Third year 2015 Pattern

Semester V

Design V			
Subject Code		3201535	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week= 11 (lectures=3, Studio=8)		Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	100 100 25 25
		In-semester exam	nil
		End Semester exam	nil
		Total Marks	250
		Total Credits	7

COURSE OBJECTIVES:

- Design of Campus comprising of more than one building and evolving design in response to the site, its characteristics and the context.
- Designing of buildings with different functions, requiring spaces of different scales and employing suitable structural systems.

COURSE OUTLINE:

- Designing in a different socio geographic context [other than where the institute is located].
- Undertake programming research to understand the socio-cultural patterns, geographic context and address the needs of the users and the site and evolve a sustainable design.
- Creation and design of open spaces within the campus.
- Study, analysis and synthesis of various design parameters in built-unbuilt spatial relationship.
- Conceptualizing services such as storm water management, locations of water tanks, sewage disposal system, etc.
- Introduction to functions requiring column free spaces and employing suitable structural systems.
- Modular planning, grid planning and coordination of various grids in plan and three dimensions.
- Time bound decision making and preparing sketch design.

SESSIONAL WORK:

- A major design project of duration 10-12 weeks of campus planning. Example : Residential school, Club, Institutional buildings, Home for the elderly, Community centre, Resort etc.
- A minor design project of duration 4-6 weeks which could be stand alone building on a site with a focus on two to three activities housed in one building with area not less than 1500 sq.m. Example : Diagnostic centre, Dining hall, Convenience shopping etc.
- One time bound project of duration around 12 hours. The typology and scale of the project can be decided by the college.

Important Note : At least one of the two projects [major or minor] mentioned above has to be in a different socio geographic context. The design has to be communicated through architectural graphics, two and three-dimensional sketches, models and narratives. All the design projects must have different sites.

REFERENCE BOOKS

It is strongly recommended that students refer books focusing on various building types, journals, magazines to widen their knowledge of design and the readings not to be limited to the list of books given below.

Correa, C. (2010). A Place in Shade. Delhi: Penguin Books.

Kanvinde, A., & Miller, H. (1969). *Campus Design in India.* Topeka: ostens/American Yearbook Co. .

Lynch, K. (1962). *Site Planning.* MIT Press.

Pandya, Y., & Foundation, V. S. (2007). *Elements of Space Making.* Ahmedabad: Mapin Publishing Pvt Ltd.

White, S. (1995). *Building in the Garden: Architecture of Joseph Allen Stein in India and California.* Delhi: Oxford India Paperbacks.

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Building Technology and Materials-V			
Subject Code		3201537(SV), 3201536(PP)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week (lectures=3, Studio=4)	7	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	25 25 25 25
		In-semester exam	30
		End Semester exam	70
		Total Marks	200
		Total Credits	5

COURSE OBJECTIVES:

- To understand the variations in frame structure with options of different types of slab like flat slab, ribbed and waffle slabs etc. along with pre-stressed RCC technology.
- To understand various structural system to be employed for long span structures.
- To introduce materials and technology of assembling interior elements like partitions, suspended ceiling, furniture units etc.

COURSE OUTLINE:

Unit-1: Characteristics, Properties and types of following materials and their application in interior elements.

a) Wood, wood derivatives and other panel materials used for interior application.
b) Finishing materials like laminates, veneers, plastics and metal sheets.
c) Paints and varnishes.
d) Hardware required for application to interior and furniture elements.

Unit-2: Various types of Reinforced Cement Concrete Flooring Systems for medium spans.

a) Flat plate, Flat slab, Ribbed slab, Waffle slab, Band beam and slab.
b) Pre-stressed slabs.

Unit-3: Partitions and Paneling

a) Demountable Partition construction using proprietary and non-proprietary systems using all available materials.
b) Proprietary and non-proprietary systems of paneling in timber, timber derivative materials plastic, metal and other materials.

Unit 4: Suspended Ceiling.

a) Suspended Ceiling construction using proprietary and non-proprietary systems using all available materials.

Unit 5: Furniture Design and assembly using timber and other material along with finishing and upholstery.

Unit 6: Construction systems used for long span construction.

a) Section/bulk active systems (beam structure, frame structure, slab structure)
b) Vector active systems (portal frames, 2-D and 3-D trusses etc.)
c) Surface active systems (Shell structures, folded plate structures etc)
d) Form active systems (Tensile structures, Pneumatic structures, Arch structures etc.)

SESSIONAL WORK:

Unit-1: Compilation of market surveys in form of relevant hand drawn sketches, notes and tabulated information regarding; available types, commercial sizes, properties, unit of measurement, rates etc.
Unit-2: Sketches and notes in the journal.
Unit-3: Manually drafted scaled drawings of Partitions and Paneling using proprietary and non-proprietary systems of construction using various materials.
Unit4: Manually drafted scaled drawings of Suspended Ceiling using proprietary and non-proprietary systems of construction using various materials.
Unit5: Manually drafted scaled drawings of furniture units like Bed, Dining Table, etc. using various materials.
Unit6: Sketches and notes in the journal.

REFERENCE BOOKS

1. Ching Francis D.K. Building Construction illustrated. John Wiley & sons. 2014
2. National Building Code-2005 & ISI specifications for Materials and Methodology of Various Construction.
3. Technical Manuals of various manufacturing companies for proprietary systems of partitions, paneling and suspended ceilings.
4. Alan Everett, Yvonne Dean. Mitchell building series, Buiding materials and finishes. Routledge 2014
5. Mackay J.K. Building Construction vol.-1-4. Longman Scientific & Technical, 1988.
6. Barry. 'Building Construction' Vol. 1 – 5
7. Cudley. 'Construction Technology' Vol. 1 – 6

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THEORY OF STRUCTURE V			
Subject Code		3201538(PP)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week (lectures=1, Studio=2)	3	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	nil nil nil nil
		In-semester exam	30
		Semester exam.	70
		Total Marks	100
		Total Credits	2

COURSE OBJECTIVES:

1. To design complex RCC structural elements.
2. Different types of staircases.
3. Types of beams like doubly reinforced,' T' and 'L'
4. Design of continuous equal span slab by I.S.456 factors.
5. Different structural elements like pre-stressed construction and flat slabs.
6. Columns in multistoried buildings.
7. Types of foundations and design of isolated column footing.
8. Need of retaining wall and design of gravity type retaining wall.

COURSE OUTLINE:

Unit 1: –Staircase Support Systems

Numerical on Design of Dog Legged Staircase with Beams at Various Positions:

Theory only on Support Systems and Reinforcement Detailing in the following Cases

a. Stringer Beams - End Stringer Beams with S.S Slabs Treads.
b. Stringer Beams - Central Stringer Beams with cantilever Slab Treads.
c. Folded Plate Staircases.
d. Open Well Staircases.
e. Spiral staircase
f. Dog-legged Staircase with Various Beam Positions.

Unit 2: Design of Beams

I. **Doubly Reinforced Beam** –Concept, Detailing, Need, Locations. ***Numerical*** on Design of Doubly Reinforced Beams
II. **T Beams, L Beams / One Way Continuous Slabs:** Divisions of Larger Spaces into smaller one way or two way Slab Units by Using Intermediate Beams. T Beams and L Beams. I.S. Provisions for same.

1. ***Numerical*** on Design of T Beams and L Beams - N.A position within flange.
2. **Numerical** on Design of One Way Continuous Slabs - 3 equal spans using I.S.456 Coefficients
3. ***Theory only*** on Design of Coffered Slab.

Unit 3: Column Design across Multiple Floors:

Design of Columns across Vertical Floors: Vertical Load Calculation, Change of Size, Change of Grades (not for problems), Change of Percentage of Steel.

1. ***Numerical*** on design of columns with change in size and percentage of steel.
2. ***I. S. provisions for eccentrically loaded columns.***

Unit 4: Pre-stressed constructions and Flat Slabs:

1. **Pre-stressed Concrete**:
    1. Concept and Process of **Pre-tensioning and Post-Tensioning**.
    2. Advantages and Disadvantages over Conventional R.C.C Construction.
    3. Use of High Strength Concrete and Steel in Pre-Stressed Elements
    4. Methods of Pre-stressing - Freyssinet System
    5. ***Numerical*** on Extreme Fiber Stresses at Mid Span and End Span.

2. **Flat Slab Construction**: Concept of Large Beam less Spaces, Column Capitals, Header Beams I.S.456 Provisions for Various R.C.C Elements

Unit 5: Foundations:

1. Shallow and Deep Foundations
2. Isolated Footings to Combined Footings to Strip Footings to Raft Foundations
3. **Foundations in Soil of low S.B.C** , Piles ,Group of Piles and Pile Caps, Reinforcement Detailing involved
4. ***Numerical*** on Design of **Isolated Footing** for Square and Rectangular Column, Pad Footing with One Way and Two Way Shear.
5. ***Numerical*** on Design of **Combined Footing** - Finding Dimensions in Plan only
6. ***Theory only on*** Design of Combined Footing - B.M.D and Reinforcement Detailing

Unit 6: Retaining Walls:

1. Need for **Retaining Wall**, Angle of Repose, Rankine's Theory for Active and Passive Earth Pressures. Types of Retaining Walls.
2. **Gravity Retaining Walls** - Height, Proportioning –***Numerical*** on Stability Study for O.T.M, Sliding, Maximum and Minimum Pressure at Base

REFERENCE BOOKS

1. R.C.C. design – Khurmi, Punmia, Sushilkumar.
2. Design of steel structures- L. S. Negi., Vajrani-Ratwani.
3. Structure in Architecture – Salvadori and Heller.
4. Structural Decisions.- F. Rosenthal
5. I.S. 456, I.S. 800, I.S. 875, I.S. 1893, I.S. 13920

LANDSCAPE ARCHITECTURE I			
Subject Code		3201539(SS)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week (lectures=1, Studio=3)	04	Sessional (Internal) Sessional (External) Viva (Internal)	25 25 nil nil
		In-semester exam	nil
		End Semester exam	nil
		Total Marks	50
		Total Credits	2

COURSE OBJECTIVES:

- To introduce the students to Landscape Architecture and its scope.
- To understand the elements and principles of landscape design and role of landscape elements in design of outdoor environments on the site.
- To introduce the students to various traditions in designed and vernacular landscapes.
- To develop understanding of site analysis and site planning and integrated design of open and built spaces.
- Creating awareness about using Landscape design as a tool to address environmental concerns in Architecture.

