

**INSTITUTE OF ARCHITECTURE and PLANNING  
NIRMA UNIVERSITY**

**TEACHING AND EXAMINATION SCHEME FOR SEMESTER VI - B.ARCH. (2023 onwards)**

**Name of the Programme: Bachelor of Architecture**

**SEMESTER VI**

Course Code	Name of the Course	Teaching Scheme				Hours	Scheme of Examination			
		Hours/ Week			Credit		SEE	Component Weightage		
		L	W	S	C			SEE	CE	LPW
<b>CORE COURSES</b>										
2AR661	Architectural Design Studio - VI	-	-	12	12	-	-	0.5	0.5	
2AR662	History & Theory - VI	2	-	-	2	3	0.3	0.5	0.2	
2AR663	Building Construction & Services	1	2	-	3	3	0.3	0.5	0.2	
2AR664	Environmental Design and GIS Application	1	2	-	3	-	-	0.5	0.5	
2AR665	Development Control Regulation	1	2	-	3	3	0.3	0.5	0.2	
2AR668#	Related Study Programme – V #	-	-	-	3#	-	-	-	1	
2AR667#	Field Studio#	-	-	-	5#	-	-	-	1	
<b>Institute Elective courses - Annexure-1 (only two Electives to be opted that were not taken in any of the previous Semester)</b>										
Yet to be decided	Institute Elective	1	1	-	2	-	-	0.5	0.5	
Yet to be decided	Open Elective/ Institute Elective	1	1	-	2	-	-	0.5	0.5	
<b>SUPPLEMENTARY COURSES/ VALUE ADDED COURSES</b>										
2ARS601	Social Work/ NSS	-	2	-	-	-	-	-	1	
Yet to be decided	Value Added Courses*	-	2	-	-	-	-	-	1	
<b>Total</b>		<b>7</b>	<b>12</b>	<b>12</b>	<b>27/ 30\$/ 32\$</b>					
<p># Students can register either for 2AR668 (Related Study Programme – V) or 2AR667 (Field Studio-I) in this semester, as per the following condition</p> <p>• 3 RSP and 1 Field Studio is to be completed during the entire duration of B.Arch programme out of which 2 RSP is to be completed up to Semester VII and remaining 1 RSP up to Semester X. And 1 Field Studio needs to be completed between Semester-V to X</p> <p>\$ Credit of RSP or Field Studio will be given to students based on their registration in the respective semester</p> <p>* Value Added courses offered in respective semester as approved by the Dean, FoAPIAP,NU</p>										
<p>L: Lecture, W: Workshop, S: Studio, C: Credit CE: Continuous Evaluation, LPW: Lab/Project/Studio Work, SEE: Semester End Examination</p>										

## NIRMA UNIVERSITY

<b>Institute:</b>	<b>Institute of Architecture and Planning</b>
<b>Name of Programme:</b>	<b>Bachelor of Architecture</b>
<b>Course Code:</b>	<b>2AR661</b>
<b>Course Title:</b>	<b>Architectural Design Studio - VI</b>
<b>Course Type:</b>	Core
<b>Year of introduction:</b>	<b>2021</b>

L	T	Practical component				C
		LPW	PW	W	S	
-	-	-	-	-	12	12

### Course Learning Outcomes (CLO):

0

At the end of the course, students will be able to -

- Develop architectural design proposal upto the execution stage. [BL2]
- Appraise the importance of construction details, integration of Building services and structures on production drawings [BL5]
- Produce detail drawings necessary for execution at site [BL6]

**Content:** 15 weeks (12 hours/week)

**Total Teaching hours: 180 Hrs**

Unit	Content	Teaching hours
Unit-I	Design Resolution from presentation to execution – 1. Part – Whole relationship – Back and forth design processes 2. Exposure to materials, products, assembly constructional principles.	24 hours
Unit-II	Preliminary design to Design development – 3. Analysis of various buildings elements-foundation-wall-floor-roof etc. 4. Resolution of appropriate systems 5. Explanation of structure system 6. Centre line drawing set (plans/ elevations and sections)	72 hours
Unit-III	Detail development of various spaces / building elements - 7. Stair/Ramp/Elevator, etc. 8. Kitchen/Pantry/Utility, etc. 9. Toilet/WC/Bath/Chokdi, etc.	48 hours

10. Spot detail of various joineries/ connections/ finishes etc.
11. Site development and incorporation of services (water supply, Drainages, electricity, telephone, gas pipeline, etc.)

