. Concrete Technology by Shetty M.S.
2. Handbook on Safety Code for Elevators and Escalators A17.1/CSA B44 – 2013- byASME
3. The Vertical Transportation Handbook, 4th Edition by George R. Strakosch (Editor), Robert S. Caporale (Editor)

REFERECES:

1. J.H.Callender, Time Saver Standard for Architectural Design Data, McGraw-Hill, 1994.
2. James Ambrose, Building Construction, Service Systems, Van No strand Reinhold, New York, 1992.
3. Pamphets supplied and other literatures from N.B.O., SERC, CBRI, 1970 onwards.
4. R.Chudley, Construction Technology, Richard Clay (Chaucer Press) Ltd., Suffolk, 1978.
5. NATIONAL BUILDING CODE OFINDIA PART 8 BUILDING SERVICES- Section 5 Installation of Lifts andEscalators
6. The Modern Wonder Book of Knowledge by Henry Chase.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	How to innovate better technology through the recent research building materials and its advantage In building industry.	-	-	-	3	-	2	-	-	3	-	-	-	3	-	3
CO2	Knowing the advance and techniques used for the large precastfoundation and large spanslabs supports.	-	-	2	3	1	2	-	-	2	-	-	-	2	-	1
CO3	Acknowledge on the Elevators and Escalators its function and their installation details.	-	-	2	3	1	2	-	-	2	-	-	-	-	1	2
CO4	Exercise the knowing it on the Conveyorssystem in building and their advantage and usages.	-	-	-	1	2	2	-	-	1	-	-	-	1	-	-
CO5	Understanding the modern usages of built- furniture	2	2	2	3	1	2	2	-	3	-	-	-	1	-	3

618ARP05 **ARCHITECTURAL DESIGN - V** **L T P C**

0 0 12 6

COURSE OBJECTIVE:

- To make the student understand the complexity, functioning and salient features of the design projectthrough organizing field visit, train them to document and present the findings.
- To balance complex planning needs in buildings of large floor areas and diverse requirements.
- To critically question and creatively address aspects such as sustainable architecture and green buildings.
- To explore advanced computer aided presentation techniques involving 2D and 3Ddrawings

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

andvirtual models, apart from physical models.

- To inculcate the importance of services integration and construction in spatial planning inthe contextof design of high-rise buildings and service intensive buildings.

CONTENT:

Scale and Complexity: Planning and designing of large scale housing and building projectsthat address the social and cultural needs of contemporary urban life, advance building services, sustainable design practices, multiple storied and circulation intensive systems for large scale design projects.Importance of urban development regulations, building by-laws and architectural controls.

Thrust will be also on use of computer for presentation skills and introducing elements and detail for makingbuilding barrier free. Application and use of relevant building bye-laws and provisions of National Building Code

Areas of concern / focus

- Planning integration and detailing.
- Landscape details.
- Structural viability and interiors components.
- Sustainable building practices
- intelligent building techniques and service integration

Typology/ project: College, office buildings (Institutional) Large Commercial Complex (Commercial) , Convention centre, Health Care and hospitality, Mixed Residential Developments (Residential).

Working drawings for any one design Using Computer for presentation Skills

TOTAL : 180 Hrs

COURSE OUTCOMES:

CO 1: The student would be able to balance diverse aspects of buildings by makingright choices in design situations after studying various criteria.

CO 2: They would be able to apply knowledge in realms such as sustainable built environment, services and complex building designs.

CO 3: Student enabled to confidently design large complex buildings and campuses, which involves structural synthesis, effective movement systems within and around buildings, complying with all rules and regulations demonstrated in at least two large projects.

CO 4: Understood that stress also shall be on making such buildings barrier free and adopting green building practices in design and detailing.

CO 5: Gained knowledge about the importance of services integration and construction in spatial planning with repsect the site context.

TEXTBOOKS:

1. Sustainable Design, Ecology, Architecture & Planning, Daniel Williams, John Wiley & sons Inc, NJ, 2007.
2. MiliMazumdar, Energy Efficient Buildings in India, TERI, New Delhi, 2012.
3. Sustainable Building Design Manuals I & II, TERI 2004.

REFERENCES:

1. Watson, D.(Editor), "Time-saver Standards for Architectural Design: Technical Data for ProfessionalPractice", McGraw-Hill Co., 2005.
2. Neufert, P., "Architects‟ Data", 3rd Ed., Blackwell Science.
3. Ed.By.Quentin Pickard RIBA - The Architects' Hand Book - Bladewell Science Ltd. – 2002
4. Chiara, J.D., Panero, J., Zelnik, M., "Time Saver Standards for Housing and Residential Development", 2nd Ed., McGraw-Hill.

Course Outcome	Program Outcome												Program Specific Outcome		
CO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

CO1	The student would be able to balance diverse aspects of buildings by making right choices in design situation afterstudying various criteria.	3	3	3	2	3	3	2	3	3	2	-	-	3	-	3
CO2	They would be able to apply knowledge in realms such as sustainable built environment, services and complex building designs.	3	3	3	2	2	-	-	2	3	2	-	-	2	-	1
CO3	Student enabled to confidently design large complex buildings and campuses, which involves structural synthesis, effective movement systems within and around buildings, complying withall rules and regulations demonstrated in at least two large projects.	2	3	2	3	-	-	-	3	3	2	-	-	-	1	2
CO4	Understood that stress also shall be on making such buildings barrier free and adopting green building practices in design and detailing.	-	3	2	3	3	1	1	1	3	2	-	-	1	-	-
CO5	Gained knowledge about the importanceof services integration andconstruction in spatial planning with repsect the site context.	2	1	3	2	3	1	1	1	3	2	-	-	1	-	3

618ARE01 **DIGITAL ART** **L T P C**

1 0 4 3

COURSE OBJECTIVES:

- Through a project the student is taught video, image and vector editing using editing software.
- To understand the techniques in movie animation.
- To enable the creation of interactive patterns by introducing scripting.
- To enable synchronization of sound with patterns generated.
- To enable presentation using voice over and production of CD roms.

UNIT I VIDEO EDITING, IMAGE EDITING & VECTOR EDITING 15 Hrs

Tools: Importing avis and mpegs, sequencing, cutting trimming, decrease and increase the speed of the movie, filters, transitions, output settings, saving the output with the help of video editing software. Image editing (pixel image types) using tools, Vector characters, bizer and grip editing, transform, fill types, text formatting, colour overlays, etc.

UNIT II OVERLAPPING TECHNIQUE (2D ANIMATION WITH MOVIE) 20 Hrs

Project: Import Movie file in the editing software and overlap the 2D Animation film creation. Synchronize the sound and create a perfect blend of AVI and 2D Animation film.

UNIT III PATTERNS THROUGH SCRIPTING 15 Hrs

Project: Create 2d interactive patterns using basic scripting. Through this scripting tools will be taught.
Tools: Scripting in software could be explored.

UNIT IV DESIGN GENERATION USING SOUND 10 Hrs

Project: Create forms/ patterns synchronized to sound file, through this relationship between sound and forms/ patterns will be explored.
Tools: related software could be explored.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

UNIT V SPACE GENERATION **15 Hrs**

Project: Students would identify a metaphor (literature, movies, and music albums) and create spaces using the same. The proposal must be discussed with course faculty prior to presentation.

Tools: Importing files using standard and linking options. Using scripts and behaviors, understanding stage, cast and time line, using cast library, Tweening, using swf movie, presentation using voice over and presentation demos, creating auto run cd- roms.

TOTAL: 75 Hrs

COURSE OUTCOMES:

CO 1: The student has sufficient knowledge to edit video and image using editing software.

CO 2: Indentify the techniques used in animating movies.

CO 3: Understanding the concepts of scripting through exercises

CO 4: The student can synchronize sound with patterns generated.

CO 5: The student can make presentation using voice over.

TEXTBOOKS:

1. Adobe Creative Cloud (2015 release): Books, eBooks, and Video ... http://www.peachpit.com/promotions/adobe-creative-cloud-2015-release-booksebooks- and-140688.
2. Photoshop 7 Bible Professional Edition, Wiley John & Son INC, New York, Deke McClelland.
3. Flash Web Design, The Art of Motion Graph, Curtis Hillman, New Riders Publishing, Indianapolis, IN. U.S.A, 2000.

REFERENCES:

1. M.E. Morris, and R.J. Hinrichs, Web Page Design, Prentice Hall, 1996.
2. Mark Von Wodtke, Mind over Media: Creative Thinking Skills for Electronic Media, McGraw-hill, New York, 1993.
3. The New Media Reader, edited by Noah Wardrip-Fruin and Nick Montfort, MIT Press, ISBN 0-262 23227-8 or 978-0-262-23227-2.
4. Shaping Space by Zalanski and Fischer Art Fundamentals: Theory and Practice (Paperback) by Ocvirk, Stinson, Wigg, Bone and Cayton Launching the Imagination by Stewart Video Art, A Guided Tour by Elwes.
5. 3-D Human Modeling and Animation, Second Edition by Peter Ratner, April 18, 2003).
6. Animating with Flash MX: Professional Creative Animation Techniques by Alex Michael, focal press, 2002.
7. Maya Character animation, jaejin Choi, Dec 16, 2002.
8. 3D Modeling and Animation:: Synthesis and Analysis Techniques for the Human Body by Nikos Sarris and Michael G. Strintzis (Hardcover - Mar 22, 2005).

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	The student has sufficient knowledge to edit video and image using editing software.	-	2	3	2	2	-	-	-	2	-	-	-	3	1	2
CO2	Identify the techniques used in animating movies.	-	2	3	1	1	-	-	-	3	-	-	-	3	3	1
CO3	Understanding the concepts of scripting through exercises	1	2	2	1	1	-	-	-	3	-	-	-	2	-	-
CO4	The student can synchronize sound with patterns generated.	-	-	2	1	1	-	-	-	3	-	-	-	-	1	-
CO5	The student can make presentation using voice over.	-	-	2	2	3	-	-	-	3	-	-	-	-	3	1

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

618ARE02 **PRODUCT DESIGN** **L T P C**

1 0 4 3

COURSE OBJECTIVES:

- To understand the scope and nature of Graphic design as a discipline.
- To introduce the principle of a Graphic and their design applications.
- To understand the evolution of Form and Space in product design.
- To learn to interpret the design concepts in different ways and layers.
- To train the students how to develop product concepts and business plans in the design of new andinnovative products.

UNIT I INTRODUCTION TO PRODUCT DESIGN **10 Hrs**

Concept of Form and Space. Form elements and their properties - Volume, Plane,Line, Point. Form: Dimensions, Proportions, 3-D Primary Geometric Forms. Movement andForces Relationships: Axis, Axial Movement, Forces, Curves and their application in Form. Study of Form relationships – Order, Joined Forms, Transitional Forms, Evolution of Form. Organization of form – Spatial, Matrix. Static, Dynamic and Organic. Symmetry and Asymmetry. Balance: Structural, Visual. Orientation of form: Direction, Position. Overall Proportion. Considerations of Colour, Pattern, Texture and Proportion in products and product environments. Relating Form to Materials and Processes of Manufacture. Use of Computers for Form generation.

UNIT II PRODUCT DESIGN **20 Hrs**

Selection of the projects is based on the possibility of user interaction leading to innovation. Projects end with a comprehensive presentation through working/mockup models, design drawing and a report. The project is supported by detailed discussion on various stages in the design process emphasizing the complementary nature of systematic and creative thinking. This is achieved by short supporting assignment in following topics: Creativity techniques like brain storming & synectics to develop creative attitude and open mind, design opportunity, problem perception , Idea Sketching ,clustering of ideas for concept development, exploratory mockup models for concept development, evaluation of concepts, final conceptselection, concept development, refinement and detailing.

UNIT III PRODUCT DETAILING **15 Hrs**

Batch production and mass production of products. Technical considerations of internalsubsystems of a product and their influence on product detailing. Selection of natural, synthetic and manmade materials and their processes for detailing products for manufacture. Detailing mechanisms for foldable, stackable and collapsible considerations of the product. Design detailing of components vis-à-vis considerations of manufacture, maintenance and assembly. Detailing of products to be manufactured in Plastics. Component design of electronic products. Detailing for conditions of use including knock-down systems and its joinery.

UNIT IV ERGONOMICS IN PRODUCT DESIGN **10 Hrs**

Terminologies in ergonomics – biomechanics, comfort zone – elements of comfort analysis and designing product based on ergonomics, materials, working parameters and visual perception for products. Selection of the projects is based on customer needs. Usability and Ergonomic issues in product detailing. Design assignments on detailing of a given product component.

UNIT V PRODUCT DESIGN PROTOTYPING AND ADVANCED MANUFACTURING PROCESSES **20 Hrs**

Introduction to automation & Computer Aided Design (CAD), Principles of Basic Computer Aided Design (CAD) and Computer Aided Manufacturing (CAM). Hardware and graphics software in CAD. CADapplications and integration with other software packages. Evolution of Numerically Controlled (NC) machines and Computer Numerically Controlled (CNC) machines, programming of CNC machine. Free form or generative manufacturing processes (Rapid Prototyping). Working Principles of Rapid Prototyping machines. Types of Rapid Prototyping machines with technology employed. Rapid Tooling

(RT): Soft tooling, Vacuum casting, Room temperature vulcanization (RTV). Input devices, Contact and non-contact type digitizers such as Co-ordinate measuring machines, Laser and White light scanners. Product Modeling using CAD software and Rapid Prototyping machine. Production using Rapid Tooling approach.

TOTAL: 75 Hrs

COURSE OUTCOMES:

CO 1: The students will understand the role of product design as a discipline, and its role in understandingand interpreting a real life design.

CO 2: Various reading methods were explored, to understand the contemporary design process as well asmanufacturing process of design.

CO 3: Exposed to the different types of product detailings.

CO 4: Gained knowledge on the ergonomics of various product design.

CO 5: Trained the students satisfy the user needs, concept generation, and prototype fabrication.

