

NIRMA UNIVERSITY

Institute:	Institute of Architecture and Planning
Name of Programme:	Bachelor of Architecture
Year of introduction:	2021

INSTITUTE OF ARCHITECTURE and PLANNING NIRMA UNIVERSITY									
<u>TEACHING AND EXAMINATION SCHEME FOR SEMESTER III - 2021 onwards</u>									
Name of the Programme: Bachelor of Architecture									
<u>SEMESTER III</u>									
Course Code	Name of the Course	Teaching Scheme				Scheme of Examination			
		Hours/Week			Credit	Hours	Component Weightage		
		L	W	S			SEE	SEE	CE
CORE COURSES									
2AR381	Architectural Design Studio - III	-	-	12	12	-	-	0.5	0.5
2AR382	History & Theory -III	2	-	-	2	3	0.3	0.5	0.2
2AR383	Building Construction & Technology - III	2	2	-	4	3	0.3	0.5	0.2
2AR384	Architectural Graphics Skills & Representation- III	1	2	-	3	-	-	0.5	0.5
2AR385	Structure - III	1	2	-	3	3	0.3	0.5	0.2
2AR386	Environmental Science & Services - I	1	1	-	2	3	0.3	0.5	0.2
2AR387	Introduction to Ecology and Landscape	2	1	-	3	-	-	0.5	0.5
2AR388#	Related Study Programme - II#	-	-	-	3#	-	-	-	1
Total		9	8	12	29/ 32#				
#4 RSP is to be completed during the entire duration of B.Arch programme out of which 2 RSP is to be completed before registration in Semester VII and remaining 2 RSP up to Semester X.									
ELECTIVE COURSES									
Course Code	Course Name	L	T	P	C	SEE	SEE	CE	LPW
Yet to be decided	University Elective	3	-	-	3	-	0.4	0.6	-
\$ Credit of RSP will be given to those students who registers for RSP in the respective semester									
SUPPLEMENTARY COURSES									
Course Code	Course Name	L	W	S	C	SEE	SEE	CE	LPW
2ARS301	Social Work	-	2	-	-	-	-	-	1
2ARS302	Photography	-	2	-	-	-	-	-	1
L: Lecture T: Tutorial P: Practical W: Workshop S: Studio C: Credit									
CE: Continuous Evaluation, LPW: Lab/Project/Studio Work, SEE: Semester End Examination									
University Elective Courses:									

NIRMA UNIVERSITY

Institute:	Institute of Architecture and Planning		
Name of Programme:	Bachelor of Architecture		
Course Code:	2AR381		
Course Title:	Architectural Design Studio - III		
Course Type:	<input type="checkbox"/> Core	<input type="checkbox"/>	Institute Elective
	<input type="checkbox"/> Value Added Course	<input type="checkbox"/>	University Elective
	<input type="checkbox"/> Departmental Elective	<input type="checkbox"/>	Any other
Year of introduction:	2021		

Credit Scheme

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

Course Learning Outcomes (CLO):

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

- Compare the design and structural principle form natural object.
- Analyze and inspire design and principles of design from nature
- Explore the inspiration from nature for design with material understanding.
- Create, from the above exercise, into design, construction for manmade proposal.

Syllabus: 15 weeks (12 hours/week)

Total Teaching hours: 180 Hrs

Unit	Syllabus	Teaching hours
Unit-I	Preparatory exercises/ Programmatic and site analysis – <ul style="list-style-type: none"> • Part – Whole relationship – Back and forth design processes • Exposure to materials, products, assembly constructional principles. • Site Analysis • Site location or context (Inside city/outside city) • Culture and Socio-economic condition • Climate and Topography • Built/open relation • Distribution of open space/green space • Focused on understanding the interrelationship between some of the fundamental aspects of architecture. • Design processes as an understanding of expression of nature/ establishing relationship with nature 	30 hours
Unit-II	Conceptual stage and Schematic design – <ul style="list-style-type: none"> • Explore the relationship between ‘order of structure’ and ‘order of space’. Structure is one of the important factors directly affecting the experience of space. 	47 hours