COURSE OUTLINE:

Unit 1. Introduction to Landscape Architecture and its scope ,elements(natural and manmade)and their application in achieving functional, aesthetic, environmental and cultural goals.

Unit 2. Introduction to Landscape history/traditions (Eastern, western, central) with emphasis on Indian Landscape traditions.

Unit 3. Study of Hardscape (civil work) details with respect to materials and construction techniques. This study should be conducted through visits to designed landscapes.

Unit 4. Study of Softscape (plant material), their characteristics and contribution in terms of creating and imparting character to outdoor spaces. This study should be conducted through site/ nursery visit with emphasis on native and naturalized species.

Unit 5 Introduction to environmental concerns and sustainable site planning (rain water harvesting, solid waste management, passive climate control, etc)

Unit 6. Site analysis including understanding natural and manmade aspects (such as microclimate, topography, hydrology, vegetation), physical and socio-cultural context of the site. Introduction to basics of Site planning.

Unit 7. Relevence of Art in landscape design (Land art, art in public spaces, etc) for. Eg. works of Andy Goldsworthy, Richard Shilling, Walter Mason, Jim Denevan, Robert Smithson, Andrew Rogers,Dani Caravan, Simon Beck, AnishKapoor, Neckchand, Subodh Kerkar.

Unit 8. Landscape design Project I- A small scale, theme based Landscape design project culminating into an idea/ concept generation/ 3D visualization that encourages creative thinking.

SESSIONAL WORK:

- Assignments that shall individually or comprehensively cover unit 1 – unit 5. Duration 10-12 weeks.

- Landscape design project with drawings, views, model (optional) holistically representing the concept and the design process .4- 6 weeks.

NOTE: It is expected that application of Unit 6 will be demonstrated in landscape design projects.

REFERENCE BOOKS

1. Mcharg, I, *Design with Nature*.John Wiley and co. 1978.
2. Jellicoe, G and Jellicoe, S, *The Lasndscpae of Man*, London: Thames and Hudson, 1991.
3. Simonds, J .O, *Landscape Architecture: The Shaping of Man's Natural Environment*, N Y: McGraw Hill Book Co.Inc. 1961.
4. Lynch, K, *Site Planning*, Cambridge: The MIT Press, 1962.
5. Shaheer, M, Wahi Dua, G and Pal A (editors), *Landscape Architecture In India, A Reader:* LA, Journal of Landscape Architecture, 2013.
6. Lyall, S, *Designing The New Landscape*: UK:Thames and Hudson, 1998.
7. Dee, C, Form And Fabric In Landscape Architecture: A Visual Introduction, UK: Spon Press, 2001.
8. Eckbo, G*, Urban Landscape Design,* N Y: McGraw hill co. 1961.
9. Laurie, M, *An Introduction to Landscape Architecture*, N Y: American Elsevier Pub. Co. Inc. 1975
10. Rutledge, A J. *A Visual Approach to Park Design*. New York: John Wiley and Sons, 1985.
11. Randhawa, M S, *Flowering Trees*, New Delhi: National Book Trust, 1998.
12. Bose, T K and Choudhary, K, *Tropical Garden Plants in Colour*, Horticulture and Allied Publishers, 1991.
13. Krishen, P. *Trees of Delhi: A Field Guide*, Penguin India, 2006.
14. Mukherjee, P, *Trees of India (WWF Natures Guide)*, Oxford, 2008.
15. Sahni, K C,*The Book of Indian Trees (Bombay Natural History Society)*, Oxford, 1998.
16. Krishna, N and Amrithalingam, M, *Sacred Plants of India*, Penguin Books Limited, 2014.
17. Motloch, J.L, *Introduction to Landscape Design*, US: John Wiley and Sons, 2001.
18. Dines, N and Harris, C, *Timesavers Standards for Landscape Architecture*, McGraw Hill Education, 1998.
19. Reid, G, L, *Landscape Graphics*, Watson-Guptill, 2002.
20. Botkin, D. B and Keller, E. A, *Environmental Science: Earth As a Living Planet*, N Y: John Wiley And Co. 1995.
21. Grosholz, E,*The Poetics of Landscape Architecture,* University of Pennsylvania Press, 2010.

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BUILDING SERVICES III			
Subject Code		3201540 (SS) 3201541(PP)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week (Lectures = 2 Studio = 2)	4	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	25 25 nil nil
		In-Semester exam	30
		End-Semester exam	70
		Total Marks	150
		Total Credits	3

COURSE OBJECTIVES:

- To comprehend building services as an inclusive part of architectural design process
- To obtain knowledge of technical and design aspects of natural ventilation and HVAC

COURSE OUTLINE:

- Technical and environmental aspects as principles of working, components, construction and materials of natural ventilation and HVAC system
- Functional and aesthetical aspects of services layout for comprehensive architectural design.

Teaching Plan:

Unit I: Natural Ventilation

1.1. Indicators for comfortable condition
1.2. Wind and stack effects, evaporative cooling
1.3. Examples (book/ on site): Implementation of various methods of natural and composite ventilation system in architectural design

Unit II: Mechanical ventilation

2.1. Forced ventilation system
2.2. Types of fans and blowers
2.3. Mounting, sizes and calculation of fans

Unit III: Air-conditioning system 1

3.1. Principles of air-conditioning system
3.2. Components of air-conditioning system

Unit IV: Air-conditioning system 2

4.1 Types of conventional systems of air-conditioning
4.2 Non-conventional systems of air-conditioning

Unit V: Air-conditioning 3

5.1 Air-conditioning layout calculation
5.2 Air-conditioning layout design

Unit VI: Air-conditioning 4

6.1 On site case study: Air-conditioning system

SESSIONAL WORK: (with marking scheme)

- Tutorials for four Units (I to IV): 25% marks
- Layout of air-conditioning (preferably architectural design of the earlier semester to be considered): 50% marks
- On site Case study: 25% marks

REFERENCE BOOKS

1. Tricomi, Ernest. *ABC of Air-conditioning*.1970
2. Smith, Philips & Sweeney. *Environmental Science*
3. Daniels, Klaus. *Advanced Building Systems – A Technical Guide for Architects and Engineers*. Birkhauser, Boston. 2003
4. National Building Code of India

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History of Architecture IV			
SubjectCode		3201542 (SS)	
TeachingScheme		ExaminationScheme	
TotalContact Periodsperweek (lectures=2, Studio=1)	3	Sessional(Internal) Sessional(External) Viva (Internal) Viva (External)	25 25 nil nil
		In-semester exam	nil
		End Semester exam	nil
		TotalMarks	50
		Total Credits	2

COURSE OBJECTIVES:

- To understand the architecture and architectural discourse in the nineteenth and twentieth centuries and the various factors like industrialization, modernity, wars, global-local concerns, etc. that shaped it.
- To get acquainted with various important architectural works and the contribution and role of individual designers that distinctively marked the course of architecture in the nineteenth and twentieth centuries.

COURSE OUTLINE:

- The course intends to present architecture as a product of its times especially with reference to the salient socio- political, cultural, economic and technological markers of the nineteenth and twentieth centuries. It also intends to bring out the plurality of approaches as a response to the above contexts and examine the different strands of architectural practice and works that developed as a result.
- The study should include examples of architectural works and designers drawn from across the world wherever relevant and necessary while also emphasizing the happenings in India.
- The course should inculcate an analytical thinking about architecture, introduce various theoretical positions, and train the students to research and isolate a thought of their own.

Unit 1: **Architecture of the Industrial Period**

Revivalism
Introduction of steel and glass as new materials in architecture
New building types
Reactions to Industrialization: Arts and Crafts, Art Nouveau

Unit 2: **Architecture of the Twentieth Century**

Stylistic explorations: Expressionism, De Stilj, Art Deco, etc.
Influences like various manifestoes, congresses, writings, Bauhaus
Modernism and International style
Experiments and explorations around the world
Development of the high-rise
Influential Designers: Frank Lloyd Wright, Mies van der Rohe, Le Corbusier, Louis Kahn, etc.

Unit 3: **Architecture of India**

Colonial architecture: European Revivalist and Indian adaptations
Search for a National idiom: Claude Batley to G BMhatre
Indian Modernists: AchyutKanvinde, Charles Correa, BalkrishnaDoshi, etc.
Influence of Indian works of international architects

SESSIONAL WORK:

The sessional work shall comprise of individual/ group work of the students completed under the guidance of the subject teacher as follows:

1. Journal: Hand written notes and manually drawn sketches of relevant examples of most of the contents mentioned above. Journal is an individual work. 20 marks
2. Project work: An exploratory or critical report/ graphical presentation/ analytical models/ tutorials/ etc. based on any relevant topic from the contents mentioned above. Project work could be undertaken in groups such that the contribution of individual students in the group is identifiable. 30 marks

REFERENCE BOOKS

1. Bhatt, V., & Scriver, P. (1990). *Contemporary Indian Architecture- After the Masters.* Ahmedabad: Mapin Publishing.
2. Chhaya, N. (Ed.). *Harnessing the Intangible.* New Delhi: National Institute of Advanced Studies in Architecture.
3. Ching, F. D. (1997). *A Visual Dictionary of Architecture.* New York: Van Nostrand Reinhold.
4. Correa, C. (2010). *A Place in Shade.* Delhi: Penguin Books.
5. Curtis, W. (1988). *Balkrishna Doshi- An Architecture for India.* New York: Rizzoli International.
6. Curtis, W. J. (1996). *Modern Architecture Since 1900.* London: Phaidon Press.
7. Dhongde, S., & Sahasrabudhe, C. (Eds.). (2009). *Achyut Kanvinde.* Pune: BNCA Publication Cell.
8. Didee, J., & Gupta, S. (2013). *Pune - Queen of Deccan.* Pune: INTACH Pune Chapter.
9. Dwivedi, S., & Mehrotra, R. (2008). *Bombay Deco.* Mumbai: RMA Architects.
10. Ford, E. R. (1997). *The Details of Modern Architecture.* MIT Press.
11. Frampton, K. (1992). *Modern Architecture- A Critical History.* London: Thames and Hudson Ltd.
12. Jain, K. (2012). *Architecture- Concept to the Manifest.* Ahmedabad: AADI Centre.
13. Kagal, C. (Ed.). (1986). *Vistara- The Architecture of India.* Bombay: The Festival of India.
14. Kanvinde, A., & Miller, H. (1969). *Campus Design in India.* Topeka: Ostens/American Yearbook Co. .
15. Lang, J., Desai, M., & Desai, M. (1997). *Architecture and Independence: The search for identity, India- 1880 to1980.* New Delhi: Oxford University Press.
16. Pallasmaa, J. (2009). *The Thinking Hand : Existential and Embodied Wisdom in Architecture.* London: John Wiley and Sons Ltd.
17. Pandya, Y. (2013). *Concpets of Space in Traditional Indian Architecture.* Ahmedabad: Mapin Publisihing.
18. Pandya, Y., & Foundation, V. S. (2007). *Elements of Space Making.* Ahmedabad: Mapin Publishing Pvt Ltd.
19. White, S. (1995). *Building in the Garden: Architecture of Joseph Allen Stein in India and California.* Delhi: Oxford India Paperbacks.
20. Wolfe, T. (1981). *From Bauhaus to Our House.* New York: Farrar Straus Giroux.