TEXT BOOKS:

1. J. Bowers, Introduction to Two- Dimensional Design: Understanding Form and Function, John Wiley andSons, 1999.
2. L. Holtzschue, Understanding Colour: An Introduction for Designer, 2nd Edition, John Wiley and Sons,2002.
3. P. B. Meggs, Typographic Design: Form and Communication, John Wiley and Sons, 2000.
4. *The Design of Everyday Things* by Don Norman

REFERENCES:

1. H. G. Greet and R. R. Kostellow, Elements of Design and the Structure of Visual Relationships, Architectural Press, NY, 2002.
2. K. Critchlow, Order in Space: A Design Source Book, Thames and Hudson, 1969.
3. C. Akner-Koler, Three-dimensional Visual Analysis, Institution for Industrial design, Konftfack, Sweden,1994.
4. Practical Methods for the Systematic Development of New Products, Publisher: Chapman & Hall, 1995.
5. Roozenburg and Eekels, Product Design: Fundamentals and Methods, Publisher: John Wiley & Sons Inc;New Ed edition, 1995.
6. Goodrich, Kristina; Design Secrets: Products: 50 Real-Life Projects Uncovered - Industrial DesignersSociety of America, Publisher: Rockport Publishers June 2001.
7. Rouse, William B.; Design for Success: A Human-Centered Approach to Designing Successful Productsand Systems, Publisher: Wiley-Interscience; 1991.
8. J.M. Gordon Jr., Industrial Design of Plastics Products, John Wiley and Sons, 2003.
9. G. Boothroyd, Product Design for Manufacture and Assembly, 2nd Edition, Marcel Dekker Inc., 2002.
10. J.W. Priest, S. M. Jose, Product Development for Manufacturing, Marcel Dekker Inc., 2001.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	The students will understand therole of productdesign as a discipline, and itsrole in Understanding and interpreting a real life design.	1	1	2	-	2	2	3	1	-	-	-	-	1	3	3
CO2	Various reading methods were explored, to understand the contemporary design process as well as manufacturing process of design.	-	2	3	-	-	-	2	1	-	-	-	-	3	3	3

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

CO3	Exposed to thedifferent types ofproduct detailing.	-	1	2	3	2	-	1	1	-	-	-	-	3	2	3
CO4	Gained knowledge on the ergonomicsof various product design.	-	1	2	-	2	2	3	1	-	-	-	-	2	3	2
CO5	Trained the students satisfythe user needs,concept generation, and prototype fabrication.	-	1	2	-	2	2	3	1	-	-	-	-	2	3	1

618ARE03 **BUILDING INFORMATION MODELING** **L T P C**

1 0 4 3

COURSE OBJECTIVES:

- To equip students with skills and information to build comprehensive Building Information Models(BIM) using appropriate Digital software and Media.
- Application of BIM skills / knowledge to construction domain knowledge.
- To enable the student experience how to work in teams which is exposed to holistic view of buildingindustries.
- To understand about the current Building Information Modeling (BIM and its role of BIM in theConstruction Engineering and Management; Revit Architecture, Structure, and MEP;
- Create the sets, building elements, structural systems, and MEP systems; BIM and clash detection;BIM and Construction Cost Estimating and Scheduling

UNIT I INTRODUCTION TO THE FUNDAMENTALS 15 Hrs

Key concepts of BIM - reading and manipulating the software Interface - navigating within views – selection methods - the importance of levels and grids- creating walls, doors, windows, and components - working with essential modification commands and load family. Creating floors, ceilings, and stairs - working with type and instance parameters – importing drawings - understanding the project browser and type properties palettes - adding sheets - inserting views onto sheets - adding dimensions and text to the mode and plotting.

UNIT II ADVANCED MODELING – FAMILY TYPES AND TOPO SURFACE MODELLING 20 Hrs

Creating curtain walls, schedules, details, a custom family, and family types - “flex” a family with family types and work with reference planes - creating rooms and an area plan – tag components – customize existing wall styles. Create and edit a topo-surface, add site and parking components - draw label contours - work with phasing - understand groups and links - work with stacked walls - and learn the basics of rendering and create a project template.

UNIT III RENDERING AND MATERIAL APPLICATION 15 Hrs

Choosing material for buildings- Creating custom walls, floors, and roofs - keynoting – working with mass elements - enhancing rendering with lighting - producing customized materials - Using sun and shadow settings - Walkthrough technique - adding decals - working with design options and worksets - and calculating energy analysis - managing revisions.

UNIT IV BIM FOR BUILDING ENERGY SIMULATION 10 Hrs

Energy simulation for conceptual BIM models using massing- Detailed modeling using design elements- Rapid energy modeling and simulation with software. Conceptual Energy Analysis features to simulate performance. To produce energy consumption, carbon neutrality and renewable potential reports.

UNIT V BIM FOR COST ESTIMATING, PROJECT PHASING AND ADMINISTRATION 15 Hrs

Introduction and theoretical information on the following topics- Model based Cost Estimating – Challengesin cost estimating with BIM- Cad geometrics vs BIM element description- Visual data models - Material substitutions and value engineering- detailed estimates and take off sheets- XML and automated costestimate- project phasing and management- 4D modeling - BIM for project lifecycles.

TOTAL: 75 Hrs

COURSE OUTCOMES:

CO 1: This is a project-based course where students gain knowledge on the implementation of BIM concepts throughout the lifecycle of a building, from planning and design, to construction and operations.

CO 2: The students will learn about how to use BIM for building energy performance simulation, construction administration.

CO 3: Students will learn different aspects of collaborative modelling, BIM based scheduling, estimating.

CO 4: Student got exposed to the BIM energy simulation.

CO 5: Understood about the BIM cost estimating, project phasing.

TEXT BOOKS:

1. Instructors' Lecture Materials, Notes and Handouts.
    a. Blackboard (course management)
    b. Eastman, C., Teicholz, P., Sacks, R., & Liston, C. (2011). BIM handbook: A guide to building information modeling for owners, managers, designers, engineers and contractors. John Wiley & Sons.
2. Hardin, B., & McCool, D. (2016). BIM and construction management: proven tools, methods, and workflows. John Wiley & Sons

REFRENCES:

1. BIM Authoring: Revit Architecture 2012/Structures/MEP – FREE for students: http://students5.autodesk.com/
2. Navisworks - http://navisworks.com/ (model review & clash detection)
3. Solibri - http://www.solibri.com/ (model review & clash detection) Synchro - http://www.synchroltd.com/(4D scheduling)
4. Autodesk QTO - FREE for students: http://students5.autodesk.com/
5. Horizontal Glue: http://www.horizontalsystems.com Surveys: Students will fill out surveys for the class to provide feedback on teamwork and the course.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	This is a project- based course where students gain knowledgeon the implementation of BIM concepts through out the lifecycle of a building, from planning and design, toconstruction and operations.	-	1	2	3	2	3	2	3	-	-	-	-	-	-	-
CO2	The students willlearn about howto use BIM forbuilding energy performance simulation, construction administration.	-	1	2	3	2	2	2	2	-	-	-	-	-	-	2
CO3	Students willlearn different Aspects of collaborative modelling, BIM based scheduling, estimating.	1	-	2	3	2	1	2	2	-	-	-	-	-	-	2
CO4	Student got exposed to the BIM energysimulation.	1	1	-	-	2	-	2	2	-	-	-	-	-	-	2
CO5	Understood about the BIM cost estimating, project phasing.	1	1	-	-	2	-	2	2	-	-	-	-	-	-	3

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

718ART01 **LANDSCAPE ARCHITECTURE & DESIGN** **L T P C**

2 0 2 3

COURSE OBJECTIVES:

- To familiarize students with the various elements of landscape architecture and the principleof landscape design.
- To provide an overview of ecological balance and impacts of human activities and stress theneed for environmental protection and landscape conservation.
- To study the evolution and growth of garden design in select periods and countries and avisual appraisal of the same through examples.
- To expose to students, the role of landscape elements in the organization of large open areaslike parks, playfields, at city scale.
- To understand specific design criteria for specific functional areas of cities.

UNIT I INTRODUCTION **10 Hrs**

Introduction to landscape architecture, ecology, ecological balance, landscape conservation, reclamation and landscaping of derelict lands, environmental impact assessment.

UNIT II ELEMENTS IN LANDSCAPE DESIGN **12 Hrs**

Introduction to hard and soft landscape elements. Different types of hard landscape elements. Plant materials, water and landform - classification, characteristics, use and application in landscape design.Visual aspects of plant forms.

UNIT III GARDEN DESIGN **13 Hrs**

Outline of landscape and garden design in Indian history. Japanese, Italian Renaissance, Mughal and English gardens.

Basic principles in Landscape design. Landscape and garden design in history - Japanese, Italian Renaissance and Mughal gardens in India, Study of notable examples.

UNIT IV SITE PLANNING **10 Hrs**

Organization of spaces - circulation, built form and open spaces, site planning and micro climate, site planning for neighborhood parks, children's play area and campus development.

UNIT V LANDSCAPING OF FUNCTIONAL AREAS **15 Hrs**

Urban open spaces and principle of urban landscape; Street landscaping, landscape design for waterfront areas and functional areas in urban centers; green roofs & indoor landscaping of spaces. Contemporary public landscape projects.

TOTAL: 60 Hrs

EXERCISES

Application of Landscape design for site plans, small gardens, residential areas, urban spaces, neighborhood open spaces, courtyards etc.

COURSE OUTCOMES:

CO 1: Awareness of the role of landscape design with respect to macro scale of sustainability and ecology as well as in the micro scale of shaping of outdoor environments.

CO 2: Knowledge about the elements of landscape design and their scope.

CO 3: Sensitivity towards evolution of different garden and landscape design across time and context.

CO 4: An understanding of landscape design with respect to site planning and different functional typologies of spaces.

CO 5: Gained knowledge on urban open spaces and principles of urban landscape.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

TEXT BOOKS:

1. Motloch, J.L., 'An Introduction to Landscape Design', US: John Wiley and Sons, 2001.
2. Michael Laurie, 'Introduction to Landscape Architecture', Elsevier, 1986.
3. Sauter D; 'Landscape Construction', Delmar Publishers; 2000.
4. Geoffrey And Susan Jellico, 'The Landscape of Man', Thames And Hudson, 1987.

REFERENCES:

1. T S S for Landscape Architecture, McGraw Hill, Inc, 1995
2. Grant W Reid, From Concept to Form in Landscape Design, Van Nostrand Reinhold Company , 1993.
3. Brian Hacket, Planting Design, McGraw Hill, Inc, 1976
4. Handbook of urban landscape, Cliff Tandy, Architectural press, 1973
5. T.K. Bose and Chowdhury, Tropical Garden Plants in Colour, Horticulture And Allied Publishers,Calcutta, 1991.
6. Garrett Eckbo, The Art the Home landscaping, McGraw-Hill Book Co., London, 1956.
7. Testsuro Yoshida, Gardens of Japan, Jr.MarcusG.Sims, 1963.
8. Clift Tandy Hand Book of Urban Landscape, The Architectural Press, London, 1971.
9. John O.SinurdsEarthscape, McGraw-Hill Book Co., New York, 1878.
10. Harvey M.Rubenstain, A guide to Site and Environmental Planning 3rd Volume John Wiley and Sons,New York, 1987.
11. Sylvia Crowe Sheila Haywood, The Gardens of Mughal India, Vikas Publishing House, Pvt. Ltd.,India, Delhi, India, 1973.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Awareness of the role of landscape design with respect to macro scale of sustainability and ecology as well as in the micro scale of shaping of outdoor environments	2	3	3	1	3	-	-	1	2	3	1	1	1	3	3
CO2	Knowledge about the elements oflandscape design and their scope.	2	3	3	1	3	-	-	1	2	3	1	1	1	3	3
CO3	Sensitivity towards evolution of different garden and landscape design across time and context.	2	3	3	3	2	1	-	3	1	2	-	1	-	3	3
CO4	An understanding of landscape design with respect to site planning and different functional Typologies of spaces.	2	3	2	3	1	-	-	1	3	3	1	1	1	3	3
CO5	Gained knowledge on urban open spaces and principles of urban landscape	2	2	-	-	-	-	-	1	2	3	-	-	1	3	3

718ART02 **HUMAN SETTLEMENTS & PLANNING** **L T P C**

3 0 0 3

COURSE OBJECTIVES:

- To enable students to understand the evaluation and growth of the settlements in the natureand it's elements (Content and Container)
- To familiarize the students with Planning concepts and process in Urban and Regional

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

Planning.

- To enable student understand about the various planning principles followed by various townplanners through the history.
- To enable students understand how planning activities are regulated in the state at variouslevels.
- To understand the impact of globalization and need for the emerging cities.

UNIT I INTRODUCTION TO HUMAN SETTLEMENTS 10 Hrs

Elements & Types of Human Settlement – Human Settlements as expression of Civilization, Physical form, nucleus of settlement growth during different periods up to the industrial revolution.Socio-Political context and their effect on settlement development during medieval ands renaissance periods. A synopsis of settlement development from prehistoric period to Modern times Greek, Roman, Egypt and Medieval settlements. Role of man and society for the growth & decay of human settlements. Change in mode of Production. Shift of population and the concentration of activities. Impact of industrialization and urbanization.

UNIT II FORMS OF HUMAN SETTLEMENTS 9 Hrs

Structure and form of Human settlements – Linear, non-linear and circular – nature shells & Network – their functions and Linkages – Anatomy & classification of Human settlements – Locational, Resource based, Population size & Occupational structure.

– Combinations – reasons for development – advantages and disadvantages – case studies – factors influencing the growth and decay of human settlements. Factors influencing the growth and decay, growth pattern of urban settlements during the last one-century in our country. Structure and Form ofHuman settlements: Different physical forms, examples and their functional characteristics.

UNIT III PLANNING CONCEPTS 10 Hrs

Principles of ancient town planning in India. Evolution of settlements, their planning and building.Planning concepts and their relevance to Indian Planning practice in respect of Ebenezer Howard –Garden city concepts and contents – Patrick Geddes – Conservative surgery – case study – C.A.Perry – Neighborhood concept Le Corbusier – concept and case studies.

UNIT IV URBAN PLANNING AND URBAN RENEWAL 8 Hrs

Aim, objective, scope and content of Regional plan, Master plan, zonal plan and urban renewal plan. Scope and Content of Master plan – planning area, land use plan and Zoning regulations –zonal plan - need, linkage to master plan and land use plan – planned unit development (PUD) –need, applicability and development regulations - Urban Renewal Plan – Meaning,Redevelopment, Rehabilitation and Conservation – JNNURM – case studies.

UNIT V ISSUES IN CONTEMPORARY URBAN PLANNING IN INDIA 8 Hrs

Globalization and its impact on cities – Urbanization, emergence of new forms of developments –self sustained communities – SEZ – transit development – integrated townships – case studies.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: Understanding on evolution of Human settlements and role of human in growth of settlements.

CO 2: Various reading methods were explored, to understand the historical as well as present urban form, the dynamics of Urban Form and various Human Settlements pattern.

CO 3: Understanding on planning principles of various town planners.

CO 4: Exposure given to the urban renewal schemes and planning concepts.

CO 5: An understanding of the interrelationship between Human Settlements structure and SocialDynamics.