- Explore the importance of coherence between the rhythms of structure and space.
- Unit-III Preliminary design to Design development – 65 hours
- Understand the relation between various scales of space, forming a rhythm.
 - Create a coherent experience, it is important to know how to work with dimensional order which act as a unifying thread creating the consistency between the small and the big.
 - Application to know dynamics between different kinds of forces and material properties, which play an important role in constructing structures.
 - Correlation between material, structure and form
- Unit-IV Design Resolution with Synthesis of design parameters – 38 hours
- Explore the light as an animator of static space. It has a major influence on the experience of space.
 - Explore the ways of taking different kinds of light to enrich the experience.
 - Application and representation of concept and ideas

Self Study:	
Suggested List of Experiments:	
Suggested Case List:	
Suggested Readings/References:	<ol style="list-style-type: none"> 1. Ching, Francis D. K. Architecture--form, Space, & Order. Hoboken, NJ: John Wiley & Sons, 2007. Print. 2. Pollio, Vitruvius, and M. H. Morgan. Vitruvius: The Ten Books on Architecture. New York: Dover Publications, 1960. Print. 3. Ching, Francis D. K. Architecture, Form, Space & Order. New York: Van Nostrand Reinhold, 1979. Print. 4. Curtis, Nathaniel Cortlandt. Architectural Composition. Cleveland, O.: J.H. Jansen, 1923. Print. 5. Hardy, Adam. Indian Temple Architecture: Form and Transformation: The Karnāṭa Drāviḍa Tradition, 7th to 13th Centuries. New Delhi: Indira Gandhi National Centre for the Arts, 1995. Print. 6. Dodds, George, Robert Tavernor, and Joseph Rykwert. Body and Building: Essays on the Changing Relation of Body and Architecture. Cambridge, MA: MIT, 2002. Print. 7. Ching, Francis D. K., Barry Onouye, and Douglas Zuberbuhler. Building Structures Illustrated. Print. 8. Field, M. City Architecture; Or, Designs for Dwelling Houses, Stores, Hotels, Etc. In 20 Plates. With Descriptions and an Essay on the Principles of Design. New-York: D. Appleton, 1854. Print. 9. Yacobi, Haim. Constructing a Sense of Place: Architecture

	<p>and the Zionist Discourse. Aldershot, Hants, England: Ashgate, 2004. Print.</p> <p>10. Johnson, Paul-Alan. <i>The Theory of Architecture: Concepts, Themes & Practices</i>. New York: Van Nostrand Reinhold, 1994. Print.</p> <p>11. Corbusier, Le, and Frederick Etchells. <i>Towards a New Architecture by Le Corbusier</i>. London: Architectural Pr., 1965. Print.</p> <p>12. Allen, Edward. <i>How Buildings Work: The Natural Order of Architecture</i>. New York: Oxford UP, 1980. Print.</p> <p>13. Pallasmaa, Juhani. <i>The Thinking Hand: Existential and Embodied Wisdom in Architecture</i>. Chichester, U.K.: Wiley, 2010. Print.</p> <p>14. Rich, Peter Maurice., and Yvonne Dean. <i>Principles of Element Design</i>. Oxford: Aechitectoral, 1999. Print.</p> <p>15. Kostof, Spiro. <i>A History of Architecture: Settings and Rituals</i>. New York: Oxford UP, 1985. Print.</p> <p>16. Wittkower, Rudolf. <i>Architectural Principles in the Age of Humanism</i>. New York: W.W. Norton, 1971. Print.</p> <p>17. Corbusier, Le, Stanislaus Von. Moos, Arthur Rüegg, and Robert Venturi. <i>Le Corbusier before Le Corbusier: Applied Arts, Architecture, Interiors, Painting, and Photography, 1907-1922: Exhibition Guide</i>. New York: Bard Graduate Center for Studies in the Decorative Arts, Design, and Culture, 2002. Print.</p>
--	--

NIRMA UNIVERSITY

Institute:	Institute of Architecture and Planning		
Name of Programme:	Bachelor of Architecture		
Course Code:	2AR382		
Course Title:	History & Theory - III		
Course Type:	<input type="checkbox"/>	Core	Institute Elective
	<input type="checkbox"/>	Value Added Course	University Elective
	<input type="checkbox"/>	Departmental Elective	Any other
Year of introduction:	2021		

Credit Scheme

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:

- Demonstrate the understanding of architecture and urban form in settlements of medieval period
- Analyse the processes and causes that led to the creation of the architecture of an era
- Interpret the impact of factors that shape architecture within a culture
- Assess the impact of technology on the architecture

Syllabus: 15 weeks (2 hours/week)

Total Teaching hours: 30 Hrs

Unit	Syllabus	Teaching hours
Unit-I	Early Christian Architecture – <ul style="list-style-type: none"> • Emergence of early Christian architecture towards the end and the fall of Roman empire and its development into Byzantine architecture 	4 hours
Unit-II	Romanesque & Byzantine – <ul style="list-style-type: none"> • Romanesque & Byzantine Architecture as the evolution of artisanal craft and structural principal 	6 hours
Unit-III	Gothic – <ul style="list-style-type: none"> • The progress of technology, civilization and philosophy to create the architecture of the Gothic era 	8 hours
Unit-IV	Renaissance – <ul style="list-style-type: none"> • Renaissance in Europe. Early renaissance to high renaissance. Urban structure and space, institute form as expression of abstract ideals (work of architects like Brunelleschi, Bramante, Michael Angelo etc.) 	8 hours
Unit-V	Baroque and Rococo – <ul style="list-style-type: none"> • Mannerism/ Late Renaissance as influenced by and a reaction to the ideals of the Renaissance architecture continuing to develop into Baroque and Rococo 	4 hours

Self Study:	
Suggested List of Experiments:	
Suggested Case List:	
Suggested Readings/ References:	<ol style="list-style-type: none"> 1. Lowry.B.(1987). Renaissance architecture. New York: Braziller. 2. Wittkower.R.(1998). Architectural principles in the age of humanism. Chichester, West Sussex Academy Editions 3. V.I.Atroshenko and Judith Collins, 1985, The Origins of the Romanesque. (Lund Humpheries, London 4. Fletcher, 1987. Banister. Sir Banister Fletcher’s A History of Architecture. London: Butterworths. 5. Kostof. Spiro. 1985. A History of Architecture: Setting and Rituals. New York: Oxford UP. 6. Joachim E. Gaehde. 1989. “Pre-Romanesque Art”. Dictionary of the Middle Ages 7. Tadgell, Christopher. A History of Architecture. London: Ellipsis, 2000. 8. Ching, Francis D.K. Mark Jarzombek and Vikrmaditya Prakash. 2007. A Global History of Architecture. Hoboken, NJ: J. Wiley & Sons. 9. Ward, John B. 1979. History of World Architecture. London: Faber. Print 10. Norberg-Schulz, Christian and Pier Luigi Nervi. 1971. History of World Architecture. New York: Abrams. 11. Bagenal, Philip. 1980 The Illustrated Atlas of the World’s Great Buildings: A History of World Architecture. S.I.: Leisure. 12. Fazio, Michael W., Marian Moffett, Lawrence Wodehouse, and Marian Moffett. 2008. A World History of Architecture Boston: McGraw-Hill. 13. Browne, Edith A. 2005. Romanesque Architecture. Kessinger Publishing 14. Graber, O.1980. “Kubbat al-Sakhra”. In Bosworth, C.E.; van Donzel, E.; Lewis, B.; et al. The Encyclopedia of Islam, Volume 2, Part -1 (new ed.). Leiden: E.J.Brill. 15. Hillenbrand, Robert 1994. Islamic Architecture: Form, Function, and Meaning. New-York: Columbia University Press. 16. Willis, R. 1835. Remarks on the Architecture of

	<p>the Middle Ages, Especially of Italy. Cambridge: The Pitt Press.</p> <p>17. Moffett, Marian; Fazio, Michael W.; Wodehouse, Lawrence 2003. A World History of Architecture (illustrated ed.). London: Laurence King Publishing.</p> <p>18. Krautheimer, Richard. 1986. Early Christian and Byzantine Architecture (4 ed.). Yale University Press</p> <p>19. Jones. Tom Devonshire; Murray, Linda; Murray. Peter, eds. 2013. The Oxford Dictionary of Christian Art and Architecture (illustrated ed.) Oxford University Press.</p> <p>20. Braun, Hugh, An Introduction to English Mediaeval Architecture, London: Faber and Faber. 1951.</p> <p>21. Watkin, David. Sep 2005. A History of Western Architecture, Hali Publications</p> <p>22. Kubach, Hans Erich: Romanesque Architecture, 1988.</p>
--	---