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WORKING DRAWING II			
Subject Code		3201543(SS)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week (lectures=2, Studio=2)	4	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	50 50 Nil Nil
		In-semester exam	nil
		End Semester exam	nil
		Total Marks	100
		Total Credits	3

COURSE OBJECTIVES:

- To Introduce idea of Design Development and detailing and its relevance in converting 'concept design' to working drawing and hence the realization of design on site.
- To imbibe further the importance of working drawings as an essential tool for effective site execution and execution of a building contract.
- To expose to the standard methods, conventions, drawing annotations including International standards, IS codes, its application in working drawing set with material and component and schedules.

COURSE OUTLINE:

- Lecture demonstration/s to elaborate on standard practices, conventions, graphic annotations, sequencing and cross reference systems of a good working drawing set.
- Design development and detailing of own **design** to resolve the design idea to one which can be executed/ constructed, exposing students to construction parameters, limitation and sequencing.
- Generating a working drawing set for the **chosen design/ building** with framed/composite construction including schedules of material, finishes, components and accessories
- Developing and drafting details of Civil work and furniture including schedule of finishes

SESSIONAL WORK:

- Preparing a manually drafted/ CAD generated **working drawing** set of 'own design project' with carpet area not less than 250 Sq. M. and at least Ground plus one storied building having framed/composite construction. **The set to also include** at least two civil details out of following.
    I. Façade / skin of the building with fenestration and weather protection.
    II. Stairway/ staircase
    III. Public Washroom
    And

    Any one detail related interior finishes/ custom made furniture of following
    IV. Floorings,
    V. False ceiling
    VI. Paneling or partitions
    VII. Built in or stand alone furniture
- A rough folio comprising of design development drawings, sketches supporting the final working drawing set shall be retained by the candidate.

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Third year 2015 Pattern

Semester VI

DESIGN VI

Design VI			
Subject Code		3201544(SV),3201545(PP)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week= 11 (lectures=3, Studio=8)	11	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	100 100 25 25
		In-semester exam	nil
		End Semester exam	100 [12 hours duration – to be conducted 6 hours for two days en-lodge]
		Total Marks	350
		Total Credits	7

COURSE OBJECTIVES:

- Designing a building by stacking of different functions vertically and addressing various concerns such as coordinating various building services, vertical circulation, basement parking, and structural grids with introduction to disaster management design strategies/techniques and universal design.

COURSE OUTLINE:

- Introduction to various concerns of building design in an urban context on sites with limited areas there by necessitating multi storied buildings.
- Strengths and weaknesses of horizontal vis a vis vertical spatial arrangements in buildings.
- Study of buildings in which vertical arrangements are desired.

- Design and layering of different activity areas with different spatial scales.
- Coordination of various building services such as water supply, lifts, drainage, garbage disposal, lighting, air conditioning etc.
- Exposure to natural disaster management or disaster management through design mitigation.
- Exposure to Universal Design or Accessible Design concept.

SESSIONAL WORK:

- A major design project of duration 10-12 weeks of a building complex. Example : Hotel, Hospital, Office building, commercial complex, bus station etc.
- A minor design project of duration 4-6 weeks which could be stand alone building on a site with area not less than 1500 sq.m. It is recommended that the minor project may be programmed to integrate knowledge of art-architecture history, contemporary art-architecture movements learnt by the student in history / contemporary architecture seminar.
- One time bound project of duration around 12 hours. The typology and scale of the project can be decided by the college.

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Important Note : At least one of the two projects [major or minor] mentioned above has to be in a different socio geographic context. The design has to be communicated through architectural graphics, two and three-dimensional sketches, models and narratives. All the design projects must have different sites.

REFERENCE BOOKS

It is strongly recommended that students refer books focusing on various building types, journals, magazines to widen their knowledge of design and the readings not to be limited to the list of books given below.

1. Correa, C. (2010). A Place in Shade. Delhi: Penguin Books.
2. Kanvinde, A., & Miller, H. (1969). *Campus Design in India.* Topeka: ostens/American Yearbook Co. .
3. Lynch, K. (1962). *Site Planning.* MIT Press.
4. Pandya, Y., & Foundation, V. S. (2007). *Elements of Space Making.* Ahmedabad: Mapin Publishing Pvt Ltd.
5. White, S. (1995). *Building in the Garden: Architecture of Joseph Allen Stein in India and California.* Delhi: Oxford India Paperbacks.

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Building Technology and Materials-VI			
Subject Code		3201546(PP), 3201547(SV)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week (lectures=3, Studio=4)	7	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	25 25 25 25
		In-semester exam	30
		End Semester exam	70
		Total Marks	200
		Total Credits	5

COURSE OBJECTIVES:

- To understand the construction of basement along with its waterproofing, provision for access and ventilation details. To understand the construction of different types of retaining walls and the detailing of the same.
- To understand issues and construction of earthquake resistant frame structures.
- To understand the concept of modular co-ordination and industrialized building construction along with precast technology.
- Introduction to steel structures and detailing of trusses and deck floors.

COURSE OUTLINE:

Unit-1: Characteristics, Properties and types of following materials and their application in buildings.

a) Glass
b) Metal & Metal alloys
c) Plastics and rubbers
d) Adhesives and sealants

Unit 2: Earthquake resistant frame structures.

1. Ductility and Rigidity of building and earthquake loads
2. Overview of earthquake resisting structural systems.
3. Application of Moment resisting frames, crossed braced frames and shear wall for Earthquake resistance structures.
4. Role of Floor and Roof Diaphragm in earth quake resistance.
5. Retrofitting and base isolation.

Unit-3: Single basement construction along with waterproofing details, alternative ways of providing and constructing access and provisions to be made for ventilation.

Unit-4: Retaining wall and its terminology (mass/gravity retaining, cantilever retaining, counter-fort retaining wall and precast retaining wall, etc.)

Unit 5: Steel structures -

a) Structural steel sections, Built-up sections.
b) Assembly of steels structure with trusses with north light truss (Industrial building)
c) Multi-storey steel building assembly with stanchion, beams and metal deck flooring.

Unit 6: Modular co-ordination and Industrialized building construction, Planning and construction details.

1. Precast floor and roof construction along with the following systems developed by CBRI.
2. Floor and roof construction using partially precast planks and joist.
3. Floor and roof construction using precast Waffle unit
4. Introduction to locally available proprietary Precast systems.

SESSIONAL WORK:

Unit-1: Compilation of market surveys in form of relevant hand drawn sketches, notes and tabulated information regarding; available types, commercial sizes, properties, unit of measurement, rates etc.

Unit-2: Sketches and notes in the journal.

Unit-3: Manually drafted scaled drawings of Single and multi-basement construction with various types of waterproofing Techniques. Information on materials and methodology for waterproofing should be included in the journal.

Unit4: Sketches and notes in the journal.

Unit5: Manually drafted scaled drawings of various steel trusses, north light truss etc with details of fixing of roofing sheets and sheet cladding. Details of multi-storied steel structure with construction of steel deck and steel staircase.

Unit6: Manually drafted scaled drawings of modular coordinated building using precast building components. Sketches and notes in the journal.

REFERENCE BOOKS

1. Central Public Work Department, Indian Building Congress. Handbook on Seismic Retrofit of Buildings. Narosa Publishing House. 2008 Andrew Charleson. Seismic Design for Architects: Outwitting the Quake. Elsevier Ltd 2008
2. Terri Meyer Boake. Understanding Steel Design: An Architectural Design Manual. Birkhauser Basel 2012.

3. Stephen Emmitt. Barry's advanced construction of buildings. Wiley, 2006
4. Central Public works Department CPWD), IBC, CEAI & CCPS. Guidelines on use of Glass in Buildings - Human Safety.
5. Mackay J.K. Building Construction vol.-1-4. Longman Scientific & Technical, 1988.
6. IS 7921 : Recommendations for modular coordination in building industry Horizontal coordination
7. IS 7922 : Recommendations for modular coordination in building industry Vertical coordination
8. M. M. Mistry. Modular coordination & prefabrication, Principles of Modular Coordination in building.
9. BMTPC. Standards & Specifications for Cost–Effective Innovative Building Materials and Techniques. BMTPC 1996

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THEORY OF STRUCTURE VI			
Subject Code		3201548(PP)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week (lectures=1, Studio=2)	3	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	nil nil nil nil
		In-semester exam	30
		Semester exam	70
		Total Marks	100
		Total Credits	2

COURSE OBJECTIVES:

1. Types of RCC retaining walls and their use.
2. Different types of liquid retaining structures and their structural detailing.
3. Design of Steel structure elements by L.S.M.
4. To Develop in Students the Feel for **Structural Principles** and their Relates to Building Design
5. To Develop in Students the Concept that "***Every Structure is a System that Forms the Space"*** and the fact that ***Architecture and Structure cannot be conceived independently***.
6. To Develop in Students the fact that Structural Engineering is a Specialist Discipline and that the Architect has to appreciate the consultant's concern and make an **informed** choice about the most appropriate Structural System for his Building with Reasonable Understanding of its **Economic and Operational Implications**.
7. To Develop in Students the Mathematical logic that would enable him to Design the Structural System for Ground +2I Storey R.C.C Structure and a medium span Factory Building in steel.
8. To instill in the Students a Confidence that they could develop and explore a Structural System of their own design and execute the same.