TEXT BOOKS:

1. C.L.Doxiadis, Ekistics, "An Introduction to the Science of Human Settlements", Hutchinson,London, 1968.
2. Andrew D.Thomas, "Housing and Urban Renewal", George Allen and Unwin, Sydney, 1986.
3. "Ministry of Urban Affairs and Employment", Government of India, New Delhi,1999 '
4. "Urban Development Plans: Formulation & Implementation", Guidelines, 1996.
5. Madras Metropolitan Development Authority, 'Master Plan for Madras Metropolitan Area,Second Master Plan, 2007.

REFERENCES:

1.Government of India, "Report of the National Commission on Urbanisation", 1988.
2.Hansen N., "Regional Policy and Regional Integration", Edward Elgar, UK, 1996.
3.Sandhu. R. S., "Sustainable Human Settlements", Asian Experience, Rawat publications,2001.
4.Gastek.P.,"LivingPlans:New concepts for advanced housing", Brikhauser publications, 2005.
5.JohnRatchiffe, An Introduction to Town and Country Planning.
6.Gallion Arthur B &Eisna Simon, The Urban Pattern: City Planning and Housing..L.R. Kadiyali, Traffic Engineering and Transport Planning.
7.Rodwin, Lloyd, ed., 1987. Shelter, Settlements and Development (Hemel Hempstead, United Kingdom, Unwin Hyman Ltd.)

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Understanding on evolution of Human settlements and role of human in growth of Settlements.	2	2	-	-	3	2	-	3	2	1	-	-	2	3	3
CO2	Various reading methods were explored, to understand the historical as well as present urban form, the dynamics of Urban Form and various Human Settlements pattern.	2	2	2	-	3	2	-	3	2	3	2	-	2	3	3
CO3	Understanding on planning principles of various town planners.	2	2	2	-	3	-	-	3	2	3	1	-	2	3	3
CO4	Exposure given to the urban renewal schemes and planning concepts.	1	3	1	1	3	-	-	3	2	3	3	1	2	3	3
CO5	An understanding of the interrelationship between Human Settlements structure and social dynamics	2	3	-	2	3	-	-	3	2	1	2	2	2	3	3

718ARP03 ARCHITECTURAL WORKING DRAWING & DETAILING L T P C

0 2 4 4

COURSE OBJECTIVES:

- To introduce various aspects involved in the construction of buildings through the understanding of different types of architectural and technical drawings.
- To enable the understanding of architectural design as integrating spatial and technical concerns.
- To enable development of an architectural design project into schematic drawings

throughintegrating concerns of structure, construction and services as layers.

- To create architectural drawings for construction and as a base for structures and servicesdrawings.
- To design, incorporate and detail architectural and interior components of the architecturaldesign project.

UNIT I UNDERSTANDING BUILDING DRAWINGS 22 Hrs

Understanding a comprehensive set of drawings for any building project through collection of drawings of live projects and presentation. The drawings should include architectural working drawings from macro to micro scale- site plan, building plans, staircase details, kitchen and toilet detail of joinery, etc., structural drawings and service drawings to include electrical, plumbing, and mechanical and HVAC details.

UNIT II EVOLVING SCHEMATIC DESIGN INTEGRATING ARCHITECTURALDESIGN WITH STRUCTURAL AND SERVICE CONSIDERATIONS 30 Hrs

Evolving a conceptual design project into schematic design, balancing different technical considerations. Considerations to include appropriate structural, plumbing, electrical, mechanical and HVAC systems. Working out schemes to decide and finalize on the best possible design that integrates everything together. Scale of the project could be small to medium and include any typology, involving a newly created, quick, simple design or an older design from previous academic years.

UNIT III ARCHITECTURAL WORKING DRAWINGS 28 Hrs

Preparation of architectural working drawings for the resolved schematic design. Drawings to include site plan, center line drawings, building drawings, detailed drawings of specific areas like staircases and wall sections, dimensions explaining the various components, joinery schedule, etc.

UNIT IV DETAILED DRAWINGS OF ROOMS AND ARCHITECTURAL COMPONENTS 22 Hrs

Design and preparation of detailed drawings of joinery including doors, windows and ventilators. Design and preparation of layouts of service intensive rooms like kitchens and toilets. Design and detailing out of floor, wall and ceiling finishes/construction/ laying.

UNIT V DETAILED DRAWINGS OF BUILT IN COMPONENTS 18 Hrs

Design and preparation of detailed drawings of built in furniture and components based on the room/typology to include counters, cabinets, wardrobes, storage, fittings and fixtures, display units, workstation, etc.,

TOTAL: 120 Hrs

COURSE OUTCOMES:

CO 1: An understanding of all the aspects that go into the making of a building through drawings related to construction.
CO 2: Understanding on the drawings related to the structural services.
CO 3: Ability to resolve spatial concerns with technical aspects of a building.
CO 4: Understood on the preparation drawings of rooms, layouts of service.
CO 5: Ability to design and detail components within a building.

TEXTBOOKS:

1. De Chiara and Callendar, 'Time Saver Standards for Building Types', McGraw Hill Co, 1980.
2. RichardsonDietruck, 'Big Idea and Small Building', Thames and Hudson, 2002.
3. Edward D Mills, Planning–'The Architecture Handbook', British Library Cataloguing in

Publication Data, 1985.

REFERENCES:

1 Susan Dawson, 'Architect's Working Details -Volume 1-10', E- Map Construct, 2004.
2. 'Swimming Pools', Lane Book Company, Menlo Park, California, 1962.
3. Nelson L Burbank, 'House Carpentry Simplified', Simmons-Boardman Publishing Corporation,1961.
4. 'Landscape Construction', Delmar publisher, 2000.
5. Grant W. Reid ,'Landscape Graphics', Whitney Library of Design, 1987.
6. Francis. D. K. Ching, 'Building Construction Illustrated', John Wiley & Sons, 2011.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	An understanding of all the aspects that go into the making of a building through drawings related to construction.	2	3	3	3	3	3	2	-	2	1	3	2	3	3	3
CO2	Understanding on the drawings related to the structuralservices.	2	2	3	3	3	3	2	-	2	1	3	2	3	3	3
CO3	Ability to resolve spatial concerns with technical aspects of a building.	-	3	3	3	3	2	2	3	3	1	3	2	3	3	3
CO4	Understood on the preparation drawings of rooms, layouts of service.	1	2	3	3	3	3	2	-	1	-	3	2	3	3	3
CO5	Ability to design and detail components within a building.	-	3	3	3	3	3	2	3	3	-	3	2	3	3	3

718ARP04 **ARCHITECTURAL DESIGN VI** **L T P C**

0 0 14 7

COURSE OBJECTIVES:

- To make the student realize that architectural design process become more and more complex at advanced level and could be understood by analyzing live case studies - appropriatedocumentation and presenting the same.
- To create awareness among students through organized expert lectures and various aspects of design.
- To strengthen the knowledge base on architectural design processes thro' works of international and national architects referred from libraries, available literature and Websites.

DESIGN STUDIO **180 Hrs**

Design of advanced and complex problems - comprising of group and multi storied structures and infrastructure - with regard to climatic conditions, orientation, services, circulation problems relating to large developments Design and detailing for movement and use by handicapped persons withinand around building.

Examples: Multi storied Residential flats, campus design, urban centers, Housing Senior citizens' neighborhood, Transport terminals etc, and Time problem using computer-aided design shall be introduced.

TOTAL: 180 Hrs

COURSE OUTCOMES:

The students should be able to:

CO 1: Design advanced and complex problem comprising of group and multistoried structures andinfrastructures.

CO 2: Use computer for drawing and presentation skills using appropriate software.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

CO 3: Understanding from pre-final stage, to be conversant with all challenges in large complex design, in group, multi storied developments covering structural innovations, energy conservation,awareness to costing of projects and legal implications.

TEXT BOOKS:

1. De. Chiara and Callender,"Time – saver Standards for Building Types", McGraw-Hill Co., New York,1973.
2. The Handbook of Building Types., NUEFERT ARCHITECTS DATA, New International edition, Second international edition. BSP Professional Books. Oxford (1980) Backwell scientific Publications.
3. Time – Saver Standards for Architectural Design Data, seventh edition. The reference of architecturalfundamentals McGraw Hill international edition, architectural series (1998).
4. Ed.By.Quentin Pickard RIBA "The Architects' Handbook", Bladewell Science Ltd., 2002.

REFERENCES:

1. Edward D Mills, planning, 4 volumes, newness Butterworths, London 1976P&D Act 1995.
2. E and OE -Planning -London Lliffee Books Ltd 1973
3. Ed.By.Quentin Pickard RIBA - The Architects' Hand Book - Bladewell Science Ltd. – 2002
4. De Chiara Callender, Time Saver Standard for Building Types, McGraw-Hills Co., 1973.
5. Handbook on Building Construction Practices (Excluding Electrical Work). Bureau of IndianStandards, New Delhi, 1997.
6. National Building of India 2005, Bureau of Indian Standards, New Delhi.
7. Macmillan Encyclopedia/ architects, Vol II, The free press, London, 1982.
8. A visual dictionary of Architecture, Francis D.K.Ching, John wiley& Sons, Inc. 1997.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Design advanced and complex problem comprising of group and multistoried structures and Infrastructures.	-	3	3	3	2	2	-	-	3	2	3	1	3	2	3
CO2	Use computer for drawing and presentation skills using appropriate software.	-	2	3	3	3	2	-	-	3	2	3	1	3	2	3
CO3	Understanding from pre-final stage, to be conversant with all challenges in large complex design, in group, multi storied developments covering structural Innovations, energy conservation, awareness to costing of projects and legal implications.	1	3	3	3	3	2	-	-	3	3	3	1	3	2	3

718ARE01 **SUSTAINABLE PLANNING AND ARCHITECTURE** **L T P C**

3 0 0 3

COURSE OBJECTIVES:

- To provide students with a comprehensive background of the sustainability movement withinthe design and construction field
- To supply students with both technical and philosophical positions on sustainability
- To give students the skills necessary to examine design schemes and propose sustainablepossibilities

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

- To expand critical thinking and analysis skills, as well as further develop research and writing abilities.
- To help students understand that design is also a product of political, social and economicdecisions

UNIT I INTRODUCTION 6 Hrs

Elaborate the concept of sustainable development and design from an interdisciplinary perspective; historical context – Bruntland Commission –Rio Summit - Agenda 21. Cradle-to cradle approach in built environment by McDonough, overview of different designs principles and models of sustainabledesign ex: Biomimicry as a nature inspired design.

UNIT II RESOURCE EFFICIENCY 10 Hrs

Building energy literacy as a foundation for sustainable design. Study of eco-friendly building materials, construction technologies, energy sources - renewable and non-renewable. Introduction to carbon footprint, concept of life cycle analysis with multiple case studies, followed by a field trip.

UNIT III PRACTICE OF SUSTAINABLE ARCHITECTURE 12Hrs

Introduce the standards and metrics for sustainable buildings; understanding the rationale and structure of the rating systems. Categories with LEED rating system will be elaborated. Examples ofrating systems and case studies: LEED, BREAM and DGNB.

UNIT IV RATING SYSTEMS IN INDIAN CONTEXT 9 Hrs

Introduce Zero Energy Buildings (ZEB) with examples. Examples of rating systems in Indiancontext: Role of IGBC- EDGE and GRIHA, with case studies.

UNIT V FUTURE OF SUSTAINABLE DESIGN: PLANNING AND POLICIES 8 Hrs

Living Buildings as a philosophy of sustainable design, Biomimicry, Carbon neutral cities and Sustainable Development Goals (SDG).

Total: 45 Hrs

COURSE OUTCOMES:

CO 1: The course ends with the completion of an "impact project ", where students will collaborateto design/learn and implement a short project that addresses the myriad problems and opportunities presented by sustainability.

CO 2: To provide student with the ability to distinguish between renewable & non- renewable sources.

CO 3: Understanding on green organizations worldwide and with Indian context.

CO 4: Exposed to the Rating systems with Indian Examples.

CO 5: To sensitize students about the importance and need for Sustainable Planning concept andAppropriate Architectural Design concepts as an emerging thrust area.

TEXT BOOKS:

1. "Elevating Habitat" by Coffman;
2. "Design on the Prairie" by Myers
3. "Ecological Design" by Sim Van Der Ryn and Stuart Cowan
4. Bioclimatic Architecture – ENEA and IN/ARCH publication Edition 1989
5. McDonough, W. (1993) Design, Ecology, Ethics and the Making of Things.

REFERENCES:

1. Beer, Environment Planning for Site Development.
2. Sustainable Architecture and Urbanism: Concepts, Technologies and examples by Gauzin-

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

Muller(D) – Birkhauser 2002.
3. Eco-Tech : Sustainable Architecture and High Technology by Slessor© - Thames and Hudson 1997.
4. Ecodesign : A manual for Ecological Design by Yeang(K) – Wiley Academy 2006.
5. Brotoc, Sustainable architecture high-tech housing.
6. Roofs, Eco-house a design guide.
7. Sharma, Brij Kishore, " Introduction to the Constitution of India:, Prentice Hall of India, New Delhi.
8. U.R.Gahai, " (1998) Indian Political System ", New Academic Publishing House, Jalaendhar.
9. R.N. Sharma, " Indian Social Problems ", Media Promoters and Publishers Pvt. Ltd.
10. Yogendra Singh, " (1997) Social Stratification and Charge in India ", Manohar, New Delhi..Manik&GirishKomisva, IIPA, keeping Cities Clean and Green, Uppal Publishing House, 1997.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	The course ends with the completion of an "impact project ", where students will collaborate to design/learn and implement a short project that addresses the myriad problems and opportunities Presented by sustainability.	-	2	-	-	3	2	-	3	2	3	2	1	2	3	3
CO2	To provide student with the ability to distinguish between renewable & nonrenewable sources.	1	1	-	2	-	2	-	3	1	3	3	-	2	2	3
CO3	Understanding on green organization worldwide and with Indian context.	1	2	-	2	3	2	-	3	3	3	3	-	2	3	3
CO4	Exposed to the Rating systems with Indian Examples.	2	2	3	1	3	3	-	2	3	2	2	3	2	3	3
CO5	To sensitize students about the importance and need for Sustainable Planning concept and Appropriate Architectural Design concepts as an emerging thrust area.	2	2	3	3	3	2	-	3	3	3	3	-	2	3	3

718ARE02 **ARCHITECTURAL ACOUSTICS** **L T P C**

3 0 0 3

COURSE OBJECTIVES:

- To understand the science behind acoustical design & noise control sound transmission and absorption.
- To expose students to understand design fundamental such as geometry shape.
- To familiarize the students with acoustical materials elements which lend to better hearing conditions
- To familiarize the students with construction materials and panels fitting.
- To familiarize the students with the basic principles of acoustic design for spaces and building types which require good hearing conditions

UNIT I FUNDAMENTALS **12 Hrs**

Measure of sound, decibel scale. Behavior of sound in enclosed spaces, reverberation time and

Sabine's law. Types of noises, transmission of noise, transmission loss, noise control and sound insulation, remedial measures and legislation. Sources of noise-outdoor and indoor acceptable indoor noise levels, sonometer, exercises involving reverberation time and absorption co-efficient.