Unit-IV Design Resolution with Synthesis of design parameters - 36 hours

- Methods of specification writing information systems used in working drawings.
- Complete set of Drawing with portfolio
- Structural and Services Resolution of Part (Short Project) including calculations and specifications/ approximate costing

Self-Study:	
Suggested List of Experiments:	
Suggested Case List:	
Suggested Readings/ References:	<ol style="list-style-type: none"> <li>1. Cooper, J., &amp; Beck, H. (2003). Glenn Murcutt: A singular architectural practice. Mulgrave Vic.: Images Publ. Group.</li> <li>2. Hedges, Keith E. Architectural Graphic Standards. John Wiley &amp; Sons Inc., 2017.</li> <li>3. Details in Architecture: Creative Detailing by Some of the World's Leading Architects ; Volume One to Five. Images Pub. Group, 2002.</li> <li>4. Ford, Edward R. The Details of Modern Architecture ; Volume One and Two. MIT Press, 1997.</li> <li>5. Buchanan, Peter. Renzo Piano Building Workshop: Complete Work ; Volume One to Five. Phaidon, 2008.</li> <li>6. Samuel, Flora. Le Corbusier in Detail. Routledge, 2016.</li> <li>7. Brawne, Michael, and Louis I. Kahn. Louis I. Kahn Architecture in Detail. Phaidon Pr, 1992.</li> <li>8. Killory, Christine, and Rene Davids. Detail in Process. Princeton Architectural Press, 2008.</li> <li>9. McLeod, Virginia. Detail in Contemporary Glass Architecture. Laurence King Publishing, 2011.</li> <li>10. Phillips, David, and Megumi Yamashita. Detail in Contemporary Concrete Architecture. Laurence King Pub., 2012.</li> </ol>

## NIRMA UNIVERSITY

<b>Institute:</b>	<b>Institute of Architecture and Planning</b>
<b>Name of Programme:</b>	<b>Bachelor of Architecture</b>
<b>Course Code:</b>	<b>2AR662</b>
<b>Course Title:</b>	<b>History and Theory-VI</b>
<b>Course Type:</b>	Core
<b>Year of introduction:</b>	<b>2021</b>

L	T	Practical component				C
		LPW	PW	W	S	
2	-	-	-	-	-	2

### Course Learning Outcomes (CLO):

At the end of the course, students will be able to -

- Develop architectural design proposal upto the execution stage. [BL2]
- Appraise the importance of construction details, integration of Building services and structures on production drawings [BL5]
- Produce detail drawings necessary for execution at site [BL6]

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

- Synthesize the causes of the post-modern and subsequent design movements
- Emphasize the context through which ideas developed as a consequence of events
- Investigate the architectural design theories developed in the later part of 20<sup>th</sup> and early 21<sup>st</sup> Century

**Content:** 15 weeks (2 hours/week)

**Total Teaching hours: 30 Hrs**

Unit	Content	Teaching hours
Unit-I	Post-modern architecture – <ul style="list-style-type: none"> <li>• Post modern as a response to modern architecture.</li> <li>• Philosophical arguments with the post-modern theory</li> <li>• Major post-modernists and projects</li> </ul>	6 hours
Unit-II	Critical regionalism – <ul style="list-style-type: none"> <li>• Kenneth Frampton’s theory of critical regionalism</li> <li>• Architects and projects related to the movement</li> </ul>	6 hours
Unit-III	Deconstructivism - <ul style="list-style-type: none"> <li>• Theory of deconstructivism as espoused by Jacques Derrida</li> </ul>	6 hours

- Application of deconstructivist theories into architecture
- Work of such architects like Peter Eisenman, Bernard Tschumi, Zaha Hadid, Daniel Libeskind, Coop Himmelblau (firm), Rem Koolhaas, etc.

Unit-IV Contemporary architecture – 6 hours

- Architecture till the contemporary time
- Positions and theories of architecture after deconstructivism
- Parametric architecture, New Urbanism, Landscape urbanism, Computational Design, etc.
- Return to sustainability and building engineering

Unit-V Contemporary architecture of India – 6 hours

- Architecture of India after the modern movement
- Major Indian figures like B. V. Doshi, Charles Correa, Raj Rewal, Laurie Baker, etc.

Self Study:	
Suggested List of Experiments:	
Suggested Case List:	
Suggested Readings/References:	<ol style="list-style-type: none"> <li>1. Fletcher, 1987. Banister. Sir Banister Fletcher's A History of Architecture. London: Butterworths.</li> <li>2. Kostof. Spiro. 1985. A History of Architecture: Setting and Rituals. New York: Oxford UP.</li> <li>3. Tadgell, C. A History of Architecture. London: Ellipsis, 2000</li> <li>4. Tadgell, C. A History of Architecture in India. London: Phaidon Press Limited, 1994</li> <li>5. Ching, Francis D.K. Mark Jarzombek and Vikrmaditya Prakash. 2007. A Global History of Architecture. Hoboken, NJ: J. Wiley &amp; Sons.</li> <li>6. Ward, John B. 1979. History of World Architecture. London: Faber. Print</li> <li>7. Norberg-Schulz, Christian and Pier Luigi Nervi. 1971. History of World Architecture. New York: Abrams.</li> <li>8. Bagenal, Philip. 1980 The Illustrated Atlas of the World's Great Buildings: A History of World Architecture. S.I. : Leisure.</li> <li>9. Fazio, Michael W., Marian Moffett, Lawrence Wodehouse, and Marian Moffett. 2008. A World History of Architecture Boston: McGraw-Hill.</li> <li>10. Moffett, Marian; Fazio, Michael W.; Wodehouse, Lawrence 2003. A World History of Architecture (illustrated ed.). London: Laurence King Publishing.</li> <li>11. Alici, A. (2010). Contemporary architecture. Milan: Motta Architettura.</li> <li>12. Jencks, C. (1991). The language of post-modern architecture. London: Academy Editions.</li> <li>13. Jencks, C. (2002). The new paradigm in architecture: The language of post-modernism. New Haven, CT: Yale University Press.</li> <li>14. Johnson, P., &amp; Wigley, M. (1988). Deconstructivist architecture: The Museum of Modern Art, New York., Boston: Little, Brown and Company.</li> <li>15. Puglisi, L. P. (2008). New directions in contemporary architecture: Evolutions and revolutions in building design since 1988. Chichester, England: Wiley.</li> </ol>