COURSE OUTLINE:

Unit 1: Retaining Walls

R.C.C Cantilever Retaining Wall - Proportioning and Need. ***Numerical*** on Stability and Design of Stem Reinforcement: ***Theory only.*** Detailing of Base Reinforcement, Shear Key, Retaining Wall without Toe and without Heel

1. **Counter Fort and Buttress type Retaining Walls** – ***Theory only*** on parts and Structural Action and Reinforcement Detailing
2. ***Theory only*** on Weep Holes and Effects of Surcharge on Retaining Walls

Unit 2: R.C.C Water Tanks and Portal frames: *Theory only:*

a. Water Tanks

1. Joints in Water Tanks, Minimum Percentage of Steel,Other Standards.
2. R. C.C. Circular Water Tank with Flexible and Rigid Joint between Wall and Base -Concept of Hoop Tension – Reinforcement Detailing.
3. R. C.C. Square and Rectangular Water Tanks -Reinforcement Detailing.
4. R.C.C. Under-Ground Water Tanks - Pressure Conditions -Reinforcement Detailing.
5. Over Head Water Tank - An Intze Tank - Parts and General Detailing

b. Portal Frames: Theory only:

1. Basic Concept - Rigid, Two Hinged and Three Hinged Portal Frames with B.M.D.
2. Advantages and Disadvantages of R.C.C Portal Frame - Detailing of Hinged and Pinned Column to Footing Junction.
6. Advantages and Disadvantages of Steel Portal Frame - Detailing of Hinged and Pinned Column to Footing Junction, Rigidity at Beam to Column Junctions.

Unit 3: Design of RCC structure:

a) Total review of design of ground + two storied RCC building.

b) Defining Structural system, different loads, Design sequence, transfer of load, actual design procedure.

c) Understanding structural schedules and drawings.

d) R.C.C Detailing- Diagrams from Schedules: Sketching Based on Given Schedule

Unit 4: Design of Steel Structures

1. Introduction to Limit State in Steel i.e. Plastic Design in Steel:

a. ***Theory only*** on Yield Strength, Ultimate Strength, Partial Factors of Safety for Yield and Ultimate Strength, Shear, Load as per I.S.800 2007
b. ***Numerical*** on Design on Steel Beams for Flexure, Shear and Deflection. Plastic Flexure Diagram, Zp (Section Modulus Plastic). Classification of Sections as Plastic, Compact and Semi Compact.
c. ***Numerical*** of Analytical type in Increasing the Strength of a Beam Section by adding Flange Plates.
d. ***Theory only*** on Castellated Girders, Plate Girders and Gantry Girders.
e. ***Numerical*** on Design of Stanchions in Limit State and ***Analytical Numerical*** on Stanchion with Flange Plates to Increase Their Strength:
f. **Numerical** on Design of Compound Stanchions - Design and Analytical Problem.
g. ***Theory only*** on Lacing and Battening Systems – I.S. Provisions – Need and Sketches.

h. ***Theory only*** on Moment Resisting Columns – for wind load and gantry load.

Unit 5: Elements of a Factory Building in Steel Structures:

a) Total review of design of medium span factory building in steel.

b) Structural systems, different loads, Design sequence, transfer of load, actual design procedure.

c) Understanding structural drawings.

Unit 6: Advance structural systems for long span and high rise buildings

1. Long span structural systems like, cable structure, arches, shell, dome, vaults, folded plate, geodesic domes, space frames, tensile structure, fabric etc
2. Appropriate use of structural system in Architectural design.
3. Advantages and disadvantages of different systems.
4. High rise buildings structural system like Rigid frame, Framed truss, Framed tube, Tube in tube, Shear wall etc.

References :

1. R.C.C. design – Khurmi, Punmia, Sushilkumar.
2. Design of steel structures- L. S. Negi., Vajrani-Ratwani.
3. Structure in Architecture – Salvadori and Heller.
4. Structural Decisions.- F. Rosenthal
5. I.S. 456, I.S. 800, I.S. 875, I.S. 1893, I.S. 13920

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LANDSCAPE ARCHITECTURE II			
SubjectCode		3201549(SS)	
TeachingScheme		ExaminationScheme	
TotalContact Periodsperweek (lectures=1, Studio=3)	04	Sessional(Internal) Sessional(External) Viva (Internal) Viva (External)	25 25 nil nil
		In-semester exam	nil
		End Semester exam	nil
		TotalMarks	50
		Total Credits	2

COURSE OBJECTIVES:

- To study use of Landscape design as a tool to address environmental concerns in Architecture.
- Application of site planning principles in integrated design of open and built spaces.
- To study the work of Master Landscape Architects and their contribution to built environment.

COURSE OUTLINE:

- **Unit 1.** Study of Works of Master Landscape Architects like Humphrey Repton, Andre Le Notre, 'Capability' Lancelot Brown, William Kent, Sir Geoffrey Jellicoe, Fredrick Law Olmstead and Calvert Vaux, Ian Mcharg, Lawrence Halprin,Gertrude Jekyll, Edwin Lutyens, Dan Kiley, Luis Barragan, Bernard Tschumi, Peter Walker, Martha

Schwartz, Robert Burle Marx, Geoffrey and Bevis Bawa, Ram Sharma, Mohammad Shaheer, Ravindra Bhan, Prabhakar Bhagwat, etc. and contemporary landscape projects.

- **Unit 2.** Introduction to site services like lighting and water management to be integrated in the landscape design project II.
- **Unit 3.** Landscape design Project : Essentially related to III Year Architectural Design studio (sem V / VI) which demonstrates application of all studied theory units.

SESSIONAL WORK:

- Assignment based in the form of drawings /report/ presentation on theme based topics from Unit 1wherein the students are encouraged to critically appraise the works of the landscape architects, understand various design approaches, undertake comparative studies, region specific design language etc. Duration 4-6 weeks.
- Portfolio comprising of drawings , views, model (optional) representing built and open space relationship, circulation (vehicular and pedestrian) parking, levels , schematic planting, schematic site services, material palette , nomenclature of outdoor spaces. All the theoretical aspects in Semester V and VI must be applied in this Landscape design Project II.
  Duration 10-12 weeks.

REFERENCE BOOKS

1. Mcharg, I, *Design with Nature*.John Wiley and co. 1978.
2. Jellicoe, G and Jellicoe, S, *The Lasndscpae of Man*, London: Thames and Hudson, 1991.
3. Simonds, J .O, *Landscape Architecture: The Shaping of Man's Natural Environment*, N Y: McGraw Hill Book Co.Inc. 1961.
4. Lynch, K, *Site Planning*, Cambridge: The MIT Press, 1962.
5. Shaheer, M, Wahi-Dua, G and Pal A (editors), *Landscape Architecture In India, A Reader:* LA, Journal of Landscape Architecture, 2013.
6. Lyall, S, *Designing The New Landscape*: UK:Thames and Hudson, 1998.
7. Dee, C, Form And Fabric In Landscape Architecture: A Visual Introduction, UK: Spon Press, 2001.
8. Eckbo, G*, Urban Landscape Design,* N Y: McGraw hill co. 1961.
9. Laurie, M, *An Introduction to Landscape Architecture*, N Y: American Elsevier Pub. Co. Inc. 1975
10. Rutledge, A J. *A Visual Approach to Park Design*. New York: John Wiley and Sons, 1985.
11. Randhawa, M S, *Flowering Trees*, New Delhi: National Book Trust, 1998.
12. Bose, T K and Choudhary, K, *Tropical Garden Plants in Colour*, Horticulture and Allied Publishers, 1991.
13. Krishen, P. *Trees of Delhi: A Field Guide*, Penguin India, 2006.
14. Mukherjee, P, *Trees of India (WWF Natures Guide)*, Oxford, 2008.
15. Sahni, K C,*The Book of Indian Trees (Bombay Natural History Society)*, Oxford, 1998.
16. Krishna, N and Amrithalingam, M, *Sacred Plants of India*, Penguin Books Limited, 2014.
17. Motloch, J. L, *Introduction to Landscape Design*, US: John Wiley and Sons, 2001.
18. Dines, N and Harris, C, *Timesavers Standards for Landscape Architecture*, McGraw Hill Education, 1998.
19. Reid, G, L, *Landscape Graphics*, Watson-Guptill, 2002.
20. Botkin, D. B and Keller, E. A, *Environmental Science: Earth As a Living Planet*, N Y: John Wiley And Co. 1995.
21. Grosholz, E,*The Poetics of Landscape Architecture,* University of Pennsylvania Press, 2010.

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BUILDING SERVICES IV			
Subject Code		3201550 (SS) 3201551(PP)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week (Lectures = 2 Studio = 2)	4	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	25 25 nil nil
		In-Semester exam	30
		End-Semester exam	70
		Total Marks	150
		Total Credits	3

COURSE OBJECTIVES:

- To understand building services as integral part of comprehensive architectural design
- To obtain knowledge for fire safety measures and aspects of good acoustics and treatment in comprehensive architectural design

COURSE OUTLINE:

- Fir fighting: Active and passive criteria as norms, recommendations, components, and specifications of construction and materials used for fire-fighting system in a building
- Acoustics: Properties of sound, Technical aspects of acoustic layout for comprehensive architectural design.
- Comprehensive architectural design for both fire fighting and acoustics

Teaching Plan:

Unit I: Fire Fighting I

1.1. Fire triangle, Causes and spread of fire in buildings, fire resistance
1.2. Active control systems of fire: fixed and portable fire fighting equipments

Unit II: Fire Fighting II

2.1. Passive control of fire: fire safety codes, rules and regulations

Unit III: Acoustics I

3.1. Properties and defects of sound
3.2. Parameters for good acoustical condition of a room

Unit IV: Acoustics II

4.1. Noise control methods for air-borne and structure-borne noises
4.2. Acoustical materials and construction
4.3. Sound amplification system

Unit V: Acoustics III

5.1. Reverberation time calculation and recommendations for acoustical treatment
5.2. Acoustical treatment Layout design

SESSIONAL WORK:

- Tutorials for four Units (I to IV): 25% marks
- Reverberation Time calculations and recommendations for acoustical treatment with layout (preferably architectural design IV of the earlier semester to be considered): 50% marks
- Live case study: 25% marks

REFERENCE BOOKS

5. Leslie, Doelle. *Environmental Acoustics.* McGraw Hill.1972
6. Kundsen, V.O. & Harris, C.M. *Acoustical designing in Architecture.* John Wiley. 1950
7. Egan, M. David. Architectural Acoustics. McGraw-Hill, NY.1988
8. Mehta, Madan, Johnson, J., Rocafort, J. *Architectural Priciples and Design.* Prentise_Hall, NJ. 1999
9. National Building Code of India

CONTEMPORARY ARCHITECTURE SEMINAR			
Subject Code		3201552 (SS)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week (lectures=1, Studio=3)	4	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	25 25 - -
		In-semester exam	nil
		End Semester exam	nil
		Total Marks	50
		Total Credits	3

COURSE OBJECTIVES:

- To establish a critical and comprehensive viewpoint about the contemporary trends/approaches in architectural production in terms of design, practices, its perception, appreciation and critical discourses.
- To develop the ability in students to position themselves in today's time so as to be able to establish an argument and testify the same.