UNIT II ACOUSTICAL AND DESIGN FUNDAMENTALS 8 Hrs

Site selection, shape, volume, treatment for interior surfaces, basic principles &recommendation-geometry & shape, seating arrangement, design criteria for different purposes; electro-acoustic installations.

UNIT III ACOUSTICAL IN MATERIALS MEASURES 5 Hrs

Sound absorbing and reflecting materials. Determinate of density of a given building material, absorption co-efficient and measurements, choice of absorption material.Environmental/Greenaspects of acoustical materials.

UNIT IV ACOUSTICAL IN CONSTRUCTION MEASURES 8 Hrs

Panel or membrane absorbers, cavity resonators, ceiling cloud, suspended ceiling absorbers, etc.Fixing and mounting details of acoustical panels for walls and ceiling.

UNIT V ACOUSTICS IN BUILDING DESIGN 12 Hrs

Sources of noise and Recommendations-site planning, internal planning, noise reduction within rooms, sound insulation. Designing and sound reinforcement systems for various building types: open air theatres, cinemas, broadcasting studios, concert halls, class rooms, lecture halls, schools, residences and Office building.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: To understand design fundamental of sound and its influences in design typologies.
CO 2: To knowledge on the acoustical design of shapes and building interior acoustics.
CO 3: To understand get exposed to integrate acoustic materials.
CO 4: To understand construction and fitting typologies of acoustic and its materials.
CO 5: To understand designing of various acoustical building designs in apart of acoustic.

TEXT BOOKS:

1. Dr.V.Narasimhan - An Introduction to Building Physics - Kabeer Printing Works, Chennai-5 -1974.
2. D.J.Groomet - Noise, Building and People - Pergumon Press - 1977.
3. Thomas D.Northwood - Architectural Acoustics - Dowden, Hutchinson and Ross Inc. – 1977.

REFERENCES:

1. B.J.Smith, R.J.Peters, Stephanie Owen - Acoustics and Noise Control - Longman Group Ltd., -New York, USA - 1982.
2. David Eagan concepts in Architectural Acoustics.
3. Harold Burris – Meyer and Lewis Good friend, Acoustics for Architects – Reinhold

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	To understand design fundamental of sound and its influences in design typologies.	2	3	3	3	3	3	-	-	2	-	-	-	3	3	-
CO2	To knowledge on the acoustical design of shapes and building interior acoustics.	2	3	3	3	3	3	-	-	2	-	-	-	3	3	-

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

CO3	To understand get exposed to integrate acoustic materials.	2	3	3	3	3	3	-	-	2	-	-	-	3	3	-
CO4	To understand construction and fitting typologies of acoustic and its materials.	2	3	3	3	3	3	-	-	2	-	-	-	3	3	-
CO5	To understand designing of various acoustical building design in apart of acoustic.	2	3	3	3	3	3	-	-	2	-	-	-	3	3	-

718ARE03 CONTEMPRORY PROCESS IN ARCHITECTURE L T P C

3 0 0 3

COURSE OBJECTIVES:

- To investigate the contemporary theories of media and their influence on the perception of space and architecture.
- To study the various aspects of Digital Architecture and its exploration through emerging phenomena that relies on abstraction of ideas.
- To expose the students to the new concept by understanding and recognizing the relation between nature and human thereby developing nature based solution to the architecture problems influenced by biomimetic.
- To study the works of contemporary architects who have illustrated the influence of the digital media in evolving architecture. This is to be presented as Seminars.
- To provide an overview of various Contemporary design processes and its relation to computation.

UNIT I INTORDUCTION AND ASPECTS OF DIGITAL ARCHITECTURE 12 Hrs

Investigation of contemporary theories of media and their influence on the perception of space andarchitecture.Technology and Art – Technology and Architecture – Technology as Rhetoric – DigitalTechnology and Architecture. Aspects of Digital Architecture – Design and Computation – Difference between Digital Process andNon-Digital Process – Architecture and Cyber Space.

UNIT II BIOMMICRY 10 Hrs

Origin of Biomimicry - Nature as a model, measure and mentor, changing metaphor and approach organic architecture, Biomimicry in architecture - overlap between biology and architecture - living building– emerging biomimetic technologies, zero carbon buildings, nanotechnology in architecture works of Douglas Cardinal, ImreMakovecz, Daniel Liebermann, EugeneTsui, Jacques Gillet, Petra Gruber - Biomimetic cities-Biomimetic Future Approach - Nature model - New applications of biological life into Architecture - Biomimicry and sustainability.

UNIT III SHAPE GRAMMAR 6 Hrs

Spatial rules, shape grammar and form properties, form generation with Islamic patterns, Palladianvillas, Victorian windows, Works of AlvarSiza

UNIT IV FRACTALS IN ARCHITECTURE 8 Hrs

Self-similarity, little scale and large scale analysis, principles in architecture, Fractals in Indianand European architecture

UNIT V SEMINARS - CASE STUDY 9 Hrs

Students would make presentation on the ideas and works of the following architects. The proposal mustbe discussed with course faculty prior to presentation. Greg Lynn, Reiser + Umemotto, Lars Spuybroek/ NOX Architects, UN studio, Diller Scofidio, Dominique Perrault, Decoi, Marcos Novak, Foreign Office Architects, Asymptote, Herzog and de Meuron, Neil Denari.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: Student shall gain insight to the various contemporary design process/theories and theirrelation to computation.
CO 2: Students would be able understand the approach towards biomimicry and nano technologies.
CO 3: Students would be able to identify and go in depth into specific and appropriate aspects relating to the discipline of architecture and reflect this in the realm of design.
CO 4: To sensitize students explores how contemporary processes, in the pursuit of creativity andfluidity, have become more abstract
CO 5: Experimental, attempting to overcome the pragmatic determinism attributed to moreconventional working methods.

TEXT BOOKS:

1. Work of Architecture in the Age of Mechanical Reproduction, Differences MIT press, 1997.
2. Peter Eisenman, Vision Unfolding, Architecture in the Age of Electronic Media, 1992.
3. William J Mitchell, the Logic of Architecture: Design, Computation and Cognition. MITPress,Cambridge, 1995
4. Ali Rahim, "Contemporary Process in Architecture", John Wiley & Sons, 2000
5. Contemporary Techniques in Architecture", Halsted Press, 2002

REFERENCES:

1. Gillian Hunt, "Architecture in the Cybernetic Age", Architectural Design Profile no.136,1998
2. Sarah Chaplin, "Cyberspace Lingering on the Threshold", (architecture, postmodernism and difference, Architectural Design Profile No. 118: Architects in Cyberspace, 32-35, London: Academy Edition, 1995
3. Rob Shields (ed.), "Cultures of the internet: Virtual Spaces, Real Histories, Living bodies", Sage, London, 1996
4. John Beckman, The Virtual Dimension, Architecture, Representation and Crash Culture, Princeton Architecture Press, 1998.
5. William J Mitchell, "City of bits: Space, Place and the Infobahn". MIT Press, Cambridge, 1995.
6. Peter Szalapaz, Contemporary Architecture &The Digital Design Process, Elsevier, 2005.
7. David Pearson, The New Organic Architecture, Gia Books Ltd, UK, 2001.
8. John K Waters, Blobitecture, Rock fort publications, 2003.
9. Ivan Margolius, Architects+ Engineers= Structures, Wiley Academy, 2002.5. Clovis Heimsath, Maryann Heimsath, Lisa Hardaway,Geometry in architecture: Texas buildings yesterday and today,University of Texas Press, 2002.
10. Carl Bovill, Fractal geometry in architecture and design, Birkhäuser, 1996.
11. Benyus J. M, Biomimicry: Innovation Inspired by Nature, Harper Perennial, New York, 2002
12. Pawlyn M., Biomimicry in Architecture, RIBA Publishing, 2011
13. Gruber P., Biomimetics in Architecture: Architecture of Life and Buildings, Springer, 2010 Mazzoleni I., Architecture Follows Nature - Biomimetic Principles for Innovative Design (Biomimetics), CRC Press, 2013

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Student shall gain insight to the various contemporary design process/theories and their relation to computation.	3	2	3	-	2	-	1	3	2	-	-	-	3	3	3

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

CO2	Students would be able understand the approach towards biomimicry and nano technologies.	2	2	3	3	3	3	-	3	1	3	-	-	3	3	3
CO3	Students would be able to identify and go in depth into specific and appropriate aspects relating to the discipline of architecture and reflect this in the realm of design.	2	2	2	3	2	3	2	3	3	2	2	2	3	3	1
CO4	To sensitize students explores how contemporary processes, in the pursuit of creativity and fluidity, have become more abstract	2	2	2	3	2	3	2	3	3	2	2	2	3	3	3
CO5	Experimental, attempting toovercome the pragmatic determinism attributed to more conventional working methods.	-	-	3	3	2	3	2	3	3	2	2	2	3	3	1

718ARE04 SERVICES IN HIGH- RISE BUILDINGS L T P C

3 0 0 3

COURSE OBJECTIVES:

- To understand the service requirements for a high rise building as per the National BuildingCode.
- To understand the water management and sewage disposal methods.
- To enable students to understand the various types of air-conditioning systems available andtheir applications and choice for high rise building and loads.
- To understand the cause of fire, need for protection, standards and norms involved, variousconsiderations in planning and making it barrier free.
- To provide knowledge to students on vertical transportation systems in high rise buildings andthe design of service cores.

UNIT I INTRODUCTION 9 Hrs

A brief on evolution of High Rise Buildings – NBC Standards of high Rise buildings– Introduction to various services– their significance with regards to High Rise Buildings – Some examples of Buildings and services used in them – Aspects and Integration of services- Concepts of Intelligence Architecture and Building Automation

UNIT II WATER SUPPLY AND SEWAGE DISPOSAL 9 Hrs

Basic planning for water supply – Calculation of capacity for sumps and water tanks – Rainwater harvesting methods – Sanitation arrangements in high rise structures – Waste treatment – Service floors – Ducts and vertical shafts.

UNIT III THERMAL CONTROL SYSTEMS & ELECTRICAL SYSTEMS 13 Hrs

Calculation of Heating and Cooling loads – Selection of suitable HVAC system – Special equipment and systems for heating and cooling – Spatial requirements for HVAC plants – Design of duct layouts etc., Planning transformer & generator rooms, Preparation of electrical layouts for tall buildings – Spatial requirements of electrical rooms and ducts – Intelligent systems for electrical and illumination.

UNIT IV FIRE PROTECTION 6 Hrs

Designing for fire safety –Fire alarm systems – Smoke detectors – Firefighting support systems – Fire

rating of materials - Fire escape stairs & Safety regulations – Lightning protection.

UNIT V VERTICAL TRANSPORTATION 8 Hrs

Introduction to passenger elevator codes – Express & Local Elevators, Sky lobbies etc., - Study of elevator equipment, control systems and spatial requirements – Escalators and Capsule elevators – Stairways & Ramps

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: Understanding of various service systems for a high rise building as per the National Building Code.

CO 2: Knowing the advanced technologies used for water management and sewage treatment.

CO 3: The students are exposed to various heating, Ventilation, air conditioning systems and theirapplications.

CO 4: An understanding of fire safety, firefighting, fire prevention and installations in buildings.

CO 5: A detail understanding of design guidelines of vertical transportation system in current trends.

TEXT BOOKS:

1. Stein Reynolds Mc Guinness – Mechanical and Electrical equipment for buildings – vol 1 & 2 – JohnWiley & Sons

REFERENCE BOOKS:

1. Francisco AsensioCerver – The architecture of Skyscrapers – Hearst Book International - New York, 1997-
2. Bennetts Ian & others – Tall building structural systems –
3. Proceedings of the council for tall buildings – vol 1 & 2
4. A K Mittal, Electrical and Mechanical Services in High Rise Buildings Design and Estimation Manual, 2001
5. YahyaMohamadYatim, Fire Safety Issues in High-Rise Residential Buildings: escape routes Design and specification, Lambert Academic Publishing, 2011
6. Johann Eisele and Ellen Kloft, High-Rise Manual, Birkhäuser-Publishers for Architecture, 2003

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Understanding of various service systems for a high rise building as per the National Building Code.	3	3	-	3	3	3	2	-	-	-	-	-	3	3	1
CO2	Knowing the advanced technologies used for water management and sewage treatment.	3	3	-	3	3	3	2	-	-	3	2	2	3	3	2
CO3	The students are exposed to various heating, Ventilation, air Conditioning systems and their applications.	2	3	3	3	3	3	-	-	2	-	-	-	3	3	2
CO4	An understanding of fire safety, firefighting, fire prevention and installations in buildings.	2	3	3	3	3	3	-	-	2	-	-	-	3	3	2
CO5	A detail understanding of design guidelines of vertical transportation system in current trends.	3	3	-	3	3	3	2	-	-	3	2	2	3	3	2

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

818ART01 **URBAN DESIGN** **L T P C**

3 0 0 3

COURSE OBJECTIVES:

- To create an understanding of urbanism and urban morphology as rising from various forces through history.
- To introduce the components of the modern city and their interdependencies.
- To introduce the scope and nature of urban design as a discipline
- To help perceive, interpret and understand the city in different ways.
- To create awareness of contemporary urban issues and how they are addressed.

UNIT I URBANISM IN HISTORY **9 Hrs**

Outline of forces shaping urbanism. Urbanism of river valley civilisations. Morphology of preindustrial European cities to include Greek and Roman cities, medieval European towns, Renaissance urbanism and ideal cities. Outline of historic cities of India. Temple town urbanism of Tamil Nadu. Mughal city form. Medieval cities of India. Colonial urbanism in India.

UNIT II URBAN DESIGN AND THE CONTEMPORARY CITY **9 Hrs**

Evolution of urban design as a discipline, its scope and objectives. Industrialisation and impact on urbanism. American grid iron planning. Theories, ideas and practice of good urban planning/cities/urbanism in early 20th century. Outline of modernist cities and urbanism across the world. Morphology of Indian modernist cities of Chandigarh, Bhuvaneshwar and Gandhi Nagar. Components of modern urbanism such as blocks, density, neighbourhood, streets etc., and their interdependencies.