## NIRMA UNIVERSITY

<b>Institute:</b>	<b>Institute of Architecture and Planning</b>
<b>Name of Programme:</b>	<b>Bachelor of Architecture</b>
<b>Course Code:</b>	<b>2AR663</b>
<b>Course Title:</b>	<b>Building Construction &amp; Services</b>
<b>Course Type:</b>	<b>Core</b>
<b>Year of introduction:</b>	<b>2021</b>

L	T	Practical component				C
		LPW	PW	W	S	
1	-	-	-	2	-	3

### Course Learning Outcomes (CLO):

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

- Develop the understanding of advanced building systems BL3
- Apply the understanding of quantity, estimation and costing BL3
- Determine different types of mechanical circulation systems BL6

**Content:** 15 weeks (3 hours/week)

**Total Teaching hours: 45 Hrs.**

Unit	Content	Teaching hours
Unit-I	<ul style="list-style-type: none"> <li>• <b>Building Estimate:</b> Main items and their unit of measurement, methods of Measurement-Methods of estimating quantities, Estimating quantities of building. Estimation of quantity of load bearing structure with single room &amp; two rooms, Estimation of quantity single storied residential building, Estimation of quantity Different R.C.C. structures, Estimation of quantity of water supply and sanitary works, Estimation of quantity of culverts and bridges, Road estimating, Estimation of quantity of Trusses.</li> <li>• <b>Specification:</b> Objectives and importance of specification, Specification of materials, specification of works, specification as per building classification, Language of specific writing.</li> <li>• <b>Market Survey:</b> Traditional and modular materials, Market survey of materials of Construction, Wages of labor, Tools plant and equipment of construction.</li> <li>• <b>Rate Analysis:</b> Prerequisites, factors affecting rate analysis, overhead expenses, procedure for rate analysis, schedule of rates, Task work: labor requirement for different works, material requirement for different works, Rate analysis of different Items of work.</li> <li>• <b>Bill of Quantities (BOQ) :</b> Meaning of Estimating – purpose of estimating –importance and utility of</li> </ul>	25 hours

	<p>estimating – classification of estimate &amp; its utility of good estimator. Considerations underlying the selection of number of lengths, area or volume as the units of measurements for different items. Standard mode of measurement unit of payment – general principles of taking out quantities – methods of taking out quantities – lineout of a small building suitability of methods and its application of preparing estimates. Detailed estimating of buildings. Abstracting-bills of quantities – necessity of bill of quantities – Performance of bill of quantities – preparation of bill of quantities.</p> <ul style="list-style-type: none"> <li>• Rate analysis: Purpose, importance &amp; factor affecting rate analysis</li> <li>• General information regarding S.O.R., B.O.Q. &amp; Specifications</li> </ul>	
Unit-II	<ul style="list-style-type: none"> <li>• <b>Different types of mechanical circulation systems i.e. Escalators, Elevators, Travelator etc.</b></li> <li>• Building Services – Ducts &amp; Vertical Transport systems <ul style="list-style-type: none"> <li>• Electrical &amp; Mechanical services – lift, elevators, conveyors and escalators, etc</li> <li>• Various types of Ducts, Shafts – Fire, Electrical &amp; Plumbing Shafts in Buildings</li> </ul> </li> </ul>	20 hours

Self Study:

Suggested List of

Experiments:

Suggested Case

List:

Suggested

Readings/

References:

1. Riley, M., & Cotgrave, A. (2018). *Construction technology 2: industrial and commercial building*. Bloomsbury Publishing.
2. Singh, G. (2019). *Building Construction and Materials*. Rajsons Publications Pvt. Ltd..
3. Bachmann, Hugo. *Seismic Conceptual Design of Buildings: Basic Principles for Engineers, Architects, Building Owners and Authorities*. Kanpur: National Information Centre of Earthquake Engineering, 2003
4. Barrie, Donald S.. *Professional Construction Management: Including CM, Design-Construct and General Contracting*. New Delhi: McGraw Hill Education India Pvt Ltd, 2013
5. Barry, R. *Construction of Buildings Vol - 5: Building Services: Water, Electricity and Gas Supplies Foul Water Discharge, Refuse Storage*. New Delhi: Affiliated East-West Press Pvt. Ltd., 1999
6. Barry, R.. *Construction of Buildings Vol - 2: Windows, Doors, Fibers, Stairs Finishes*. New Delhi: Affiliated East-West Press