NIRMA UNIVERSITY

Institute:	Institute of Architecture and Planning		
Name of Programme:	Bachelor of Architecture		
Course Code:	2AR383		
Course Title:	Building Construction & Technology - III		
Course Type:	<input type="checkbox"/>	Core	Institute Elective
	<input type="checkbox"/>	Value Added Course	University Elective
	<input type="checkbox"/>	Departmental Elective	Any other
Year of introduction:	2021		

Credit Scheme

L	T	Practical component				C
		LPW	PW	W	S	
2	-	-	-	2	-	4

Course Learning Outcomes (CLO):

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

- Demonstrate basic principles for planning, design and construction of Floors, RCC frame structure and Openings as used in buildings.
- Apply requirement and criteria for making openings to build openings with various materials and techniques.
- Illustrate an understanding and explaining the principles of spanning system and their application.

Syllabus: 15 weeks (4 hours/week)

Total Teaching hours: 60 Hrs

Unit	Syllabus	Teaching hours
Unit-I	Understanding Floor Systems – <ul style="list-style-type: none"> • Understanding construction of wooden, steel, precast and RCC floor. • Various elements of floors: beams, slab, girders etc. <ul style="list-style-type: none"> • Types of floors: Flat slab, ribbed, metal deck, precast, etc. 	16 hours
Unit-II	Introduction to RCC Framed structure – <ul style="list-style-type: none"> • Understanding construction of RCC frame structure with all components like footing, columns, beams, slabs, infill walls etc. 	12 hours
Unit-III	Introduction to Materials and its properties – <ul style="list-style-type: none"> • Metal: Properties and use of both ferrous and non-ferrous metals. • Glass and glass products: Manufacturing of glass, types of glass and their utilisation, etc 	12 hours
Unit-IV	Doors and windows – <ul style="list-style-type: none"> • Understanding requirements, use and construction of openings (doors and windows) with timber, metal, PVC etc. • Components, assembly and manufacturing of doors and 	20 hours

windows based on material and system.

- Planning and design criteria related to openings.

Self Study:	
Suggested List of Experiments:	
Suggested Case List:	
Suggested Readings/ References:	<ol style="list-style-type: none">1. Kotadiya A. S.. Building Construction. : Mahajan Publishing, 20142. Barry, R. Construction of Buildings Vol - 3: Single Storey Frames, Shells and Lightweight Coverings. New Delhi: Affiliated East-West Press Pvt. Ltd., 19993. Barry, R. Construction of Buildings Vol - 4: Multi-Storey Buildings, Foundation and Substructures, Structural Steel Frames, External Walls and Cladding of Framed Buildings. New Delhi: Affiliated East-West Press Pvt. Ltd., 19994. Barry, R.. Construction of Buildings Vol - 1: Foundations and Oversite Concrete, Walls, Floors, Roofs. New Delhi: Affiliated East-West Press Pvt. Ltd., 19995. Barry, R.. Construction of Buildings Vol - 2: Windows, Doors, Fibers, Stairs Finishes. New Delhi: Affiliated East-West Press Pvt. Ltd., 19996. Levy, Matthys. Why Buildings Fall Down: How Structures Fail. New York: W. W. Norton and Co., 20027. McKay J. K.. Building Construction Vol - 2: Metric. Delhi: Pearson Education Asia Pte. Ltd., 20148. McKay, J. K.. Building Construction Vol - 3: Metric. Delhi: Pearson Education Pte. Ltd., 20139. McKay, J. K.. Building Construction Vol - 4: Metric. Delhi: Pearson Education Pte. Ltd., 201310. Mckay, W. B.. Building Construction Vol - 1: Metric. New Delhi: Pearson Education Asia Pvt. Ltd.; India, 201311. Rangawala, S. C.. Building Construction. Anand: Charotar Publishing House, 201412. Rangwala, S. C.. Surveying and Leveling. Anand: Charotar Publishing House, 2011

NIRMA UNIVERSITY

Institute:	Institute of Architecture and Planning		
Name of Programme:	Bachelor of Architecture		
Course Code:	2AR384		
Course Title:	Architectural Graphic Skills & Representation– III		
Course Type:	<input checked="" type="checkbox"/> Core	<input type="checkbox"/>	Institute Elective
	<input type="checkbox"/> Value Added Course	<input type="checkbox"/>	University Elective
	<input type="checkbox"/> Departmental Elective	<input type="checkbox"/>	Any other
Year of introduction:	2021		

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:

- Utilize two-dimensional digital software
- Maximize possibilities of representation on an analytical level.
- Imagine and illustrate complex forms using software and will be able to manifest it in a physical model.