COURSE OUTLINE:

- Course aims at critical inquiry into the contemporary (post 1980s) thought processes involved in architectural production, its perception and appreciation.
- Seminar should encourage students to assess and establish their relevance and/or validity in today's context.
- Though it's a seminar course, subject teachers are advised to take introductory lectures about today's (post 1980s) trends, various critical discourses and current architectural issue so as to put students in the frame of critical thinking.

SESSIONAL WORK:

Each student to write a paper of about 1500-2000 words critically discussing or deliberating the current phenomenon in architecture especially related to its production and appreciation. Preferably paper should be focusing on local and regional issues in architecture. This paper to be presented at the end of the semester orally with the help of computer media as required.

Students should be encouraged to write this paper manually and to follow the formalities of writing a paper in terms of references and acknowledgements.

Students should be assessed primarily for the identification of issues, ability to take position and development of an architectural argument.

REFERENCE BOOKS

1. Hays, K. Michael. *Architecture Theory since 1968 (2000)*. MIT Press., Oct 1997, Feb. 2000.
2. Buchanan, Peter. *"The Big Rethink".* The Architectural Review (AR), (Articles – December 2011, January to May 2012, July – September 2012, November 2012)
3. Leach, Neil. *Anaesthetics of Architecture*, MIT Press, 1999
4. Plasmas, Juhani. *The Eyes of the Skin: Architecture and the Senses*. Academy Press, 2 edition, 2005
5. Correa, Charles. *A Place in the Shade*: *The New Landscape and Other Essays*. Penguin Books India, 2010.
6. Mehrotra, Rahul. *Architecture In India: Since 1990.* Pictor Publishing, 2007.

ELECTIVE I – INTERIOR DESIGN			
Subject Code		3201553(SS)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week (lectures=1,Studio=2)	03	Sessional (Internal) Sessional(External) Viva	25 25 NIL
		In-semester exam	nil
		End Semester exam	nil
		Total Marks	50
		Total Credits	2

COURSE OBJECTIVES:

- To enable students to comprehend relationship between Architecture and Interior Design as a Space making disciplines.
- To evolve understanding about thoughtful design of interior spaces & how it can increase efficiency and add depth and meaning to the built environment.
- To enable students to comprehend the connection that the subject of Interior design has with other Design Disciplines like Conservation, Preservation, Restoration, Sustainability, Art ,Product design and Graphic design.

COURSE OUTLINE:

Individual College may offer topics depending upon the availability of experts and resource material. The colleges will have the opportunity to focus on a particular group of topics according to the overall philosophy and mission statement of the College. The probable Interior Design elective topics are – [the list is only suggestive and individual colleges can frame newer topics which meet the course objectives].

- Exhibition Design
- Set Design
- Commercial & Office Space Design
- Residential Interiors
- Specialized interiors – Hospitals, Laboratories, Auditoriums, Gymnasiums.
- Furniture Design
- Product Design
- Graphic Design
- Retrofitting of Buildings

SESSIONAL WORK:

The faculty is expected to set out the broad contour and sub aspects (including basic principles, case studies, application in building projects etc.) of the particular elective and conduct input and demonstration interactions and define the nature of the sessional work to be done by the students.

The students are expected to present the work done in an**A4 report format of 20 pages**, to include summary of interactions and sessional work prescribed by the faculty with a signed certificate from the concerned Teacher / Expert stating that the study was carried out under his /her guidance and countersigned by the Principal / Academic coordinator.

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Fourth year 2015 Pattern

Semester VII

DRAFT SYLLABUS FOR APPROVAL OF FACULTY

DESIGN VII			
Subject Code		4201554 (SV)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week= 12 (lectures=3, Studio=9)	12	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	100 100 25 25
		In-semester exam	nil
		End Semester exam	nil
		Total Marks	250
		Total Credits	8

Course Objective

Subject aims at preparing the students to handle complex architectural issues at this stage addressing various challenges in terms of scale, complexity of functions, social economic context, traffic and vehicular movement and so on. Along with the challenges of physical issues, students are also now expected to address spatial and visual language of their project with reference to the urban context and setting of their site.

Course Outline

- Multifamily Residential Development with Focus on : Mixed Use Development, Development of Communities, Addressing Issues of Social Stratification v/s Inclusiveness, Identification of target Group/ End User's requirement, Relation of Location/ Land values on Defining the Housing Product, Project being part of the City, Context, Green Initiatives, Efficient Planning of Services, Minimum Area100 to 200 depending on Context and Complexity. Designed within parameters as laid out by Local Authority and NBC.
- One Esquee / Charette be undertaken in each of the Terms (One week Duration) exploring design solution for a project / component , ideas for which would help the Main Design project.

Submissions

The design has to be communicated through architectural graphics, two and three-dimensional sketches, models and narratives.

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ADVANCED BUILDING TECHNOLOGY AND SERVICES I			
Subject Code		4201555 (SV)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week= 07 (lectures=3, Studio=4)	07	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	75 75 25 25
		In-semester exam	nil
		End Semester exam	nil
		Total Marks	200
		Total Credits	5

COURSE OBJECTIVES:

- To introduce advanced structural systems, materials and services required in buildings with complex and special requirements and enable the students to integrate the same in design.

COURSE OUTLINE:

Unit 1 .Multi-basements. Design and construction of multi-basements giving constructional details required for natural Lighting, ventilation and surface water disposal. Study of various methods of access to parking areas other than ramps. Drawings to include application of all required services. [Minimum four A1 drawings]

- Unit 2. Industrial Buildings. : Types of roofing systems, PEB systems, Proprietary systems, Industrial flooring.
  Assignments. Drawings showing structural system, construction details and services in plan, section and elevation [minimum two A1 drawings]

- Unit 3. Swimming pools.
  Design and construction of swimming pools (Olympic size, semi Olympic, leisure pools) and study of situations such as -- at ground level , podium level and upper / roof level with reference to all constructional and services details. [Minimum two A1 drawings]

- Unit 4 Study of long span structures [indoor stadia, railway / metro stations, shopping malls, sky walks etc] in RCC and Steel to understand structural behavior. Introduction of lighting and ventilation of spaces in such large buildings.
  Assignment would comprise of Case study report and construction details in sketch form.

SESSIONAL WORK:

- Drawings / sketches / notes to be as mentioned in the course outline above. Computerized drawings may be allowed only when individual design / detailing is undertaken.

REFERENCE BOOKS

PEB manufacturer's details
Advanced Building Construction By MACKEY
Stadia by John Geraint

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PROFESSIONAL PRACTICE I			
Subject Code :		4201556(PP)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week = 3 (Theory Lectures – 1 + studio -2)	03	Sessional (Internal) Sessional (External)	Nil Nil
		In-semester exam	30
		End Semester exam	70
		Total Marks	100
		Total Credits	2

COURSE OBJECTIVES:

- To acquaint the Student with the Role and Stature of an Architect in Society, and understand the duties, responsibilities, liabilities and ethics as a professional.

- To acquaint the Student with the Scope and Avenues of professional Architectural services, and the demands and Mode of professional practice, and to prepare the Student for the professional field.
- To familiarize and prepare the Student with adequate knowledge of an Architect's office administration, documentation and procedures of office and site management to enhance his comprehension and utility during his professional training in the field in Semester IX.

COURSE OUTLINE :

Unit 1 Introduction to the nature, scope and avenues of service and professional practice as an Architect. Define the Role of an Architect as a technical professional - who is not a Trader or a Businessman. Illustrate the changing nature of the Architects profession- Local & Global competition in the field.

UNIT 2 The Architects Act 1972 - The Council of Architecture, its composition, legal status and mandate for to Registration of Architects and for monitoring the Academics and Profession of Architecture, Rules and Regulations of the Council regarding Professional Liabilities & Code of Conduct.

Unit 3 Avenues of Professional service and mode and nature of professional Practice - Types of Organisations - Scope of comprehensive Services, Scale of Fees, and Office Management, Project management, Site supervision, Documentation, Taxation, Banking and Insurance.

Unit 4 Architectural Competitions - Pros and Cons - with Rules and Regulations of the Council.

Unit 5 Introduction to IIA, IIID, IUDI, ITPI, ISOLA and such professional organisations and the need for Architects to be aware, sensitive and active in Social and Civic issues in Urban context.

REFERENCE BOOKS :

1) Handbook of Professional Documents - Council of Architecture publication
2) The Architects Act, 1972 - Govt. of India publication
3) Professional Practice - By Roshan .H. Namavati
4) Professional Practice in India - By Madhav G. Deobhakta
5) Architectural Practice and Procedure - By Vasant .S. Apte

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URBAN STUDIES-I			
Subject Code		**4201557 (SS)**	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week (lectures=1, Studio=2)	03	Sessional (Internal) Sessional (External) Viva (Internal)	25 25 nil nil
		In-semester exam	nil
		End Semester exam	nil
		Total Marks	50
		Total Credits	02

COURSE OBJECTIVES:

- To enable students to understand the urban context of an Architectural Project beyond the site and understand the implications of various factors (such as traffic-transportation, socio economics, urban landscape, spatial and visual aspects etc) influencing the development of an urban area.
- To introduce the students to urban planning and design theories and concepts and enable them to undertake planning and design of large scale land development.

COURSE OUTLINE:

- Introduction to urban studies and relevance of its learning in Architecture profession. Principles and theories of Urban Planning and Urban Design.
- Various aspects of urban land.
- Urban residential developments such as neighborhood planning, high-rise housing, slum rehabilitation, public housing, town planning schemes etc
- Affordable housing: introduction and concepts.

SESSIONAL WORK:

- **Handwritten journal** based upon the theory syllabus as above.
- **Assignments:**
  1. Subdivision of land for residential development (approx area 4Ha) –Individual submission (20 marks)
  2. Study of housing typologies as mentioned in course outline- Case study in a group of maximum 5 students (20 Marks)
  3. One Tutorial based upon course outline (10 marks)

REFERENCE BOOKS

1. Gallion, Arthur.***The Urban Pattern***. New Delhi: CBS Publishers and Disrtibuters, 2003
2. Bacon, Edmund. ***Design of Cities*** London: Thames and Hudson, 1974
3. Paddison, Ronan. ***Handbook of Urban Studies***.London: sage Publications, 2001
4. Correa, Charles. ***Housing and Urbanisation***. London: Thames and Hudson, 2000.
5. Mohanty , Swati. ***Slum in India***. New Delhi:APH Publishing Corp.,2005.
6. Jagdale, Rohit. ***Slum Rehabilitation Schems in Mumbai***. University of Texas 2014.