Pvt. Ltd., 1999

7. Brzev, Svetlana. Earthquake Resistant Confined Masonry Construction. Kanpur: National Information Centre of Earthquake Engineering, 2007
8. Callahan, Michael T.. Construction Project Scheduling. New Delhi: McGraw Hill Education India Pvt Ltd, 2014
9. Chitkara, K. K.. Construction Project Management: Planning, Scheduling and Controlling. New Delhi: Tata McGraw-Hill Publishing Company Ltd., 2011
10. Das, P. K.. Introduction to Seismic Safety in Architecture. Maharashtra: National Institute of Advanced Studies in Architecture (NIASA), COA, 2007
11. Gahlot, P. S.. Construction Planning and Management. New Delhi: New Age International (P) Limited, 2014
12. Hinze, Jimmie. Construction Contracts. New Delhi: Tata McGraw Hill Education Private Limited, 2013
13. McLeod, Virginia. Detail In Contemporary Timber Architecture. UK: Laurence King Publishing, 2010
14. Murty, C. V. R.. Earthquake Design Concepts. Kanpur: National Information Centre of Earthquake Engineering, 2006
15. Murty, C. V. R.. Earthquake Rebuilding in Gujarat: An EERI Recovery Reconnaissance Report. Oakland: Earthquake Engineering Research Institute, 2005
16. Paulson, Boyd C.. Computer Applications in Construction. New Delhi: McGraw Hill Education India Pvt Ltd, 2014
17. Peurifoy, Robert. Estimating Construction Costs. New Delhi: Tata McGraw-Hill Publishing Company Ltd., 2011
18. Peurifoy, Robert L.. Construction Planning Equipment and Methods. New Delhi: Tata McGraw Hill Education Private Limited, 2012
19. Phillips, David. Detail In Contemporary Concrete Architecture. UK: Laurence King Publishing Ltd, 2012
20. Punaima, B. C.. Comprehensive Design of Steel Structures. New Delhi: Laxmi Publications Pvt. Ltd., 2012
21. Rangawala, S. C.. Estimating, Costing and Valuation. Anand: Charotar Publishing House, 2012
22. Ruske, Wolfgang. Timber Construction for Trade, Industry, Administration: Basics and Projects. Switzerland: Birkhauser-Publisher of Architecture, 2004
23. Schacher, Tom. Confined Masonry: For One and Two Storey Buildings in Low Tech Environments: A Guide Book for Technicians and Artisans. Kanpur: National Information Centre of Earthquake Engineering, 2009
24. Guidelines for Earthquake Resistant Non Engineered Construction. Kanpur: National Information Centre of Earthquake Engineering, 2004

<b>Institute:</b>	<b>Institute of Architecture and Planning</b>
<b>Name of Programme:</b>	<b>Bachelor of Architecture</b>
<b>Course Code:</b>	<b>2AR664</b>
<b>Course Title:</b>	<b>Environmental Design and GIS Application</b>
<b>Course Type:</b>	Core
<b>Year of introduction:</b>	<b>2021</b>

#### Credit Scheme

L	T	Practical component				C
		LPW	PW	W	S	
1	-	-	-	2	-	3

#### Course Learning Outcomes (CLO):

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

- Identify the role and importance of climate and culture in the built environment. [BL3]
- Develop an understanding of the fundamentals of GIS and work with databases on GIS [BL4]
- Apply climatic, cultural context, and sustainability principles in spatial planning and design of public spaces through field mapping and analysis of real-time sites. [BL3]

**Syllabus:** 15 weeks (3 hours/week)

**Total Teaching hours: 45 Hrs**

Unit	Syllabus	Teaching hours
Unit-I	Introduction to climate, culture and built environment – <ul style="list-style-type: none"> <li>• Elements of climate, Tropics and its Climatic zones</li> <li>• Sun-path in determining the climatic and weather conditions</li> </ul>	3 hours
Unit-II	Sustainability at various scales of urban form <ul style="list-style-type: none"> <li>• Elements and scales of urban form</li> <li>• Emerging climatic challenges and sustainability</li> <li>• Urban landscape and ecology</li> </ul>	6 hours
Unit-III	Social life and the urban built environment <ul style="list-style-type: none"> <li>• Urban public spaces - place, people and activities</li> <li>• Relationship between built and un-built elements to create experiences of the built environment</li> </ul>	6 hours
Unit-IV	GIS Application for Site Planning - Theory <ul style="list-style-type: none"> <li>• Concept and Definition, Components and Functions of GIS</li> <li>• ArcMap, Exploring Graphical User Interface (GUI), Identifying the toolbar and its tools</li> <li>• Understanding Maps and Layers</li> <li>• Understanding Vector and Raster datasets</li> </ul>	10 hours