Syllabus: 15 weeks (3 hours/week)

Total Teaching hours: 45 Hrs

Unit	Syllabus	Teaching hours
Unit-I	Representation Techniques using drafting software – <ul style="list-style-type: none"> • Fundamentals of Drafting softwares (Setting up Scale & Units, Working With Layers, Line weights, Composition of different scaled drawings in single sheet, Plotting etc) • Advanced Geometry, Pattern making and analysis • Uses of computer generated drawings to execute basic design ideas (Physical model & Drawings) 	15 hours
Unit-II	Understanding a complex forms & Surfaces – <ul style="list-style-type: none"> • Understand and learn modelling software • Loft, sweep, Doubly curved surfaces • Interpenetrations of Solids (Interpenetrations of Flat & Curved Surfaces, Interpenetrations of solid forms) • Multiple Section Method (Digital model, Physical model & Drawings) 	20 hours
Unit-III	Representation Techniques using other software – <ul style="list-style-type: none"> • Illustrate digital representation by using graphic based softwares 	10 hours

- Understanding difference between Raster & vector base software
- Exploring the ideas of rendering, composing and compiling architectural work.

Self Study:	
Suggested List of Experiments:	
Suggested Case List:	
Suggested Readings/ References:	<ol style="list-style-type: none"> 1. Botello, C. (2011). <i>Adobe Illustrator CS5 illustrated</i>. Boston: Cengage Learning. 2. Farrelly, L. (2008). <i>Representational techniques</i>. Lausanne: AVA Book. 3. Helsel, J. D. (2007). <i>Engineering drawing and design</i>. Place of publication not identified: Glencoe McGraw-Hill Post. 4. John, E. (2013). <i>CAD fundamentals for architecture</i>. London: Laurence King Publishing. 5. Onstott, S. (2011). <i>Enhancing architectural drawings and models with photoshop</i>. San Francisco: Wiley Pub. 6. Onstott, S. (2012). <i>AUTOCAD 2013 AND AUTOCAD LT 2013: ESSENTIALS</i>. Hoboken, NJ: John Wiley & Sons. 7. Pottmann, H., Asperl, A., Hofer, M., & Bentley, D. (2009). <i>Architectural geometry</i>. Exton: Bentley Institute Press.

NIRMA UNIVERSITY

Institute:	Institute of Architecture and Planning											
Name of Programme:	Bachelor of Architecture											
Course Code:	2AR385											
Course Title:	Structure III											
Course Type:	<table border="1" style="width: 100%;"> <tr> <td style="width: 33%;"><input type="checkbox"/> Core</td> <td style="width: 33%;"><input type="checkbox"/> Institute Elective</td> <td style="width: 33%;"></td> </tr> <tr> <td><input type="checkbox"/> Value Added Course</td> <td><input type="checkbox"/> University Elective</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Departmental Elective</td> <td><input type="checkbox"/> Any other</td> <td></td> </tr> </table>	<input type="checkbox"/> Core	<input type="checkbox"/> Institute Elective		<input type="checkbox"/> Value Added Course	<input type="checkbox"/> University Elective		<input type="checkbox"/> Departmental Elective	<input type="checkbox"/> Any other			
<input type="checkbox"/> Core	<input type="checkbox"/> Institute Elective											
<input type="checkbox"/> Value Added Course	<input type="checkbox"/> University Elective											
<input type="checkbox"/> Departmental Elective	<input type="checkbox"/> Any other											
Year of introduction:	2021											

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:

- Develop to gain understanding by using the abstract method of analysis of structures
- Evaluate and develop understanding of basic requirement of stability and strength of materials.
- Evaluate and infer structural elements and their significance in Structural System.

