

PANDIT LAKHMI CHAND
STATE UNIVERSITY OF PERFORMING AND VISUAL ARTS, ROHTAK
(A State University established under Haryana Act No. 24 of 2014)



FACULTY OF URBAN PLANNING & ARCHITECTURE
BACHELOR OF ARCHITECTURE
SCHEME OF EXAMINATION AND SYLLABUS

Programme Code: AR

Duration –5 Years Full Time

CHOICE BASED CREDIT SYSTEM

ACADEMIC SESSION 2019-20 ONWARDS

**SCHEME OF EXAMINATION
(SEMESTER – III to X)**

SEMESTER – III

Paper Code	Category as per COA	Subject Category	Course Title	Periods/Week	L	S	Internal Marks	External Marks		Total Marks	Credits	Duration of Exam
							Sessional	Portfolio/Viva-Voce	Theory Exam			
AR/301/D	PC	Core	Architectural Design – III (Residential & Institutional)	6	...	6	75	75	...	150	6	...
AR/302/D	BS&AE	Core	Building Construction & Material –III (RCC)	6	...	6	75	75	...	150	6	...
AR/303/D	BS&AE	Core	Structural Design – III (RCC)	2	2	...	25	...	25	50	2	2
AR/304/D	PC	Core	Architectural Drawing – III (Perspectives etc.)	4	...	4	50	50	...	100	4	...
AR/305/D	PC	Core	Graphics – III	4	...	4	50	50	...	100	4	...
AR/306/D	BS&AE	DSE	Building Services -III (Water supply & Sanitation)	2	2	...	25	...	25	50	2	2
AR/307/D	PC	SEC	History of Architecture – III (Buddhist, Hindu & Islamic)	2	2	...	25	...	25	50	2	2
AR/308/D	PC	SEC	Workshop – III (Model Making)	4	...	2	50	...	...	50	2	...
AR/309/D	PAEC	OE	Computer Applications – III	4	...	4	100	...	...	100	4	...
			Total	34	...	...	475	250	75	800	32	...

SEMESTER – IV

Paper Code	Category as per COA	Subject Category	Course Title	Periods/ Week	L	S	Internal Marks	External Marks		Total Marks	Credits	Duration of Exam
							Sessional	Portfolio/ Viva-Voce	Theory Exam			
AR/401/D	PC	Core	Architectural Design - IV (Vernacular architecture)	8	...	8	100	100	...	200	8	...
AR/402/D	BS&AE	Core	Building Construction & Material – IV (Steel)	6	...	6	75	75	...	150	6	...
AR/403/D	BS&AE	Core	Structural Design – IV (RCC)	2	2	...	25	...	25	50	2	2
AR/404/D	PC	Core	Theory of Settlements – IV	2	2	...	25	...	25	50	2	2
AR/405/D	PC	Core	Graphics – IV	4	...	4	50	50	...	100	4	...
AR/406/D	BS&AE	DSE	Building Services- IV (Lighting Electrical & Fire-fighting)	2	2	...	25	...	25	50	2	2
AR/407/D	PC	SEC	History of Architecture – IV (Egyptian & Western)	2	2	...	25	...	25	50	2	2
AR/408/D	PC	SEC	Workshop – IV	4	...	4	100	...	...	100	4	...
AR/409/D	PE	OE	Professional Elective-I Vernacular Architecture-IV	2	2	...	50	...	...	50	2	...
			Total	32	...	...	475	225	100	800	32	...

SEMESTER – V

Paper Code	Category as per COA	Subject Category	Course Title	Periods/ Week	L	S	Internal Marks	External Marks		Total Marks	Credits	Duration of Exam
							Sessional	Portfolio/ Viva-Voce	Theory Exam			
AR/501/D	PC	Core	Architectural Design – V (Group Housing) Focus on active and passive methods of sustainability	12	...	12	150	150	...	300	12	...
AR/502/D	BS&AE	Core	Building Construction & Material – V (UPVC, Aluminum)	6	...	6	75	75	...	150	6	...
AR/503/D	BS&AE	Core	Structural Design – V (Steel)	2	2	...	25	...	25	50	2	2
AR/504/D	PC	Core	Landscape Design – V	2	...	2	50	...	...	50	2	...
AR/505/D	PE	DSE	Professional Elective-II Theory of Design – V	2	2	...	25	...	25	50	2	2
AR/506/D	BS&AE	DSE	Building Services - V (Acoustics, Air Conditioning and Lifts and Escalators)	2	2	...	25	...	25	50	2	2
AR/507/D	PC	SEC	History of Architecture – V (Industrial Revolution, Modernism and colonialism)	2	2	...	25	...	25	50	2	2
AR/508/D	PAEC	OE	Computer Applications – V	4	...	4	100	...	...	100	4	...
			Total	32	...	...	475	225	100	800	32	...

SEMESTER – VI

Paper Code	Category as per COA	Subject Category	Course Title	Periods/Week	L	S	Internal Marks	External Marks		Total Marks	Credits	Duration of Exam
							Sessional	Portfolio/Viva-Voce	Theory Exam			
AR/601/D	PC	Core	Architectural Design – VI (Recreational & Commercial – Sustainable Design)	14	...	14	175	175	...	350	14	...
AR/602/D	BS&AE	Core	Building Construction & Material – VI (Working Drawings)	8	...	8	100	100	...	200	8	...
AR/603/D	BS&AE	Core	Structural Design – VI	2	2	...	25	...	25	50	2	2
AR/604/D	PC	Core	Estimation, Costing, Tenders and Contracts- VI	2	2	...	25	...	25	50	2	2
AR/605/D	PC	DSE	Specifications – VI	2	2	...	25	...	25	50	2	2
AR/606/D	PC	SEC	History of Architecture – VI (20 th & 21 st Century Architecture)	2	2	...	25	...	25	50	2	2
-	PE	OE	Professional Elective-III	2	2	...	50	...	...	50	2	...
			Total	32	...	...	425	275	100	800	32	...

Note: The Professional Elective from AR-607D to AR-611D are Open Elective (OE)

SEMESTER – VII

Paper Code	Category as per COA	Subject Category	Course Title	Periods/ Week	L	S	Internal Marks	External Marks		Total Marks	Credits	Duration of Exam
							Sessional	Portfolio/ Viva-Voce	Theory Exam			
AR/701/D	PC	Core	Architectural Design – VII - Services and Structure based (Choice Based Studio)	14	...	14	175	175	...	350	14	...
AR/702/D	BS&AE	Core	Building Construction & Material – VII (Interior Design Drawings)	8	...	8	100	100	...	200	8	...
AR/703/D	PAEC	Core	Building Bye – Laws – VII	2	2	...	25	...	25	50	2	2
AR/704/D	PC	Core	Urban design-VII	2	2	...	25	...	25	50	2	2
AR/705/D	SEC	DSE	Digital Graphics and Art -VII	2	...	2	25	25	...	50	2	...
-	PE	DSE	Professional Elective –IV	2	2	...	25	...	25	50	2	2
-	PE	SEC	Professional Elective – V	2	2	...	25	...	25	50	2	2
			Total	32	...	...	400	300	100	800	32	...

Note: The Professional Elective from AR-706D to AR-710D are Department Specific Elective (DSE) and the Professional Elective from AR-711D to AR-712D are Skill Enhancement Course (SEC)

SEMESTER – VIII

Paper Code	Category as per COA	Subject Category	Course Title	Weeks	L	S	Internal Marks		External Marks	Total Marks	Credits	Duration of Exam
							Sessional	Report	Viva-Voce			
AR/801/D	PAECC	Core	Practical Training – VIII	18	...	...	300	100	400	800	32	...
			Total	18	...	...	300	100	400	800	32	...

SEMESTER - IX

Paper Code	Category as per COA	Subject Category	Course Title	Periods/ Week	L	S	Internal Marks	External Marks		Total Marks	Credits	Duration of Exam
							Sessional	Portfolio/ Viva-Voce	Theory Exam			
AR/901/D	PC	Core	Architectural Design – IX (Urban Design)	14	...	14	175	175	...	350	14	...
AR/902/D	BS&AE	Core	Advance building construction – IX	8	...	8	100	100	...	200	8	...
AR/903/D	PAECC (Compulsory)	Core	Dissertation – IX	4	...	4	50	50	...	100	4	...
AR/904/D	SEC	Core	Entrepreneurship Skills for Architects –IX	2	2	...	25	...	25	50	2	2
-	PE	DSE	Professional Elective-VI	2	2	...	25	...	25	50	2	2
-	PE	SEC	Professional Elective-VII	2	2	...	25	...	25	50	2	2
			Total	32	...	...	400	325	75	800	32	...

Note: The Professional Elective from AR-905D to AR-908D are Department Specific Elective (DSE) and the Professional Elective from AR-909D to AR-912D are Skill Enhancement Course (SEC)

SEMESTER – X

Paper Code	Category as per COA	Subject Category	Course Title	Periods/ Week	L	S	Internal Marks	External Marks		Total Marks	Credits	Duration of Exam
							Sessional	Portfolio/ Viva-Voce	Theory Exam			
AR/1001/D	PC	Core	Architectural Thesis – X	24	...	24	300	300	...	600	24	...
AR/1002/D	PAECC (Compulsory)	Core	Construction Project Management – X	4	4	...	50	...	50	100	4	3
AR/1003/D	PAECC (Compulsory)	Core	Professional Practice –X	4	4	...	50	...	50	100	4	3
			Total	32	...	...	400	300	100	800	32	...

LIST OF ELECTIVES FOR SEMESTER VI, VII and IX

Paper Code	Course Title	Periods/ Week	Sessional Marks	Portfolio Marks	Theory Exam Marks	Total Marks	Duration of Exam
SEMESTER – VI							
Open Elective (OE)							
AR/607/D	Art Appreciation – VI	2	50	...	...	50	...
AR/608/D	Sustainable Design – VI	2	50	...	...	50	...
AR/609/D	Barrier Free Design – VI	2	50	...	...	50	...
AR/610/D	Energy Efficient and Bio-Climatic Architecture – VI	2	50	...	...	50	...
AR/611/D	Housing – VI	2	50	...	...	50	...
SEMESTER – VII							
Discipline Specific Elective (DSE)							
AR/706/D	Cost Effective Buildings – VII	2	25	...	25	50	2
AR/707/D	Traffic and Transport Planning – VII	2	25	...	25	50	2
AR/708/D	Architectural Conservation – VII	2	25	...	25	50	2
AR/709/D	Sociology – VII	2	25	...	25	50	2
AR/710/D	Contemporary Processes in Architecture – VII	2	25	...	25	50	2
Skill Enhancement Course (SEC)							
AR/711/D	Intelligent Buildings – VII	2	25	...	25	50	2
AR/712/D	Building Information Modelling-VII	2	25	...	25	50	2

SEMESTER – IX

Discipline Specific Elective (DSE)							
AR/905/D	Architectural Journalism – IX	2	25	...	25	50	2
AR/906/D	Urban and Regional Planning – IX	2	25	...	25	50	2
AR/907/D	Environmental Impact Assessment – IX	2	25	...	25	50	2
AR/908/D	Contemporary Rural India – IX	2	25	...	25	50	2
Skill Enhancement Course (SEC)							
AR/909/D	Building Economics – IX	2	25	...	25	50	2
AR/910/D	Set Design – IX	2	25	...	25	50	2
AR/911/D	Building Repairs and Restoration – IX	2	25	...	25	50	2
AR/912/D	Disaster Resilient Buildings – IX	2	25	...	25	50	2

Abbreviations:

- COA : Council of Architecture
PC : Professional Core
BS & AE : Building Science and Applied Engineering
PE : Professional Elective
OE : Open Elective
DSE : Discipline Specific Elective
SEC : Skill Enhancement Course
PAEC : Professional Ability Enhancement Course
PAECC : Professional Ability Enhancement Compulsory Course

**SYLLABUS FOR BACHELOR OF ARCHITECTURE
(SEMESTER- III to X)**

SEMESTER-III

Paper-1 : Architectural Design-III (Residential and Institutional)

Paper Code : AR/301/D

Course Credits : 06

Course Objective:

- To appreciate the constraints in the Architectural design of small buildings with reference to function, form and structures.

Course Content:

- Design of simple buildings like
- Nursery/ primary school
- Community center, Residence etc
- Site analysis at the beginning of each design problem. This would develop sensitivity to existing site conditions and context and help students evolve design directives to guide the design process. Two design problems to be conducted.
- Block models at every design stage for three-dimensional visualization.
- 1 no. Time problem of 6-12 hours

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Each of the two major exercises should be attempted in a minimum of three development stages before final stage. Second design problem will become portfolio exercise.
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Reading List (To be elaborated by subject teacher)

1. Chiara, J. D. (1984). Time Saver Standard for Site Planning. New York: McGraw Hill.
2. Ching, F. D. K. (1996). Architecture: Form, Space, and Order. 2nd ed. New York: Van Nostrand Reinhold.
3. Nair, Prakash (2013). The Language of School Design: Design Patterns for 21st Century Schools. 3rd ed.
4. Nair, Prakash (2014). Blueprint for Tomorrow: Redesigning Schools for Student-Centered Learning.
5. Dudek, Mark (2000). Architecture of Schools: The New Learning Environments.
6. Felfand, Lisa and Freed, Eric Corey (2010). Sustainable School Architecture: Design for Elementary and Secondary Schools.
7. Phoenix Space Bei Jing (2013). Architecture Design of Contemporary Community Center.
8. Radford, William A. (2002). Architectural Details and Measured Drawings of Houses of the Twenties (Dover Architecture).
9. Chitman, Robert (1980). Measured Drawing for Architects.

Paper-2 : Building Construction & Materials-III (RCC)

Paper Code : AR/302/D

Course Credits : 06

Course Objective:

- To understand the RCC construction details used in 3-4 storied buildings.
- To study and draw the construction details of built-forms like Humayun's Tomb, Lotus Temple, Nehru Pavilion, Matri Mandir, and other such distinct structures.

Course Content:

Unit I

RCC as a material
RCC staircase

Unit II

Flooring and roofing details
Detailed section through a 4-storied building

Unit III

Concept of frame structures
RCC frame structure with in-fills

Unit IV

RCC footings and foundations
RCC water proofing treatments

1 no. Time problem of 6-12 hours

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- At least 10 to 12 sheets to be made under supervision

Reading List (To be elaborated by subject teacher):

1. Barry, R. (1986). Construction of Buildings. Vol. 1-5. London.
2. BIS (2011). National Building Code, SP 7. New Delhi: Bureau of Indian Standards.
3. Foster, S. (1963). Mitchell's Advanced Building Construction. Mumbai: Allied Publishers.
4. McKay, W. B. (1972). Building Construction (Metric). Vol. 1-5. London: Longman.
5. Punmia, B. C. (2005). Building Construction. Delhi: Firewell Media.
6. Singh, G. N. (1981). Building Construction Engineering. New Delhi: Standard Book House.
7. Relevant IS codes

Paper-3 : Structural Design-III (RCC)

Paper Code : AR/303/D

Course Credits : 02

Course Objective:

- To understand the principles of design of RCC structures. Also, to take up exercises to understand the wooden framed structures, mud structures, brick structures, geometric structures, stone (dome) structures, tensile structures, etc.

Course Content:

Unit I

Concept of RCC and introduction to IS: 456 Working stress methodology of design for RCC structures. Theory of singly reinforced sections – neutral axis, under reinforced sections, over reinforced sections, and moment of resistance

Unit II

Shear, Bond and development length
Analysis and design of singly reinforced rectangular RCC beam
Analysis and design of double reinforced rectangular RCC beam

Unit III

Theory and design of: one-way RCC slab, two-way RCC slab and Cantilever slab
Theory and design of long and short square, rectangular and circular RCC columns

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- Appropriate standards must be explained and used
- Exercises must be done in each class
- Examiner will set seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. 60% Theory based and 40% numerical based questions to be given. All the questions carry equal marks [6.25 X 4 = 25]

Reading List (To be elaborated by subject teacher):

1. BIS (2000). Indian Standard Code of Practice for Plain and Reinforced Concrete I.S: 456. New Delhi: Bureau of Indian Standards.
2. Punmia, B. C., Jain, A. K., and Jain, A. K. (1992). Reinforced concrete structures. Vol. I. New Delhi: Firewall Media.
3. Mallick, S. K. and Gupta, A. P. (1980) Reinforced Concrete. New Delhi: Oxford & IBH.
4. Shetty, M. S. (2008). Concrete Technology. New Delhi: S. Chand.
5. Neville A. M. (2012). Properties of Concrete. New York: Prentice-Hall.
6. Mehta, P. K. and Moterio, P. J. M. (2005). Concrete: Microstructure and properties. New York: McGraw-Hill.
7. Dayaratnam, P. (1983). Reinforced Concrete Design. M. Primlani.

Paper-4 : Architectural Drawing – III (Perspectives etc.)

Paper Code : AR/304/D

Course Credits : 04

Course Objectives:

- The intention of this course is to further augment and enhance the architectural rendering techniques of students using various mediums (in relation to appropriate base material) with an ultimate objective, that at the completion of this particular programme the students should be able to render a set of architectural presentation drawings of a small building in varied medium color pencil water color including landscape, automobiles and human figures.