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RESEARCH IN ARCHITECTURE I			
Subject Code		4201558 (SS)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week (lectures=1, Studio=2)	3	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	25 25 - -
		In-semester exam	nil
		End Semester exam	nil
		Total Marks	50
		Total Credits	2

COURSE OBJECTIVES:

- To introduce students to Research in Architecture and its value in design
- To enable the students to prepare a research proposal.

COURSE OUTLINE:

- Unit I -- Introduction to the meaning and need of research in architecture. Introduction to various concepts such as types of variables, measurement of variables, sample selection, ethics in research.
- Unit II – Process of research – Methodology
- Unit III – Literature study

- Unit IV – Methods of research in architecture. Use of surveys, observations, experiments, secondary sources.

SESSIONAL WORK:

- Tutorial based on all of the above units
- Literature Review of at least 5 papers related to the topic of their choice.
- Research proposal giving details of aims, objectives, scope, limitations, methods, samples selected on the topic approved by the head of the institution.

NOTE:

- The guide must have minimum 5 years of teaching experience. Preferably a guide should not guide more than 8 students.
- It is desirable that the research seminar is presented in front of experts.
- It is beneficial to the students if the topic is related to the architectural design project of semester X.

REFERENCE BOOKS

1. Babbie, E. *The Practice of Social Research*. third edition. Belmont: Wadsworth Publishing Co., 1983. book.
2. Cresswell, J.W. *Research Design: Qualitative and Quantitative Approaches*. Thousand Oaks: Sage, 1994. Book.
3. De Vaus, D.A. *Surveys in Social Research*. Jaipur: Rawat Publications, 2003. Book.
4. Dey, I. *Qualitative Data Analysis: A User Friendly Guide for Social Scientists*. London: Routledge, 1993. Book.
5. Groat, L. & Wang, D. *Architectural Research Methods*. New York: John Wiley and Sons Inc., 2002. Book.
6. Kothari, C.R. *Research Methodology: Methods and Techniques*. New Delhi: Wishwa Prakashan, 2005. Book.
7. Michelson, William. *Behavioural Methods in Environmental Design*. Stroudsberg, Pennsylvania: Dowden, Hutchinson and Ross, Inc., 1982.
8. Nachmias, C.F. & Nachmias, D. *Research Methods in Social Sciences*. Great Britain: St. Martin's Press Inc., 1996. Book.
9. Patton, M.Q. *Qualitative Evaluation Methods*. Newbury Park: Sage Publications, 1980. Book.
10. Sanoff, H. *Methods of Architectural Programming*. Vol. 29. Dowden Huthinson and Ross, Inc., 1977. document.
11. —. *Visual Research Methods in Design*. USA: Van Nostrand Reinhold, 1991.

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Quantity Surveying And Estimation - I			
Subject Code		4201559 (PP)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week (lectures=1, Studio=2)	03	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	Nil Nil Nil Nil
		In-semester exam	30
		End Semester exam	70
		Total Marks	100
		Total Credits	2

COURSE OBJECTIVES:

- To Introduce Estimation as an important Subject for Architecture.
- To Understand Different methods of Computing Quantities for items of work in a structure.
- To enable students in working out quantities of various items of work for simple load bearing and R.C.C. framed structure and acquaint them with various types of estimates including standard method of measurement on building works and mode of measurements as adopted by I.S 1200.

COURSE OUTLINE:

Unit I. Introduction to Quantity Surveying and Estimating, Data for Estimate, Purpose of Estimating, Accompaniments of an Estimate, Qualities of an Estimator, Spot Items, Contingencies, Prime Cost & Provisional Sums, Provisional Quantities, Extra Items of work.

Unit II. Different types of Estimate their uses & Characteristics, Schedule of Quantities, Schedule of Rates & its uses, Stages of work, Complete Estimate of a Project, Methods of taking out Quantities, Measurement Sheet, Abstract Sheet, Bill of Quantities,

Unit III. Study of mode of measurement as stipulated in IS-1200, Classification of strata as per IS-1200, Trial pit data, Lift and Leads , Unit of Measurement.

Unit IV Bill certification, Part rate certification, Interim/Running Bill Certification,

Unit V Working out quantities for load bearing structure (below plinth only) of approximately 15-30 Sqm by offset and centre-line method illustrating L and T junctions and preparing measurement sheet and abstract for all items of work.

Unit VI Working out quantities for R.C.C. G+1 structure of approximately 150-200 sqm and preparing measurement sheet and abstract for all items of work.

REFERENCE BOOKS

1. *B.I.S 1200- Part-I 1992*. n.d.
2. Prof. B.N.Dutta, *Estimating and Costing in Civil Engineering.*
3. B.S.Patil. *Civil Engineering Contarcts and Estimates.*
4. Dr. Roshan Namavati. *Profe ssional Practice*.
5. Rangawala. *Estimating Costing and Valuation*.

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Specification Writing I			
Subject Code		4201560 (PP)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week (Lectures = 1 Studio = 2)	3	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	nil nil nil nil
		In-Semester exam	30
		End-Semester exam	70
		Total Marks	100
		Total Credits	2

COURSE OBJECTIVES:

- To acquaint students with methodology of writing specifications with reference to building trades, materials, workmanship & performance of different items of work.
- To know importance of specifications in contract document for any construction project.

COURSE OUTLINE:

- Techniques, Importance & methods of writing different types of specifications of different items of works in construction.
- Technical and functional role of specifications in any construction project.

Unit I: Specifications

1.4. Definition, need & importance of Specification writing.
1.5. Relation with working drawing, bill of quantities, schedule of rates
1.6. Specification as a integral part of contract document

Unit II: Types of Specifications

2.1. Basic types like open, closed, restricted etc
2.2. Use of manufacturers guide
2.3. Combination of above types

Unit III: Specification writing (Workmanship)

3.1. Item-wise detailed specifications including methods
3.2. Forms of writing descriptive notes on material and workmanship based on working drawing

Unit IV: Specifications for construction works

4.2 Demolition work of existing buildings
4.2Formwork

REFERENCE BOOKS

1. Indian Standard specifications
2. C.P.W.D. Specifications and schedule of rates
3. Specification Writing for Architects & Engineers, By Donald A. Watson
4. Specification Writing for Architects & Surveyors, By Arthur J. Wills
5. Estimating, Costing, Specification & Valuation, By M. Chakraborty

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ELECTIVE II - DESIGN & TECHNOLOGY ELECTIVE			
Subject Code		4201561(SS)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week= 2 (lectures=1, Studio=1)	2	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	25 25 NIL NIL
		In-semester exam	nil
		End Semester exam	nil
		Total Marks	50
		Total Credits	1

COURSE OBJECTIVES:

The subject of Electives has been introduced in syllabus with specific intention of study of a particular subject of student's liking in greater detail but in the larger context of overall scope of Architecture syllabus at undergraduate level. This will give students an opportunity to develop their skills in a subject they may opt,to make their career in future.

The Design and technology elective aims at exploring the recent developments in the field of architecture from point of view of building design, services and construction. Aspects such as disaster resistance, accessibility, retrofitting, conservation, architectural design theory, can be addressed through these electives.

COURSE OUTLINE:

Individual College may offer topics depending upon the availability of experts and resource material. The colleges will have the opportunity to focus on a particular group of topics according to the overall philosophy and mission statement of the College. The probable elective topics are – [the list is only suggestive and individual colleges can frame newer topics which meet the course objectives].

- Universal Design
- Seismic Resistance design
- Services in High rise buildings.
- Design theory
- Architectural Conservation
- Computer & design
- Modular design
- Prefabricated & Precast construction
- Advanced Landscape Design

Note : The topics selected in this elective should not focus on any of the aspects of interior design.

SESSIONAL WORK:

The faculty is expected to set out the broad contour and sub aspects of the particular elective and conduct input and demonstration interactions and define the nature of the sessional work to be done by the students.

The students are expected to present the work done in an**A4 report format of 20 pages**, to include summary of interactions and sessional work prescribed by the faculty with a signed certificate from the concerned Teacher / Expert stating that the study was carried out under his /her guidance and countersigned by the Principal / Academic coordinator.

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DRAFT SYLLABUS FOR APPROVAL OF FACULTY

Fourth year 2015 Pattern

Semester VIII

DRAFT SYLLABUS FOR APPROVAL OF FACULTY

DESIGN VIII			
Subject Code		4201562(SV)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week= 12 (lectures=3, Studio=9)		Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	100 100 25 25
		In-semester exam	nil
		End Semester exam	nil
		Total Marks	250
		Total Credits	8

Course Objective

Subject aims at preparing the students to handle complex architectural issues at this stage addressing various challenges in terms of scale, complexity of functions, social economic context, traffic and vehicular movement and so on. Along with the challenges of physical issues, students are also now expected to address spatial and visual language of their project with reference to the urban context and setting of their site.

Course Outline [Project type 1 – one of the two options & Project type 2]

1. Study of Urban Areas in terms of Urban level issues like Mobility, movement network, builtform, disposition, character, identity, activities, open space networks, walkability, inclusiveness, etc.,

Community participation initiatives and analysis.

Identify issues related to above aspects at Neighbourhood level and offer design solutions for improving the status of the neighbourhood with reference to the above aspects. Setting up of Guidelines to achieve the master plan objectives and broad implementation strategy to achieve sustainable neighbourhoods.

The project shall include a Study area and Master Plan area of 2- 3 Ha. with detailed Architectural Resolution of a component/s admeasuring not less than 10000 to 20000 sqm Area of Functional space depending on Context and Complexity.

The Architectural project should evolve of the study of the Area and be an outcome of issue formulation, Development Plan proposals for the area if any and a subset of the overall Master Plan for the Area.

OR

1. Multi Functional Complex of Buildings or Speciality Building in an Urban Context with substantial Complexity addressing Issues of Character, Identity, Builtform, Contextuality, Advanced Services, Green Initiatives , landscape integration, traffic management with impact on immediate surroundings, structural resolution in detail. Building Quantum not less than 10000 to 20000 sqm Area of Functional space depending on Context and Complexity and appropriate plot Area. (eg. Healthcare facility, Educational Institution, 5 Star Hotel, Convention Centre, Multimodal Transport Hub, Shopping Mall and Multiplex, redevelopment project etc.).