UNIT III CITIES AND URBANISM THROUGH TEXTS AND THEORIES **9 Hrs**

Introduction to and discussion of key texts and theories of cities and urbanism - Imageability andLynch, Townscape and Cullen, Genius Loci and Schulz, historic city and Rossi. Social aspects ofurbanism and the works of Jane Jacobs, William Whyte and Jan Gehl, Collage City and Colin Rowe, current theories and texts.

UNIT IV CONTEMPORARY URBANISM AND URBAN INTERVENTIONS **9 Hrs**

Understanding aspects, issues and solutions related to urbanism today through study of literature and case studies in urban design. Topics to include urban decay, change and renewal, place making, heritage, conservation, identity, suburban sprawl, gated communities, generic form, privatization of public realm, role of real estate, transportation, zoning, globalization, technology, digital age, sustainability, community participation, gender, class, power.

UNIT V URBAN MAPPING AND ANALYSIS **9 Hrs**

Introduction to study and interpretation of cities (especially Indian) through understanding of Published studies. The focus will be on components as well as tools and methods to include different types of maps, drawings, sketches, photo Documentations, reading, data collection, analysis.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: Awareness of the evolution and characteristics of urban forms, their components andinterdependencies through case studies.

CO 2: Understanding of urbanism through theories, aspects, issues and solutions.

CO 3: Knowledge of ways to look at and interpret urbanism today.

CO 4: Student understood how architecture is related to urban design in the planning process andhow cities have aesthetic and visual impacts.

CO 5: Gained Knowledge how architects can contribute to city's re building and renewal through understanding of space articulation in cities of east and west; analysis of various

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

implementationtechniques and involving public in the process.

TEXT BOOKS:

1. A.E.J. Morris, 'History of Urban Form before the Industrial Revolution', Routledge, 2013.
2. Edmund Bacon, 'Design of Cities', Penguin, 1976.
3. Gordon Cullen, 'The Concise Townscape', The Architectural Press, 1978.
4. 'Time Saver Standards for Urban Design', Donald Natson, McGraw Hill, 2017.
5. Kevin Lynch, 'The Image of the City', MIT Press, 1960.
6. Geoffrey Broadbent, 'Emerging Concepts in Urban Space Design', Taylor and Francis, 2003.

REFERENCES:

1. Jonathan Barnett, 'An Introduction to Urban Design', Harper Row, 1982.
2. Lawrence Halprin, 'Cities', MIT Press, 1972.
3. Gosling and Maitland, 'Concepts of Urban Design', St. Martin's Press, 1984.
4. Malcolm Moor, 'Urban Design Futures', Routledge, 2006.
5. AnuradhaMathu, 'Deccan Traverses', Rupa, 2006.
6. Michelle Provoost et al., 'Dutchtown', NAI Publishers, Rotterdam, 1999.
7. Rithchie. A, 'Sustainable Urban Design: An Environmental Approach', Taylor and Francis, 2009.
8. Tridib Banerjee, Anastasia Loukaitou-Sideris, Editors, 'Companion to Urban Design', Routledge,2014.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Awareness of the evolution and characteristics of urban forms, their components and interdependencies through case studies.	2	2	-	3	3	1	2	3	3	3	3	3	3	2	1
CO2	Understanding of urbanism throughtheories, aspects, issues and solutions.	2	3	-	3	3	1	2	3	3	3	3	3	2	3	2
CO3	Knowledge of ways to look at and interpret urbanism today.	3	1	-	3	3	1	2	3	3	3	3	3	3	2	3
CO4	Student understood how architecture is related to urban design in the planning processand how citieshave aesthetic And visual impacts.	3	1	-	3	3	1	2	3	3	3	3	3	3	2	1
CO5	Gained Knowledge how architects can contribute to city's re buildingand renewal through understanding of space articulationin cities of eastand west; analysis of various implementation techniques and involving publicin the process.	3	1	-	3	3	1	2	3	3	3	3	3	2	2	2

818ART02 **PROFESSIONAL PRACTICE AND ETHICS** **L T P C**

3 0 0 3

COURSE OBJECTIVES:

- To make student understand the various types of services that an architect can offer to society and the associated professional structure.
- To teach the students about the importance of code of conduct and ethics in professional

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

practice and the mandatory provisions as per Architects Act 1972.

- To expose the students some of the important legal aspects and legislations which have a bearing on the practice of architectural profession.
- To enable the students to grasp the advanced issues concerning professional practice such as tendering, contracting including alternative practices in project execution and project management.
- To sensitize students on how disputes between professional and clients could be resolved through various types and levels of arbitration.

UNIT I INTRODUCTION TO ARCHITECTURAL PROFESSION 9 Hrs

Importance of Architectural Profession – Role of Architects in Society – Registration of Architects – Architect's office and its management – Location, organizational structure – Infrastructure requirement, skills required, elementary accounts – Tax liabilities.

Role of Indian Institute of Architects – Architects Act 1972 (intent, objectives, provisions with regard to architectural practice) – Council of Architecture (role and functions) – Importance of ethics in professional practice – Code of conduct for architects, punitive action for professional is conduct of an architect.

UNIT II ARCHITECT'S SERVICES, SCALE OF FEES & COMPETITIONS 9 Hrs

Mode of engaging an architect – Comprehensive services, partial services and specialized services – Scope of work of an architect – Schedule of services – Scale of fees (Council of Architecture norms) – Mode of payment – Terms and conditions of engagement – Letter of appointment. Importance of Architectural competitions – Types of competitions (open, limited, ideas competition) – Single and two stage competitions – Council of Architecture guidelines for conducting Architectural competitions – National and International Competitions – Case studies.

UNIT III TENDER & CONTRACT 12 Hrs

Tender - Definition - Types of Tenders - Open and closed tenders - Conditions of tender– Tender Notice - Tender documents - Concept of EMD - Submission of tender -Tender scrutiny - Tender analysis – Recommendations – Work order - E-tendering(advantages, procedure, conditions). Contract – Definition - Contract agreement - its necessity – Contents (Articles of Agreement, Terms and Conditions, Bills of Quantities and specifications, Appendix) – Certification of Contractors Bills at various stages. New trends in project formulation and different types of execution (BOT, DBOT, BOLT, BOO, etc.) - Execution of projects – The process (Expression of interest, Request for Proposal, Mode of Evaluation of Bids, Award of work)

UNIT IV LEGAL ASPECTS 8 Hrs

Arbitration (Definition, Advantages of arbitration, Sole and joint arbitrators, Role of umpires, Award, Conduct of arbitration proceedings) – Arbitration clause in contract agreement (role of architect, excepted matters) Easement – (meaning, types of easements, acquisition, extinction and protection)Copy rights and patenting – (provisions of copy right acts in India and abroad, copy right in architectural profession)Consumer Protection Act (Intent, Architects responsibility towards his clients)

UNIT V LIABILITY OF ARCHITECTS 7 Hrs

Types of Liabilities, Professional Duties and Conduct of Architects, Professional Negligence, Deficient Service and Exceptions, Insurance, Examples of Cases.

TOTAL: 45 Hrs

COURSE OUTCOME:

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

CO 1: Awareness of the architect's role in society, managements and its acts.
CO 2: To understand the services to do the profession with scale off charges and ethics.
CO 3: Understanding the tender and document and types of competition.
CO 4: Understanding the bye laws and duties of architect in the society.
CO 5: Understanding the conducts and duties and its liabilities.

TEXT BOOKS:

1. Architects Act 1972.
2. Publications of Handbook on Professional practice by IIA.
3. Publications of Council of Architecture-Architects (Professional conduct) Regulations1989, Architectural Competition guidelines
4. RoshanNamavati, "Professional practice", Lakhani Book Depot, Mumbai 1984.
5. Ar. V.S. Apte, "Architectural Practice and Procedure", Mrs. PadmajaBhide, 2008
6. Arbitration Act, 2005
7. J.J.Scott, "Architect's Practice", Butterworth, London, 1985

REFERENCES:

1. Development Regulations of Second Master Plan for Chennai Metropolitan Area -2026.
2. T.N.D.M. Buildings rules, 1972.
3. Consumer Protection Act, 2011

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Awareness of the architect's role insociety, managements and its acts.	2	-	-	-	2	-	3	-	-	-	3	3	1	1	2
CO2	To understand the services to do the profession with scale off charges and ethics.	1	3	-	-	2	-	3	-	-	-	3	3	2	2	3
CO3	Understanding thetender and document and typesof competition.	2	-	-	-	2	-	3	-	-	-	3	3	2	2	2
CO4	Understanding thebye laws and duties of architect in thesociety.	2	1	-	-	2	-	3	-	-	-	3	3	-	2	-
CO5	Understanding the conducts and dutiesand its liabilities.	2	2	-	-	2	-	3	-	-	-	3	3	1	-	-

818ARP03 **DISSERTATION** **L T P C**

0 0 8 4

COURSE OBJECTIVES:

- To inculcate the spirit of exploration and research in architecture.
- To enable the conversion of effort into a coherent line of thought through writing/ documentation/models/ anymedia.
- To serve as prelude to Thesis.
- To enable the acquisition of in-depth knowledge in a specific aspect/ issue in the discipline of architecture as well as develop perspectives on the same through thought, reading, study, analysis, expression, documentation.
- To understand the current scenario problem going all around the place.

CONTENT:

Design studio emphasize on explaining and understanding Architecture primarily through the mode of making. Dissertation offers an opportunity to look at architecture, history and design primarily through textual. However, like design, dissertation involves process of observation,

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

reflection and abstraction. Students are encouraged to choose any topic of their interest. They may range from analyzing the works of an architect, history, typological changes, writing, design process and many more. The dissertation should state its objectives, followed by exhaustive documentation and arguments. The emphasis however, could vary according to the topic. The dissertation proposal in about 1500 words stating the topic issues to be explored and the scope must be submitted. After approval the work would be periodically reviewed. A well written report of a minimum 15,000 words must be submitted in the prescribed format, if any provided by the University. The student would subsequently make a presentation of his/her work and defend them.

TOTAL: 120 Hrs

COURSE OUTCOMES:

CO 1: A dissertation report with a coherent line of thought as reflected in the written structure and the core contentwhich could be open ended.

CO 2: Ability to research deeply into a subject and develop depth in thought in any specific area based on point ofview, observation, analysis and study.

CO 3: Ability to look at architecture from an informed, analyzed and well thought out personally unique or objectiveperspective which would help strengthen the thesis process.

CO 4: Students explored on the tools and methodology adopted to collect the required data relevant to the study.

CO 5: Strengthen the analysis skill and identifying root cause of problems.

TEXT BOOKS:

1. BjarkeIngels, 'Yes is More', Taschen, 2009
2. Bernard Tschumi, 'Manhattan Transcripts', Wiley, 1994.
3. Rem Koolhaas et al, 'Project on the City II: The Harvard Guide to Shopping', Taschen, 201.
4. Charles Correa, 'The New Landscape:Urbanisation in the Third World', Concept Media, 199.
5. Iain Borden and KaaterinaRuedi; 'The Dissertation: An Architecture Student's Handbook', ArchitecturalPress, 2006.
6. Linda Grant and David Wang, 'Architectural Research Methods', John Wiley Sons, 2013.
7. Vian Ahmed, Alex Opoku, Zeeshan Aziz, 'Research Methodology in the Built Environment', Rutledge, 2016.

REFERENCES:

1. Wayne C Booth, Joseph M Williams, Gregory G. Colomb, 'The Craft of Reearch',2ndEdition, University ofChicago Press, 2016.
2. Ranjith Kumar, 'Research Methodology- A Step by Step Guide for Beginners', Sage Publications, 2011.
3. John W Creswell, 'Research Design: Qualitative, Quantitative and Mixed Methods Aproaches', SagePublications, 2014.
4. Richard Coyne, 'Interpretation in Architecture: Design as Way of Thinking', Routledge, 2005. Adam Sharr,'Reading Architecture and Culture', Routledge,2012.
5. Ian Border, Kurt Rueideu, The Dissertation, An Architectural Students Hand Book, Architectural Press, 2000
2. Linda Grant and David Wang, Architectural Research Methods, John Wiley Sons, 2002

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	A dissertation report with a coherent line of thought as reflected in the written structure and the core content which could be open ended.	-	3	2	2	3	1	-	2	3	3	3	3	3	3	3
CO2	Ability to research deeply into a subject and develop depth in thought in any	2	3	2	2	3	1	-	2	3	3	3	3			

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

	specific area based on point of view, observation, analysis and study.													3	3	3
CO3	Ability to look at architecture from an informed, analyzed and well thought out personally unique or objective perspective which would help strengthen the thesis process.	2	3	2	2	3	1	-	2	3	3	3	3	3	3	3
CO4	Students explored on the tools and methodology adopted to collect the required data relevant to the study.	2	3	2	-	3	-	-	2	3	3	3	3	1	2	3
CO5	Strengthen the analysis skill and identifying root cause of problems.	2	3	2	1	3	-	-	2	3	3	3	3	2	3	2

818ARP04 **ARCHITECTURAL DESIGN- VII** **L T P C**

0 0 12 6

COURSE OBJECTIVES:

- To enable an understanding of urbanism as a continuous experience involving the interrelateddisciplines of architecture, urban design and town planning.
- To understand architecture as influenced by the dynamics of cities.
- To facilitate the taking of architectural design decisions in the context of the urban environment.
- To create awareness that architecture is an integral part of city environment and to sensitizethat design programs have their own environmental impacts.
- To expose the students to various cities and its growth pattern influencing the social, economic,environmental condition.

CONTENT:

Urban Design is a dynamic phenomenon involving many aspects - urban growth, land use distribution and change, urban form, demographics including gender and class, cultural aspects such as place and heritage, physical infrastructure such as roads and transportation nodes, public spaces, etc., Architecture is an integral and large part of urbanism, shaping and being shaped by it. It can serve to gather society and enrich the urban environment.

Understanding this aspect of architecture can be achieved by architectural projects involving interdependencies between architecture and the city. Some of the issues and areas that could be addressed are- transportation nodes, heritage areas, adaptive reuse, suburban sprawl, place making, identity, collective memory, mixed use programming, large scale urban interventions, revitalization and renewal of urban fragments, urban waterfront development, urban nodes, multi-use urban complexes.

Aspects to include topography, geology, Hydrology, micro climate, vegetation, urban density, growth, city limits, history, urban architecture, typologies, infrastructure, land parcels, public space, demographics, patterns of usage, land use as a component of analysis in the field study. The techniques can include contemporary ways of perceiving, gathering and analyzing data, inclusive, collaborative and participatory approaches, etc.

TOTAL: 240 Hrs

COURSE OUTCOME:

CO 1: Ability to perceive and design buildings as contributing to the urban fabric.