Course Content:

Unit I

Perspective drawing, its concepts and various elements and methodology

2-point Perspective drawings of simple forms with changes in different parameters

2-point Perspective drawings of small structures with changes in different parameters

1-point perspective drawing of a simple situation

Unit II

Introduction to Sciography

Shade and shadow of object of different shape at different levels and planes

Shade and shadows of architectural fenestrations

Shade and shadow of façade of simple building

1 no. Time problem of 6-12 hours

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester
- Drawing made by the student in architectural design may be taken up for rendering exercises.
- At least 10 to 12 sheets to be made under supervision

Reading List (To be elaborated by subject teacher)

1. Haft, P. S. (1991). Architectural Illustration in Water Colour. New York: Whitney Library.
2. Hartt, F. (1976). Art: A History Painting and Sculpture and Architecture. New York: Harry N. Abrams.
3. Hayashi, S. (1994). Water Colour Rendering. Graphic-Sha Publishing.
4. Item, J. (1973), The Art of Colour. New York: D. Van Nostrand Reinhold.
5. Maier, M. (1977). Basic Principles of Design. Vol.1-4. New York: D. Van Nostrand Reinhold.
6. Theodore, D. W. (1989). Perspective Sketches. New York: D. Van Nostrand Reinhold.

Paper-5 : Graphics-III

Paper Code : AR/305/D

Course Credits : 04

Course Objectives:

- Development of Graphic Skills, Ability and Comprehension Establishing Significance of Scale, Proportion and Architectural Representations

Course Contents:

Unit I

Pencil Sketching- Human Figures, Vegetation, Automobiles, Buildings, Architectural Graphic symbols, etc.

Unit II

Pen and Ink Sketching

Unit III

Use of Water Colours, Poster Colours, Pencil Colours, Oil Pastels, Etc. in Rendering Drawings and Sketches.

Unit IV

Techniques for rendering drawings in abovementioned mediums
Rendering of plan, sections and elevation in different mediums

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester At least 8 sheets and 20 sketches to be made under supervision in the studio.

Reading List (To be elaborated by subject teacher)

1. Pipes, Alan (1990). Drawing for 3D Designs. London: Thames & Hudson.
2. Dale, Russell (1990). Pastels Book. Cincinnati: North Light Books.
3. Jacqueline (1991). Graphic Illustration in Black and White. New York: Design Press.
4. Philip, Crowe (1991). Architectural Rendering. Switzerland: Rofovision.
5. Gill, Robert W. (2008). Rendering with Pen & Ink. London: Thames & Hudson.

Paper-6 : Building Services-III (Water Supply & Sanitation)

Paper Code : AR/306/D

Course Credits : 02

Course Objectives:

- Appreciating designing and layout of water supply, plumbing, drainage and sanitation of simple buildings.

Course Contents:

Unit I

Introduction to water supply and sanitation. Traditional sources of water supply, treatment of water, transportation and distribution at town level. Classification of water based on its usage. Rain water harvesting

Unit II

Water supply system: fittings, direct and indirect supply, layout and sizes of pipes, hot water supply, storage

Unit III

Sewerage system: systems, fittings and fixtures, sizes and layout, sewage collection, sewage treatment and disposal at town level.

Unit IV

Solid waste management, environment-oriented waste water treatment
Rainwater (storm water) drainage

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester. Theory to be supported with site visits to be conducted off the class hours. Examiner will set seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]

Reading List (To be elaborated by subject teacher)

1. Birdie J.S. and Birdie G.S. (1998). Water Supply and Sanitary Engineering. New Delhi: Dhanpat Rai.
2. Burke, Ken (1982). Basic Plumbing Techniques. San Ramon, Canada: Ortho Books.
3. Hussain, S.K. (1982). Water Supply and Sanitary Engineering. New Delhi: Dhanpat Rai.
4. Rangwala, S.C. (1969). Fundamentals of Water Supply and Sanitary Engineering. Bangalore: Charotar Publishing.
5. Wise, Alan Frederick Edward and Swaffield, J.A. (2002). Water, Sanitary & waste Services for Building, 5th ed, Oxford: Butterworth-Heinemann.

Paper-7 : History of Architecture-III (Buddhist, Hindu & Islamic

Paper Code : AR/307/D

Course Credits : 02

Course Objectives:

- Knowledge about Indian culture, building art and construction techniques helps an architecture student to develop designs that are rooted in this country. Appreciation of our heritage buildings should lead to the understanding that architecture is the product of a particular culture, time and place.

Course Contents:

Unit I : Ancient Indian architecture

Brief introduction of Indus Valley Civilization

Buddhist architecture – Evolution & golden age;

Rock cut Architecture –Stupas, Chaitya, Vihara, Pillars, Ajanta, Ellora, Kailasanath, Rathas, etc.

Unit II : Hindu Architecture

Elements of Hindu Temple. Development of temple form from example like Ladh Khan, Temple atDeogarh, Bhattargaon Temple

North Indian Temple Architecture- Architectural character of Gupta Temples ,Architecture style of Orissan temple with examples, Khajuraho group of Temples, and Architectural character of Gujarat Temples

South –Indian Temple Architecture- Pallava, Chola, Pandyas, Madura and Vijayanagar style with examples.

Unit III : Introduction – Rise of Indo-Islamic Architecture

Special features of Mosque

Special features of Tomb

Influences of Indo-Islamic Architecture in India

Use of arches, vaults, domes, squinches, pendentives, jaalis, minarets,etc.

Special features – use of landscape, water bodies and gardens.

Ornamentation in structures with interplay of materials – stones, mosaics, gildings.

Unit IV : Sultanate Architecture

- Slave Dynasty, Tughlaq Dynasty, Lodhi Dynasty.
- Provincial Styles of Sultanate Period – Punjab, Bengal, Jaunpur, Gujarat,Malwa, Bijapur and Golconda with examples.

Unit V : Mughal Style

- Architecture prevalent during the reign of a) Babur; b) Humayun; c) Akbar; d) Jahangir; e) Shah Jahan.

Note:

- Students need to practice sketches and make an album and get it evaluated regularly. Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester. Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]

Reading List (To be elaborated by subject teacher):

1. Catherine, Asher. Architecture of Mughal India
2. Brown, Percy. (1983). Indian Architecture (Buddhist Hindu). Vol. 1. Mumbai: D.B. Taraporevala.
3. Percy, Brown (1983). Indian Architecture (Islamic Period). Vol. 2. Mumbai: D.B. Taraporevala.
4. Fergusson, J.A. A history of Indian and Eastern Architecture. Latest ed. London
5. Grover, S. (1980). The Architecture of India (Buddhist & Hindu). Sahibabad.
6. Grover, S. (1980). The Architecture of India (Islamic). Sahibabad.
7. Hillenbrand, Robert (1994). Islamic Architecture: Form, Function and Meaning. Edinburgh: Edinburgh University Press.
8. Michell, George; The Hindu Temple. London.
9. Michell, George (1978). Architecture of the Islamic World: Its history and social meaning. London: Thames & Hudson.
10. Sterlin, Henry , Architecture of World , India, Germany.
11. Sterlin, Henry, Architecture of World, India (Islamic), Germany.
12. Tadgell, Christopher. The History of Architecture in India. London, 1990.
13. Tillotson, G.H.R. (1989). The tradition of Indian Architecture Continuity, Controversy – Change since 1850. New Delhi: Oxford University Press.

Paper-8 : Workshop-III (Model Making, Wood)

Paper Code : AR/308/D

Course Credits : 02

Course Objectives:

- To equip students with the basic skills necessary to represent their ideas in a rudimentary model form at using simple materials like clay, paper, thermocol, hardwood, sunboard etc.

Course Contents:

Unit I : Introduction to Model Making and Block Modelling

Introduction to concepts of model making and various materials used for model making

Preparation of base for models using wood or boards

Introduction to block models of buildings (or 3D Compositions) involving the usage of various materials like Thermocole, Soap/Wax, Boards, Clay etc.

Unit II : Detailed Modelling

Making detailed models which includes the representation of various building elements like Walls, Columns, Steps, Windows/glazing, Sunshades, Handrails using materials like Mountboard, Snow-white board, acrylic sheets.

Representing various surface finishes like brick/stone representation, stucco finish etc.

Various site elements – Contour representation, Roads/Pavements, Trees/Shrubs, Lawn, Water bodies, Street furniture, Fencing etc.

Unit III : Wood

Making of various timber joints.

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.

Reading List (To be elaborated by subject teacher):

1. Porter, Tom (2000). Architectural Supermodels: Physical Design Simulation.
2. Moon, Karen (2003). Modeling Messages: The Architect and the Model.
3. Knoll, Wolfgang and Hechinger, Martin (2007). Architectural Models: Construction Techniques.
4. Oswald, Ansgar and Keil, Uta (2008). Architectural Models.
5. Congdon, Roark T.(2010). Architectural Model Building Tools, Techniques & Materials.
6. Werner, Megan (2011). Model Making (Architecture Briefs).
7. Young, Pyo Mi (2012). Architectural Models.
8. Young, Pyo Mi (2012). Construction and Design Manual: Architectural Models.
9. Karssen, Arjan and Otte, Bernard (2014). Model Making: Conceive, Create and Convince.
10. Dunn, Nick (2014). Architectural Model makings.
11. Strange, Will (2015). "An Architectural Model", The Book.
12. Driscoll, Matt. Model Making for Architecture.

Paper-9 : Computer Applications-III (Autocad-3D, 3DS MAX & Sketchup)

Paper Code : AR/309/D

Course Credits : 04

Course Objectives:

- Development of Graphic Skills, Ability and Comprehension. Establishing Significance of computers.

Course Contents:

Unit I

Introduction of Auto CAD 3D as 3D modelling tool.

Basic commands for 3D

Introduction of basic 3D commands.

Different types of modeling in Auto CAD.

Exercise on wire mesh modeling.

Plotting of 3D models created in studio in proper scale and suitable paper sizes.

Unit II

Introduction of 3DS Max as 3D modelling tool.

Understanding Co-ordinate systems.

Introduction of solid modeling.

Learning solid modeling commands, editing solid modeling.

Working on different planes.

At least one exercise should be completed in 3D modeling.

Unit III

Introduction of Sketchup as 3D modelling tool.

Basic commands for 3D

Introduction of basic 3D commands.

Different types of modeling in Sketchup.

Exercise on 3D modeling.

Plotting of 3D models created in studio in proper scale and suitable paper sizes.

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester At least 10 sheets to be made in the studio under supervision. Drawing of current semester in Architectural Design may also be taken up for rendering exercises.

Reading List (To be elaborated by subject teacher)

1. Cadfolk (2018). AutoCAD 2019 for Beginners.
2. Omura, George and Benton, Brian C. (2018). Mastering AutoCAD 2019 and AutoCAD LT 2019.
3. Tickoo, Sham (2018). AutoCAD 2019: A problem Solving Approach. 25th ed.
4. Moss, Elise (2018). Autodesk AutoCAD 2019 Fundamentals.
5. Hamad, Munir (2018). AutoCAD 2019: Beginning and Intermediate.
6. Tickoo, Sham (2019). Purdue University and CAD/CIM Technologies (2018). Autodesk 3ds Max 2019: A Comprehensive Guide. 19th ed.
7. Murdock, Kelly L. (2018). Kelly L. Murdock's Autodesk 3ds Max 2019: Complete Reference Guide.
8. Mangain, Pradeep (2018). Autodesk 3ds Max 2019: A Detailed Guide to Modeling, Texturing, Lighting, and Rendering.
9. Donley, Matt and Sonder, Nick (2016). Sketchup & Layout for Architecture: The Step by Step Workflow of Nick Sonder.

SEMESTER-IV

Paper-1 : Architectural Design-IV (Vernacular Architecture)

Paper Code : AR/401/D

Course Credits : 08

Course Objectives:

- To explore the process and complexities in architectural design; Physical pattern of a small vernacular settlement built-form and various factors that contribute to its development.

Course Contents

- Study of built environment of a vernacular settlement, covering various aspects related to physical built form and infrastructure to appreciate the development of a settlement pattern.
- Design of a community building related to the studied urban area.
- The climatic aspects and services need to be focused.

- 1 no. Time problem of 6-12 hours

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
-

Reading List (To be elaborated by subject teacher)

1. Chiara, J. D. (1984). Time Saver Standard for Site Planning. New York: McGraw-Hill.
2. Ching, F. D. K. (1996). Architecture: Form, Space, and Order. 2nd ed. New York: Van Nostrand Reinhold.
3. Cohen, U. and McMurtry, R. (1985). Museum and Children, Design Guide. Milwaukee: School of Urban Planning and Architecture, University of Wisconsin.
4. Helper, D. and Wallach, P. (1987). Architecture Drafting and Design. New York: McGraw-Hill.
5. Juliet, Ma. (1984). Designing room for children. London: Little Brown.
6. Neufert, E. (2000). Neufert's Architect's Data. London: Crosby Lockwood.

Paper-2 : Building Construction & Materials-IV (Steel)

Paper Code : AR/402/D

Course Credits : 06

Course Objectives:

- To make the students aware about steel as building material. The course aims to bring about an awareness about enormous potential of steel that goes beyond its role of reinforcement in RCC Programme explores possibilities in steel constructions frame foundation to roof.

Course Contents:

Unit I

Structural Steel members and sections
Joining detail of various steel members

Unit II

Steel connections
Steel foundations

Unit III

Structural steel frame
Steel staircase
Steel mezzanine floor

Unit IV

Steel sport system for roofing
Steel trusses
Steel cladding
Collapsible and rolling shutters

1 no. Time problem of 6-12 hours

Note

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester. This course will be supported with site visits and market surveys.
- At least 10-12 sheets must be prepared under supervision

Reading List (To be elaborated by subject teacher):

- Barry, R (1986). Construction of Buildings. Vol. 1-5. London.
- BIS (2011). National Building Code, SP 7. New Delhi: Bureau of Indian Standards.
- Foster, S. (1963). Mitchell's Advanced Building Construction. Mumbai: Allied Publishers.
- McKay, W. B. (1972). Building Construction (Metric). Vol. 1-5. London: Longman.
- Prabhu, B. T. S. (1987). Building Drawing and Detailing. Calicut: Spades Publishers.
- Punmia, B. C. (2005). Building Construction. New Delhi: Firewell Media.
- Singh, Gurucharan (1981). Building Construction Engineering. New Delhi: Standard Book House.
- Relevant IS codes

Paper-3 : Structural Design-IV (RCC)

Paper Code : AR/403/D

Course Credits : 02

Course Objectives:

To enhance the understanding of RCC structures

Course Contents:

Unit I

Theory and design of simply supported circular and ribbed slabs subjected to uniformly distributed loads

Unit II

Fixed beams: Bending moment diagrams for a fixed beam subjected to uniformly distributed load and point load. Formula to be explained – no derivation

Unit III

Theory and design of reinforced T-beams, inverted T-beams and isolated T-beams, singly reinforced L-beams

Unit IV

Theory and design of isolated sloped column footing for a square, rectangular and circular column subjected for axial loads

Column footings subjected to eccentric loading

RCC footing for axially loaded RCC and brick walls

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Appropriate standards must be explained and used
 - Exercises must be done in each class
 - Examiner will set seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. 60% Theory based and 40% numerical based questions to be given. All the questions carry equal marks [6.25 X 4 = 25]
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Reading List (To be elaborated by subject teacher):

1. Ramamrutham (2003). Theory of Structures. New Delhi: Dhanpat Rai.
2. Jain, O. P. and Jai Krishna (1963). Plain and Reinforced Concrete.
3. Krishna Raju, N. (2003). Reinforced Concrete Design: Principles and Practice. New Delhi: New Age International.

Paper-4 : Theory of Settlements – IV

Paper Code : AR/404/D

Course Credits : 02

Course Objectives:

- To study the patterns of human settlements and their relevance to architecture.

Course Contents:

Unit I

Man and Environment

Biological and behavioral responses to human settlements.

Design for living, natural and built- environment.

Unit II

History of human settlements

Origin and growth of human settlement.

Role of River Banks in growth of human settlement.

Historical survey of the city as an expression of the vitality of a civilization.

Indus Valley Civilization- the various towns, house construction, drainage systems.

Study of ancient Indian settlements like Mohenjodaro, Taxila, Nalanda.

Vedic village settlement.

Western world: River valley settlements, Greek, Roman, Medieval, Renaissance and modern.

Egyptian and Mesopotamian settlements.

Unit III

Ancient texts and treatises on settlement and area planning in India.

Human settlements during ancient medieval and modern periods India, Europe and other parts of the world.

Characteristics of human settlements built by Hindu and Islamic Rulers in India.

Comparative study of Indus Valley and town planning in ancient and medieval India.

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester. Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]
-

Reading List (To be elaborated by subject teacher):

1. Spreiregen, Paul D. Urban Design: The Architecture of towns & cities. New York: McGraw-Hill.
2. Bacon, Edmond. Design of cities.
3. Mumford, Lewis. The City in history.
4. Buch, M. N. Planning the Indian City.

Paper-5 : Graphics-IV

Paper Code : AR/405/D

Course Credits : 04

Course Objectives:

- Development of Graphic Skills, Ability and Comprehension Establishing Significance of Scale, Proportion and Architectural Representations

Course Contents:

- Techniques for rendering drawings and perspective views in pen & ink, poster color, water color, etc.
- Representation of concept presentation, drawing representation, site plan, urban representation, landscape & views in different mediums

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester At least 8 sheets and 20 sketches to be made under supervision in the studio.

Reading List (To be elaborated by subject teacher)

1. Pipes, Alan. (1990). Drawing for 3D Designs. London: Thames & Hudson.
2. Dale, Russell (1990). Pastels Book. Cincinnati: North Light Books.
3. Jacqueline (1991). Graphic Illustration in Black and White. New Yoorkk: Design Press.
4. Philip, Crowe (1991). Architectural Rendering. Switzerland: Rotovision.
5. Gill, Robert W. (2008). Rendering with Pen & Ink. London: Thames & Hudson.