- Application in site planning and layout specific to contexts

Unit-V GIS Application for Site Planning – Field Study, Analysis and Presentation 20 hours

- Digitization of layers from satellite imagery
- Ground validation from site surveys
- Creating geo-database - attribute tables
- Overlay multidimensional spatial analysis
- Preparing layouts
- Presentation

Self Study:	
Suggested List of Experiments:	
Suggested Case List:	
Suggested Readings/References:	<ol style="list-style-type: none"> <li>1. Alexander, C., Ishikawa, S., Silverstein, M., Jacobson, M., Fiksdahl-King, I., &amp; Shlomo, A. (1977). <i>A pattern language: Towns, buildings, construction</i>.</li> <li>2. Alexander, C, Neis, Hajo; Anninou, Artemis; King, Ingrid. (1985). <i>New Theory of Urban Design</i>. Center for Environmental Structure Series.</li> <li>3. Carmona, Matthew (2010). <i>Public Places Urban Spaces: The Dimensions of Urban Design</i>. Routledge Taylor and Francis Group.</li> <li>4. Carmona, Matthew &amp; Tiesdell, Steve (1980) <i>Urban Design Reader</i>. Architectural Press, Elsevier, USA</li> <li>5. David J Maguire et al, “<i>GIS, Spatial Analysis, and Modelling</i>”, ESRI Press</li> <li>6. Dekay, Mark (2014) “<i>Sun, Wind and Light: Architectural Design Strategies</i>” USA: John and Wiley Sons Inc.</li> <li>7. Gehl, Jan, <i>Life between Buildings</i>, Island Press, 1971</li> <li>8. Lynch, Kevin and Hack, Gary, <i>Site Planning</i>, The MIT Press, 1984</li> <li>9. Mc Harg, I, (1995), <i>Design with Nature</i> (25<sup>th</sup>-anniversary edition), John Wiley and sons</li> <li>10. Mesfin T Bekalo et al, “<i>Landuse Change Detection using GIS, Remote Sensing and Spatial Matrices</i>”, Lap Lambert Academic Publications</li> <li>11. Olgyay, Victor (1963) “<i>Design With Climate – Bio-Climatic Approach to Architectural Regionalism</i>” New Jersey: Princeton University Press</li> <li>12. PA Longley et al, “<i>Geographic Information Systems and Science</i>”, John Wiley and Sons Ltd.</li> <li>13. Reed, Chris and Lister, Nina-Marie (2014), <i>Projective Ecologies</i>. Actar Publishers</li> </ol>

	<p>14. Vastu Shilpa Foundation for Studies and Research in Environmental Design. (1990). <i>A Humane Habitat: Directions for a Code of Planning and Design Practices</i>. Ahmedabad Vastu-Shilpa Foundation.</p> <p>15. Whyte, William H, <i>The Social Life of Small Urban Spaces</i>, Project for Public Spaces, 1980</p>
--	---

1. Agarwal, S.K; and Garg, R.K (eds.), (1988), "*Environmental Issues and Researches in India*", Himanshu Publications, Udaipur
  2. Alexander, Christopher, Neis, Hajo, Anninou, Artemis & King, Ingrid (1979) "*A New Theory of Urban Design*" reprinted 1999, Oxford
  3. du Toit, Jacques Louis & Johann Mouton (2013) "*A typology of designs for social research in the built environment*", International Journal of Social Research Methodology, 16:2, 125-139, DOI: 10.1080/13645579.2012.657013
  4. Carmona, Matthew (2003) "*Public Places Urban Spaces: The Dimensions of Urban Design*" Routledge
  5. Carmona, Matthew (2014) "*Explorations in Urban Design: An Urban Design Research Primer*" Ashgate
  6. Gehl, Jan (2013) "*How to Study Public Life: Methods in Urban Design*" London Island Press
  7. Cuthbert, Alexander (2011) "*Understanding Cities: Methods in Urban Design*" Routledge
  8. Farthing, Stuart (2016) "*Research Design in Urban Planning: A Student's Guide*" SAGE Publications Ltd
  9. Groat, Linda and Wang, David (2002) *Architectural Research Methods*. New York: John Wiley and Sons.
  10. Kumar, Ranjit (2014) "*Research Methodology: A Step-by-Step Guide for Beginners*" Sage Publications Ltd.
  11. Lang, Jon (2005) "*Urban Design: A Typology of Procedures and Products*" Architectural Press.
  12. Lynch, Kevin (1981) "*A Theory of Good City Form*" MIT Press
  13. McHarg, Ian (1992) "*Design with Nature*" 25<sup>th</sup> Anniversary edition. John Wiley and sons.
  14. McGrath, Brian (2008) "*Digital Modelling for Urban Design*" Wiley
  15. Nayak, Dhanwanti (2011) "*Karaoked: Plagiarism in the Classroom*", Economic and Political Weekly, February 26.
  16. Oliveira, Vitor (2016) "*Urban Morphology: An Introduction to the Study of the Physical Form of Cities*" Springer
  17. Oliver, Paul (2010) "*Understanding the Research Process*" Sage Publications India Pvt. Ltd.
  18. O'reilly, Karen (2012) "*Ethnographic Methods*" Routledge
  19. OWL Purdue (n.d.) "*Research and Citation Resources // Purdue Writing Lab*" [https://owl.purdue.edu/owl/research\\_and\\_citation/resources.html](https://owl.purdue.edu/owl/research_and_citation/resources.html)
  20. Piga, Barbara E A, Salemo, Rossella (2017) "*Urban Design and Representation A Multidisciplinary and Multisensory Approach*" Springer
  21. Samuel, Flora (2017) "*Supporting Research in Practice*" The Journal of Architecture, 22:1, pp 4-10.
  22. Smith, Deborah (2003) "*Five Principles of Research Ethics*" American Psychological Association (APA) accessed on 23<sup>rd</sup> January 2023 from <https://www.apa.org/monitor/jan03/principles>
  23. Stahlschmidt, Per, Swaffield, Simon, Primdahl, Jorgen and Nellemann, Vibeke (2017) "*Landscape Analysis: Investigating The Potentials Of Space And Place*" Routledge
  24. Steele, Fritz (1972) "*The Sense of Place*" CBI Publishing Company
- Webster, J and RT Watson (2002) "*Analyzing the past to prepare for the future: Writing a literature review*" MIS Quarterly