Project should explore the Impact on the Surrounds and from the Surrounds with reference to the Urban Insert being proposed.

2. One Esquee / Charette be undertaken in each of the Terms (One week Duration) exploring design solution for a project / component , ideas for which would help the Main Design project.

Submissions

The design has to be communicated through architectural graphics, two and three-dimensional sketches, models and narratives.

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ADVANCED BUILDING TECHNOLOGY AND SERVICES II			
Subject Code		4201563 (SV)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week= 07 (lectures=3, Studio=4)	7	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	75 75 25 25
		In-semester exam	nil
		End Semester exam	nil
		Total Marks	200
		Total Credits	5

COURSE OBJECTIVES:

- To introduce advanced structural systems, materials and services required in buildings with complex and special requirements and enable the students to integrate the same in design.

COURSE OUTLINE:

- Unit 1. .Auditoriums - Design and construction of Auditorium of min capacity 500 with provision of a balcony and application of all required services.
  All architectural drawings, framing plans and sections, showing all services and constructional detail for balcony [minimum four A1 drawings]

- Unit 2. Construction details of architectural features in design projects.
  Assignment -- Complete details with reference to materials used and details of construction. Minimum five working details to an appropriate scale. [Minimum 3 A1 size drawing].

- Unit 3. Introduction to high rise buildings.
  Behavior of high rise structures under different loading conditions. Understanding of structural systems for high rise structures. Assignment; Notes and sketches.

- Unit 4 Curtain walls-- Framing systems and construction details for a curtain wall.
  Assignment -- Students shall study cases of curtain wall and prepare working details for the same. [minimum one A1 size drawing].

SESSIONAL WORK:

- Drawings / sketches / notes to be as mentioned in the course outline above. Computerized drawings may be allowed only when individual design / detailing is undertaken.

REFERENCE BOOKS

Advance building construction by MACKEY
High Rise Buildings by JASWANT MEHTA
Theatres and Auditoriums byHarold Burris- Meyer &Edward Cole.
Architects Working Details

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PROFESSIONAL PRACTICE II			
Subject Code :		4201564 (PP)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week = 3 [Lecture 1, Studio 2]	3	Sessional (Internal) Sessional (External)	Nil Nil
		In-semester exam	30
		End Semester exam	70
		Total Marks	100
		Total Credits	**2**

COURSE OBJECTIVES:

- To acquaint the Student with the Role and Stature of an Architect in Society, and understand the duties, responsibilities, liabilities and ethics as a professional.
- To acquaint the Student with the Scope and Avenues of professional Architectural services, and the demands and Mode of professional practice, and to prepare the Student for the professional field.
- To familiarize and prepare the Student with adequate knowledge of an Architect's office administration, documentation and procedures of office and site management to enhance his comprehension and utility during his professional training in the field in Semester IX.

COURSE OUTLINE:

Unit 1 Introduction to Construction Management - Types and Systems of Tendering - Open and Invited Tenders - Pre-Qualification and Empanelment procedures - Selection of Contractors.

Unit 2 Introduction to Contracts - Articles of Agreement and Conditions of Contract (IIA document) Contents of a Tender - Terms of Reference - Specifications - Bill of Quantities - Billing, Measurement of work and Payments - Advances and recovery - Bonus and Penalties, etc ..

Unit 3 Introduction to National Building Code - ISI Codes and Standards, Limits and Tolerances.

Unit 4 Role of Architects in Construction / Site management - Supervision and monitoring of Speed, Quality and Economy - Status on project sites - Meetings, Minutes, Instructions & Records.

Unit 5 General Introduction to the Role and Legal duties of Architects in Arbitration and Valuation.

SESSIONAL WORK : Preparation of a JOURNAL with NOTES based upon the syllabus content. Journal to be submitted at the end of Term-II for Internal and External Marking.

REFERENCE BOOKS :

1) Handbook of Professional Documents - Council of Architecture publication
2) The Architects Act, 1972 - Govt. of India publication

3) Professional Practice - By Roshan H. Namavati
4) Professional Practice in India - By Madhav G. Deobhakta
5) Architectural Practice and Procedure - By Vasant .S. Apte

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Urban Studies-II			
SubjectCode		4201565 (SS)	
TeachingScheme		ExaminationScheme	
TotalContact Periodsperweek (lectures=1, Studio=2)	03	Sessional(Internal) Sessional(External) Viva (Internal) Viva (External)	25 25 nil nil
		In-semester exam	nil
		End Semester exam	nil
		TotalMarks	50
		Total Credits	02

COURSE OBJECTIVES:

- To introduce the students to the process of planning and urban development and associated legislation.
- To introduce the students to urban economics.

COURSE OUTLINE:

- Study of planning process in detail (Survey, analysis, proposals and development)
- Conservation and related Urban Design controls.
- Planning and Urban Design legislation- introduction and relevance.
- Unified Building bye laws and Development Control rules of local authorities.
- Urban economics: introduction and concepts (demand and supply, housing finance, Government schemes and various bodies etc)

SESSIONAL WORK:

- **Handwritten journal** based upon the theory syllabus as above.
- **Assignments**:
  1. Reading of Urban fabric: Study of existing town and town planning proposals for municipal council level town-(group work) (20 marks)
  2. Identification of urban issues related to various aspects such as environment, society, traffic and transportation, hills and hill slopes, riverfront development, urban heritage conservation through primary surveys(group work in a group of 5 students) (20 marks)
  3. One Tutorial based upon course outline (10 marks)

REFERENCE BOOKS

Urban Pattern: Arthur Gallion
City in History: Lewis Mumford
Spreriegen, Paul. Urban Design: ***The Architecture of Town and Cities*****.** Malabar,FL-USAKrieger Publishing Co., 1967
Lynch, Kevin. ***The Image of The City*** London: The MIT Press, 1960
Book of Development Control Regulations by Local Municipal Corporation (latest edition available)
Book of AITP Exam study material: 'Planning Law and Legislation' by ITPI New Delhi
Guide to Planning Surveys including Landuse Classification: TCPO, Govt of India: 2004

Housing and Urbanization: Charles Correa
Garden Cities of Tomorrow: Sir Ebenezer Howard
Maharashtra Regional and Town Planning Act, 1966
Traffic and Transportation Planning by L.R. kadiali

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Research in Architecture II			
Subject Code		4201566 (SS)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week (lectures=1, Studio=2)	3	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	25 25 - -
		In-semester exam	nil
		End Semester exam	nil
		Total Marks	50
		Total Credits	2

COURSE OBJECTIVES:

- To enable students to undertake research focussed on an issue related to the built environment.
- To report research in a technical manner.

COURSE OUTLINE:

- Unit I Data collection and Analysis preferably with use of statistics
- Unit II Presentation of data using various techniques (verbal, visual, graphical, numerical)
- Unit III Technical writing
- Unit IV Presentation of a research paper in form of a seminar

SESSIONAL WORK:

- Tutorial based on units I to III.
- To undertake original research work on the research proposal prepared in Semester VII and report the research in form of a technical paper of 4000 words minimum.

NOTE:

- The guide must have minimum 5 years of teaching experience. Preferably a guide should not guide more than 8 students.
- It is desirable that the research seminar is presented in front of experts.
- It is beneficial to the students if the topic of research is related to the architectural design project of semester X.

REFERENCE BOOKS

Babbie, E. *The Practice of Social Research*. third edition. Belmont: Wadsworth Publishing Co., 1983. book.

Cresswell, J.W. *Research Design: Qualitative and Quantitative Approaches*. Thousand Oaks: Sage, 1994. Book.

De Vaus, D.A. *Surveys in Social Research*. Jaipur: Rawat Publications, 2003. Book.
Dey, I. *Qualitative Data Analysis: A User Friendly Guide for Social Scientists*. London: Routledge, 1993. Book.
Groat, L. & Wang, D. *Architectural Research Methods*. New York: John Wiley and Sons Inc., 2002. Book.
Kothari, C.R. *Research Methodology: Methods and Techniques*. New Delhi: Wishwa Prakashan, 2005. Book.
Michelson, William. *Behavioural Methods in Environmental Design*. Stroudsberg, Pennsylvania: Dowden, Hutchinson and Ross, Inc., 1982.
Nachmias, C.F. & Nachmias, D. *Research Methods in Social Sciences*. Great Britain: St. Martin's Press Inc., 1996. Book.
Patton, M.Q. *Qualitative Evaluation Methods*. Newbury Park: Sage Publications, 1980. Book.
Sanoff, H. *Methods of Architectural Programming*. Vol. 29. Dowden Huthinson and Ross, Inc., 1977. document.
—. *Visual Research Methods in Design*. USA: Van Nostrand Reinhold, 1991.

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Quantity Surveying And Estimation - II			
Subject Code		4201567 (PP)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week (lectures=1, Studio=2)	03	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	Nil Nil Nil Nil
		In-semester exam	30
		End Semester exam	70
		Total Marks	100
		Total Credits	2

COURSE OBJECTIVES:

- To enable students in working out quantities for items of plumbing and sanitation work in a structure.
- To enable students in working out quantities of various items of work for an Industrial structure and acquaint them for preparing rate analysis and indent of material.

COURSE OUTLINE:

Unit I. Introduction to Analysis of Rate, Factors affecting Rate of any Item of work, Importance of Rate Analysis, Essentials of Rate Analysis.

Unit II. Unit Rate, Direct Cost, Indirect Cost, Overhead Charges, Day Work, Task Work, Piece work, Indent of Material,

Unit III. Studying and Working out rate Analysis of minimum 20 numbers of standard items of work based on prevailing market rates.

Unit IV Studying and preparing Indent of Material of minimum 20 numbers of standard items of work.

Unit V Working out quantities for plumbing and sanitation items of work and preparing measurement sheet and abstract for all items of work.

Unit VI Working out quantities for Industrial structure of approximately 200-300 sqm with steel Truss and sheet roofing and preparing measurement sheet and abstract for all items of work.

REFERENCE BOOKS

- *B.I.S 1200- Part-I 1992*. n.d.
- Prof. B.N.Dutta, *Estimating and Costing in Civil Engineering.*
- B.S.Patil. *Civil Engineering Contarcts and Estimates.*
- Dr. Roshan Namavati. *Profe ssional Practice*.
- Rangawala. *Estimating Costing and Valuation*.