Paper-6 : Building Services-IV (Lighting, Electrical & Fire-Fighting)

Paper Code : AR/406/D

Course Credits : 02

Course Objectives:

- To understand the implication and application of natural and artificial lighting, electrical system and firefighting measures in Architecture

Course Contents:

Unit I

Natural lighting, Artificial lighting & Requirement for different situations

Unit II

Lamps and luminaries, Outdoor lighting & Specialized lighting like art galleries etc.

Unit III

Electrical system wires, Electricity distribution system with building & Safety devices

Unit IV

Electrical wiring systems
Generation transmission and distribution of electricity
Graphic electrical symbols
Load calculation of a small building

Unit V

Causes of fire, reasons for loss of life due to fire, development of fire, fire load, fire hazards
National Building Code: grading of structural elements due to fire, classification of building types, norms for fire-exit ways and building materials, concept of fire zoning, doorways, stairways, passages and corridors, fire escapes etc.
Rules for fire protection and firefighting requirements for high-rise buildings in India

Unit VI

Brief description of characteristics of combustible and non-combustible materials in case of fire.
Fire resisting materials, fire resistant rating Concepts in passive fire protection and control – including design of escape routes, pressurization and compartmentation, etc.
Active fire control using portable extinguishers. Basic concepts in fixed firefighting installations.
Automatic fire detection and alarm systems
Fire preventive techniques, fire protection equipment

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester
 - Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]
-

Reading List (To be elaborated by subject teacher):

1. Raina, K. B. and Bhattacharya, S. K. (2007). Electrical Design, Estimating and Costing. New Delhi: New Age International.
2. Dagostino, F. R. (1978). Mechanical and Electrical Systems in Construction in Architecture. New York: Reston Publishing.
3. Egan, D. M. (1983). Concepts in Architectural Lighting. New York: McGraw-Hill.
4. Flynn, J. E. et. al (1992). Architectural Interior Systems: Lighting, Acoustics and Air conditioning. New York: Van Nostrand Reinhold.
6. NBO (1966). Hand book for Building Engineers. New Delhi: National Buildings Organisation.
7. Grondzik, W. T., Kwok, A.G., Stein, B, and Reynolds, J. S. (2009). Mechanical and Electrical Equipment for Buildings. New York: John Wiley.

Paper-7 : History of Architecture-IV (Egyptian & Western)

Paper Code : AR/407/D

Course Credits : 02

Course Objectives:

- Introduction to the architecture of the ancient western world.
To generate an understanding about the development of civilization and its architectural implications.

Course Content:

Unit I

Prehistoric Growth of early civilizations from Stone Age to Neolithic settlements in Europe.
Egyptian: Early tomb architecture and later temple architecture, great pyramids of Giza, Mastabas, Funerary temples and later temples like Khons etc.
Mesopotamia: Cities of Mesopotamia like Ninveh, Khorsabad and Babylon.

Unit II

Greek: Hellenistic period, classical orders, temples and public buildings, geometry and symmetry in their buildings, Acropolis, Agora, temples, tombs and house forms.
Roman: Construction systems using vaults and domes.
Building types like temples, forums, basilica, theatres, aqua ducts, bridges, roads, sewage system and fountains.

Unit III

Early Christian: Basilican churches, centralized and longitudinal churches, interiors and articulation of the churches, pictures and biblical scenes.
Byzantine: Development of dome over square or polygonal plans.

Unit IV

Romanesque: New construction methods, massiveness, verticality and ornamentation of churches, integration of centralized and longitudinal plans.
Gothic: Continued integration of centralized and longitudinal plans, flying buttress, ribbed vault, sensitivity towards light, use of stained glass.
Cathedrals and churches.

Unit V

The Birth of Renaissance in Florence
16th century Renaissance in Italy
Renaissance and the Cult of personality
Baroque and Rococo as outlying Styles of Renaissance
Influence of Italian Renaissance on Architecture in England.

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester. Examiner will set seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]

Reading List (To be elaborated by subject teacher):

1. Fletcher, B. (1999). History of Architecture–20th ed. New Delhi: CBS Publishers.
2. Hitchcock H. R. et al (1963). World Architecture: An Illustrated History. London.
3. Pevsner, N. (1945). An Outline of European Architecture. London.
4. Pothorn, H. (1971). Styles of Architecture. London.
5. Risebero, B. (1979). The Story of Western Architecture. London.
6. Summerson, J. (1963). The Classical Language of Architecture. London.

Paper-8 : Workshop-IV (Model Making, Metal)

Paper Code : AR/408/D

Course Credits : 04

Course Objectives:

- To equip students with the basic skills necessary to represent their ideas in a rudimentary model form at using simple materials like clay, paper, thermocol, Metals, sunboard etc.

Course Content:

Unit I : Detailed Modelling

Making detailed models which include the representation of various building elements through ivory sheet, box board, etc.

One detailed model (scale 1:100/50)

One entire class model (representing village/urban settlement)

Unit II : Models of Complex Structural Systems

Making models of the various structural systems used in buildings like

Space frames – using Match sticks, wires

Different forms of shell roofs using POP, Clay, Soap

Tensile structures using fabric

Unit III : Material understanding

Working with materials: Metal

Reading List (To be elaborated by subject teacher):

1. Porter, Tom (2000). Architectural Supermodels: Physical Design Simulation.
2. Moon, Karen (2003). Modeling Messages: The Architect and the Model.
3. Knoll, Wolfgang and Hechinger, Martin (2007). Architectural Models: Construction Techniques.
4. Oswald, Ansgar and Keil, Uta (2008). Architectural Models.
5. Congdon, Roark T.(2010). Architectural Model Building Tools, Techniques & Materials.
6. Werner, Megan (2011). Model Making (Architecture Briefs).
7. Young, Pyo Mi (2012). Architectural Models.
8. Young, Pyo Mi (2012). Construction and Design Manual: Architectural Models.
9. Karssen, Arjan and Otte, Bernard (2014). Model Making: Conceive, Create and Convince.
10. Dunn, Nick (2014). Architectural Modelmakings.
11. Strange, Will (2015). “An Architectural Model”, The Book.
12. Driscoll, Matt. Model Making for Architecture.

Paper-9 : Vernacular Architecture-IV

(Professional Elective-I)

Paper Code : AR/409/D

Course Credits : 02

Course Objectives:

- To understand vernacular architecture as unique form of architecture. To understand and analyze vernacular architecture with the context of its site and surroundings and its response to local site conditions. Vernacular Architecture and its relation to socio-economic aspects and cultural values of the society.

Course Content:

Unit I : Introduction

Definition and classification of Vernacular architecture – Vernacular architecture as a process – Survey and study of vernacular architecture: methodology- Cultural and contextual responsiveness of vernacular architecture: an overview

Unit II : Approaches and Concepts

Different approaches and concepts to the study of vernacular architecture: an over view – Aesthetic, Architectural and anthropological studies in detail

Unit III : Vernacular Architecture of the Western and Northern Regions of India

Forms spatial planning, cultural aspects, symbolism, colour, art, materials of construction and construction technique of the vernacular architecture of the following: - 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

Unit IV : Vernacular Architecture of South India

Forms, spatial planning, cultural aspects, symbolism, art, colour, materials of construction and construction technique, proportioning systems, religious beliefs and practices in the vernacular architecture of the following: - Kerala: Houses of the Nair & Namboothri community; Koothambalam, Padmanabhapuram palace. - Chennai: Houses and palaces of the Chettinad region; Agraharams.

Unit V : Western Influences on Vernacular Architecture of India

Colonial influences on the Tradition Goan house - Evolution of the Bungalow from the traditional bangla, Victoria Villas – Planning principles and materials and methods of construction. Settlement pattern and house typologies in Pondicherry and Cochin.

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Examiner will set seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]
-

Reading List (To be elaborated by subject teacher):

1. Brunskill, R.W. (2000). Vernacular Architecture: An Illustrated Handbook.
2. Richardson, Vicky (2001). New Vernacular Architecture.
3. Asquith, Lindsay and Vellinga, Marcel (2005). Vernacular Architecture in the 21st Century: Theory, Education and Practice.
4. Oliver, Paul (2006). Built to Meet Needs: Cultural Issues in Vernacular Architecture.
5. May, John (2010). Handmade Houses & Other Buildings: The World of Vernacular Architecture
6. Weber, Willi and Yannas, Simos (2013). Lessons from Vernacular Architecture.
7. Tipnis, Aishwarya. Vernacular Traditions: contemporary architecture.

SEMESTER-V

Paper-1 : Architectural Design-V (Group Housing)

Paper Code : AR/501/D

Course Credits : 12

Course Objectives:

- To Focus on active and passive methods of sustainability and to inculcate the appreciation of the design process and an understanding of the design complexities and contradictions to resolve architectural design problems for different situations.

Course Content:

- Design of a Group housing
- 1 no Time problem of 6-12 hours

Note

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.

Reading List (To be elaborated by subject teacher):

1. Chiara, Joseph de et al (1990). Time Savers Standards of Building Types. New York: McGraw-Hill.
2. Kirk, P. H. and Sternberg, D. E. (1960). Doctors Offices and Clinics. 2nd ed. New York: Reinhold Pub.
3. Konya, A. (1986). Libraries: A Briefing and Design Guide. London: The Architectural Press.
4. Neufert, E. (2000). Neufert's Architects Data. London: Granada Publishing
5. Pevsner, N. (1976). A History of Building Types. London: Thames & Hudson.
6. Stone, G. L. Institutional Buildings Architecture of Controlled Environment.
7. Tergsone, W. R. Practical Laboratory Planning.
8. Wild, F. (1972). Libraries for Schools and Universities. New York: Van Nostrand Reinhold.

Paper-2 : Building Construction & Materials-V (UPVC, Aluminum)

Paper Code : AR/502/D

Course Credits : 06

Course Objectives:

- To familiarize the student with PVC and Aluminum as a building material and understand its use in buildings.

Course Contents:

PVC as a material
PVC sections

Unit I

PVC doors and windows

Unit II

Aluminum as a material
Aluminum doors and windows

Unit III

Aluminum cladding
Different cladding materials like aluco-bond etc.

Unit IV

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester. This course will be supported with site visits and market surveys.
- At least 10-12 sheets must be prepared under supervision

Reading List (To be elaborated by subject teacher)

1. Barry, R (1986). Construction of Buildings. Vol. 1-5. London.
2. BIS (2013). National Building Code, SP 7. New Delhi: Bureau of Indian Standards.
3. Foster, Stroud (1963). Mitchell's Advanced Building Construction. Mumbai: Allied Publishers.
4. McKay, W. B. (1972). Building Construction (Metric). Vol. 1-5. London: Longman..
5. Prabhu, Balagopal T. S. (1987). Building Drawing and Detailing. Calicut: Spades Publishers.
6. Punmia, B. C. (2005). Building Construction. Delhi: Firewell Media.
7. Singh, Gurucharan (1981). Building Construction Engineering. New Delhi: Standard Book House.
8. Relevant IS codes

Paper-3 : Structural Design-V (Steel)

Paper Code : AR/503/D

Course Credits : 02

Course Objectives:

- To understand the principles and design of simple steel structures

Course Content:

Principles of design of steel structures

Unit I

Structural Properties of steel and use of steel as a structural material.
Classification of rolled steel sections and their properties.

Unit II

Riveted, Bolted & Pinned connection.
Welded connections.

Unit III

Design of Tension members.
Design of compression members, lacing & bracing

Unit IV

Analysis and Design of simple Beams & Plated Beams.

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- Appropriate standards must be explained and used
- Exercises must be done in each class
- Examiner will set seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. 60% Theory based and 40% numerical based questions to be given. All the questions carry equal marks [6.25 X 4 = 25]

Reading List (To be elaborated by subject teacher)

1. BIS (1984). Indian Standard Code of Practice for General Construction in Steel IS : 800. New Delhi: Bureau of Indian Standards.
2. Duggal, S. K. (2009). Design of Steel Structures. New Delhi: Tata McGraw-Hill.
3. Punmia, B. C., Jain, A. K. and Jain, A. K. (1998). Comprehensive Design of Steel Structures. New Delhi: Laxmi Publications.
4. Arya, A. S. and Ajmani, J. L. (1974). Design of Steel Structures. Roorkee: Nem Chand & Bros.

Paper-4 : Landscape Design-V

Paper Code : AR/504/D

Course Credits : 02

Course Objectives:

- To appreciate the issues related to site planning and small landscape situations.

Course Content:

Unit I

Principles of landscape design
Elements of landscape design and their various manifestations

Unit II

Plant material: Shrubs, trees, plants, ground cover.
Water and its manifestations
Use of earth and stone as element of landscape

Unit III

Site planning studies
Landscape Design Exercises for different architectural situations
Landscape ecology

Assignments, case studies and one small design problem to be covered.

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Appropriate Standards must be explained and used
-

Reading List (To be elaborated by subject teacher):

1. Birlested, J. (1998). Relating Architecture to Landscape. London: E and F N Spon.
2. Booth, N. K. and Hiss, J. E. (1991). Residential Landscape Architecture. New Jersey: Prentice-Hall.
3. Cerver, F A (1997). International landscape architecture.
4. Laurie, M. (1986). Introduction to Landscape Architecture. New York: Elsevier.
5. Lynch, K. and Hack, G. (1988). Site planning. Cambridge: MIT Press.
6. Santapau. H. (1981). Common Trees. New Delhi: National Book Trust.
7. Simonds, J. O. (1983). Landscape Architecture: A manual of site planning and design. New York: McGraw-Hill.
8. Toye, S. S. (2003). Introduction to landscape design. Nagpur: Central Techno Publications.
9. Trivedi, P. Pratibha (1990). Beautiful Shrubs. New DDelhi: Indian Council of Agricultural Research.
10. Ward, H. C. & Dines, N. T. (1995). Time Savers Standards for Landscape Architecture design and construction data. New York: McGraw-Hill..
11. Mcharth, Ian. Design with Nature.

Paper-5 : Theory of Design-V (Professional Elective-II)

Paper Code : AR/505/D

Course Credits : 02

Course Objectives:

- The intention of this particular course is to make students aware about the life, time, workshop and philosophy of contemporary recognized architectures in India and abroad.

Course Contents:

- Historical scene in Europe, America and India after the Industrial Revolution.
- Study of life, philosophy and works of Walter Gropius
- Study of life, philosophy and works of Frank Lloyd Wright
- Study of life, philosophy and works of Mies Van Der Rohe
- Study of life, philosophy and works of Le-corbusier
- Study of life, philosophy and works of Alvar, Alto
- Study of life, philosophy and works of Louis I Kahn
- Study of life, philosophy and works of Joseph Allen Stein
- Study of life, philosophy and works of Charles Correa
- Study of life, philosophy and works of Achut. P. Kanvinde
- Study of life, philosophy and works of B.V. Doshi
- Study of life, philosophy and works of Raj Rewal

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester
 - Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]
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Reading List (To be elaborated by subject teacher) :

1. Isaacs, Reginald (1991). Gropius: An Illustrated Biography of the Creator of the Bauhaus
2. Wright, Frank Lloyd (2005). Frank Lloyd Wright: An Autobiography.
3. Schulze, Franz and Windhorst, Edward (2012). Mies van der Rohe: A Critical Biography. Rev. ed.
4. Weber, Nicholas Fox (2008). Le Corbusier: A Life.
5. Schildt, Goran (2007). Alvar Aalto: His Life.
6. Rosa, Joseph and Gössel, Peter (2016). Louis I. Kahn : 1901-1974- Enlightened Space.
7. White, Stephen (1993). Building in the Garden: The Architecture of Joseph Allen Stein in India and California.
8. Murray, Irena (2013). Charles Correa: India's Greatest Architect.
9. Kanvinde, Tanuja and Kanvinde, Sanjay. Achyut Kanvinde Akar.
10. Curtis, William J. R. (2015). Balkrishna Doshi: An Architecture for India.
11. Rewal, Raj and Rajguru, Suparna (2013). Raj Rewal: Innovative Architecture and Tradition.

Paper-6 : Building Services-V (Acoustics, Air Conditioning and Lifts & Escalators)

Paper Code : AR/506/D

Course Credits : 02

Course Objectives:

- To appreciate the role of acoustics and fire protection in buildings.

Course Content: Acoustics

Unit I

Introduction to the study of acoustics, basic terminology, sound and distance – inverse square law; absorption of sound, sound absorption co-efficient. Reverberation time, Sabine's formula, various sound absorbing materials. Behavior of sound in enclosed spaces, Acoustical defects

Unit II

Acoustical design for halls used for drama, music, speech, cinema theatres and open-air theatres. Noise and its types – outdoor and indoor noise, air born noise, structure borne noise, impact noise. Acoustical materials and constructional measures of noise control, insulation of machinery, sound insulation.

Unit III

Human Comfort conditions, Need for mechanical ventilation in buildings. Rate of ventilation for different occupancies. Methods and equipment employed for mechanical ventilation in buildings.

Unit IV: Air Conditioning

Principles of Air-conditioning, Indoor Air Quality, Carnot cycles, gas laws, refrigeration, cycles and refrigerants. Architectural considerations for air-conditioned building. Definition, advantages and disadvantages, brief introduction to psychrometric process, air-cycle and refrigeration cycle. Summer and winter air-conditioning, calculation of air-conditioning loads
Zoning: purpose and advantages. Air-distribution systems: Ducts and duct systems. Air-outlets
Compressors, condensers, evaporators, heat exchangers, etc.