## NIRMA UNIVERSITY

<b>Institute:</b>	<b>Institute of Architecture and Planning</b>		
<b>Name of Programme:</b>	<b>Bachelor of Architecture</b>		
<b>Course Code:</b>	<b>2AR665</b>		
<b>Course Title:</b>	<b>Development Control Regulation</b>		
<b>Course Type:</b>	<input checked="" type="checkbox"/> Core		Institute Elective
	<input type="checkbox"/> Value Added Course		University Elective
	<input type="checkbox"/> Departmental Elective		Any other
<b>Year of introduction:</b>	<b>2021</b>		

L	T	Practical component				C
		LPW	PW	W	S	
1	-	-	-	2	-	3

### Course Learning Outcomes (CLO):

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

- Understand the role and function of various statutory bodies responsible in development of a city. BL2
- To learn the process of evolution of building by-laws and zoning regulation. BL2
- To apply zoning regulations and building by-laws in actual design of buildings and layouts. BL3

**Content:** 15 weeks (3 hours/week)  
**hours: 45 Hrs**

**Total Teaching**

Unit	Content	Teaching hours
Unit-I	INTRODUCTION TO BUILDING BYE-LAWS <ul style="list-style-type: none"> <li>• History of building bye-laws, regulations and need for development control guidelines (early post-industrial cities; safety, health and hygiene concerns)</li> <li>• Definitions/ general building requirements &amp; services.</li> <li>• Requirement for parts of the buildings and building services</li> </ul>	6 hours

Unit-II	<b>PLANNING NORMS, STANDARDS AND GUIDELINES</b> <ul style="list-style-type: none"> <li>• Brief introduction to the urban development framework - eg. GTPUDA</li> <li>• Purpose and specifications under Development controls regulations and Zoning guidelines - CGDCR, URDPFI guidelines</li> <li>• General as well as Specific premises - Commercial/ Industrial plots, Transportation (streets, roads, parkings and terminals), Public - Semi Public spaces</li> <li>• Notified Areas, NOCs</li> </ul>	9 hours
Unit-III	<b>CODES AND STANDARDS FOR VARIOUS LAYOUTS, TYPOLOGIES AND BUILDING TYPES –</b> <ul style="list-style-type: none"> <li>• Various provisions and guidelines as per National Building Codes (NBC)</li> <li>• Developing focus on sunlight, ventilation, thermal comfort, drainage, circulation, parking, access of emergency vehicles, universal access, fire safety, disaster resilience and other context specific factors</li> <li>• Site layouts, public infrastructure such as educational institutions and hospitals, parking, streets and roads, common infrastructure, open and recreational spaces</li> <li>• Brief introduction to other regulatory contexts to be considered - RERA, Green building regulations - ECBC, GRIHA rating system, Environmental Clearances (where applicable such as hilly area planning, coastal regulations)</li> </ul>	12 hours
Unit-IV	<b>BUILDING PERMISSIONS -</b> <ul style="list-style-type: none"> <li>• Building permissions and approvals</li> <li>• Signing of Plans, Notice for alterations, Building Permit Fees, Sanctions, Procedures and permissions during Construction works, Connection to the municipal sewer/ water mains, Fire Protection &amp; Fire safety Requirements</li> <li>• Notice for Completion, Completion/ Permission for Occupation, Occupancy/ Part Completion Certificate</li> </ul>	9 hours
Unit-V	<b>CASE STUDIES TO DEMONSTRATE APPLICATION</b> <ul style="list-style-type: none"> <li>• Zoning guidelines for land use distribution</li> <li>• Development controls for site layout</li> <li>• Building codes for typology</li> </ul>	9 hours