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Specification Writing II			
Subject Code		4201568 (PP)	
Teaching Scheme		Examination Scheme	
Total Contact Periods per week (Lectures = 1 Studio = 2)	3	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	nil nil nil nil
		In-Semester exam	30
		End-Semester exam	70
		Total Marks	100
		Total Credits	2

COURSE OBJECTIVES:

- To acquaint students with methodology of writing specifications with reference to service installations of different items of work in construction.
- To know importance of specifications in contract document for any construction project.

COURSE OUTLINE:

- Techniques, Importance & methods of writing different types of specifications of different items of works in construction.
- Technical and functional role of specifications in any construction project.

Unit I: Detailed Specifications

1.3. Checklist preparation

Unit II: Specification for Building Services

2.1. Water Supply & Drainage
2.2. Acoustics
2.3. Electrification
2.4. HVAC installation

Unit III: Building Trades

3.1. Different Building trades scope & contents

Unit IV: Broad outline specification for service installations

4.4. Communication systems- elevators, escalators
4.5. Accessibility- arrangements for disabled persons
4.6. Water proofing- cement, bitumen, polymer based
4.7. External development- roads, pavements, kerbs, lighting

REFERENCE BOOKS

- Indian Standard specifications
- C.P.W.D. Specifications and schedule of rates
- Specification Writing for Architects & Engineers, By Donald A. Watson
- Specification Writing for Architects & Surveyors, By Arthur J. Wills
- Estimating, Costing, Specification & Valuation, By M. Chakraborty

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<table>
<tr><th colspan="4">ELECTIVE III – ALLIED ELECTIVE</th></tr>
<tr><td colspan="2">Subject Code</td><td colspan="2">4201569 (SS)</td></tr>
<tr><td colspan="2">Teaching Scheme</td><td colspan="2">Examination Scheme</td></tr>
<tr><td rowspan="6">Total Contact Periods per week= 2 (lectures=1, Studio=1)</td><td rowspan="6">2</td><td>Sessional (Internal)
Sessional (External)
Viva (Internal)
Viva (External)</td><td>25
25
NIL
NIL</td></tr>
<tr><td>In-semester exam</td><td>nil</td></tr>
<tr><td>End Semester exam</td><td>nil</td></tr>
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<tr><td></td><td></td></tr>
<tr><td></td><td></td><td>Total Credits</td><td>1</td></tr>
</table>

COURSE OBJECTIVES:

The subject of Electives has been introduced in syllabus with specific intention of study of a particular subject of student's liking in greater detail but in the larger context of overall scope of Architecture syllabus at undergraduate level. This will give students an opportunity to develop their skills in a subject they may opt,to make their career in future.

The allied elective gives opportunity to the students to explore links of design as a faculty with allied fields such as social sciences, visual art, performing arts, psychology, etc.

COURSE OUTLINE:

Individual College may offer topics depending upon the availability of experts and resource material. The colleges will have the opportunity to focus on a particular group of topics according to the overall philosophy and mission statement of the College. The probable elective topics are – [the list

is only suggestive and individual colleges can frame newer topics which meet the course objectives].

- Music and Architecture
- Environmental psychology
- Art movements and Architecture
- Sociology and Architecture
- Building Economics
- Biomimicry

SESSIONAL WORK:

The faculty is expected to set out the broad contour and sub aspects of the particular elective and conduct input and demonstration interactions and define the nature of the sessional work to be done by the students.

The students are expected to present the work done in an**A4 report format of 20 pages**, to include summary of interactions and sessional work prescribed by the faculty with a signed certificate from the concerned Teacher / Expert stating that the study was carried out under his /her guidance and countersigned by the Principal / Academic coordinator.

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Fifth year 2015 Pattern

Semester IX

DRAFT SYLLABUS FOR APPROVAL OF FACULTY

Practical Training		
Subject Code	5201570 (SV)	
Teaching Scheme	**Examination Scheme**	
Student should work for Total 120 working days in organization where architecture or its allied disciplines are practiced under supervision of a professional who is registered with COA India.	Sessional (Internal) Sessional (External) Viva (Internal) Viva (External)	75 75 25 25
	In-semester exam	NIL
	End Semester exam	NIL
	Total Marks	200
	Total Credits	8

Objectives:

- To undertake practical training under the guidance of experts / professionals.
- To Learn about architect's office management and learn about the process of design, execution and management of a project.

Course outline:

- Students should work in organization where architecture or its allied disciplines are carried under professional who is registered architect with COA
- In case a student undergoes Training at a firm outside India, the professional should be registered with the professional body governing practice in that country in addition to the registration with COA India.
- Total duration of Professional Training will be 120 working days in IX sem

Submissions :

- Prepare a separate report along with formal log book & work diary.
- Student should maintain week wise work record in a diary to summarize the work done in the office, site visits, meetings with clients, agencies, interaction with principal architect. This diary should be authenticated by the architect every week.
- Professionals should issue a certificate of performance to the student with respect to the work quality, overall approach, attitude towards office work.
- Students should produce report, log book, work diary & some drawings with permission from the employer [to indicate the kind of work s/he has carried out] at the time of sessional -viva voce examination.

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Fifth year 2015 Pattern

Semester X

DRAFT SYLLABUS FOR APPROVAL OF FACULTY

Elective IV			
SubjectCode		5201572 (SS)	
TeachingScheme		ExaminationScheme	
TotalContact Periodsperweek (lectures=1, Studio=2)	3	Sessional(Internal) Sessional(External) Viva (Internal) Viva (External)	25 25 NIL NIL
		In-semester exam	nil
		End Semester exam	nil
		TotalMarks	50
		Total Credits	2

COURSE OBJECTIVES:

The subject of Electives has been introduced in syllabus with specific intention of study of a particular subject of student's liking in greater detail but in the larger context of overall scope of Architecture syllabus at undergraduate level. This will give students an opportunity to develop their skills in a subject they may opt,to make their career in future.

Architecture professionals will have to deal with more and more complex buildings as well as organizational structures to realize a project .Architects need to be introduced to "Management Concepts" if they are to manage projects right from design stage through the documentation and construction stage.Acknowledging the fact that the Architectural Practice is a team effort and understanding the necessity of management in this field, the following elective topics have been suggested.

Note:This elective will not focus on design and technology aspects of the topics offered.

COURSE OUTLINE:

Individual College may offer topics depending upon the availability of experts and resource material. The colleges will have the opportunity to focus on a particular group of topics according to the overall philosophy and mission statement of the College. The probable management elective topics are as follows:

- Project Management
- Construction Management
- Environment and Energy management
- Architectural Design Management

SESSIONAL WORK:

The faculty is expected to set out the broad contour and sub aspects (including basic principles, case studies, application in building projects etc.) of the particular elective and conduct input and demonstration interactions and define the nature of the sessional work to be done by the students.

The students are expected to present the work done in an**A4 report format of 20 pages**, to include summary of interactions and sessional work prescribed by the faculty with a signed certificate from the concerned

Teacher / Expert stating that the study was carried out under his /her guidance and countersigned by the Principal / Academic coordinator.

Guidelines for content for the electives

Construction Management

Human Resource Management in Construction
Contracts and Claims Management
Construction Materials, Stores and Inventory Control and Technology Management
Construction Equipment Management
Construction Quality and Safety Management
Construction Site Administration and Control
Introduction to Computer applications for construction management

Project Management

Soft Skills in Project Management
Project Risk Management
Project Cost Estimation and Cost Control
Contracts and Claims Management
Project Procurement and Materials Management
Project Quality and Safety Management
Introduction to Computer Application in Contract Management

Environment and Energy Management

Environment and Energy Policies and Management in Indian Context
Environment Technology Management-Water and Waste Management Technologies
Energy Management in Buildings (Demand and Supply Management)
Building Management Systems

Architectural Design Management

Design Management
Drawing and Documentation Management
Computer Applications for Design Management

Architectural Design Project			
SubjectCode		5201571 (SV)	
TeachingScheme		ExaminationScheme	
TotalContact Periodsperweek=20 (lectures=4, Studio=16)	20	Sessional(Internal) Sessional(External) Viva (Internal) Viva (External)	175 175 50 50
		In-semester exam	nil
		End Semester exam	nil
		TotalMarks	450
		Total Credits	12

OBJECTIVE: To provide an opportunity to the students to apply the **knowledge gained** in earlier years to full-fledged Architectural Design project of student's choice with a holistic approach including background research, programme formulation, site selection investigations and design demonstration.

COURSE OUTLINE: The Architectural Design Project shall consist of **Design Demonstration** i.e. formulation of design programme, site investigation and selection, and culmination in architectural design proposal.

TOPIC FOR ARCHITECTURAL PROJECT: The topic for the project shall be approved by the Institute and guided by the Faculty. The student may consult external resource persons specializing in the chosen topic but the assessment shall be done by the faculty. **A guide** may guide upto EIGHT students during the session. In order to qualify to work as a Guide, the faculty must possess minimum of **ten** YEARS of teaching / professional experience.

SESSIONAL WORK:

The portfolio of the work submitted by the student shall contain MANUALLY LABOURED / COMPUTER GENERATED drawings **of sheet sizes as per international standards** and a PHYSICAL MODEL explaining the architectural proposal. Alongwith the drawings A4/A3 size report consisting of the background and rationale of the project, the methodology and the prints of the final proposal shall be submitted after the oral examination, to be kept in the library of the college. The choice of the size of the report is left to the institute , however, within one institute report size should be constant.

In addition the student may show other presentations like 3D views, walkthroughs etc. if permitted by the examiners.

SESSIONAL ASSESSMENT:

The Internal assessment of architectural project shall be carried out STAGE WISE as decided by the college. The final assessment in the examination shall be done by both Internal and External examiner in which the student shall display the work on the space allotted to him/her and explain his work and answer all the queries raised by the examiner.

The examiners shall assess the work done and presented by the student, duly approved by the Faculty. The drawings and models, duly stamped and signed by the Faculty shall be treated as authentic work done by the student under the guidance of the Faculty. The student may submit sufficient number of drawings required to satisfactorily explain the project. The student shall also present a separate portfolio of study & process sheets, study models etc.

ORAL EXAMINATION : The oral shall be held in the physical presence of the student in **examination centre of the candidate** jointly by the internal and external examiners. The student shall be allowed to present his project for minimum 10 minutes without any interruption. The student shall be judged for the depth of understanding of the subject and clarity of graphical presentation of the project.

RECOMMENDED READING:

All books relevant to the topic of the architectural project.

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