Unit V : Air-conditioning methods and equipmen

Window units, split units, ductable air conditioners and package system. Central air-conditioning systems: AC plant and room, all air systems and chilled water systems, AHU and FC units, Building ducting, diffusers and grills. Location of air-conditioning equipment in buildings. Architectural requirement of various equipment. Residential and commercial air-conditioning, energy conservation techniques. Introduction to the concept of 'Clean Room' and their architectural requirements

Unit VI : Elevators (Lifts) and escalators

Brief history-types of Elevators like traction, hydraulic etc. sky lobby, lift lobby, lift interiors etc., Definition and components of Elevator in a building: environmental considerations i.e., location in building, serving floors, grouping, size, shape of passenger car, door arrangement etc.
Types of lifts, passenger, capsule, hospital bed- lift; goods-lift etc. Working and operation of lifts, parts of lifts; industry standards and capacity calculations. Provision to be made in buildings for installation: location, systems, sizes, equipment, spatial requirement Introduction to working of escalator and design, escalators location, equipment

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester. Appropriate Standards must be explained and used
 - Exercises must be done in each class. Examiner will set seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]
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Reading List (To be elaborated by subject teacher)

1. Egan, D. (1988). Architectural Acoustics. New York: McGraw-Hill.
2. Kinsleter, L. E. and Frey, A. R. (1989). Fundamentals of Acoustics. 2nd ed. New Delhi: Wiley Eastern.
3. Knudson, V. (1950). Acoustical Designing in Architecture. New York: John Wiley.
4. Narasimhan, V. (1974). Introduction to Building Physics. Roorkee: Central Building Research Institute.

Paper-7 : History of Architecture-V

(Industrial Revolution, Modernism & Colonialism)

Paper Code : AR/507/D

Course Credits : 02

Course Objectives:

- To understand the growth and development of architecture and appreciation of the role of the intangibles that brought this growth and development from the 18th Century to the advent of European Modernism.

Course Content:

Unit I : Architecture in Europe – I

Industrial Revolution and its architectural
Implications 19th Century Neo Classicism
Development of Architecture in Victorian England
Technology of Iron and Steel

Unit II -Architecture in Europe – II

Town Planning Trends in Europe Rise of the Idea of Expositions Birth of the American Skyscraper
Alternate Trends in late 19th and early 20th century in Europe.

Unit III- Architecture in Colonial India - I

Culture of colonialism
British Response to Indian Context
Early British Architecture

Unit IV-Architecture in Colonial India - II

Birth of Indo Saracenic Architecture.
Princely India's Architectural Response
Public Works Department (PWD)
Classical Revival Building of New Delhi

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]
-

Reading List (To be elaborated by subject teacher) :

1. Archer, M. (1968). Indian Architecture and the British. dlesex.
2. Curl, J. S. (1990) Victorian Architecture. London.
3. Davies, P. (1985). Splendours of the Raj, London.
4. Fletcher, Sir B. (1999). History of Architecture. 20th ed, Ed. By Dan Cruickshank. New Delhi: CBS Publishers.
5. Hitchcock, H. R. et al (1963). World Architecture: An Illustrated History. London.
6. Irving, R. G. (1981). Indian Summer: Lutyens, Baker, and Imperial Delhi. London.
7. Metcalfe, T. R. (1989). An Imperial Vision Indian Architecture and Britain's Raj. London.
8. Morris, J. and Winchester, S. (1983). Stones of Empire: The Buildings of the Raj. Oxford.
9. Nilsson, S. (1968). European Architecture in India 1750-1850. London.
10. Risebero, B. (1979). The Story of Western Architecture. London.
11. Volwahren, A. (2002). Imperial Delhi: The British Capital of the Indian Empire. London.

Paper-8 : Computer Applications-V (Revit, Maya & Adobe Creative Cloud)

Paper Code : AR/508/D

Course Credits : 04

Course Objectives:

Advanced learning of software available for architectural applications.

Course Content:

Unit I : Revit

Introduction of Revit.

Architectural building modeling commands, editing, etc.

Creating Plans, Elevations, Sections, Building Construction details, etc.

Setting of cameras, rendering attributes etc. for 3D Model in Revit.

Adding attributes to Revit drawings, plotting of plans, sections, elevations etc.

At least one exercise should be completed in Revit 2D & 3D modeling.

Unit II : MAYA

Introduction of MAYA.

Learning 3D modeling commands, editing, etc.

Inter-operability with 3DS MAX, Rendering of 3DS MAX models, etc.

At least one exercise should be completed in 3D modeling.

Unit III : Adobe Creative Cloud

Introduction of Adobe Creative Cloud.

Advantages of Adobe Creative Cloud.

Learning Adobe Photoshop supported with suitable exercise.

Rendering exercise in Adobe Photoshop for 3d Models created in 3ds MAX, MAYA and Revit.

Learning Adobe Illustrator supported with suitable exercise.

Note:

- Integration of practical exercises along with the design studio project. Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
-

Reading List (To be elaborated by subject teacher) :

1. Stine, Daniel John (2019). Commercial Design Using Autodesk Revit 2019.
2. Sagar, Linkan and Rawal, Srishty (2018). Revit 2019 Architecture Training Guide.
3. Tickoo, Sham (2018). Exploring Autodesk Revit 2019 for MEP. .6th ed
4. Martin, David (2018). Instant Revit: Commercial Drawing Using Autodesk(r) Revit(r) 2019.
5. Tickoo, Sham (2017). Autodesk Maya 2018: A Comprehensive Guide.
6. Murdoch, Kelly (2017). Autodesk Maya 2018 : Basics Guide.
7. Faulkner, Andrew (2017). Adobe Photoshop CC Classroom in a Book (2018 release).
8. Smith, Jennifer and Smith, Christopher (2017). Adobe Creative Cloud All-in-One for Dummies.
9. Wood, Brian (2017). Adobe Illustrator CC Classroom in a Book (2018 release).
10. Anton, Kelly Kordes and DeJarld, Tina (2017). Adobe InDesign CC Classroom in a Book (2018 release).

SEMESTER - VI

Paper-1 : Architectural Design-VI (Recreational & Commercial –Sustainable Design)

Paper Code : AR/601/D

Course Credits : 14

Course Objectives:

- To inculcate the appreciation of the design process and an understanding of the design complexities and contradictions to resolve architectural design problems for complex situations.

Course Content:

- Design of a recreational building (club, theatre, etc.) (6 weeks)
- Design of a commercial organization (sector shopping, small shopping mall, etc.) (7weeks)
- 1 no Time problem of 6-12 hours

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.

Reading List (To be elaborated by subject teacher):

1. Alexander, C. (1977). Pattern language: Towns, Buildings, Construction. New York: Oxford University Press.
2. Chiara, De Joseph et al (1995). Time savers standard for Housing and Residential development. New York: McGraw-Hill.

Paper-2 : Building Construction & Materials-VI (Working Drawings)

Paper Code : AR/602/D

Course Credits : 08

Course Objectives:

- To enable students to prepare working drawings; which are used for construction of buildings.

Course Content:

Architectural Drafting - lettering, dimensioning lines, drafting conventions, title blocks, office standards, representation of different materials in section, graphic symbols. Complete **working drawings** of the project handled in an earlier Architectural design studio comprising of:

Unit I

Intent of working drawing and standard practices, Demonstration of professional working drawings of architects All floor plans, schedules of doors, windows, finishes, levels,
Roof plans
Grid plan, demarcation plan, foundation plan

Unit II

All exterior elevations
Interior elevations
Relevant sections
Joinery details

Unit III

Kitchen detail Toilet
detail
Staircase detail

Unit IV

Wardrobe detail
Electrical drawings, water supply and sanitary drawings,
Rain water disposal drawings,
Site plan and it's detailing

1 no Time problem of 6-12 hours

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Minimum 10-12 sheets must be prepared in the studio under supervision of the teacher.
-

Reading List (To be elaborated by subject teacher)

1. Barry, R. (1986). Construction of Buildings. Vol. 1-5. London.
2. Foster, S. (1963). Mitchell's Advanced Building Construction. Mumbai: Allied Publishers.
3. McKay, W. B. (1972). Building Construction (Metric). Vol. 1-5. London: Longman.

Paper-3 : Structural Design-VI

Paper Code : AR/603/D

Course Credits : 02

Course Objective:

- To appreciate the numerous possibilities of structural systems and the techniques of dealing structural drawings.

Course Content:

Unit I

Analyze of the structure of a previous design (preferably an appropriate part of the housings).
Calculation for the structural component of the selected design.

Unit II

Preparing structural drawings for the selected design.
Bulk active structures

Unit III

Form active structures
Surface active structures

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Appropriate standards must be explained and used
 - Exercises must be done in each class
 - Examiner will set seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. 60% Theory based and 40% numerical based questions to be given. All the questions carry equal marks [6.25 X 4 = 25]
-

Reading List (To be elaborated by subject teacher)

1. Sinha, S. N. (2002) Reinforced Concrete Design, Tata Mc-Graw Hill publishing company Ltd. New Delhi.
2. Punmia, B. C., Jain, A. K. & Jain, A. K., (2005) Soil Mechanics and Foundations, Firewall Media.
3. Singh, H. (2008) Design of Reinforced concrete structures for Architects, Abhishek Publications, Chandigarh.
4. Krishnamurthy, D. (1985) Elementary Structural Design & Drawing, Volume 2, CBS Publishers & Distributors, Delhi.

Paper-4 : Estimation, Costing, Tenders And Contracts - VI

Paper Code : AR/604/D

Course Credits : 02

Course Objective:

- To appreciate the technique and role of this subject in Architecture

Course Content:

Unit I : Systems

Systems of taking quantities and estimating for all trades involved in construction of medium complexity project.

Unit II : Specification

Writing of Specification for Quantities. Items of work and Materials.

Unit III : Classification of areas

Plinth area, Covered area, Floor area, Carpet area and Projection area.

Unit IV : Types of Estimates

Preliminary, Detailed.

Unit V : Methods of taking out quantities for building works.

Preparation of Bill of Quantities (BOQ).

Mode of measurements of quantities.

Market rates of labor and building materials.

Labor turnout and norms for consumption of basic materials.

Unit VI : Schedule of rates

CPWD, PWD, Cost Index.

Analysis of rates for common items of work like Cement concrete, Brick work, Painting etc.

Methods for preparation and submission of preliminary estimates and detailed estimates.

Unit VII : Tenders and Contracts

Tender notices and tender documents.

Types of tendering in practice. Process of tendering. Preparation of tender notes/ documents and comparative statements.

Award of Tenders

Types of building contracts, their merits and de-merits.

General conditions of contract, security deposits, interim certificates, defect liability periods, retention amounts, mobilization money and virtual completion.

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- Appropriate Standards must be explained and used
- Examiner will set seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]

Reading List (To be elaborated by subject teacher)

1. CPWD (1987) Schedule of Rates, Government of India Publications, New Delhi
2. Dutta, B. N. (2002) Estimating and Costing (ed.20), Sangam Books.
3. Rangawala, S.C. (1984) Estimating and Costing, Charotar Publishing Co
4. Relevant I.S. Codes for Material Specifications.
5. CPWD Specifications manual
6. HPWD Specifications

Paper-5 : Specifications-VI

Paper Code : AR/605/D

Course Credits : 02

Course Objective:

- Techniques and Phraseology of writing specifications of basic and composite materials and various building works.

Course Content:

Writing specifications of -

Unit - I

Excavations
Earthwork
Foundations
Damp proof course

Unit - II

Brick Masonry
Concreting
Flooring

Unit - III

Timber doors and windows
Metal doors and windows
Painting and other finishes

Unit - IV

Sanitary fittings and fixtures
Electrical wiring and fixtures
Specifications as part of the tender document

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Examiner will set seven questions in total, covering the whole syllabus. Students will have to attempt 4 questions in all. All the questions carry equal marks [6.25 x 4 = 25]
-

Reading List (To be elaborated by subject teacher)

1. CPWD Specifications.
2. Julia McMorrough (2013). The Architecture Reference & Specification Book: Everything Architects Need to Know Every Day (Indispensable Guide).
3. M Chakraborti (2006). Estimating, Costing, Specification & Valuation In Civil Engineering.

Paper-6 : History Of Architecture-VI (20th & 21st Century Architecture)

Paper Code : AR/606/D

Course Credits : 02

Course Objective:

- To understand the growth and development of architecture and the ideas that propelled this development from the advent of the Modern Movement in the early decades of the 20th Century to contemporary trends across the world and in India.

Course Content:

Unit I : The Western World - I

Early Modernism
Post War Decades: The International Style
Alternatives to the International Styles

Unit II : The Western World - II

Late Modernism
Post Modernism
Neo Modernism
Current trends in global scenario

Unit III : The Indian Scenario - I

Post-Independence Architecture
The Arrival of Modernism in India
Foreign Architects and their influence on Indian Architects
Rediscovering India's Indigenous Architectural Tradition

Unit IV : The Indian Scenario - II

Current trends in contemporary Indian Architecture
Exploring Regionalism in Indian Architecture

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]

Reading List (To be elaborated by subject teacher)

1. Bill Risebero, The Story of Western Architecture, (London, 1979)
2. Charles Jencks, Modern Movements in Architecture, (New York, 1986)
3. Harry N. Abrams Inc., Architecture: From Pre-history to Post-Modernism / The Western Tradition, (New York, 1980)
4. H. R. Hitchcock et al, World Architecture: An Illustrated History, (London, 1963)
5. John Musgrove ed., Sir Bannister Fletcher's - A History of Architecture, (London, 1987)
6. Kenneth Frampton, Modern Architecture: A Critical History, (New York, 1985)
7. Le Corbusier, Towards a New Architecture, (New York, 1960)
8. Nikolaus Pevsner, An Outline of European Architecture, (London, 1945)
9. Robert Venturi, Complexity and Contradiction in Architecture, (New York, 1977)
10. Vincent Scully Jr., Modern Architecture, (New York, 1977)
11. Charles Correa and Kenneth Frampton, Charles Correa, (London, 1997)
12. G.H.R. Tillotson, The Tradition of Indian Architecture: Continuity, Controversy and Change since 1850, (Delhi, 1989)
13. Bhatia, Gautam (2003) Laurie Baker: Life, Work and Writings, Delhi.
14. James Steele, The Complete Architecture of Bal Krishna Doshi: Rethinking Modernism for the Developing World, (Delhi, 1998)

ELECTIVES FOR SEMESTER – VI (Papers 7-11)

Paper-7 : Art Appreciation-VI

Paper Code : AR/607/D

Course Credits : 02

Course Objective:

- To understand the vocabulary of art and its principles through study of various art forms within different timelines and cultural contexts in India and abroad.

Course Content:

Unit I : Introduction to Art

Definition of Art and need of Art
Role of Art, its perception and its representation
Categories of art in terms of media and technique
Appreciating Art, Form, Content and Context

Unit II : Vocabulary of Art

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

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

Appreciating art through the study of art production in the West over history from modern art till the present. 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 - Op art new forms and media of art.

Unit V : Appreciating Art- Indian Art

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.

Note:

Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.

Reading List (To be elaborated by subject teacher)

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. Edith Thomory, “A History of Fine Arts in India and the West”, Orient Longman Publisher’s Pvt.Ltd, 1982
4. H.H. Arnason, “History of Modern Art”, Thames and Hudson, 1977.

Paper-8 : Sustainable Design-VI

Paper Code : AR/608/D

Course Credits : 02

Course Objective:

- To impart knowledge of sustainable architectural practices.

Course Content:

Unit I : Introduction:

Sustainability and its various dimensions (economic, social and ecological); Sustainable development of built environment; Global Warming and Climate Change; Concepts in sustainable architecture- sustainable buildings, green buildings, climate responsive buildings, ecological buildings; Energy policy of India and world.

Unit II : Elements of Sustainable Architecture

Earth/Soil, Materials – production and use, Site (Topography, Climatic Zone, surrounding), Water, Quality of indoor/outdoor environment; Energy; Infrastructure – transport, storm water management, waste management, underground water management etc.

Unit III : Strategies and Technologies

Assessment of existing resources; Solar Passive Design; Recycling/Reuse strategies, optimization techniques, advances in HVAC, Electrical, Lighting and Plumbing technologies; Active energy systems- PV cells, micro wind towers, bio-mass energy etc.

Unit IV : Sustainability assessment rating systems

Benchmarking; Study of rating systems across globe - BREEAM, CASBEE, LEED, IGBC, GRIHA, SBTool, SBC-ITACA, Green Globes and their credit system; Post occupancy evaluation; Life Cycle Assessment- Concept, terminologies, methodologies and tools.

Unit V : Net Zero Energy and Energy Positive Buildings

Concept, and case studies 3 7. Whole Building Simulation: Introduction to concept and basic software, requirements of certification and rating agencies

Case studies: Examples of sustainable architecture- traditional and contemporary.

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Appropriate Standards must be explained and used
-

Reading List (To be elaborated by subject teacher)

1. Ian L Mcharg, Design with Nature, John Wiley and Sons Inc. 1992
2. Ramchandra Guha, How much should we consume, 1997
3. David Suzuki, The Sacred Balance: Rediscovering Our Place in Nature, Greystone Books,
4. Douglas and McIntyre Publishing Group, 2007
5. James Gustav Speth, The Bridge at the Edge of the World: Capitalism, the Environment, and Crossing from Crisis to Sustainability, Yale University Press 2008
6. Jerry Yudison, The Green Building Revolution, Island Press 2008

Paper-9 : Barrier Free Design -VI

Paper Code : AR/609/D

Course Credits : 02

Course Objective:

- The intention is to inculcate in students the need and importance of barrier free design with effective design solutions as per Indian and International standards.

Course Content:

Unit I : Introduction

Barrier Free Design: Need & concerns

Definition and dimensions of Barrier: physical, psychological, social and economic.

Types of Disabilities: Approaches towards Disability, a Medical Model and Social Model.