CO 2: Ability to bring inclusivity into the architectural design process.

CO 3: Exposed to urban environment and its architectural design decision

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

CO 4: Students explored the integral part of city environment and its impacts.

CO 5: Understood about the topography, geology, Hydrology, micro climate, vegetation, urban density and various aspects with respect to urbanized places.

REFERENCES:

1. Jonathan Barnett, 'An Introduction to Urban Design', Harper and Row; 1982
2. Cavallo, R. et al, New Urban Configurations, IOS Press, 2014
3. Henriette Steiner&Maximilian Sternberg, Phenomenologies of the City: Studies in the Historyand Philosophy of Architecture, Routledge 2015.
4. Jan Gehl, 'Life between Buildings- Using Public Space', Arkitektens Forleg 1987.
5. 'Time Savers Standard for Urban Design', Donald Watson, McGraw Hill, 2005.
6. Malcolm Moore & Jon Rowland Eds, 'Urban Design Futures', Routledge, 2006.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Ability to perceive and design buildings as contributing to the urban fabric.	-	3	3	2	3	-	-	2	3	2	3	3	2	3	3
CO2	Ability to bring inclusivity into the architectural design process.	-	3	3	2	3	-	-	2	3	3	3	3	3	3	3
CO3	Exposed to urban environment and its architectural design decision.	1	3	3	2	3	-	-	2	3	2	3	3	2	2	1
CO4	Students explored the integral part of city environment and its impacts.	1	3	3	2	3	-	-	2	3	2	3	3	2	2	-
CO5	Understood about the topography, geology, Hydrology, micro climate, vegetation, urban density and various aspects with respect to urbanized places.	1	3	3	2	3	-	-	2	3	3	3	3	-	2	2

818ARE01 **ARCHITECTURAL CONSERVATION** **L T P C**

3 0 0 3

COURSE OBJECTIVES:

- To outline the status of conservation practice in the country and the various guidelines for thepreservation, conservation and restoration of buildings.
- To inform about the character and issues in Indian heritage towns through case studies.
- To understand the concepts of conservation in adaptive reuse of Buildings Through caseexamples.
- To understand the various issues and practices of conservation in architecture.
- To provide familiarity with the status of conservation in India and the various agencies involved in the field of conservation worldwide and their policies.

UNIT I INTRODUCTION TO HERITAGE AND CONSERVATION **12 Hrs**

Importance of heritage. Need, debate and purpose of conservation. History of conservation movement. International agencies like ICCROM, ICOMOS, UNESCO and their role in conservation. Charters. Principles and ethics of conservation. Scope and approaches to conservation - material based, value based, living heritage. Issues of historicity, authenticity, preservation, restoration, transformation, conservation. Conservation, preservation and adaptive reuse.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

UNIT II CONSERVATION IN INDIA **7 Hrs**

Museum conservation. Monument conservation and the role of ASI, SDA, INTACH. Central and state government policies and legislations. Inventories and projects. Selected case studies of sites such as Hampi, Golconda, Mahabalipuram. Craft Issues of conservation.

UNIT III CONSERVATION MATERIALS, METHODS AND STRUCTURAL SYSTEMS **10 Hrs**

Investigation techniques and tools. Behavior of historic materials and structures. Problems with masonry, foundation. Repair methods, traditional and modern methods. Seismic retrofit, services additions and disabled access to historic buildings. Moisture and pollution problems.

UNIT IV CONSERVATION PRACTICE **7 Hrs**

Listing of monuments. Documentation of historic structures. Assessing architectural character. Historic structure report. Guidelines for preservation, rehabilitation and adaptive re-use of historic structures. Case studies of palaces in Rajasthan, dwellings in Chettinad and Swamimalai. Heritage site management.

UNIT V CONSERVATION STRATEGIES **9 Hrs**

Understanding the character and issues of historic towns. Cultural landscapes. Selected case studies. Historic districts and heritage precincts. Heritage Conservation planning & integration through smart cities program. Financial incentives and planning tools such as TDR. Heritage tourism. Community based approach to conservation and public participation. Conservation management. Case studies of sites like Cochin, Pondicherry French town.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: An understanding of the importance of heritage and scope of conservation.
CO 2: Familiarity with issues and practices of conservation through case studies.
CO 3: Knowledge about methods for preserving and repairing historic buildings.
CO 4: Familiarity with conservation strategies through principles and project case studies.
CO 5: Familiarity with the status of conservation in India and the various agencies involved in the field of conservation worldwide and their policies.

TEXT BOOKS:

1. Bernard Fielden, 'Conservation of Historic Buildings', Architectural Press, 2003.
2. Bernard Fielden, 'Guidelines for Conservation - A Technical Manual', INTACH, 1989.
3. MS Mathews, 'Conservation Engineering', University at Karlsruhe, 1998.
4. J. Kirk Irwin, 'Historic Preservation Handbook', McGraw Hill, 2003.
5. Donald Appleyard, 'The Conservation of European Cities', M.I.T. Press, Massachusetts, 1979. Publications of INTACH

REFERENCES:

1. James M. Fitch, 'Historic Preservation: Curatorial Management of the Built World', University Press of Virginia, Reprint Edition,1990.
2. Robert E. Stipe, 'A Richer Heritage: Historic Preservation in the Twenty-First Century', Universityof North Carolina Press, 2003.
3. B.P. Singh, 'India's Culture- The State, The Arts and Beyond', Oxford University Press, 2009
4. A.G. K. Menon (Ed), 'Conservation of Immovable Sites', INTACH Publication, N. Delhi.
5. John H. Stubbs and Emily G Makas. 'Architectural Conservation in Europe and the Americas', John Wiley and Sons, 2011.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	An understanding of the importance of heritage and scope of conservation.	2	2	3	3	3	2	-	3	3	3	3	-	2	3	3
CO2	Familiarity with issues and practices of conservation through case studies.	2	2	3	3	3	2	-	3	3	3	3	-	2	3	3

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

CO3	Knowledge about methodsfor preserving and repairing historic buildings.	2	2	3	3	3	2	-	3	3	3	3	-	2	3	2
CO4	Familiarity with conservationstrategies through principles and project case studies.	2	2	3	3	3	2	-	3	3	3	3	-	2	3	2
CO5	Familiarity with the status of conservation in India and the various agencies involved in the field of conservation worldwide and their policies.	2	2	3	3	3	2	-	3	3	3	3	-	2	3	1

818ARE02 INDUSTRIAL ARCHITECTURE L T P C

3 0 0 3

COURES OBJECTIVES:

- The student will be able to understand the distinction between industrial architecture and industrialized building and get an exposure of all emergence of this typology in U.K, U.S.Aand other Industrialized Countries.
- To students are exposed to factors which influence the design process such as storage, requirements, circulation, movement, areas, linkages and environment in a general manner.
- The students get an exposure to various internationally known architects' contribution and the philosophy of functionalism and international style which contributed to this typology through case – studies.
- The students are exposed to the process and importance of programming aspects including waste management and various zoning, regulatory and legal framework in India.
- The students are made aware of the responsibilities of the architect and how to approach design with flexibility.

UNIT I DEFINITION AND HISTORIC CONTEXT 6 Hrs

Meaning of industrial architecture, scope, context and distinction between it and industrialized buildings – history of factory buildings- – impact of industrial revolution – origin in the context of Britain and the United states – Impact of materials and technology in 1900's and emergence of new aesthetics in architecture.

UNIT II PIONEERS AND ARCHITECT'S ROLE 9 Hrs

Study of examples of pioneer to include Peter Behrens, Max Berg, Hans Poelzig's and P.L.Nervi – impact of expressionism and international style – Responsibility of architects in – innovative corporate image, understanding building engineering and understanding industrial environments through Indian case – studies

UNIT III DESIGN PRINCIPLES AND PROGRAMMING 12 Hrs

Zoning principles, factories Act and Rules (1948) – in India – Role of pollution control boards, organizing principles – Programming aspects to include need, spatial relationships, Access, Layout and user facilities -classification of industrial occupancy-patterns of industrial estates-integrated aspects of design-general requirements of different types of industries – factory and landscape-Environmental control to include working conditions, atmospheric control, visual factors andwaste management.

UNIT IV EVOLUTION AND PROCESS 9 Hrs

Automation techniques and impact on process circulation and area requirements – influence on design – internal and external environment control – Precautions at site.Industrial structures- steel

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

structures and concrete structures-requirements of various finishing works- Feasibility of using industrial building system- Technology requirements for industrial building system – use of Industrial building system

UNIT V CONTEMPORARY TRENDS AND FUTURE 9 Hrs

Analytical approach involving – technical, social, geographical aspects, corporate philosophy and manufacturing equipment's, critical issues involving master plan, Material handling, Functional process, Time and cost and structural resolutions – Flexibility in planning, design and technology.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: The importance of industrial architecture and can be understood based on the various aspects such as history and materials and technology

CO 2: The students get an exposure to various style and design aspects of industrial architecture

CO 3: The students get an exposure to Zoning principles, factories Act and Rules

CO 4: The students get an exposure to Environmental control details with respect to various industries

CO 5: The students can understand the Contemporary trends involved in the industrial architecture

TEXT BOOKS:

1. Bradley, Betsy Hunter. *The Works: The Industrial Architecture of the United States*. New York: Oxford University Press, 1999.
2. Jefferies, Matthew. *Politics and Culture in Wilhelmine Germany: The Case of Industrial Architecture*. Washington, D.C.: Berg, 1995.
3. Jevremović, Ljiljana; Turnšek, Branko A. J.; Vasić, Milanka; and Jordanović, Marina. "Passive Design Applications: Industrial Architecture Perspective", *Facta Universitatis Series: Architecture and Civil Engineering*, Vol. 12, No. 2 (2014): 173–82.
4. Jones, Edgar. *Industrial Architecture in Britain, 1750–1939*. New York: Facts on File, 1985.
5. McGowan, F.; Radosevic, S.; and Tunzelmann, N. von. *Emerging Industrial Architecture in Europe*. Hoboken: Taylor and Francis, 2004.
6. Winter, John. *Industrial Architecture: A Survey of Factory Building*. London: Studio Vista, 1970.

REFERENCES:

1. James F. Munce – Industrial Architecture – F. W. Dodge Corporation – New York - 1980
2. Grant Hildebrand – Designing for Industry – The M.I.T. Press, Cambridge, New York – 1984.
3. United nation Volume – Trends in Industrialization of Buildings – New York – 1970.
4. Kenneth Reid – Industrial Buildings – F.W. Dodge Corporation, New York – 1961.
5. Friedmank Wild – Design and Planning Factories – Van Nostrand Reinhold / New York – 1982.
6. National building code of India

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	The importance of industrial architecture and can be understood based on the various aspects such as history and materials and technology	1	1	-	3	-	3	2	-	-	-	-	-	3	3	1
CO2	The students get an exposure to various style and design aspects of	1	1	-	3	-	3	2	-	-	-	-	-	3	3	2

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

	industrial architecture															
CO3	The students get an exposure to Zoning principles, factories Act and Rules	1	1	-	3	-	3	2	-	-	-	-	-	2	2	-
CO4	The students get an exposure to Environmental control details with respect to various industries	1	1	-	3	-	3	2	-	-	-	-	-	-	-	1
CO5	The students can understand the Contemporary trends involved in the industrial architecture	1	1	-	3	-	3	2	-	-	-	-	-	3	3	2

818ARE03 **PROJECT MANAGEMENT** **L T P C**

3 0 0 3

COURSE OBJECTIVES:

- To introduce different management techniques suitable for planning and construction projects.
- To introduce the concept and construction methodology in relation to architectural services.
- To enable understanding of management systems for accomplishing the task efficiently in terms of quality, time and cost.
- To Provide Understanding on the aspects of construction technologies related to building projects.
- To disseminate the application of project management in various spaces of project embracing various processes.

UNIT I INTRODUCTION TO PROJECT MANAGEMENT **7 Hrs**

Project management concepts. Objectives, planning, scheduling. Controlling and role of decision. In project management. Traditional management system. Gantt's approach. Load chart. Progress chart. Development of bar chart, merits and demerits. CPM networks, merits and demerits. PERT network. Introduction to the theory of probability and statistics.

UNIT II PROJECT PROGRAMMING AND CRITICAL PATH METHOD **11 Hrs**

Project network. Events activity. Dummy. Network rules. Graphical guidelines for Network. Numbering the events. Cycles. Development of network-planning for network construction. Models of network construction. Steps in development of network. Work break down structure. Hierarchies. Critical path method - process, activity time estimate, earliest event time, latest allowable occurrence time, start and finish time of activity, float, critical activity and critical path problems.

UNIT III RESOURCE PLANNING **7 Hrs**

Cost model- project cost, direct cost, indirect cost, slope curve, total project cost. Optimum duration contracting the network for cost optimization. Steps in cost optimization, updating, resource allocation, resource smoothing, resource leveling.

UNIT IV COMPUTERISED PROJECT MANAGEMENT **11 Hrs**

Creating a new project, building task. Creating resources and assessing costs, refining project. Project tracking, recording actual. Reporting on progress. Analysing financial progress. Introduction to BIM.

UNIT V CONCEPT TO COMMISSIONING **9 Hrs**

Project feasibility study. Real estate and regulatory strategies. Facility programming and planning. Design management. EPC. Testing and commissioning.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: Ability to apply project management techniques in achieving objectives of a project like client needs quality, time and cost.

CO 2: An understanding of principles of management, construction scheduling, scope definition and team roles.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

CO 3: Ability to understand a project from concept to commissioning, feasibility study and facility programme, design, construction to commissioning.
CO 4: Got exposed to the computerized project management and reporting its progress.
CO 5: understood about the application of project management in various spaces of project embracing various processes.

TEXT BOOKS:

1. Dr. B.C. Punmia and K.K. Khandelwal, 'Project Planning and Control with PERT and CPM',
2. Laxmi Publications, 2018.
3. Elaine Marmel, 'Microsoft Project 2016 Bible', Prentice Hall, 2016.
4. Sam Kubba, 'Green Construction Project Management and Cost Oversight', Elsevier, 2010.