Syllabus: 15 weeks (3 hours/week)

Total Teaching hours: 45 Hrs

Unit	Syllabus	Teaching hours
Unit-I	Concept of Centre of gravity – <ul style="list-style-type: none"> • Determining the centroid of simple figures. • Moment of inertia, its application to sections subjected to bending, determining M.I. of simple and compound sections 	9 hours
Unit-II	Resolution of forces – <ul style="list-style-type: none"> • Concept of triangulation and its application in pin jointed trusses • Assumption in strength of materials, basic terminology, brief history of strength of materials. • Concept & importance of the shear force and the bending moment. • Pure Bending stress & combined direct and bending stresses 	12 hours
Unit-III	Stability, buckling of columns – <ul style="list-style-type: none"> • Short and long columns • Deflection and its importance, code provisions, study of the deflected shape of simple structures. • Solutions of problems. 	10 hours

Unit-IV Concept of shear stress – 10 hours

- Average and maximum shears stress.
- Horizontal shear stress and its variation across the cross section of the beam

Unit- V Composite sections – 4 hours

- Sections made up of more than one material

Self Study:	
Suggested List of Experiments:	
Suggested Case List:	

NIRMA UNIVERSITY

Institute:	Institute of Architecture and Planning		
Name of Programme:	Bachelor of Architecture		
Course Code:	2AR386		
Course Title:	Environmental Science & Services – I		
Course Type:	<input type="checkbox"/>	Core	Institute Elective
	<input type="checkbox"/>	Value Added Course	University Elective
	<input type="checkbox"/>	Departmental Elective	Any other
Year of introduction:	2021		

Credit Scheme

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

Course Learning Outcomes (CLO):

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

- Explain and relate the role and importance of climate as one of the major determinants of built form.
- Identify and interpret the implication of climate as modifying factor of built environment.
- Comprehend various climate-controlling devices.

Syllabus: 15 weeks (2 hours/week)

Total Teaching hours: 30 Hrs

Unit	Syllabus	Teaching hours
Unit-I	Introduction to climatology – <ul style="list-style-type: none"> • Elements of climate Solar Geometry its effect & importance • Built environment, conditions, impact and issues of climatic balance in traditional/ vernacular and contemporary built environments. • Study of Passive Environmental Control Mechanisms • Tropics and its Climatic zones • Macro and Micro Climate (site climate). • Implications of climatic forces in nature of spaces and forms, patterns of organization, & elements of built form at individual building & collective form 	18 hours
Unit-II	Thermal Comfort – <ul style="list-style-type: none"> • Understanding of human body's comfort level. • Thermal comfort indices • Defining Comfort, Comfort zone & scale. • Different way of heat gain in the building. • Behavior & properties of material/s • Psychometrics study and analysis. Studies through built environment, case analysis, theory and its application, models and testing. 	12 hours

Self Study:	
Suggested List of Experiments:	
Suggested Case List:	
Suggested Readings/References:	<ol style="list-style-type: none"> 1. Ahluwalia, V K. Environmental Science. New Delhi : The Energy and resources Institute, 2015. Print. 2. Koenigsberger, Ingersoll, Mayhew, Szokolay, Manual of Tropical Housing & Building, Hyderabad: Universities Press, March 2010 3. Krishan A, Baker, Climate Responsive Architecture: Tata McGraw-Hill Education (Asia) Co. & China Architecture & Building Press, 2004/2005 4. Kukreja. C P, Tropical Architecture: Tata McGraw-Hill Publishing Company, 1978 5. Shah. M G, Padki. S Y, Kale, C M, Building Drawing: with an integrated approach to built environment, New Delhi: Tata McGraw-Hill Education, 2002 6. Dekay, Mark, Sun, Wind, And Light: Architectural Design Strategies. USA: John and Wiley Sons, Inc., 2014 7. Olgay, Victor. Design With Climate – Bio-Climatic Approach to Architectural Regionalism. New Jersey: Princeton University Press, 1963 8. Tipnis, Aishwarya. Vernacular Traditions- Contemporary Architecture. New Delhi: The Energy and resources Institute, 2012, Print. 9. Nayak, J K. Hazra, R . Prajapati, J. Manual On Solar Passive Architecture. New Delhi: Solar Energy Centre, MNES, Gov. Of India, 1999 10. Galloe, Salam and Sayigh A.M.M. Architecture, Comfort and Energy, U.K : Elsevier Science Ltd., Oxford, 1998 11. B. Givoni. Passive and Low Energy Cooling of building, New York: Van Nortrand Reinhold, 1994 12. B. Givoni. Man, Climate and Architecture, Architectural Sciences Series – applied, London: Science Publishers Ltd., 1981 13. Martin Evans , Housing Climate and Comfort, London : Architectural Press, 1980 14. Passivhaus Designer's Manual: A Technical Guide to Low and Zero Energy Buildings: Routledge Taylor & Francis Ltd. 15. Oliver, Paul. Built to meet needs: cultural issues in vernacular architecture: Burlington, Elsevier. 2006 16. Majmudar, Mili. Energy Efficient Building in India. New Delhi: The Energy and resources Institute. 17. Bansal, K N. Mathur, Jyotirmay & Rndall, McMullen. Energy 18. Efficient Window Book. 19. Laureano. Water conservation techniques in traditional human settlements. Ghaziabad: Copal, 2013