Unit II : History, Principles and Universal Standards of Barrier Free Design

Universal Design: principles and aspects.

Study of human environment interaction system.

History of development of barrier free initiatives taken across the globe.

Norms and standards for barrier free design.

Unit III : Barrier free design elements

Design elements within buildings: site planning, parking, approach to plinth levels, corridors, entrance and exit, windows, stairways, ramps, lifts, toilets, signage, guiding and warning systems, floor materials etc.

Design elements outside the building: kerb at footpath, road crossing, public toilet, bust stop, toilet booth, signages etc.

Unit IV : Constitutional and statutory provisions for barrier free design

Constitutional and statutory provisions to implement barrier free design.

Provision in residential building, auditorium, parks, restaurants, railway station, airports, docks etc.

Barrier free transportation: Transportation provisions for barrier free design and movement.

Barrier free tourism: Socio-economic and safety aspects for barrier free tourism.

Access audit and design solution to one building.

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]

Reading List (To be elaborated by subject teacher)

1. Bednar M. J., Barrier free Environments (1977), Stroudsburg, Pa.: Dowden, Hutchinson & Ross.
2. James N. Groom and Sarah P. Harkness, Building Without Barriers for the Disabled (1976), New York: Whitney Library of Design.
3. PWD Act, 1995, the persons with disabilities (equal opportunities, protection of rights and full participation) act.
4. The Rights of Persons with Disabilities Act, 2016, The Gazette of India Extraordinary.
5. CPWD, Handbook on Barrier free and accessibility (2014). Central Public Works Department Publication.
6. AICTE, Design Manual for a Barrier Free Environment in Universities/Colleges.

Paper-10 : Energy Efficient and Bioclimatic Architecture-VI

Paper Code : AR/610/D

Course Credits : 02

Course Objective:

- The intention of this course is to sensitize the students towards conserving energy in architecture and buildings.

Course Content:

Unit I : Introduction

Introduction to energy efficiency, use of energy in buildings, energy conservation measures, Codes, standards and organizations related to energy conservation. Introduction to climatic elements, classification of climatic zones, criteria for classification. Factors causing comfort and discomfort.

Unit II : Sun and Architecture

Solar path, Sun Angles, Solar Azimuth, Altitude angles, Design of shading devices, solar active and passive systems. Site Plan and orientation.

Unit III : Lighting Design

Day lighting design, cool day light, Day light factor, visual comfort and quality, lighting control devices and sensors, energy efficient light fixtures.

Unit IV : Sun Protection and Insulation

Solarium, attached green houses, trombe wall, thermal mass, phase change materials, direct gain from thermal storage, heat transfer from walls, roof and windows, U- values.

Unit V : Passive Ventilation and Green Rating Systems

Types of ventilation, ventilation in and around buildings, indoor air quality, stack effect, induced ventilation. Green rating systems like ECBC, GRIHA, IGBC, LEED studied in terms of climate.

Unit VI : Renewable Energy Sources and Intelligent Building Systems

Types of renewable energy sources: Solar energy, Wind Energy, Biomass energy, geothermal energy etc. and Recycling of Waste and Intelligent Building Systems

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.

Reading List (To be elaborated by subject teacher)

1. Givoni, B. (1994). Passive and Low Energy Cooling of Buildings. New York: Van Nostrand
2. Keith, M. J. (1996). Energy Management and Operating Costs in Buildings. London: E & FN.
3. Krishnan, A., and Others. (2001). Climate Responsive Architecture: A Design Handbook for Energy Efficient Buildings. New Delhi: TAT A McGraw-Hill.
4. O'Callaghan, Paul, W. (1980). Buildings for Energy Conservation. London: Pergamon Press.
5. Ursulla, E. (2003). Solar technologies for Buildings.

Paper-11 : Housing-VI

Paper Code : AR/611/D

Course Credits : 02

Course Objective:

- To understand the fundamentals of housing

Course Content:

Unit I

Definition of house and housing. Housing and its importance in Architecture; Housing and its relationship with neighborhood and city plan. Housing Design and Site Planning; Type of new dwelling structures - House detached, semidetached.

Unit II

Flats and multistoried classification according to the type of access-corridor, gallery, direct grouped, combination of these access types. Definition of each of the above types, their suitability, advantages, disadvantages and social, economic and aesthetic implications.

Unit III

Selection of site for the housing. Considerations of physical characteristics of site, location factors, legal and financial factors, community and neighborhood factors. Importance of orientation and topography in housing design.

Orientation: definition, choice of direction and factors to be considered, sunlight, spacing of blocks.

Topography: Problems inherent in steeply sloping sites economic and aesthetic implications of the building along and against the contours, silhouette problems on a sloping site. Landscaping and topography; effects of plantation in the background and front of buildings on a sloping site.

Unit IV

Sub-division techniques; proportions of plots and need of roads. Garages and parking areas, conservation of beauty spots. Access to the residence and residential colony from roads. Road sections. Roads in residential areas.

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- Appropriate Standards must be explained and used

Reading List (To be elaborated by subject teacher)

1. Babur, Mumtaz and Patweikly. Urban Housing Strategies. London: Pitman Publishing, 1976.
2. Payne, Geoffrey K. Low Income Housing in the Development World. Chichester: John Wiley, 1984.
3. Turner, John F.C. Housing by people. London: Marison Boyars, 1976.
4. Evans, Martin. Housing, Climate and comfort. London: Architectural Press, 1980.
5. Davidson, Forbes and Payne, Geoff . Urban Projects Manual. Liverpool: Liverpool University Press, 1983.

SEMESTER - VII

Paper-1 : Architectural Design-VII (Services and Structure Based - Choice-Based Studio)

Paper Code : AR/701/D

Course Credits : 14

Course Objective:

- The intention of this particular course is to make students apply their knowledge and develop design skills for multi-storey and other large scale public buildings having complex services and structural systems while testing out the theories and methodology and other intricate nuances learnt during the practical training i.e. design of multi-cellular, multi-planar buildings of varied typologies.

Course Content:

- One design problem to be conducted. Design of high rise buildings/services-oriented buildings like Multiplexes, 5-star hotels, theme-based hotels, recreational buildings, hospitals, IT centers, etc.
- Design of transport terminal like airports, bus terminals, railway station, etc. of choice of student to be conducted with focus on services and structural aspect of the building.
- One Time problem of 12-18 hours.

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Design problems can have a thirist direction of resolving some building services.
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Reading List (To be elaborated by subject teacher)

1. Barry, R (1986). Construction of Buildings. Vol. 1-5. London.

Paper-2 : Building Construction & Materials-VII (Interior Design Drawings)

Paper Code : AR/702/D

Course Credits : 08

Course Objective:

- To generate awareness about interior construction details used in hotels, hospitals, offices, shopping malls, industrial, housing etc.

Course Content:

Unit I

Furniture layout and details
False ceiling layout and details

Unit II

Partition design and details.
Panelling design and details.

Unit III

Staircase design and details.
Shop front design and details.

Unit IV

Flooring layout and details.
Electrical layout
Interior accessories planters, signage, display boards etc.

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Market survey, industrial visits to manufacturing units and field visits are to be conducted.
 - Minimum 10 sheets must be prepared in the studio under supervision of the teacher. Use of Computer Aided Drawing techniques may be encouraged.
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Reading List (To be elaborated by subject teacher):

1. Barry, R (1986). Construction of Buildings. Vol. 1-5. London.
2. BIS (2011). National Building Code, SP 7. New Delhi: Bureau of Indian Standards.
3. Foster, Stroud (1963). Mitchell's Advanced Building Construction. Mumbai: Allied Publishers.
4. McKay, W. B. (1972). Building Construction (Metric). Vol. 1-5. London: Longman..
5. Prabhu, Balagopal T. S. (1987). Building Drawing and Detailing. Calicut: Spades Publishers.
6. Punmia, B. C. (2005). Building Construction. New Delhi: Firewall Media.
7. Singh, Gurucharan (1981). Building Construction Engineering. New Delhi: Standard Book House.
8. Relevant IS codes

Paper-3 : Building Bye-Laws-VII

Paper Code : AR/703/D

Course Credits : 02

Course Content:

Unit I : Introduction to building codes and norms

Introduction to Building codes, bye laws and regulations, their need and relevance.

Overview of basic terminologies, nature of building codes in special regions like heritage zones, air funnels, environmentally sensitive zones, disaster prone regions, coastal zones, hilly areas, etc.

Unit II : Study of building regulations

Study of structure of Building bye laws, National Building Code etc. General building requirements, building classifications and permissible uses. Norms for exterior and interior open spaces, setbacks and margins, norms for building projections in open spaces, considerations in FAR, guidelines for open green areas. Plinth, habitable rooms, kitchen, wet areas, mezzanine, store rooms, elevated parts like chimneys, parapets etc. Means of access, norms for access widths for various types of buildings, requirements of parking spaces, Equivalent Car Space (ECS), standards for turning radius, access to service areas.

Unit III : Norms for Local bye laws

Study of local planning bodies such as corporation, municipal board's and panchayats Building bye laws framed by local bodies of Chandigarh, Delhi, Haryana Procedural method for use of bye laws for submission drawings, obtaining building permits, architectural control and provision of building services, regulations for super structures, building height regulations, regulations for multi-storied buildings etc.

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- Appropriate Standards must be explained and used
- Examiner will set seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]

Reading List (To be elaborated by subject teacher) :

1. Durga Prasad, M. V. (1997). Law of Flats, Apartments and Buildings. 4th ed. Hyderabad: Asia Law Housed.
2. Scott, G. J. (1997). Architectural Building Codes. New York: Van Nostrand Reinhold.
3. Apte, V. S. (2008). Architectural Practice and procedure. Mumbai: Pillai College of Architecture.
4. Banerjee, D. N. (1998). Principles and Practice of Valuation. 5th ed. Kolkata: Eastern Law House.
5. Council of Architecture (New Delhi) (2013). Directory of Architects and Architectural Firm. New Delhi: Council of Architecture.
6. Council of Architecture (2013). Handbook of Professional Practice. New Delhi: Council of Architecture.
7. Greenstreet, R., Chappell, D. and Dunn, M. (2002). Legal and Contractual Procedures for Architects. London: Architectural Press.
8. Krishnamurthy, K G and Ravindra, S V (2014). Professional Practice. New Delhi: PHI Learning.
9. Namavati, Roshan (1991). Theory and Practice of Valuation. Mumbai: Laxmi Book Depot.
10. Namavati, Roshan (1993). Professional Practice. Mumbai: Laxmi Book Depot.
11. Indian Institute of Architect (1988). Handbook of Professional Practice. Mumbai: Architects Publishing Corporation.

Paper-4 : Urban Design-VII

Paper Code : AR/704/D

Course Credits : 02

Course Objective:

- To familiarize the students with basic aspects of urban design as one of the specialization of Architecture.

Course Content:

Unit I

History of urban design
Urban design vocabulary

Unit II

Elements of urban design
Urban spaces
Circulations: intercity/intra-city urban

Unit III

Visual surveys
Building typology and its impact on urban form
Physical and non-physical determinants of city form patterns

Unit IV

Urban design tools
Principles and techniques of urban design, legislations (agencies & Societies) related to urban design
To appreciate the role of acoustics and fire protection in buildings.

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Appropriate Standards must be explained and used
 - Examiner will set seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]
-

Reading List (To be elaborated by subject teacher):

1. Lynch, Kevin A. Images of the city .
2. Lynch, Kevin A. Good city forms.
3. Chiara, Joseph de et al (1990). Time Savers Standards of Building Types. New York: McGraw- Hill.
4. Cullen, Gordon (1986), The Concise Townscape. London: Architectural Press.
5. Dober, R. D. (1996). Campus Architecture: Building in the Groves of Academy. New York: McGraw-Hill.
6. Krier, Rob (1979). Urban Space. London: Academy Editions.

Paper-5 : Digital Graphics and Art-VII

Paper Code : AR/705/D

Course Credits : 02

Course Objective:

- This Course allow students to expertise in the tools and application in the Design art works and rendering the images, image manipulations, etc.

Course Content:

Unit I : Basic Design Organization- (Manual)

Study of two-dimensional space and its organizational possibilities – Flat design Repetitive forms from different sources-nature-foilage-Trees-Branches-different motives Medium – Poster colour – Black & White or any two colours

Unit II : Space and Forms-Book Cover Design-(Digital)

Elements of Pictorial expression related to the concept of space and forms-Geometrical Shapes extensive exercise- Developing – awareness of pictorial elements such as Point, Line, Shape, Volume, Texture, Light and colour Basic design problems. Juxtaposition, Arrangement of Living & non-living Objects. Medium-Pencil for scribbling, Chinese Ink, Poster Colour, Study of various types of objects (natural and man-made) with a view to transform them into flat pictorial images- (Digital)-Developing an awareness of pictorial space-division of space & Form and its relation with space – observation of primitive, Folk and miniature paintings-Developing an awareness of inter – relationship of different -Shapes and forms – relative values. Medium – Adobe Photoshop and Adobe Illustrator

Unit III : Form and Multi – Colour Composition - (Digital)

Activation of space through Form and Colour – Optical illusions. Basic Design by Computer – Paint & Brush, Word Art, Collage. Text Art Design, Calligraphic Design. Arrangement & Juxtaposition of Colours – as well as graphic designs – multiple views, angle of visual elements and its Presentation. Final Display will be based on Study & Composition along with Examination works.

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.

Reading List (To be elaborated by subject teacher)

1. Wozencroft, Jon (1994). The Graphic Language of Neville Brody 2.
2. Gordon, Bob and Gordon, Maggie (2002). The Complete Guide to Digital Graphic Design
3. Gingko Press (2007). Illustration Play.
4. Shaughnessy, Adrian (2009). Graphic Design: A User's Manual
5. Albers, Josef (2013). Interaction of Color: 50th Anniversary Edition.
6. Bierut, Michael (2015). How to.
7. Rand, Paul (2016). A Designer's Art.
8. Heller, Steven and Anderson, Gail (2016). The Graphic Design Idea Book: Inspiration from 50 Masters.
9. Cooke, Andy (2018) Graphic Design for Art, Fashion, Film, Architecture, Photographer, Product Design and Everything in Between.
10. Klanten, Robert. The Little Know-it-all: Common Sense for Designers.

ELECTIVES FOR SEMESTER – VII

(Papers 6-12)

Paper-6 : Cost Effective Buildings-VII

Paper Code : AR/706/D

Course Credits : 02

Course Objective:

- The intention is to inculcate in students the need and methods of reducing costs in buildings. To understand the importance and necessity of cost effective building principles and practices as per Indian and International standards.

Course Content:

Unit I : Introduction

Definition and overview of cost effective building in India and abroad.

Understanding the importance of cost effective buildings in India in current scenario.

Cost effective building and sustainability

Unit II : Spatial Norms and Cost effectiveness aspects

Spatial norms for cost effective buildings: Study of spatial requirements for buildings to be cost effective.

Usage patterns: Cost effectiveness to be explored according to various building types and their usage pattern.

Cost analysis: material, Labour, percentage breakup of various building components

Cost effectiveness: Planning aspects, construction aspects, maintenance and longevity aspects, minimizing wastage and recycling and reuse of building materials.

Unit III : Cost effective building materials and technologies

Choice of building materials: indigenous, organic, alternative materials

Building techniques: standardization, modular co- ordination, mass production, pre-fabrication

Traditional technology, alternative technology, adaptation and innovation

Comparative cost analysis of building materials and technologies

Unit IV : Architects and Agencies in cost effective buildings

Major advocators of cost effective practices: Laurie Baker, U.C. Jain, Hasan Fathy, Anil Laul, Rewathi Kamanth, Anupama Kundoo, Pramod Adhlakha, Geoffrey Bawa etc.

Role R & D Organizations, self-help community participation, cooperative and individuals in promoting cost effective practices: CBRI, SERC, BMPTC, Development Alternatives, ASTRA, HUDCO,

COSTFORD, Auroville etc.

Survey and detailed study of exemplars of low cost study of low cost buildings

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]
-

Reading List (To be elaborated by subject teacher)

1. CBRI (1990). Building materials & components technology for developing countries. Roorkee: Central Building Research Institute.
2. Mathur, G. C. (1993). Low Cost Housing in Developing Countries. South Asia Books.
3. Bansal, N. K. and Minke, G., ed. (1995). Climatic Zones and Rural Housing in India, Forschungszentrum Julich, Julich (Germany).
4. Donald, Watson (2000). Time saver standards for building materials and systems. New York: McGraw-Hill
5. Jagdish, KS and Nangunda, K.S. (2002). Proceedings of the National Workshop on Alternative Building Methods.
6. Publications of CBRI, SERC, RRL, NBO, COSTFORD etc

Paper-7 : Traffic and Transport Planning-VII

Paper Code : AR/707/D

Course Credits : 02

Course Objective:

- The intention is to inculcate in students the knowledge of urban transport planning process, modelling, safety and appraisal of the projects.

Course Content:

Unit I : Introduction

Study area definitions, sampling of travel methods, survey techniques; programming and scheduling, processing of travel data, analysis and interpretation of traffic studies; introduction to transport planning process, trip generation, trip distribution, trip assignment, modal split, introduction to TRIPS, CUBE, TRANSIT, ARCADY etc.; freight transport characteristics.

Unit II : Public Transport

The roles and characteristics of public transports modes, understanding and estimating public transport demand, designing and operating public transport systems, logistics and supply chain management, vehicle utilization system, vehicle routing, passenger information systems, public transport costs, fares and investment appraisal, application of intelligent transport systems, local authorities and transport executives.