REFERENCES:

1. Jerome D. Wiest and Ferdinand K. Levy, 'A Management Guide to PERT/CPM', Prentice Hall of India, 1982.
2. Bert Bielefeld, 'Basics Project Management Architecture', Birkhauser, 2013.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Ability to apply project management techniques in achieving objectives of a project like client needs quality, time and cost.	-	-	-	-	-	-	2	-	-	-	-	3	3	2	2
CO2	An understanding of principles of management, construction scheduling, scope definition and team roles.	-	-	-	-	-	-	2	-	-	-	-	3	-	-	-
CO3	Ability to understand a project from concept to commissioning, feasibility study and facility programme, design, construction to commissioning.	-	-	-	-	-	-	2	-	-	-	-	3	3	2	2
CO4	Got exposed to the computerized project management and reporting its progress.	-	-	-	-	-	-	2	-	-	-	-	3	2	2	3
CO5	Understood about the application of project management in various spaces of project embracing various processes.	-	-	-	-	-	-	2	-	-	-	-	3	2	2	2

818ARE04 **DISASTER MITIGATION AND MANAGEMENT** **L T P C**

3 0 0 3

COURSE OBJECTIVE:

- To create an understanding of the causes and consequences of disasters and increase awareness to disaster resistant design issues as a significant source of inspiration to facilitate the integration of structure and architectural design.
- To create an awareness of all types of disaster resistant building designs and management systems.
- To expose the students to the different types of natural and man-made disasters and the various methods of managing them.
- To ensure the disaster resistant construction techniques is also important for seismic prone zone.
- To understand the disaster resistance structure techniques through various examples.

UNIT I NATURAL HAZARDS AND BUILDING SAFETY 9 Hrs

Natural hazards- Brief description on cause and formation of flood, cyclone, earthquake, tsunami and landslides. Zoning and classification by Center/ State government organizations.Geologic hazards and natural disasters- how to recognize and avoid them- hazards of faulting- hazards of geologic foundations- problems of land fill, hill sites, coastal sites, bayside, riverside, oldwater course sites.

UNIT II MAN MADE HAZARDS AND BUILDING SAFETY 4 Hrs

Manmade hazards- Fire, gas, chemical leakages, pollution, and health hazards. Manmade disasters- vulnerability analysis and risk assessment.

UNIT III CONCEPTS FOR DISASTER RESISTANT DESIGN 12 Hrs

Vernacular and historical experiences- case studies. Site selection and site development- building forms- seismic effects related to building configuration- spatial aspects- contemporary/international approaches for low rise, mid-rise and high-rise buildings. Seismic design principles and concepts- ductility based design and seismic base isolation.

UNIT IV ARCHITECTURAL AND STRUCTURAL HAZARDS OF NATURAL DISASTERS 12 Hrs

Principles of wind forces, earthquake forces on buildings- best and worst- types of construction for cyclone and earthquake resistance. Innovations and selection of appropriate materials- IS code provisions for buildings- disaster resistant construction details.

UNIT V INTERIOR/ UTILITY DAMAGES- REMEDIES AND POST OPERATIVEMEASURES FOR DISASTER MANAGEMENT 8 Hrs

Methods to minimize damage to Utilities – plaster/ wall boards/ furnishings/ swimming pools/ antennas/ free standing retaining masonry walls Other remedies and post-operative measures- cyclone and earthquake insurance- Training for before and after natural hazards and ways to protect family, property and oneself from natural calamities. Role of international, national and state bodies- CBRI, NBO and NGOs in disaster mitigation and community participation.

TOTAL : 45 Hrs

COURSE OUTCOME:

CO 1: Student's ability to understand the formation and causes of various disasters and the factors to be considered in the Design of buildings and services to resist them.
CO 2: Case study of the disasters happened worldwide could be presented.
CO 3: Exposed the students to the different types of natural and man-made disasters.
CO 4: Understood the architectural and structural design for hazardous structure.
CO 5: Gained knowledge about the post-operative measures for disaster management.

TEXT BOOKS:

1. 'Belen Garcia;- Earthquake Architecture 2000- Loft Publications, NY
2. Naseem Ahmed- Managing Disasters- Kilaso Books N. Delhi, 2003
3. Tarnath B S; Wind and Earthquake resistant buildings- Marcel Dekkar,2005

REFERENCES:

1. Mary C Comerio; Disaster Hits Home, New policy for Urban Housing Recovery, Oxford University Press, London; 2001
2. Proceedings – Learning from practice- Joint US and Italy Workshop- October 18- 23; 1992;National Science Foundation; US
3. Earthquake Resistant Design and Construction of buildings- Code of Practice- Bureau of

IndianStandards; 1993

4. Encyclopedia of Disaster Management Policy and Administration, Vol. I, S. L. Goel, Deep of Deep Publication Pvt. Ltd., New Delhi, India.

Encyclopedia of Disaster Management Policy and Administration, Vol. II, S. L. Goel, Deep ofDeep Publication Pvt. Ltd., New Delhi, India.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Student's ability to understand the formation and causes of various disasters and the factors to be considered in the Design of buildings and services to resist them.	-	-	-	1	-	-	-	-	-	-	1		3	-	-
CO2	Case study of the disasters happened worldwide could be presented.	-	-	-	2	-	-	-	-	-	-	1		3	-	-
CO3	Exposed the students to the different types of natural and man-made disasters.	-	-	-	1	-	-	-	-	-	-	1		3	2	2
CO4	Understood the architecturaland structural design for hazardous structure.	-	-	-	3	-	-	-	-	-	-	1		2	2	3
CO5	Gained knowledge about the post-operative measures for disaster management.	-	-	-	1	-	-	-	-	-	-	1		1	2	-

818ARE05 **URBAN AND REGIONAL PLANNING** **L T P C**

3 0 0 3

COURSE OBJECTIVE:

- To understand the contemporary issues in urban planning.
- To familiarize with simple Town planning techniques.
- To understand the changing scenario in the context of globalization.
- To Analyze the Futuristic concepts of urban & Regional planning through Theories.
- To provide insight to the students about the basic urban and regional planning concept and its techniques in the overall understanding of classification of settlements, land-use, zoning and types of development plan

UNIT I INTRODUCTION TO URBAN AND REGIONAL PLANNING **9 Hrs**

Influence of socio-economic factors in the development of human settlements, growth and decay of human settlements. Classification of settlements: Classification based on population, functions, locations, Municipal status. Town and its land uses, graphical representation and colour, character of a town, categories of a town, densities of a town, Principles, Advantages and types of Zoning.

UNIT II REGIONAL PLANNING **8 Hrs**

Introduction to Regional Planning - Types of Region – Regional Policies - Principles & Methodologies of Regional Planning - Constraints &factors for consideration of regional plans- Case studies ofregional planning.

UNIT III URBAN PLANNING **12 Hrs**

Introduction to Urban Planning -Types of Plans – Perspective Plan, Structure Plan, Master plan,

Comprehensive Plan, Detailed DevelopmentPlan, City Corporate Plan, Business Plan - Its Scope & Contents - Data Collection – Future proposals & Policies– coding of land useMaps – Development Regulations & Bye laws – Limitations. Contemporary problems of settlements, Environmental impact of unplanned growth.

UNIT IV PLANNING TECHNIQUES 8 Hrs

Data Collection Techniques, Types of Surveys, Data and Map Analytical Techniques, Applying Carrying Capacity for Urban and Regional planning, Threshold Analysis – Factors taken into consideration to assess the most suitable land use & weighted overlay of Land suitability, Projection Techniques - Population Projection and Economic Projection, Plan formulation through Remote Sensing & Geographic Information System.

UNIT V FUTURISTIC CONCEPT 8 Hrs

Basic concept in New Urbanism, Smart growth, TOD, Form-Based Codes, Rural village, Transect Future of cities and cities of future - Sustainable cities, Intelligent cities, Livable cities, Resilient cities, Smart Cities, Global city, Eco city, Compact city, Vertical urbanism, MediCity, Sports city.

TOTAL : 45 Hrs

COURSE OUTCOME:

CO 1: The student will understand and exposed to classification of settlements, land-use, zoning, typesof development plan, will be acquainted with the current issues in urban planning.
CO 2: The students will be familiarized with simple Town planning techniques and futuristic concepts.
CO 3: Understood the changing scenario in the context of globalization.
CO 4: Exposed to the planning techniques of various region.
CO 5: Gained the knowledge about the Futuristic concepts of urban & Regional planning through Theories.

TEXT BOOKS:

1. "The urban pattern: City planning and Design" by Gallion and Eisner.
2. "Urban planning" by Chapin
3. "Urban and Regional planning" by Remegowda

REFERENCES:

1. Anthony James Catanese, James C. Snyder, Urban Planning, McGraw-Hill, 1988
2. Peter Hall, Urban & Regional Planning, Routledge, Taylor & Francis Group, London, 2002
3. RameGowde K.S., Urban & Regional Planning, Prasaranga University of Mysore, 1972
4. John Ratcliffe, An Introduction to Town and Country Planning, Hutchinson 1981
5. Arthur B. Gallion and Simon Eisner, The Urban Pattern – City planning and Design, Van Nostrand Reinhold company
6. Rangwala, Town Planning, Charotar publishing house
7. G.K.Hiraskar, Town Planning
8. Town Planning, A.Bandopadhyay, Books and Allied, Calcutta 2000

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	The student will understand and exposed to classification of settlements, land-use, zoning, types of development plan, will be acquainted with the current issues in urban planning.	-	3	1	3	3	-	2	3	3	3	2	2	3	3	3

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

CO2	The students will be familiarized with simple Town planning techniques and futuristic concepts.	-	3	1	3	3	-	2	3	3	3	3	3	3	3	2
CO3	Understood the changing scenario in the context of globalization.	2	3	1	3	3	-	2	3	3	3	3	3	2	3	2
CO4	Exposed to the planning techniques of various region.	2	3	1	3	3	-	2	3	3	3	3	3	2	2	3
CO5	Gained the knowledge about the Futuristic concepts of urban & Regional planning through Theories.	2	3	1	3	3	2	2	3	3	1	3	1	2	2	2

818ARE06 **CONTEMPORARY HOUSING** **L T P C**

3 0 0 3

COURSE OBJECTIVES:

- To introduce housing in the Indian context and the various agencies involved in the productionof housing.
- To make them sensitive to the critical social and economic issues related to housing with the emphasize on the analytical study of relevant housing initiatives.
- To outline factors, aspects and standards related to housing.
- To inform about the various housing design typologies and the processes involves in housingproject development.
- To inform about current issues and aspects in housing.

UNIT I INTRODUCTION TO HOUSING AND HOUSING ISSUES IN INDIA 9 Hrs

Housing and its importance in architecture, its relationship with neighborhood and city planning. Housing demand and supply. National Housing Policy. Housing agencies and their role in housing development. Impact of life style. Rural Housing. Public and private sector housing.

UNIT II SOCIO-ECONOMIC ASPECTS 9 Hrs

Economics of housing. Social economic factors influencing housing affordability. Formal and informal sector. Equity in housing development. Sites and services. Slum housing, up gradation and redevelopment. Low Cost Housing. Health principles in housing. Legislation for housing development. Cost-effective materials and technologies for housing. Case studies in India and developing countries.

UNIT III HOUSING STANDARDS 8 Hrs

UDPFI guide lines, standard and regulations. DCR. Performance standards for housing.

UNIT IV SITE PLANNING AND HOUSING DESIGN 11 Hrs

Site Planning for housing. Selection of site for housing, consideration of physical characteristics of site, location factors, orientation, climate, topography, landscaping. Integration of services and parking. Housing design relating to Indian situations – traditional housing, row housing, cluster housing, apartments, high-rise housing. Case studies in India of the various types.

UNIT V CURRENT ASPECTS AND ISSUES IN HOUSING 8 Hrs

Green building and sustainable practices. Disaster resistance and mitigation. Prefabrication Communityparticipation.

TOTAL: 45 Hrs

COURSE OUTCOME:

CO 1: Knowledge of various issues concerning housing and housing development in Indian and globalcontext covering a cross section of income groups.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

CO 2: Ability to appreciate socio-economic aspects in housing.
CO 3: An understanding of housing standards, site planning principles, housing concepts and types.
CO 4: An understanding of key issues in housing today.
CO 5: Student understood the field of housing and its significance through different typologies owingto its geographical, cultural, social and economic distinctions.

TEXT BOOKS:

1. Christopher Alexander, 'A Pattern Language', Oxford University Press, New York 1977.
2. Leuris S, 'Front to Back: A Design Agenda for Urban Housing', Architectural Press, 2006.
3. S.K.Sharma, 'Mane A New Initiative in Public Housing', Housing and Urban Development
4. Corporation, 1991.

REFERENCES:

1. Richard Kintermann and Robert Small, 'Site Planning for Cluster Housing', Van NostrandReinhold Company, London/New York, 1982.
2. Joseph de Chiara et al, 'Time Saver Standards for Housing and Residential Development',McGraw Hill Co, New York, 2011.
3. Forbes Davidson and Geoff Payne, 'Urban Projects Manual', Liverpool University Press, Liverpool 1983.
4. HUDCO Publications, 'Housing for Low Income, Sector Model'.
5. 'Sustainable Building Design Manual: Vol 1 and 2',The Energy Research Institute, 2015.

A.K.Lal, 'Handbook of Low Cost Housing', New Age International Private Limited, 2011.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Knowledge of various issues concerning housing and housing development in Indian and global context covering a cross section of income groups.	2	2	1	2	2	-	-	3	3	3	3	2	2	3	2
CO2	Ability to appreciate socio- economic aspects in housing.	-	2	1	3	3	-	-	3	3	3	3	2	3	3	2
CO3	An understanding of housing standards, site planning principles, housing concepts and types.	2	3	3	3	2	3	2	3	3	3	3	2	3	3	2
CO4	An understanding of key issues in housing today.	2	3	3	3	3	3	2	3	3	3	3	2	-	2	1
CO5	Student understood the field of housing and its significance through different typologies owing to its geographical, cultural, social and economic distinctions.	2	3	3	2	3	3	2	3	3	3	3	2	2	3	3

818ARE07 **STEEL IN ARCHITECTURE AND DESIGN** **L T P C**

3 0 0 3

COURSE OBJECTIVES:

- To introduce the design potential of steel as a material in construction and its inherent structuralbenefits.
- To inform about the various components of steel as structural and aesthetic design through casestudies.
- Its ability to create architecturally interesting or long-span solutions which is cost effective.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

- To provide familiarity with the best practices of steel as a construction material.
- To provide flexibility to express or conceal a building's structural frame, either externally or internally, and can help facilitate the artistic expression the client desires

UNIT I INTRODUCTION TO STEEL AS BUILDING MATERIAL 8 Hrs

Materiality of steel, structural properties of steel, advantages of steel in construction. History of metal in construction – Iron to Steel. Steel and tension. Industrialization and mass fabrication of steel. Casting of steel in historic and contemporary examples. Invention of hollow structural sections. Hot rolled steel shapes, various hollow structural sections.