Self Study:	
Suggested List of Experiments:	
Suggested Case List:	
Suggested Readings/References:	<ol style="list-style-type: none"> <li>1. Althouse AD, Turnquist CH, Bracciano AF, (1968), <i>Modern refrigeration &amp; Air conditioning Book: theory, practice of refrigeration &amp; air conditioning systems</i> Bureau of Indian Standards, <i>National Building Code of India</i>, 2016</li> <li>2. Gallion, Arthur and Simon, Eisner, <i>Urban Pattern: City Planning and Design</i>, Van Nostrand Reinhold, 1986</li> <li>3. Government of Gujarat, <i>Gujarat Town Planning and Urban Development Act (GTPUDA)</i>, 1976</li> <li>4. Grondzik, W. T., &amp; Kwok, A. G. (2014). <i>Mechanical and electrical equipment for buildings</i>. John Wiley &amp; Sons.</li> <li>5. Howell, Ronald H. &amp; others., (2009), <i>Principles of heating ventilating and air conditioning : a textbook with design data based on the 2009 ASHRAE handbook - fundamentals</i> . Atlanta: American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.</li> <li>6. HW Stanford III, AF Spach , (2019), <i>Analysis &amp; Design of Heating, Ventilation &amp; Air conditioning systems</i>.</li> <li>7. M Karlen, C Spangler, J R Benya , (2017), <i>Lighting design basics</i>.</li> <li>8. H Koster, (2004), <i>Dynamic day lighting architecture: basics, systems and projects</i>.</li> <li>9. Ministry of Housing and Urban Affairs (MoHUA), <i>Urban and Regional Development and Planning Formulation and Implementation Guidelines (URDPFI)</i>, 2015 accessed from <a href="http://mohua.gov.in/upload/uploadfiles/files/URDPFI%20Guidelines%20Vol%20I(2).pdf">http://mohua.gov.in/upload/uploadfiles/files/URDPFI%20Guidelines%20Vol%20I(2).pdf</a> visited on 23<sup>rd</sup> July, 2019</li> <li>10. Prakash, N. Sessa, <i>Manual of Fire Safety</i> .New Delhi: CBS Publishers and Distributors. 2011.</li> <li>11. Roberts, Victor &amp; Krepchin, Ira Eds. (2005), <i>Lighting: Technology Atlas</i>. Colorado: Platts research and consulting.</li> <li>12. Roman Showranek , <i>Basics of building services lighting design</i>.</li> <li>13. Sugarman, S. C. (2015), <i>Testing and balancing HVAC air and water systems</i>. Lulu press, Inc.</li> <li>14. Tomczyk John , Silberstein Eugene, Whitman Bill, Johnson Bill, (2012), <i>Refrigeration &amp; Air conditioning technology</i>.</li> <li>15. Town &amp; Country Planning Organisation; Ministry of Urban Development, <i>Model Building Bye Laws 2016</i>; Govt. Of India 2016</li> <li>16. Urban Development and Urban Housing Department, <i>Comprehensive General Development Control Regulations (GDCR)</i>, 2017 accessed from <a href="https://townplanning.gujarat.gov.in/Documents/Final%20Comprehensive%20General%20Development%20Control%20Regulation-2017%20dt%2012%2010%2017.pdf">https://townplanning.gujarat.gov.in/Documents/Final%20Comprehensive%20General%20Development%20Control%20Regulation-2017%20dt%2012%2010%2017.pdf</a> visited on visited on 23/07/2019</li> <li>17. VP Lang, (1961), <i>Basics of Air conditioning</i>.</li> </ol>

## NIRMA UNIVERSITY

<b>Institute:</b>	<b>Institute of Architecture and Planning</b>
<b>Name of Programme:</b>	<b>Bachelor of Architecture</b>
<b>Course Code:</b>	<b>2AR668</b>
<b>Course Title:</b>	<b>Related Study Programme (RSP)-V</b>
<b>Course Type:</b>	Core
<b>Year of introduction:</b>	<b>2021</b>

L	T	Practical component				C
		LPW	PW	W	S	
-	-	-	-	-	-	4

### Course Learning Outcomes (CLO):

At the end of the course, students will be able to -

- Get exposure to various built environment at different places of architectural relevance across the state, region, country and the world. **[BL3]**
- Apprise the relevance of built environment by observing & photo documentation of selected places. **[BL6]**