Unit III : Transport Safety

Indian and international accident patterns, accident data sources, identification of hazards and diagnosis of safety problems, interpretation of safety information; human factors in road accidents; vehicle factors in accidents and injury prevention measures; infrastructure problems and solutions; system safety and safety audit; safety education; safety modelling; vulnerable road users; planning for target groups-children, adults, physically challenged and women.

Unit IV : Transport and Environment

Introduction to urban pollution issues and policies, transport noise screening tools, vehicle emission and trends, air quality management, exploratory analysis of urban air quality data, dispersion modelling approaches, norms and guidelines for highway landscaping, energy and environmental implications in transport, standards and design consideration.

Unit V : Financial and Economic Appraisal of Transport Projects

Estimates of quantities, unit rates, cost escalations, revenues, financial viability, economic project cost; approaches for economic evaluation, project cost and scheduling, savings in fuel consumption, travel time savings, savings in VOC, determination of EIRR and sensitivity analysis.

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]

Reading List (To be elaborated by subject teacher)

1. O'Flaherty, Coleman A. (1996). Transport Planning and Traffic Engineering. London: Butterworth-Heinemann.
2. Kadiyali, L.R. (1983). Traffic Engineering and Transport Planning. New Delhi: Khanna Publishers.
3. Meyer, M. D. (2009). Transportation Planning Handbook. Inst. of Trans. Eng

Paper-8 : Architectural Conservation-VII

Paper Code : AR/708/D

Course Credits : 02

Course Objective:

- To inculcate the ability to appreciate historical architecture and introduce basic issues of conservation as one of the specializations of architecture.

Course Content:

Unit I

History of conservation
Definitions and Vocabulary
Intervention Types

Unit II

Principles of Architectural Conservation
International Conservation Conventions
Charters for conservation of historic & cultural properties
Cultural World Heritage: Notion & Criteria

Unit III

Inventorising Architectural Heritage
Causes of decay; listing, documentation and assessment of heritage structures, sites and precincts.
Investigation, state of preservation and preparing conservation report.
Case studies; guidelines for maintenance and repair.

Unit IV

Conservation in India
Agencies: Archaeological Survey of India; State Departments of Archaeology;
INTACH; etc. Statutory Framework
World Heritage Sites in India

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- Examiner will set seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]

Reading List (To be elaborated by subject teacher)

1. Cohen, N. (1999). Urban Conservation. Cambridge: MIT Press.
2. Feilden, B.M. (1982). Conservation of Historic Buildings. Oxford.
3. Jokilehto, J. (2002). A History of Architectural Conservation. ICCROM.
4. Rabun, J.S. *et al* (2008). Building Evaluation for Adaptive Reuse & Preservation. New Jersey.
5. US/ICOMOS International Symposium (4th:2001: Philadelphia, Pa.) (2003). Managing change: Sustainable approaches to the conservation of the built environment. Los Angeles.
6. Watt, D. (1999). Building Pathology: Principles and practice. London: Blackwell.

Paper-9 : Sociology-VII

Paper Code : AR/709/D

Course Credits : 02

Course Objective:

- To develop a sociological base for Architecture.

Course Content:

Unit I

Man, environment and society. Rural society, traditional patterns and trends of change.

Unit II

The concept of social stratification, urbanization and modernization. Concept of social structure, cultural and social institutions, relation between social structure and special structure.

Unit III

Social aspects of housing and problems of slums.

Unit IV

Social theories of Gandhi and Nehru and Contemporary India. Community development and panchayati Raj. Works of Laurie Baker, Charles Correa & B.V Doshi.

Exercises: Seminars and preparing paper.

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Examiner will set seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25].

Reading List (To be elaborated by subject teacher)

1. Vidya Bhushan and Sachdeva, D.R. Introduction to Sociology.
2. Shankar Rao, C.N. Sociology : Primary Principles.
3. Shankar Rao, C.N. Introduction to Sociology. Part I-II.
4. Johnson, Harry M. Sociology: A systematic introduction,

Paper-10 : Contemporary Processes Architecture-VII

Paper Code : AR/710/D

Course Credits : 02

Course Objective:

- To understand contemporary architecture as unique form of architecture. To understand and analyze contemporary architecture with various theories of media, digital architecture, abstraction of ideas and its influence on perception of space as per various styles of contemporary architecture.

Course Content:

Unit I

Investigation of contemporary theories of media and their influence on perception of space and architecture, Technology-Art, Technology-Architecture, Technology as Rhetoric, Digital Technology-Architecture.

Unit II

Aspects of Digital Architecture
Design and Computation
Differences between Digital and Non-Digital processes
Architecture and Cyberspace
Qualities of New Spaces in Contemporary Architecture
Issues of Aesthetics and Authorship of Design
Increased automatism and its influence

Unit III

Contemporary Processes
Emerging phenomenon such as increasing formal and functional abstractions
Diagrams and Diagrammatic reasoning
Diagrams and Design processes.
Animation and Design
Digital Hybrids

Unit IV

Fractal Geometry and shape grammar
Hyper Space
Liquid Architecture
Responsive Architecture

Unit V

Illustrated case studies of works of contemporary Architects whose work are critical in shaping contemporary architecture.

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Examiner will set seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]
-

Reading List (To be elaborated by subject teacher)

1. Venturi, Robert (1977). Complexity and Contradiction in Architecture (Museum of Modern Art Papers on Architecture).

2. Curtis, William J.R. (1996). *Modern Architecture Since 1900*.
3. Bhatia, Gautam (2000). *Laurie Baker: Life, Work, Writings*.
4. Correa, Charles (2000). *Housing and urbanization*.
5. Frampton, Kenneth (2007). *Modern Architecture*. 4th ed. (World of Art).
6. Munari, Bruno (2009). *Design as Art*. New Delhi: Penguin. (Penguin Modern Classics).
7. Mehrotra, Rahul (2011). *Architecture in India Since 1990*.
8. Pandya, Yatin (2013). *Elements of Space making*.
9. Mari, Anthony Di (2013). *Operative Design: A Catalogue of Spatial Verbs*.
10. Radford, Antony (2014). *The Elements of Modern Architecture: Understanding Contemporary Buildings*.
11. Deulgaonkar, Atul (2015). *Laurie Baker: Truth in Architecture*.

Paper-11 : Intelligent Buildings-VII

Paper Code : AR/711/D

Course Credits : 02

Course Objective:

- To enable students to establish a broad knowledge on the concepts of intelligent buildings. To enable students to understand basic features of an intelligent building and the required services system to support these features. To enable students to understand the operation principle and characteristics of various service systems/technologies of an intelligent buildings; such as the building automation system, intelligent vertical transportation systems, communications, structured cabling and etc.

Course Content:

Unit I : Intelligent building characteristics

Features and benefits of intelligent buildings. The anatomy of intelligent buildings. Environmental aspect. The marketplace and other driving forces behind the emergence of intelligent buildings

Unit II: Building automation systems & controls

Philosophy, system configuration, system Units, distributed systems, communication protocol and on-line measurements. Fire protection, security and energy management. Control objectives. Sensors, controllers and actuators. Control system schematics system design. Microprocessor based controllers & digital controls. Examples of sub-systems such as: Digital Addressable Lighting Interface (DALI)

Unit III: Modern intelligent vertical transportation systems

Sky lobby, double-deck lifts, twin lifts, advanced call registration systems, large scale monitoring systems, applications of artificial intelligence in supervisory control, energy saving measures related to lift systems/escalator systems, other modern vertical transportation systems, such as: gondola systems, materials handling systems, etc.

Unit IV: Communication and security systems

Voice communication systems, local area network, wireless LAN, Digital TV, CCTV, digital CCTV, teleconferencing, cellular phone system, and CABD. SMATV. Data networking. Short- and long-haul networks. Wideband network. Office automations. Public address/sound reinforcement systems. Digital public-address system. Modern security systems.

Unit V: Structured cabling systems

Characteristics and benefits. Standards, configurations and physical media. EMI/EMC issues, grounding problems. System design. Different Categories of cables.

Unit VI: Integrating the technologies and systems

The impact of information technology on buildings and people. Shared tenant services. Interaction and integration between building structure, systems, services, management, control and information technology. Application & design software packages.

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated

to the students at the commencement of the semester.

- Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]
-

Reading List (To be elaborated by subject teacher):

1. Clements-Croome, Derek, Intelligent Buildings: An introduction. London: Routledge, 2014.
2. Shengwei, Wang. Intelligent Buildings and Building Automation. E&V Spon Press, 2010.
3. Sinopoli, Jim . Smart Building Systems for Architectures, Owners and Builders. Berlin: Elsevier, 2010.
4. Manolescue, P. Integrating Security into Intelligent Buildings. Cheltenham, 2003.
5. Dobbelsteen, A. Smart Building in a Changing Climate. Techne Press, 2009.
6. Clements-Croome, D. Intelligent Buildings: An Introduction. London: Routledge, 2014.

Paper-12 : Building Information Modeling-VII

Paper Code : AR/712/D

Course Credits : 02

Course Objective:

- This course focuses on the skills and information needed to effectively create a Building Information Model (BIM) model using integrated parametric design approach to generate a 3D model with live relationships and constraints that makes a design adaptable and flexible. This is a project-based course where students gain knowledge on the implementation of BIM concepts from planning and design, to construction and operations.

Course Content:

Unit I: Introduction

Introduction to BIM fundamentals

Modeling Building Elements: modeling exterior and interior walls, creating floors and roofs, Adding doors, windows, footings, columns, and beams.

Unit II: Building Envelope Modelling

Building Envelope: modeling wall types and design features, working with doors, windows, and wall openings, creating roofs with different shapes and slopes.

Curtain Systems: designing curtain grid patterns, adjusting grids and mullions, creating and using curtain panels types.

Unit III: Interior Elements Modelling

Interiors and Circulation: creating stairs and ramps, customizing stair shapes, modeling elevators.

Sheets and construction documents

Families creation

Model Sharing: internal and external sharing

Site features and analysis

Conceptual Massing

Unit IV: Final Design

Productivity, Interoperability

Visualization and Rendering

Constructability: Project phase and Design Options

Integrated practice

At the completion of this course, students should have a sound understanding of these concepts and principles along with the skill gained in utilizing **REVIT** platforms and are able to apply them to produce creative architectural solutions using these digital media as a spatial design tool in all phases of design. Furthermore, students will learn and experience architectural solutions in a non-linear workflow and their relationships to the integrated design practices.

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]

Reading List (To be elaborated by subject teacher)

1. Smith, Dana K. and Tardif, Michael (2009). Building Information Modeling: A Strategic Implementation Guide for Architects, Engineers, Constructors, and Real Estate Asset Managers.
2. Hardin, Brad (2009) . BIM and Construction Management: Proven Tools, Methods, and Workflows.
3. Deutsch, Randy (2011). BIM and Integrated Design: Strategies for Architectural Practice.
4. Eastman, Chuck ; Teicholz, Paul ; Sacks, Rafael and Liston, Kathleen (2011). BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors.
5. Garber, Richard (2014). BIM Design: Realising the Creative Potential of Building Information Modelling (AD Smart.
6. Kensek, Karen and Noble, Douglas (2014). Building Information Modeling: BIM in Current and Future Practice.
7. Holzer, Dominik (2016). The BIM Manager's Handbook: Guidance for Professionals in Architecture, Engineering, and Construction.

SEMESTER - VIII

Paper-1 : Practical Training-VIII

Paper Code : AR/801/D

Course Credits : 32

Course Objective:

- The intention is to acquaint the students with practical field issues related to project handling, design development, working drawing, and site and office management. Students have to work in an architect's office and get acquainted with the demands of the profession

Course Content:

- The training shall be of 16 weeks duration. Students have to acquaint themselves of all aspects of a project namely drafting, 3-D views, presentation drawing, Working drawings and Site visits. Students are required to prepare a report by critically examining one completed project by the employer architect. The report shall explain the client's brief, design philosophy, site analysis, design area statistics, norms and standards, services involved, material used, construction technology involved, site visits etc. The building study shall be a critical appraisal of one of the noted buildings designed and supervised by the firm in which the candidate has taken the training.

Note:

- The training shall be undertaken under architect registered with council of architecture and having 5-10 years of experience. (*As per PLCSUPVA TRAINING MANUAL*)
- Trainees are required to submit monthly progress reports in the prescribed Proformas of the work done by them in the office. These reports will be monitored by a faculty member designated as the Practical Training Coordinator.
- A final report A4 format, is to be submitted that includes the report on completed projects by the employer architect.
- The Practical Training Examination shall be conducted at the end of training period, in which the work will be assessed by viva voce.

SEMESTER - IX

Paper-1 : Architectural Design-IX (Urban Design)

Paper Code : AR/901/D

Course Credits : 14

Course Objective:

- The intention is to acquaint the students with basic elements, principles and techniques of urban design. The students shall be assigned a planning project to be done in a group of 3-5 students. Covering an area of about 10- 15 ha in a residential / commercial / industrial / recreation / mixed user zone in an urban context incorporating different housing typologies, SEZs, religious settlements, slums etc. including various income and social groups. The presentation shall include land use plan, transportation plan, landscape plan, services plan, social facilities plan, details of housing types and a project report and model.

Course Content:

Unit I: Introduction

Introduction to urban design, scope and its relationship with architecture and planning. Introduction to urban design exercise, planning and design of a multi-functional complex of buildings in the urban context.

Unit II: Case Study

Case Studies – Primary and secondary (Study of live projects and literature study related to urban design projects) case studies and data collection and analysis of case studies. Study of urban development regulations, building bye laws, architectural and planning development regulations and study of social and physical infra structure.

Unit III: Site Study and site analysis

Study of Urban Morphology – Site location, local climatic conditions, topography, existing settlement and landscape, socio cultural impact on design. Study the site potential in terms of energy conservation and site and surroundings conditions that can be used to create a sustainable urban space. Study of locally available material, technology and resources helpful in energy conservation and creating sustainable built environment.

Unit IV: Built form and urban design development

Concept development keeping in view issues related to the growing problems in urban areas in developing countries and their future development shall be explored using minimum intervention to the existing settlement. Emphasis on the design with relation to the contextual environment, traffic and

Planning controls and impact analysis. Detailed study of functions, circulations and connectivity with overall planning. Study of relationship of built environment and open spaces, interlinking of various activities, volumetric analysis, façade treatment – interior and exterior. Overall design development till final stage.

Unit V: Final Design Solution

Present a final urban design solution with good presentation skills, using multimedia, prints and model of existing and redesigned site with urban interventions. Preparation of analytical report of final design proposals will be insisted upon.

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester. This course needs to be supported by frequent site visits but care must be taken that drawings are prepared under supervision in the studio

Reading List (To be elaborated by subject teacher)

1. Kulshrestha, S.K. (2012). Urban and Regional Planning in India: A Handbook for Professional Practice.
2. Ahluwalia, Isher Judge (2014). Urbanization in India: Challenges, Opportunities and the Way Forward.
3. Mohanty, Prasanna K. (2014). Cities and Public Policy: An Urban Agenda for India.
4. Ahluwalia, Isher Judge (2014). Transforming Our Cities: Facing Up to India's Growing Challenge: Postcards of Change.
5. Carmona, M.; Heath, T.; Oc, T. and Tiesdell, S. (2010). Public Places Urban Spaces. Oxford: Architectural Press.
6. Lang, J. T. (2005). Urban Design: A Typology of Procedures and Products. Oxford: Elsevier/Architectural Press.
7. Larice, M. and Macdonald, E. ed. (2013). The Urban Design Reader, 2nd Ed. The Routledge Urban Reader Series. Abingdon, Oxon: Routledge.
8. Krier, R. (1979). Urban form and space. London: Academy Editions.
9. Marshall, S. (2009). Cities design and evolution. New York: Routledge.
10. Moughtin, C., Cuesta, R., Sarris, C. And Signoretta, P. (2003). Urban Design : Methods and Techniques. Oxford : Architectural Press.
11. Watson, D., Plattus, A. and Shibley, R. (2003). Time-Saver standards for urban design. New York: McGraw-Hill.
12. Das, Amiya Kumar (2007). Urban Planning in India.
13. Ramachandran, R. (1997). Urbanization and Urban Systems in India.
14. Saunders, William S. (2009). Urban Design.
15. Elliott, Donald L. (2008). A Better Way to Zone: Ten Principles to Create More Livable Cities.
16. Graham, Wade (2016). Dream Cities: Seven Urban Ideas That Shape the World.

Paper-2 : Advanced Building Construction-IX

Paper Code : AR/902/D

Course Credits : 08

Course Objective:

- The intention is to acquaint the students with the implementation of new technology concepts which are to involve the application of scientific and technological principles of planning, analysis, design and management to construction technology.

Course Content:

Unit I: Large Span Structures-I

General study of Construction techniques to cover large spans using short length timber and laminated timber material, lamella roofing, portal frames, solid beams and web beams.

Unit II: Large Span Structures-II

General study of suspension structures, membrane structures and pneumatic structures, types, materials used, merits – demerits and examples.

Unit III: High Rise Construction

High rise building typology, foundations systems, structural systems and architectural design considerations.

Unit IV: General defects in buildings and remedial measures

Types of defects in buildings, study of causes of defects in buildings such as cracks, seepage, deflection etc. and their remedies. General idea of non-destructive tests such as Rebound test, Penetration test etc. Rehabilitation methods, Grouting, Guniting, Jacketing etc. General Study of special chemicals used in construction and repairing work.

Unit V: Earthquake resistant construction technology

Earthquakes and its effects on buildings, earthquake zones in India, Architectural design considerations and construction detailing for earthquake resistance.

Unit VI: Retrofitting construction techniques

Design and detailing of additions and alterations in existing buildings for improvement of existing structure and for putting building to new use. Process of modification and precautions to be taken.