UNIT II HIGH TECH AND CONTEMPORARY ARCHITECTURE 10 Hrs

Introduction to high tech movement. Understanding of various typologies of high tech movement – Extruded, Grid/Bay, Diagrids, arched/ curved structures, tensile. Advantages of diagrids over standard frames. Curved steel – creating curves in steel buildings, limitations in curving steel. Evolution of AESS (architecturally exposed structural steel) through high tech movement.

UNIT III STRUCTURAL EXPRESSION OF STEEL 10 Hrs

Introduction to AESS (architecturally exposed structural steel), standard structural steel versus AESS. Factors that define AESS. Characteristics and categories of AESS. Connection types for AESS – bolted, welded and cast connections. Member types for AESS – Tubular and standard sections. Various steel frame design, basic connection strategies, basic understanding of steel floor systems, truss systems and braced systems.

UNIT IV SUSTAINABILITY, STEEL AND OTHER MATERIALS 9 Hrs

Introduction to steel as a sustainable material. Recycled, reuse and adaptive reuse of steel. Steel and glazing systems, support systems for glazing. Technical aspects of combining steel with glass. Various steel and glass envelope systems - curtain wall system, wind braced support systems, cable net walls, spider steel connections with structural glass, simple and complex cable systems. Handling curves and lattice shell construction. Advanced framing system – Steel and Timber. Low carbon design strategies.

UNIT V FABRICATIONS, ERECTION AND IMPLICATIONS ON DESIGN 8 Hrs

Study on transformation of architectural design into fabricated elements. Study of process profile through case studies. Role of physical and digital models in fabrication. Steel in temporary/ exhibit buildings. Need for corrosion and fire protection. Various finishes and coating systems of steel. Detailed study on corrosion protection and fire protection systems. Transportation, site issues and erection on site. Erection of beams and columns. Effects of climate and weather on erections. Other issues relating to practical implication of design on site.

TOTAL: 45 Hrs

COURSE OUTCOMES:

CO 1: Ability to understand the concepts of designing with steel structures and its components.

CO 2: Understanding about the tubular members to provide efficient design with aesthetically slender members.

CO 3: Student can able to understand the combination of form and function of steel and as an expression of a whimsical playful intent while at the same time functioning as a primary load carrying system.

CO 4: An understanding of steel as a structural, functional and aesthetic material in design and construction practice.

CO 5: Understood the significance of the use of steel technologies and evidence to support thearchitects' needs and also outlines how the steel construction procurement process works in the construction fields.

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

TEXT BOOKS:

1. TerrimeyerBuake, 'Architectural Design in Steel', SPON, 2004.
2. Peter Silver et al, 'Structural Engineering for Architects', Laurence King, 2013.

REFERENCES:

1. Victoria Ballard Bell& Patrick J Rand; 'Materials for Architectural Design', Lawrence King, 2006.Ettinger J. Van et all(Editors), 'Modern Steel Construction in Europe', Elsevier,1963.
2. Benevolo, Leonardo, History of Modern Architecture, 2 Volumes', Routledge & Kegan Paul, 1960.
3. 'Handbook of Steel Construction', Canadian Institute of Steel Construction, 2010.
4. JohnLeckie, 'Steel and Other Materials', Canadian Institute of Steel Construction, 2007.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Ability to understand the concepts of designing with steelstructures and its components.	-	-	2	3	3	3	2	1	3	3	3	2	1	2	2
CO2	Understanding about the tubular members to provide efficient design with aesthetically slender members.	-	-	1	3	3	3	2	-	3	3	3	2	-	-	3
CO3	Student can able to understand the combination of form and function of steel and as an expression of a whimsical playfulintent while at the same time functioning as a primary load carrying system.	2	3	3	3	3	3	2	1	3	3	3	2	2	3	2
CO4	An understanding of steel as a structural, functional and aesthetic material in design and construction practice.	2	3	3	3	3	3	2	1	3	3	3	2	-	3	-
CO5	Understood the significance of the use of steel technologies and evidence to support the architects' needs and also outlines how the steel construction procurement process works in the construction fields.	2	3	3	3	3	3	2	-	3	3	3	2	2	2	3

818ARE08 **ENVIRONMENTAL PLANNING AND DESIGN** **L T P C**

3 0 0 3

COURSE BJECTIVES:

- To know ecology and ecological balance and its resources.
- To know EIA methods and assessment to adopt in planning.
- To know the norms and guidelines the Environment planning and its relationship.
- To know the standards and method to adopted for the various places and its needs.
- To know the evaluation techniques and environmental design.

UNIT 1 INTRODUCTION **6 Hrs**

Introduction to Ecology; Ecosystem, Ecological balance, Biospheres, renewable energy and

nonrenewable energy, resource identification and its implications for development – soil, water, land, plants. Preparation and analysis of resource inventories.

UNIT II ENVIRONMENTAL IMPACT ASSESSMENTS 7 Hrs

Environmental impact assessment Methodologies and Techniques.

UNIT III ENVIRONMENTAL LEGISLATION 10 Hrs

Significance of law and its relationship to development, evolution of planning legislation. National environmental policy. Significance of law and its relationship to development.

UNIT IV PLANNING TECHNIQUES 10 Hrs

Essence of good planning, integration of environmental assessment and planning options, Priorities andstrategies for development on urban, coastal and hilly ecosystems.

UNIT V EVALUATION TECHNIQUESAND INDOOR DESIGN 12 Hrs

Cost benefit analysis, planning balance sheet and goal achievement matrix. Parameters for indoor environmental design- indoor air quality, lighting for Residential spaces

TOTAL : 45 Hrs

COURSE OUTCOMES:

CO 1: Understanding the basic environmental resources and its pro's and con's.

CO 2: Understanding the EIA methods and datasheets development.

CO 3: Understanding the legislation and its norms adopted to overcomes the causes

CO 4: Understanding the planning techniques and its measurement to value the EIA through different cases.

CO 5: Provided Insights to students on the recent environmental planning. And understood the impact of man's activities on the environment & knowledge about the methods to ameliorate the negative impacts.

TEXT BOOKS:

1. Richard P Dober-Environmental Design – VNR company, Newyork.1969.
2. Environmental Land use and Planning and Management – john Randolph
3. The Environmental Planning Handbook For Sustainable communities and Regions by Tom Daniels - 2 edition April 2019

REFERENCES:

1. Earthscape- Manual of Environmental Planning and Design, John OrmsbeeSimond, Van NostrandReinhold Company,1978.
2. Albert J Rutledge- Anatomy of park-McGraw Hill book co., USA 1971
3. Harvey M Rubenstein – A guide to site and environment planning, 3rd vol., John Wiley & Sons-New York 1987

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Understanding the basic environmental resources and its pro's and con's.	2	2	-	1	3	2	-	3	-	-	-	-	3	3	3
CO2	Understanding the EIA methods and datasheets development.	2	2	-	3	3	2	-	3	-	3	-	-	-	-	-
CO3	Understanding the legislation andits norms adopted to overcomes	2	2	-	2	3	2	-	3	-	-	-	-	-	-	-

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

	the causes															
CO4	Understanding the planning techniques and its measurement to value the EIA through different cases.	2	2	-	3	3	2	-	3	3	3	-	-	3	3	1
CO5	Provided Insights to students on the recent environmental planning. And understood the impact of man's activities on the environment & knowledge about the methods to ameliorate the negative impacts.	-	-	3	3	3	2	-	3	3	3	3	-	2	1	2

918ARP01 **INTERNSHIP PROGRAM** **L T P C**

0 0 0 10

COURSE OBJECTIVES:

- To give overall exposure to the practice of architecture, its scope, needs and challenges Architectural practice.
- To facilitate an understanding of the evolution of an architectural project from design to execution.
- To enable an orientation that would include the process of development of conceptual ideas, presentation skills.
- To provide knowledge and involvement in office discussions, client meetings.
- Development of the concepts into working drawings, tendering procedure, site supervision during execution and coordination with the agencies involved in the construction process.

OUTLINE:

The internship program would be done in offices with a minimum of 5 years professional Experience empanelled by the Institution and in firms registered under the Council ofArchitecture.

The progress of practical training shall be assessed internally through submission of log books supported by visual documents maintained by students every month along with the progress report from the employer/s of trainees.

The student is expected to be exposed to preparation of working drawing, detailing, and preparation of architectural models, computer applications in design and drafting, filing systemin respect ofdocuments, drawing and preparation of tender documents. Site experience may be given inrespect of supervision of the construction activity, observing the layout on site, study of thestacking methods of various building materials, study of taking measurement and recording.
Students will have to maintain a day to day record of their engagement for the period of training. This will be recorded in an authorized diary to be counter signed by the architect at the end of each month and the same diary shall be sent to the department once in a month. At the end of the training period, a student will have to produce a certificate of experience and satisfactory performance from the concerned office in the prescribed format.

At the end of the Internship program a portfolio of work done during the period of internship along with certification from the offices are 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 service integration and the knowledge gained during client meetings, consultant meetings and site visits.

TOTAL: 16 WEEKS

COURSE COUTCOMES:

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous),
Dr. M.G.R. Nagar, HOSUR - 635130

CO1: Clarity about the field of architecture with the various stages of works.

CO2: An understanding about the total process that goes into the making of a building and execution.

CO3: An overall idea of the nuances of architectural practice.

CO4: To give familiarity about client meeting and tendering.

CO5: To provide exposure to the various dimensions of architectural practice through an intensive internship program.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Clarity about the fieldof architecture with the various stages of works.	3	3	2	3	3	3	3	2	3	3	3	3	3	2	3
CO2	An understanding about the total process that goes into the making of a building and execution.	3	3	3	3	3	3	3	2	3	3	3	3	3	2	3
CO3	An overall idea of the nuances of architectural practice.	2	3	2	3	3	2	1	2	3	3	3	3	3	2	3
CO4	To give familiarity about client meeting and tendering.	1	3	1	3	3	3	3	2	3	3	3	3	3	2	3
CO5	To provide exposure to the various dimensions of architectural practice through an intensive Internship program.	2	3	1	3	3	3	3	2	3	3	3	3	3	2	3

1018ARP01 **THESIS** **L T P C**

0 0 36 16

COURSE OBJECTIVES:

- To enable addressing of specific projects through key identified issues inherent in the project or to enabledevelopment of thought processes in specific areas/aspects into a project.
- To facilitate development of ability to complete and handle projects independently as a precursor to professional life.
- To ensure consolidation and application of the knowledge gained in preceding years of the programme towards a design topic of the student's choice.
- To demonstrate the students' capability of synthesizing architecture, engineering systems, social sciences and humanities through a capstone project which showcases creative and critical thinking abilities and skills developed through the course.
- To expose the students to handle the Architectural design projects and research Projects.

CONTENT:

Students would choose a topic of their choice to pursue in terms of idea exploration and/or design potential which they would undertake to completion. The topic could be project based needing specific areas of study/approach or study based/thought-process based leading to a project. If it is the latter, care should be taken to have topics that have or lead to sufficient architectural design component/content which is the primary fieldof study in the programme.

Students would submit the topic for approval with a rough outline of the nature of the project, area of interest,study and design scope, challenges, possible case studies and/or areas of study, methodology and outcome. The areas of study/research/design can include any of the broad areas of the discipline - contemporary needs of society, history, theory, sustainability, structural or service oriented design, projects that involve complex planning and integration of several aspects, appropriate architecture, urban design, contemporary processes, social housing, urban oriented architectural design,

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130

conservation oriented architectural design.

The progress of work will be reviewed periodically throughout the semester. At the end of the semester, they would submit the thesis project. The final submission will include study sheets, optional study models, design concept/approach sheets, optional conceptual design/process models, design presentation sheets, final model, working drawings and detailed drawings of a selected part of the project, project report which summarizes theentire thesis work and soft copy of all the work.

TOTAL: 540 PERIODS

COURSE OUTCOME:

CO 1: Skill, knowledge and expertise in the domain of architectural design.
CO 2: Ability to handle a major architectural project independently through all stages.
CO 3: Exposed the students to choose their topic as per the demand in the current scenario.
CO 4: Student understood the relationship between Architecture Engineering systems, social science and humanities.
CO 5: Ability to independently handle an Architectural Design Project, research the requirements of a project,Prepare a brief, try alternative approaches/ concepts, and evaluate them on way to make a final comprehensiveproposition.

TEXT BOOKS:

1. Linda Grant and David Wang, 'Architectural Research Methods', John Wiley Sons, 2002.

REFERENCES:

1. Donald Appleyard, 'The Conservation of European Cities,M.I.T. Press, Massachusetts, 1979.
2. Richard Kintermann and Robert Small 'Site Planning for Cluster Housing', Van Nostrand Reinholdcompany, London/New York, 1977.
3. Miller T.G. Jr., 'Environmental Sciences', Wadsworth Publishing Co. (TB), 2004.
4. Kevin Lynch, 'Site planning', MIT Press, Cambridge, MA,967.
5. Geoffrey And Susan Jellico, he Landscape of Man Thames And Hudson, 1987.
6. Arvind Krishnan et al;Climate Responsive Architecture, A Design Handbook for Energy Efficient Buildings', Tata McGraw Hill Publishing Company Limited, New Delhi, 2007.

Course Outcome		Program Outcome												Program Specific Outcome		
CO's		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	Skill, knowledge and expertise in the domain of architectural design.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO2	Ability to handle a major architectural project independently through all stages.	2	3	3	2	3	3	3	3	3	3	3	3	3	3	3
CO3	Exposed the students to choose their topic as per the demand in the current scenario.	2	3	3	2	3	3	3	3	3	3	3	3	3	3	3
CO4	Student understood the relationship between Architecture Engineering systems, social science and humanities.	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3
CO5	Ability to independently handle an Architectural Design Project, research the requirements of a project, Prepare a brief, try alternative approaches/ concepts, and evaluate them on way to make a final comprehensive proposition.	2	3	3	2	3	3	3	3	3	3	3	3	3	3	3

G RANGANATH

Digitally signed by G RANGANATH
DN: C=IN, O=PERSONAL, T=5743, OID.2.5.4.65=477fb4dbbd048ca3ebbc0819eac5932, Phone=5239f5e01ffcfdff207f2ee20311191d02facc9c55479d3d2d69ce80f36cdbc3, PostalCode=635109, S=Tamil Nadu, SERIALNUMBER=fa0cabc4c84137f249b7553888e0d3fd2a47f2cf77abb2bc8459ef5200c1fb253, CN=G RANGANATH
Reason: I am the author of this document
Location:
Date: 2023.01.12 14:49:44+05'30'
Foxit PDF Reader Version: 12.1.0

PRINCIPAL
Adhiyamaan College of Engineering (Autonomous)
Dr. M.G.R. Nagar, HOSUR - 635130