**Content: 3 weeks (30 hours / week)**

**Total Teaching hours: 90 Hrs**

Unit	Content	Teaching hours
Unit-I	Multidisciplinary study of parts of urban structures, planning, regulations, building, landscape, conservation issues, study analysis, development proposals – <ul style="list-style-type: none"> <li>• Student and faculty members stay at the selected city/ metro city for 8 to ten days.</li> <li>• Students will get comprehensive awareness of the city/ metro city.</li> <li>• Students will explore the built environment in terms of Social, educational, political institutes, settlement pattern etc.</li> <li>• Students will understand the typology, design style, material-construction system, etc.</li> <li>• Students will also documents the social, cultural, environmental aspects of that city/ metro city</li> </ul>	60 hours
Unit-II	Compilation and documentation – <ul style="list-style-type: none"> <li>• Students came back at institute and make the final Documentation report within remaining days.</li> </ul>	30 hours

## NIRMA UNIVERSITY

<b>Institute:</b>	<b>Institute of Architecture and Planning</b>
<b>Name of Programme:</b>	<b>Bachelor of Architecture</b>
<b>Course Code:</b>	<b>2AR667</b>
<b>Course Title:</b>	<b>Field Studio</b>
<b>Course Type:</b>	Core
<b>Year of introduction:</b>	<b>2021</b>

L	T	Practical component				C
		LPW	PW	W	S	
-	-	-	-	-	-	5

### Course Learning Outcomes (CLO):

At the end of the course, students will be able to -

- Get exposure to various built environment of architectural relevance across the state, region, country and the world. [BL3]
- Design appropriate and innovative Design Solution for environmental, technological, social, economic and cultural context engrained within the context [BL6]

**Content: 4 weeks (30 hours / week)**

**Total Teaching hours: 120 Hrs**

Unit	Content	Teaching hours
Unit-I	<p>Multidisciplinary study of parts of urban structures, planning, regulations, building, landscape, conservation issues, study analysis, development proposals –</p> <ul style="list-style-type: none"> <li>• Student and faculty members stay at the selected city/ metro city for 8 to ten days.</li> <li>• Students will get comprehensive awareness of the city/ metro city.</li> <li>• Students will explore the built environment in terms of Social, educational, political institutes, settlement pattern etc.</li> <li>• Students will understand the typology, design style, material-construction system, etc.</li> <li>• Students will also documents the social, cultural, environmental aspects of that city/ metro city</li> </ul>	60 hours
Unit-II	<p>Compilation and documentation –</p> <ul style="list-style-type: none"> <li>• Students came back at institute and make the final Documentation report within remaining days.</li> </ul>	20 hours
Unit-III	<p>Identify and formulate design project based on concerns and issues –</p> <p>Students define design intervention of varied nature like commercial, institutional, mass housing, recreational, transportation, entertainment, etc.</p> <p>Students realise their own design capacity, capability and inclination and choose/select their design project based on that.</p> <p>Site selection/identification based on typical characteristics of the site or location in the region, city, etc.</p>	40 hours

## NIRMA UNIVERSITY

<b>Institute:</b>	<b>Institute of Architecture and Planning</b>
<b>Name of Programme:</b>	<b>Bachelor of Architecture</b>
<b>Course Code:</b>	<b>2ARS601</b>
<b>Course Title:</b>	<b>Social Work/ NSS</b>
<b>Course Type:</b>	Value Added Course
<b>Year of introduction:</b>	<b>2023</b>

**This course can be taken as a Block or as a 7-day residential camp of minimum 30 hours**

### Credit Scheme

L	T	Practical component				C
		LPW	PW	W	S	
-	-	-	-	2	-	-

### Course Learning Outcomes (CLO):

At the end of the course, students will be able to -

1. Become aware of the role and need of social work in the society **B2**
2. Appraise the methods and techniques of social work and its practice **B5**
3. Develop awareness and participate in social welfare work towards society development **B6**

**Syllabus:** 15 weeks (2 hours/week)

**Total Teaching hours: 30 Hrs**

Unit	Syllabus	Teaching hours
Unit-I	Understanding social in social work – <ul style="list-style-type: none"> <li>• Sensitive to the needs of different people within the society and to social problems in changing social, cultural and techno-economic context;</li> </ul>	10 Hours
Unit-II	Social work as a practice – <ul style="list-style-type: none"> <li>• To inculcate in the need for inquiring and research to understand the social issues/ problems within a context</li> <li>• Develop problem solving and decision making abilities for relevant concerns through the medium of social work as a practice</li> </ul>	20 Hours

Suggested Readings/ References:	<ol style="list-style-type: none"> <li>1. Banks, S. (1995). Ethics and Values in Social Work: Practical Social Work Series, London: Macmillan Press Ltd.</li> <li>2. Friedlander, Walter A. (1977) Concepts and Methods of Social Work, New Delhi: Prentice Hall of India Pvt. Ltd</li> <li>3. Heun, Linda R., Heun, Richard E. (2001) Developing Skills for Human Interaction, London: Charles E. Merrill Co.</li> <li>4. Skidmore, Rex A.(1982), Introduction to Social Work, New Jersey, Thackeray, Milton G. Prentice-Hall, Englewood Cliffs.</li> <li>5. Surendra Singh (Chief Editor). (2012): Encyclopedia of Social Work in India. Lucknow: New Royal Book Company.</li> </ol>
---------------------------------	--