Unit VII: Safety in building construction

Basic principles on safety, housekeeping, personal safety during building construction, fire protection, electrical safety, mechanical handling, transportation, scaffolds & ladders, excavation, formwork and concreting.

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester. This course needs to be supported by site visits but care must be taken that drawings are prepared under supervision in the studio
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Reading List (To be elaborated by subject teacher)

1. Salvadori, M. Salvadori's Structure in Architecture: The Building of Buildings. 4th ed.
2. Chudley, Bu R. Construction Technology. Vol. 1-4.
3. Arora, S.P. and Bindra, S.P. A Textbook of Building Construction. New Delhi: Dhanpat Rai.
4. Punamia, B.C. Building Construction. New Delhi: Laxmi Publications.
5. Rangwala, S.C. Building Construction. Anand: Charotar Publication.
6. BIS. IS-1893-1975 & IS-4326 -1976, Bureau of Indian Standards Explanatory Handbook on Codes for Earthquake Engineering and National Building Code 2017. New Delhi: Bureau of Indian Standards.

Paper-3 : Dissertation-IX

Paper Code : AR/903/D

Course Credits : 04

Course Objective:

- The intention is to provide students with strong writing skills, clear thought process and also to make students carry out research in a focussed and structured manner. The research process will make students conduct in depth analysis and objective research on a topic of their interest. Students may be encouraged to select the topic that may eventually transcend in the Architectural Design Thesis in the 10th semester.

Course Content:

Unit I: Introduction and Synopsis

Introduction to Dissertation and its importance. Students may choose a topic related to Architecture and allied subjects. The topics must be accepted by the faculty. Emphasis must be on critical understanding, logical reasoning and structured writing. Formulation of aims, objectives, need for study, scope and limitations, SWOT analysis and research methodology.

Unit II: Case Study

Case Studies – Primary and secondary (Study of projects related to the selected topic and literature study related to projects) case studies and data collection and analysis of case studies. Students can thus utilise this as an opportunity for pre-Thesis study, amounting to literature review and relevant case studies which are otherwise required for Thesis.

Unit III: Chapterisation

Detailed study of the selected topic through data analysis of information collected through literature and case studies by formulating structure of required chapters and detailed summarization of each chapter.

Unit IV: Detailed Chapter Presentation

Detailed discussion on each chapter formulated for the dissertation topic and their sequence in leading to final conclusion of dissertation report.

Unit V: Final dissertation report and presentation

Present a final dissertation report thoroughly compiled in approximately 3500 words with good presentation skills. Standard referencing conventions and technical writing norms must be adhered to. However, greater weightage may be given for writing skills and research content of the study.

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester. This course needs to be supported by site visits but care must be taken that reports are prepared under supervision of the dissertation guides.
-

Reading List (To be elaborated by subject teacher)

1. Anderson, J. and Poole, M. (1998). Thesis and assignment writing. New York: John Wiley.
2. Borden, I. and Ray, K. R. (2006). The dissertation: an architecture student's handbook. 2nd ed. Oxford: Architectural Press.
3. Fink, A. (1998). Conducting research literature reviews: from paper to the Internet. Thousand Oaks: Sage Publications.
4. Murray, R. (2005). Writing for academic journals. Berkshire: Open University Press.

Paper-4 : Entrepreneurship Skills for Architects-IX

Paper Code : AR/904/D

Course Credits : 02

Course Objective:

- The purpose of this course is the development of entrepreneurship skills in students through teaching and learning of and about entrepreneurship.

Course Content:

Unit I: Introduction

Entrepreneurship: Definition and Purpose.

Competencies/qualities of an entrepreneur.

Entrepreneurship skills: key skills agenda, C& IT skills, transferable skills etc.

Life Long Learning (LLL) and associated importance of Entrepreneurship skills.

Unit II: Managing Self: Physical, Intellectual development & Psychological

Knowing Self for Self-Development

Self-concept, personality, traits, multiple intelligence such as language intelligence, numerical intelligence, psychological intelligence etc.

Managing Self - Physical

Personal grooming, Health, Hygiene, Time Management

Managing Self – Intellectual development

Information Search: Sources of information

Reading: Purpose of reading, different styles of reading, techniques of systematic reading.

Note Taking: Importance of note taking, techniques of note taking

Writing: Writing a rough draft, review and final draft.

Managing Self – Psychological

Stress, Emotions, Anxiety-concepts and significance

Techniques to manage the above

Unit III: Managing a Team and Task Management

Team - definition, hierarchy, team dynamics.

Team related skills- sympathy, empathy, co-operation, concern, lead and negotiate, work well with people from culturally diverse background.

Communication in group - conversation and listening skills.

Task Initiation, Task Planning, Task execution, Task close out

Exercises/case studies on task planning towards development of skills for task management

Unit IV: Problem Solving

Prerequisites of problem solving- meaningful learning, ability to apply knowledge in problem solving.

Different approaches for problem solving.

Steps followed in problem solving.

Exercises/case studies on problem solving.

Unit V: Entrepreneurship

Entrepreneurial Support System

District Industry Centres (DICs), Commercial Banks, State Financial Corporations, Small Industries Service Institute (SISIs), Small Industries Development Bank of India (SIDBI), National Small Industries Corporation (NSIC) and other relevant institutions/organizations at State/National level.

Market Survey and Opportunity Identification (Business Planning)

How to start a small office, Procedures for registration of small offices, Assessment of demand and supply in potential areas of growth, understanding business opportunity, Data collection for setting up small ventures.

Project Report Preparation

Preliminary Project Report, Techno-Economic Feasibility Report & Exercises regarding “Project Report Writing” for small projects

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [12.5 X 4 = 50]
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Reading List (To be elaborated by subject teacher)

1. Generic Skill Development Manual. Mumbai: MSBTE.
2. Lifelong learning, Policy Brief (www.oecd.org)
3. Lifelong learning in Global Knowledge Economy, Challenge for Developing Countries. New York : World Bank.
4. UNESCO. Towards Knowledge Society. Paris : UNESCO.
5. Sharma, D.D. Your Personal Pinnacle of Success. New Delhi: Sultan Chand.
6. Rathore, B.S. and Saini, J.S. Handbook of Entrepreneurship. Panchkula (Haryana) : Aapga Publications.
7. Gupta, C.B. and Srinivasan, P. Entrepreneurship Development New Delhi: Sultan Chand.
8. Bhandari, P.M. Handbook of Small Scale Industry.

ELECTIVES FOR SEMESTER - IX

(Papers – 5 to 12)

Paper-5 : Architectural Journalism-IX

Paper Code : AR/905/D

Course Credits : 02

Course Objective:

- The intention is to inculcate in students the techniques of observing, recording, reporting, analyzing architecture for the purpose of publication.

Course Content:

Unit I: Introduction

Definition of journalism, theories of journalism, techniques and processes
Appreciation of journalism in architecture, mediums, techniques
Historical architectural writing
Contemporary architectural journalism – real and virtual
Digital journalism, architecture, arts and journalism / media.

Unit II: Reading and Writing Methodology

Emphasis on the usage of language and vocabulary
Methodology of writing essays, compositions, précis, articles
Listening comprehension, analyzing talks, interviews and conversations
Collating and editing gathered information to build an article
Paraphrasing and summarizing
Analysis of works of Indian and overseas writers

Unit III: Architectural Projects Publication Writing

Writing original reports on design projects/buildings/complexes etc.
Thesis or research report writing
Organizing material for publication in newspapers, magazines, research journals etc.
Reporting editorials for magazines and journals, book reviews
Reporting activities like seminars, panel discussions, conference etc.
Subbing like condensing, connecting, titling, etc. of reports/write-ups submitted for publication.
Examining Case Studies of published works

Unit IV: Mediums, Ethics and Legal issues in Architectural Journalism

Significance of the visual medium in architectural journalism
Photo Journalism, Captioning pictures, programs and events
Ethics and legal issues in journalism, Copy right issues, plagiarism

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]
-

Reading List (To be elaborated by subject teacher)

1. Al-Asad, Mohammad and Musa Majd, ed. (2006). Architectural Criticism and Journalism: Global Perspectives. Umberto Allemandi & Co.
2. Louise Huxtable, Ada (2010). On Architecture: Collected Reflections on a Century of Change. New York: Bloomsbury Publishing.
3. Parkinson, C.N. (1986). What journalism is about. Mumbai: Oxford && IBH.
4. Schmuhl, Robert (1989). Responsibilities of journalism. New Delhi: Affiliated East-West Press.

Paper-6 : Urban and Regional Planning-IX

Paper Code : AR/906/D

Course Credits : 02

Course Objective:

- The intention is to inculcate in students an understanding towards the discipline of urban and regional planning.

Course Content:

Unit I: Introduction

Definition and vocabulary of urban and regional planning
Historical evolution of town planning, Industrialization and Urbanization
Evolution of town planning in India: pre-independence and post-independence.

Unit II: Planning Theories, Models and Vision for Future

Planning theories and models – enunciated by Ebenezer Howard, Patrick Geddes, Soria Y Mata, Doxiadis, Le-Corbusier, Clarence Stein, Clarence Arthur Perry, Hilberseimer – their relevance to Indian conditions.

Techniques of development for new towns and regions, existing towns, urban renewal schemes and development through community participation.

The future of cities and planning, growth management, smart growth and sustainable development

Unit III: Planning Principles, Policies and Data Collection Techniques

Role of Urban and Regional planning policies and perspectives at different levels like national level, state level, district level etc.

Planning norms and development norms for urban and Regional approaches

Socio-cultural, economic planning, land use planning etc. General principles and working.

Detailed survey and preparation of questionnaire for land use, socioeconomic, transportation planning etc.

Unit IV: Planning Regulations, implementation and challenges

Regional planning, ecology and planning

Services, and network, infrastructure planning

Planning laws and legislation, Special Economic Zones (SEZs), UDRPFI recommendations

Physical, social and economic parameters for regional planning.

Implementation of regional plans and challenges associated with it.

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]

Reading List (To be elaborated by subject teacher)

1. Agarwal, M. K. (1996). Urban Transportation in India. Mumbai: Allied Publishers.
2. Catanese, A. J. and Snyder, J. C. (1979). Introduction to Urban Planning. New York : McGraw-Hill.
3. Chand, M. and Puri, V. K. (1990). Regional Planning in India. Mumbai: Allied Publishers.
4. Eisner, S. (1993). Urban Pattern. New Yorkk: Van Nostrand Reinhold.

5. Gowda, K.S.R. (1986). Urban and regional planning. Mysore: Prasaranga.
6. Hall, P. (1992). Urban and Regional Planning. London: Routledge.
7. Khosla, R.K. (2009). Urban and Rural Development in India. Delhi: Indian Publishers.
8. Krier, R. (1984). Urban Space. London.
9. Levy, J. M. (1988). Contemporary Urban Planning. New Jersey: Prentice-Hall.

Paper-7 : Environmental Impact Assessment-IX

Paper Code : AR/907/D

Course Credits : 02

Course Objective:

- To Introduce tools and techniques of EIA and its application; Ensure that environmental factors are considered as a part of decision making process; to identify possible adverse impacts so as to avoid or mitigate them.

Course Content:

Unit I: Introduction

Definition, concepts, need & relevance of Environmental Impact assessment in decision making process; Evolution of EIA and its importance in global, Indian and local context; Principles of EIA; Classification of EIA projects.

Unit II: Process and Methodologies

Measurement of environmental impact, Process of EIA in India & Abroad; Importance of scoping & screening in EIA process; Role of public participation at various levels of decision making; Methodologies, checklists, matrices, network & social cost-benefit analysis, habitat evaluation systems, comprehensive study of various project types, impact calculation & ways to mitigate.

Unit III: Environmental audit and management

Definitions & concepts of audits, GHG Emissions, energy foot print, carbon foot print, partial audits, compliance audits, methodologies & regulations.

Unit IV: Various other assessment techniques

PRA techniques, definition & concepts, objectives, techniques, advantages & limitations; SEA, evolution need and relevance, scope and tasks.

Unit V: EIA in India

EIA regulations in India, initiatives, environmental appraisal procedure, problems associated with relocation, resettlement, refugees & environmental justice, future strategies. Study of an environmental appraisal report and EIA statement of any two projects of national importance.

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all. All the questions carry equal marks [6.25 X 4 = 25]

Reading List (To be elaborated by subject teacher)

1. Glasson, J. R. and Chadwik, A. (2012). Introduction to Environmental Impact assessment. London: Routledge.
2. Kulkarni, V. and Ramachandra, T. V. (2006). Environmental Management. New Delhi: The Energy and Resources Institute.
3. Richard, K. M. (2002). Environmental impact assessment, a methodological perspective. Boston: Kluwer Academic Publishers.
4. Thorpe, A. (2007). The Designer's Atlas of Sustainability. Washington DC: Island Press.

Paper-8 : Contemporary Rural India-IX

Paper Code : AR/908/D

Course Credits : 02

Course Objective:

- To understand Rural India through village study. To understand and analyze rural settlement with the context of its site and surroundings and its response to local site conditions. Rural settlement and its relation to socio-economic aspects and cultural values of the society.

Course Content:

Unit I

Rural settlement - Meaning & theories.

Role of Society, Climate, Socio-economic factors, Local materials, etc. in creation of overall rural settlement in relation to local geographical conditions.

Unit II

Material and available technology

Response to Micro climate

Sustainability

Unit III

In depth analysis of the spatial organizations of our villages with respect to Socio- economic conditions.

An analysis of public spaces in villages. e.g. Village chaupals, local market place, weekly market places, temple complex, bus stands and railway stations, community bathing areas like ponds, lakes etc.

Overall aesthetics of rural architecture.

Rural social structuring.

Unit IV

Illustrated case studies of Rural settlements/building typology from various regions in India and abroad.

Note:

- Detailed teaching programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Examiner will set seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all.
 - All the questions carry equal marks [6.25 X 4 = 25]
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Reading List (To be elaborated by subject teacher)

1. Brunskill, R.W. (2000). Vernacular Architecture: An Illustrated Handbook.
2. Richardson, Vicky (2001). New Vernacular Architecture.
3. Asquith, Lindsay and Vellinga, Marcel (2005). Vernacular Architecture in the 21st Century: Theory, Education and Practice.
4. Oliver, Paul (2006). Built to Meet Needs: Cultural Issues in Vernacular Architecture.
5. May, John (2010). Handmade Houses & Other Buildings: The World of Vernacular Architecture
6. Weber, Willi and Yannas, Simos (2013). Lessons from Vernacular Architecture.
7. Tipnis, Aishwarya. Vernacular Traditions: Contemporary architecture.

Paper-9 : Building Economics-IX

Paper Code : AR/909/D

Course Credits : 02

Course Objective:

- The intention is to make the students aware of the effect of economic conditions on architectural considerations and to familiarize the students to various economic concepts that come within the realm of architecture.

Course Content:

Unit I: General Economics

Micro Economics: The market, demand and supply, choice, budget, consumer satisfaction, monopoly and oligopoly, choice of production technology and returns, profit maximization and cost minimization, production welfare and public good.

Macro Economics: GNP, NNP, demand and supply, inflation, interest rate, employment, saving and investment, monetary and fiscal systems and policies.

Unit II: Theory of Demand

Utility analysis of demand, basic assumptions of marginal utility analysis, law of diminishing marginal utility, consumer's equilibrium, Demand.

Unit III: Project Economics

Economics of the basic inputs into building construction projects - land, labour, capital and Material. Labour intensive v/s capital intensive projects. Financing for projects, sources of capital, Agencies and Institutions influencing project economics, public private participation.

Unit IV: Capital, Interest and Profits

Basic concepts of Interest and Capital, prices and rentals on investment, Capital v/s Financial assets, IRRS on Investment, IRR and Interest rates, (PV) Present Value of assets, PV of Perpetuities, general formula for PV, Nominal & Real Investments.

Unit V: Economic Analyses of Projects

Cost – Control, Cash - Flow Analyses, Cost – Projection, Cost – Benefit, Feasibility, Estate Investments & returns, Valuation, Law relating to properties & Buildings.

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all.
- All the questions carry equal marks [6.25 X 4 = 25]

Reading List (To be elaborated by subject teacher)

1. Chaudhuri, S. and Sen, A. (2010). Economics. New Delhi : McGraw-Hill.
2. Dewett, K. K. (2009). Modern Economic Theory. New Delhi: S. Chand.
3. Ferry, J. D. and Brahdon, S. P. (1994). Cost Planning of Buildings. BSP Professional Books.
4. Koutsoyiannis, A. (1994). Modern Microeconomics. 2nd ed. London: MacMillan Press.
5. Nobbs, J. and Hopkins, I. (1995). Economics: A core text. 4th ed. London: McGraw-Hill.
6. Smell, M. Cost – benefit Analysis : A practical guide. Thomas Telford Publishing.
7. Stone, P. A. (1976). Building Economy: Design Production and Organisation - A synoptic view, 2nd ed. Oxford: Pergamon Press.
8. Teck, H. and Hian, O. (1998). Economics: Theory and applications. New Delhi: McGraw-Hill.

Paper-10 : Set Design-IX

Paper Code : AR/910/D

Course Credits : 02

Course Objective:

- To create awareness amongst students for set design industry and provide exposure about the design potential in theatre & cinema set design for architecture students and to inculcate the ability to translate the requirements of the script to physical manifestations according to the traditions followed in the theatre & cinema industry.

Course Content:

Unit I: Films and Society

Examination of the 20th century culture and society through film. Critical analysis of cultural and social conflicts is portrayed and worked out in popular films, and examination of how motion pictures create a window into modern society. Film as cultural text to better understand history and cultural manifestations.