	<p>20. Chawla, Shashi .Textbook of Environmental Studies .New Delhi:Tata McGraw Hill Education Private Limited,2013</p> <p>21. Rajagopalan, R. .Environmental Studies: From Crisis to Cure .New Delhi:Oxford University Press,2011</p> <p>22. Desai, Madhavi .Traditional Architecture: House From of the Islamic Community of Bohras in Gujarat .Maharashtra:National Institute of Advanced Stuides in Architecture (NIASA), COA,2007</p>
--	--

NIRMA UNIVERSITY

Institute:	Institute of Architecture and Planning		
Name of Programme:	Bachelor of Architecture		
Course Code:	2AR387		
Course Title:	Introduction to Ecology and Landscape		
Course Type:	<input type="checkbox"/> Core	<input type="checkbox"/>	Institute Elective
	<input type="checkbox"/> Value Added Course	<input type="checkbox"/>	University Elective
	<input type="checkbox"/> Departmental Elective	<input type="checkbox"/>	Any other
Year of introduction:	2021		

Credit Scheme

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

Course Learning Outcomes (CLO):

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

- Develop an understanding of basic concepts of landscape systems
- Understand ecological issues pertaining to human settlements and design interventions
- Learn about major ideas of natural selection, ecology, community, biodiversity, climate change and sustainability

Syllabus: 15 weeks (3 hours/week)

Total Teaching hours: 45 Hrs

Unit	Syllabus	Teaching hours
Unit-I	Introduction to Ecology – <ul style="list-style-type: none"> • Discussion and discourse on assessing the Value of Ecosystem and Ecosystem Services 	6 Hours
Unit-II	Interaction in Ecological community – <ul style="list-style-type: none"> • Time problem – Based on population and prediction of change over time – assess the prediction based on based on their ecological logic and feasibility. 	6 Hours
Unit-III	Ecological cycle – <ul style="list-style-type: none"> • Inter-relationships between ecological cycles • Discuss how ecological flows are inter-related and compare and contrast different ways of representing information on a concept map. 	9 Hours
Unit-IV	Impact of Architectural Design on sustainability – <ul style="list-style-type: none"> • Exploring Building Life Cycle Assessment through digital and physical models 	6 Hours
Unit-V	Introduction to Landscape – <ul style="list-style-type: none"> • Definitions of Landscape terminologies • Elements of Landscape: Natural / Manmade. (Lightening, Paving, Fencing & Edging, Stones, Wood, Plants, water, Landform, Timber, Metal, Glass). 	9 hours

Unit- VI	<p>Understanding the Site, Role of Vegetation & Planting –</p> <ul style="list-style-type: none"> • Introduction to site features, topography / Land Forms, Wind flow, Air quality, Hydrology, climate and vegetation • Understanding TREE Architecture / FORM- Identification, botanical, common name, type, native- exotic, Span, height, girth, Life, Purpose, Flowering & fruiting season/ colour, etc., climatic consideration 	9 hours
-------------	---	---------