Unit II: History and Theater Film Set Design

Investigation the production methods, dramatic theory and conventions, and scene design of various performance media since the popularization of the motion picture, and how it has influenced all entertainment design in the 20th and 21st centuries.

Unit III: Graphic Design and Typography for Exhibit Design

Principles of layout for creating effective visual signage and explore the unique problems, technique, theory, and approaches of signage in film, theatre, and other forms of mediated exhibition. Introduction to the design applications for building signage.

Unit IV: Set Design and Concept Wrap

Introduction to the basic concepts, through theory and practice, of scene design in theatre, film, and other fine arts and entertainment media. Students will learn how to analyze scripts for proper scenery, how to conceptualize designs that will translate into actual sets and develop visual thinking within the creative process.

Unit V: Stage Design

Stage design process from inception to performance, script analysis, visual arts analysis, research skills, and the application of principles and elements of design. Understanding stage setting through language, color, and architectural analysis.

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all.
- All the questions carry equal marks [6.25 X 4 = 25]

Reading List (To be elaborated by subject teacher)

1. Thorne, Gary (1999). *Stage Design: A Practical Guide*
2. Nelms, Henning (1975). *Scene Design: A Guide to the Stage*
3. Winslow, Colin (2006). *Handbook of Set Design*
4. Adler, Phoebe (2012). *Behind the Scenes: Contemporary Set Design*. London: Black Dog Publishing..
5. Brockett, Oscar (2010). *Making the Scene: A History of Stage Design and Technology in Europe and the United States*. San Antonio: University of Texas Press.
6. Newhouse, Victoria (2012). *Site and Sound: The Architecture and Acoustics of New Opera Houses and Concert Halls*. New York : Monacelli Press.
7. Rockwell, David (2014). *What If...: The Architecture and Design of David Rockwell*. New York: Metropolis Books.
8. Bousmaha, Baiche and Nicholas, Walliman. *Neufert Architect's data*. London: Blackwell Science.
9. Joseph, Chiara De and Michael, Crosbie J. (1990). *Time saver standards for building types*. New York: McGraw-Hill.

Paper-11 : Building Repairs and Restoration-IX

Paper Code : AR/911/D

Course Credits : 02

Course Objective:

- To create awareness amongst students for maintenance, restoration and retrofitting of buildings in the context of sustainable development. Need for building repair and maintenance, cause and effect of building deterioration, building defects, materials, methods and techniques of maintenance, repair and restoration are covered in the course.

Course Content:

Unit I: Introduction

Life expectancy of different types of buildings, influence of environmental elements: heat, moisture, precipitation & frost on buildings, effect of biological agents like fungus, moss, plants, trees, algae, termite control & prevention, chemical attack on building materials & components, aspects of fire & fire prevention on buildings, impact of pollution on buildings.

Unit II: Building defects

Common defects in buildings - Building failures- Causes and effects, Nondestructive testing methods, Cracks in buildings: types, classification, investigation.

Unit III: Preventive & Strengthening measures

Measures to prevent & control common defects in buildings, Maintenance philosophy, phases of maintenance: routine preventive and curative maintenance, Fundamental Strengthening measures: beam strengthening, column strengthening, shoring, under pinning and jacketing.

Unit IV: Building Repairs

Materials for repair: special mortar & concrete, chemicals, special cements & high-grade concrete, admixtures, techniques for repair, Surface repair: material selection, surface preparation, rust eliminators & polymers coating, Repair of cracks in concrete & masonry: methods of repair, epoxy injection, mortar repair for cracks: guniting & shotcreting, Waterproofing of concrete roofs.

Unit V: Introduction to Conservation

Introduction to conservation, Materials and methods for conservation & restoration work with specific case studies, Adaptive reuse of buildings, advantages. Retrofitting, case studies, Recycling of building components and materials with case studies.

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all.
- All the questions carry equal marks [6.25 X 4 = 25]

Reading List (To be elaborated by subject teacher)

1. Chandler, I. (1992). Repair and Renovation of Modern Buildings. New York: McGraw-Hill.
2. Danish Standards Association (2004). Repair of Concrete Structure to En 1504: A guide for renovation of concrete structures repair materials and systems according to the EN 1504 series.
3. Guha, P. K. (2011). Maintenance and Repairs of Buildings. New Delhi: New Central Book Agency.
4. Adler, Phoebe (2012). Behind the Scenes: Contemporary Set Design. London: Black Dog Publishing.
5. Nayak, B. S. (2013). Manual of Maintenance Engineering. New Delhi: Khanna Publishers.
6. Roger, G. and Hall, F. (2013). Building Services Handbook. New York: Routledge.

Paper-12 : Disaster Resilient Buildings-IX

Paper Code : AR/912/D

Course Credits : 02

Course Objective:

- To create awareness amongst students for types of natural disasters in India and their effect on buildings.
- To provide an overview of the occurrence, causes and consequences of disaster and understanding of fundamental concepts and application of disaster resilient design.

Course Content:

Unit I : Introduction

Brief introduction to different types of natural disaster, Occurrence of disaster in different climatic and geographical regions, hazard (earthquake and cyclone) map of the world and India, Regulations for disaster risk reduction, Post disaster recovery and rehabilitation (socioeconomic consequences) - case studies.

Unit II : Climate change and cyclones

Climate change and its impact on tropical cyclone, Nature of cyclonic wind, velocities and pressure, Cyclone effects, Storm surge, Floods, Landslides. Behaviour of structures in past cyclones and wind storms, case studies. Cyclonic retrofitting, strengthening of structures and adaptive sustainable reconstruction. Life-line structures such as temporary cyclone shelter.

Unit III : Wind and its effect on buildings and building regulations

Basic wind engineering, aerodynamics of bluff bodies, vortex shedding and associated unsteadiness along and across wind forces. General planning/design considerations under wind storms & cyclones; Wind effects on buildings, towers, glass panels etc, & wind resistant features in design. Codal Provisions, design wind speed, pressure coefficients; Coastal zoning regulation for construction & reconstruction phase in the coastal areas, innovative construction material & techniques, traditional construction techniques in coastal areas.

Unit IV : Earthquakes and its effect on buildings and codal provisions

Causes of earthquake, plate tectonics, faults, seismic waves; magnitude, intensity, epicenter, energy release and ground motions. Earthquake effects – On ground, soil rupture, liquefaction, landslides. Performance of ground and building in past earthquakes: Behaviour of various types of buildings, structures, and collapse patterns; Behaviour of Non-structural elements like services, fixtures, mountings- case studies. Codal Provisions, earthquake load considerations, earthquake zoning regulation for construction & reconstruction phase, Seismic retrofitting- Weakness in existing buildings, aging, concepts in repair, restoration and seismic strengthening.

Unit V : Planning and design for earthquake resistance

General Planning and design consideration; Building forms, horizontal and vertical eccentricities, mass and stiffness distribution, soft storey etc.; Seismic effects related to building configuration. Plan and vertical irregularities, redundancy and setbacks. Various Types and Construction details of: Foundations,

soil stabilization, retaining walls, plinth fill, flooring, walls, openings, roofs, terraces, parapets, boundary walls, under-ground – overhead tanks, staircases and isolation of structures; innovative construction material & techniques for earthquake resistance. Local practices: traditional regional responses; Computational investigation techniques.

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
 - Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all.
 - All the questions carry equal marks [6.25 X 4 = 25]
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Reading List (To be elaborated by subject teacher)

1. Abbott, L. P. (2013). Natural disasters. 9th ed. New York: McGraw-Hill.
2. Shelter, ed.. (1996). The Access to Hope. Istanbul: Aga Khan Award For Architecture.
3. Agarwal, P. and Shrikhande, M. (2009). Earthquake Resistant Design of Structures. New Delhi: PHI Learning.
4. Alcantara, A. I. and Goudie, A. (2010). Geomorphological Hazards and Disaster Prevention. Cambridge: Cambridge University Press.
5. Bankoff, G.; Frerks, G. and Hilhorst, D. (2004). Mapping Vulnerability: Disasters, Development and People. London: Earthscan.
6. Burby, R. J. (1998). Cooperating with Nature. Confronting Natural Hazards with Land-Use Planning for Sustainable Communities. Washington DC: Joseph Henry Press.
7. Christopher, A. and Reitherman, R. (1982). Building configuration and Seismic Design. New York: John Wiley.
8. Dutta, S. C. and Mukhopadhyay, P. (2012). Improving Earthquakes and Cyclone Resistance of Structures: Guidelines for the Indian Subcontinent. New Delhi: Tata Energy Research Institute.
9. Dyrbye, C. D.; Dyrbye, C. and Dyrbye, C. (1997). Wind Loads on Structures. New York: John Wiley.
10. Foote, K. (2003). Shadowed Ground: How Americans deal with Places of Tragedy. Austin: University of Texas Press.
11. Holmes, J. D. (2007). Wind Loading of Structures. 2nd ed. Oxon: Taylor & Francis.
12. ICIMOD. (2007). Disaster Preparedness for Natural Hazards: Current Status in India. Kathmandu: ICIMOD.
13. Judy, L. B. (2012). Climate change, Disaster Risk and the urban poor – cities building resilience for a changing World. Washington DC: World Bank.
14. Lee, B., ed. (2008). Hazards and the Built Environment: Attaining Built-In Resilience. Oxon: Taylor and Francis.
15. McDonald, R. (2003). Introduction to Natural and Man-made Disasters and their Effects on Buildings. London: Architectural Press.
16. Oxford University Press (2000). Confronting Catastrophe: New Perspectives on Natural Disasters. London: Oxford University Press.
17. Singh, P. P. and Sharma, S. (2006). Modern dictionary of natural disaster. New Delhi: Deep & Deep.
18. Smith, B. S. and Coull, A. (2001). Tall Building Structures: Analysis and Design. New York: Willey Interscience.
19. Simiu, E. and Scanlan, R. H. (1996). Wind Effects on Structures-Fundamentals and Applications to Design. 3rd ed. New York: John Wiley.
20. Sinha, P. C. (2006). Disaster Mitigation, preparedness, recovery and Response. New Delhi: SBS

Publishers.

21. Talwar, A. K. and Juneja, S. (2009). Cyclone Disaster Management. New Delhi: Commonwealth Publishers.
22. Taranath, B. S. (2004). Wind and Earthquake Resistant Buildings: Structural Analysis and Design. CRC Press.
23. Thomas, F. (2013). Designing to avoid disaster: The Nature of Fracture-Critical Design. London: Routledge.
24. Pelling, M. (2003). The Vulnerability of Cities: Social Resilience & Natural Disaster. London: Earthscan.
25. UNDP. (2004). Reducing Disaster Risk: A Challenge for Development. New York: UNDP.
26. World Bank. (2009). Handbook for Reconstructing after Natural Disasters. Washington DC: World Bank

SEMESTER-X

Paper-1 : Architectural Thesis-X

Paper Code : AR/1001/D

Course Credits : 24

Course Objective:

- The intention is to provide the students with an opportunity to research and develop an architectural design project of their own choice and approved by the faculty and to attain professional level work with appropriate details. It is an opportunity for students to exercise their skills and knowledge acquired over the previous semesters and apply it to create a architectural design solution in consultation with their thesis guides that can be acceptable on conceptual level for selected architectural thesis project.

Course Content:

Unit I : Introduction

Introduction to the architectural thesis design and finalization of thesis topics in consultation with the thesis coordinator and thesis guides. The preparation of synopsis that includes formulation of aims, objectives, need of thesis topic, limitations, scope and research methodology.

Unit II : Case Study

Case Studies – Primary and secondary (Study of live projects and literature study related to thesis projects) case studies and data collection and analysis of case studies. Study of development regulations, building bye laws and architectural and planning development regulations.

Unit III : Site Study and site analysis

Site and surroundings survey – location, local climatic conditions, topography, existing settlement and landscape, socio cultural impact on design. Study the site potential in terms of energy conservation and site and surroundings conditions that can be used to create a sustainable design solution. Study of locally available material, technology and resources helpful in energy conservation and creating sustainable built environment.

Unit IV : Concept and design development

Concept development keeping in view issues related to the growing problems in urban areas in developing countries and its relationship with the existing site surroundings. Emphasis on the design with relation to the contextual environment, traffic and planning controls and impact analysis. Detailed study of functions, circulations and connectivity with overall planning. Study of relationship of built environment and open spaces, interlinking of various activities, volumetric analysis, façade treatment – interior and exterior. Overall design development till final stage.

Unit V : Final Design Solution

Present a final architectural design solution with good presentation skills, using multimedia, prints and a good presentable model at appropriate scale. Preparation of thesis report of final design proposals will be a part of final submission.

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester. Preparation of thesis reports will be a continuous process and needs to be submitted at each evaluation stage and to be thoroughly discussed with the allotted thesis guides as per Thesis Manual.
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Reading List (To be elaborated by subject teacher)

1. Wiseman, Carter (2014). Writing Architecture: A Practical Guide to Clear Communication about the Built Environment.
2. Schmalz, Bill (2014) The Architect's Guide to Writing: For Design and Construction Professionals.

Paper-2 : Construction Project Management-X

Paper Code : AR/1002/D

Course Credits : 03

Course Objective:

- To equip students with a practical approach to implement building projects, basic knowledge about construction industry, project management techniques needed for managing and coordinating building projects in a professional manner.

Course Content:

Unit I : Introduction

Introduction to project management, construction industry, stakeholders, roles, responsibilities and functional relationships, Construction projects – objectives and lifecycle, existing construction practices & project management systems, Project Team, organization, roles, responsibilities. Concepts of project planning, scheduling & controlling. Project scale and construction technology, human aspects in managing projects.

Unit II : Project Planning and Scheduling

Inputs for project planning, defining activities and their interdependency, time and resource estimation. Work breakdown structures. Linear Scheduling methods - bar charts, LOB, their limitations. Principles, definitions of network-based scheduling methods: CPM, PERT. Network representation, Network analysis – forward and backward passes.

Unit III : Project Monitoring and Control

Site layout and organization, Site investigations. Quality tests for construction material and processes. Quality control inspections. Project progress tracking. Crashing Project Schedules, its impact on time, cost and quality. Project direct and indirect costs. Safety in Construction Projects.

Unit IV : Resources Management and Value Engineering

Methods of material/resource estimation and management, Resources scheduling and levelling. Labour welfare, applicable labour Legislations. Construction equipment types, characteristics & applications. Value engineering, its application in building design and construction.

Unit V : Contracts and Tenders

Types of building contracts, their merits and de-merits. Types of building tenders, contents of tender documents, tendering process. General conditions of contract, security deposits, interim certificates, defect liability periods, retention amounts, mobilization money and virtual completion.

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all.
- All the questions carry equal marks [12.5 X 4 = 50]

Reading List (To be elaborated by subject teacher)

1. Jha, Neeraj Kumar, (2013). Construction project management, Theory and practice. New Delhi: Pearson Education.
2. O'Brien, J. J. and Plotnick, F. L. (2009). CPM in Construction Management. New York: McGraw-Hill.
3. Punmia, B. C., and Khandelwal, K. K. (2006). Project planning and control with PERT and CPM.
4. Chitkara, K. K. (2004). Construction Project Management: Planning, Scheduling and Controlling. New Dehi: Tata McGraw-Hill.
5. Callahan, M. T.; Quackenbush, D. G. and Rowings, J. E. (1992). Construction Project Scheduling. New York: McGraw-Hill.
6. Wiest, J. D., and Levy, F. K. (1982). Management Guide to PERT/CPM. New Delhi: Prentice-Hall of India.

Paper-3 : Professional Practice-X

Paper Code : AR/1003/D

Course Credits : 04

Course Objective:

- To introduce students to the professional, vocational and legal aspects of architectural practice along with the professional services and ethics to be shown towards society, clients, fellow architects and co-workers. To inform students about the scope of services to be provided and project responsibilities during design and construction, the scale of charges for the different architectural services to be rendered.

Course Content:

Unit I : Introduction

Architects Act 1972 Detailed study of the act, its provisions and recent amendments, Role and responsibilities of Council of Architecture, role of its electorate, procedure of membership. Module: 2 Role of Professional body - Indian Institute of Architects Its working, constitution and bye laws, categories of membership, election procedures, Code of conduct, Role of its conventions, its publications, etc.

Unit II : Role of an Architect in Society

Role of an Architect in Society, Architectural profession as compared to other professions; Architects approach to works; ways of getting works; types of works, works partly executed by other architect; conditions of engagement between the architect and client; Architects (Professional Conduct) Regulations, 1989; Architects' Professional Liability; Professional Misconduct; Scope of work; Copy rights; Scale of charges; Variation of charges; Mode of payment; Schedule of payment; Termination of services; Specialized building services; Professional service tax; Architects relation with other parties connected with works such as client, contractor, sub-contractors, consultants, municipal and public authorities.

Unit III : Architectural Competitions

Its purpose, types of Architectural competitions, its guidelines for participation, prizes, assessment, etc.

Unit IV : Architects in practice

- (a) Private practice - Partnership office management, methods of organization, filing, documentation and working. Tax- liability
- (b) Salaried appointment - Public sector, Private sector jobs, procedure of operation in government organization

Note:

- Detailed teaching Programme to be made before the commencement of the semester and circulated to the students at the commencement of the semester.
- Examiner will set Seven questions in total, covering the whole syllabus. Students will have to attempt 4 Questions in all.
- All the questions carry equal marks [12.50 X 4 = 50]

Reading List (To be elaborated by subject teacher)

- Namavati, Roshan. Professional practice.
- Code of Professional Practice: I.I.A.
- Architect Act 1972.
- Council of Architecture (India). Handbook of Professional Documents- 2005. New Delhi: Council of Architecture.