Self Study:	
Suggested List of Experiments:	
Suggested Case List:	
Suggested Readings/ References:	<ol style="list-style-type: none"> 1. Samuelson P, Nordhaus W, <i>Economics</i>, McGraw Hill Education (India) Pvt.Ltd., New Delhi, 2010 2. Samuelson P, Nordhaus, <i>MicroEconomics</i>, McGraw Hill Education (India) Pvt.Ltd., New Delhi, 2013 3. Deodhar S, <i>Day to Day Economics</i>, Random House India, Gurgaon, 2012 4. Mankiw, N. G. <i>Principles of Economics</i> (Sixth ed.). Cengage Learning. 2012. 5. Musgrave and Musgrave <i>Public Finance in Theory and Practice</i> McGraw Hill Education (India) Pvt.Ltd., New Delhi. 2004.

NIRMA UNIVERSITY

Institute:	Institute of Architecture and Planning											
Name of Programme:	Bachelor of Architecture											
Course Code:	2AR388											
Course Title:	Related Study Programme (RSP)-II											
Course Type:	<table border="1" style="width: 100%;"> <tr> <td style="width: 33%;"></td> <td style="width: 33%;">Core</td> <td style="width: 33%;">Institute Elective</td> </tr> <tr> <td></td> <td>Value Added Course</td> <td>University Elective</td> </tr> <tr> <td></td> <td>Departmental Elective</td> <td>Any other</td> </tr> </table>		Core	Institute Elective		Value Added Course	University Elective		Departmental Elective	Any other		
	Core	Institute Elective										
	Value Added Course	University Elective										
	Departmental Elective	Any other										
Year of introduction:	2021											

Credit Scheme

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

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.
- Apprise the relevance of built environment by observing & photo documentation of selected places.

Syllabus: 3 weeks (30 hours / week)

Total Teaching hours: 90 Hrs

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

NIRMA UNIVERSITY

Institute:	Institute of Architecture and Planning		
Name of Programme:	Bachelor of Architecture		
Course Code:	2ARS301		
Course Title:	Social Work		
Course Type:	<input type="checkbox"/>	Core	Institute Elective
	<input checked="" type="checkbox"/>	Value Added Course	University Elective
	<input type="checkbox"/>	Departmental Elective	Any other
Year of introduction:	2021		

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:
Understand social work role and develop the knowledge and theory associated with social work practice • Work with NGO's & participate in social welfare work towards society development.

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

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

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

NIRMA UNIVERSITY

Institute:	Institute of Architecture and Planning		
Name of Programme:	Bachelor of Architecture		
Course Code:	2ARS302		
Course Title:	Photography		
Course Type:		Core	Institute Elective
		Value Added Course	University Elective
		Departmental Elective	Any other
Year of introduction:	2021		

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. Know about other equipment (Filters, Exposer Meter) apart from Camera used in Photography.
2. Learn about photographic processes to be followed within various contexts.
3. Selecting and Editing of Photos for various subjects.

Syllabus: 15 weeks (2 hours/week)

Total Teaching hours: 30 Hrs

Unit	Syllabus	Teaching hours
Unit-I	Understanding of Photography Equipment (Electronic Light & Light Meter) – <ul style="list-style-type: none"> • Studio Lights for Various Photo shoot • Camera: Types, Technical specifications • Utility of Different Lenses. (Perspective Correction Lens, Tele Lenses etc.) 	10 Hours
Unit-II	Photographic processes – <ul style="list-style-type: none"> • Understanding subject requirements to be captured through photography medium. • Steps to be followed for photographic processes within context of various themes such as art, urban settings, heritage conservation, low light conditions, etc. • Understanding Artificial & Natural Light. (White Balance) 	20 Hours

Self Study:	
Suggested List of Experiments:	
Suggested Case List:	
Suggested Readings/ References:	<ol style="list-style-type: none"> 1. Videos of many prominent photographers work and their understanding there famous photos and talks by them. 2. Photography Documentaries. 3. Photography Movies. (Baraka, Samsara and Visual Aquatics etc) 4. Photography Books (Kodak Digital Photo Book, Decisive Moment HCB. 5. Alaha Of the World (DDD) 6. Oriental Moon 7. Internal America 8. India By Raghuver Singh 9. Taj Mahal By Raghu Rai 10. Calcutta By Satyajee Ray 11. Independent India By Government Of India.