NIRMA UNIVERSITY

Institute of Architecture and Planning

Bachelor of Architecture

Semester-IV

Annexure-1

Institute Elective Courses:

Institute Elective Courses:									
Course Code	**Course Name**	**L**	**W**	**S**	**C**	**SEE**	**SEE**	**CE**	**LPW**
2AREA01	Leather craft	1	2	-	2	-	-	0.5	0.5
2AREA02	Pottery	1	2	-	2	-	-	0.5	0.5
2AREA03	Claywork/ Terracotta/ Ceramic	1	2	-	2	-	-	0.5	0.5
2AREA04	Furniture design	1	2	-	2	-	-	0.5	0.5
2AREA05	Performing Arts	1	2	-	2	-	-	0.5	0.5
2AREA06	Graphic Signage	1	2	-	2	-	-	0.5	0.5
2AREA07	Collages and Montages	1	2	-	2	-	-	0.5	0.5
2AREA08	Metal craft	1	2	-	2	-	-	0.5	0.5
2AREA09	Casting/ Moulding (Pop, Metal, resin, fiber)	1	2	-	2	-	-	0.5	0.5
2AREA10	Print (Lithography/ Linography/ Woodcut/ Metal print)	1	2	-	2	-	-	0.5	0.5
2AREA11	Colour in Architecture	1	2	-	2	-	-	0.5	0.5
2AREA12	Building Energy Modelling and simulation	1	2	-	2	-	-	0.5	0.5
2AREA13	Methods of Architectural documentation	1	2	-	2	-	-	0.5	0.5
2AREA14	Stage and set design	1	2	-	2	-	-	0.5	0.5
2AREA15	Art Appreciation	1	2	-	2	-	-	0.5	0.5
2AREA16	Creative writing	1	2	-	2	-	-	0.5	0.5
2AREA17	Film Appreciation	1	2	-	2	-	-	0.5	0.5
2AREA18	Journalism – An Introduction	1	2	-	2	-	-	0.5	0.5
2AREA19	Programming language – Fundamentals	1	2	-	2	-	-	0.5	0.5
2AREA20	Temporary structures	1	2	-	2	-	-	0.5	0.5
2AREA21	Bamboo construction	1	2	-	2	-	-	0.5	0.5
2AREA22	Bio-mimicry	1	2	-	2	-	-	0.5	0.5
2AREA23	M S Office	1	2	-	2	-	-	0.5	0.5
2AREA24	Building Information Modelling (BIM)	1	2	-	2	-	-	0.5	0.5
2AREA25	Advanced Structures	1	2	-	2	-	-	0.5	0.5

w.e.f. academic year 2020-21 and onwards

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1	2	-	2

Course Code	**2AREA01**
Course Title	**Leather Craft**

Course Learning Outcomes (CLO):

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

- Relate to the different types and forms of leathers and leather crafts.
- Develop a sense of different tools, techniques, material properties, material preparation, and finishing techniques involved in leather craft.
- Create a product or article of leather craft.

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45 Hrs**

Sr.No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**
1	INTRODUCTION TO LEATHER WORK	• Rationale for Studying Leatherwork • Places of Leather • Classification of Leatherwork • Careers in Leathe rwork	9 hours
2	BASIC TOOLS A ND MATERIALS IN	• Identification and Preparation of Leather work Tools • Leather-Raw Ma terials and Preparation	6 hours

	LEATHERWORK	• Other Leather work Materials • Maintaining a Healthy Environment	
3	PRODU CTION OF LEATHER ARTICLES	• Design Environment • Preliminary Design • Design Process • Making Leather Items • Appreciation Criticism and Judgemen	6 hours
4	LEATHER DECORATION AND FINISHING I	• Leather Decoration • Leather Finishing	9 hours
5	ADVANCE TOOLS AND MATERIALS IN LEATHERWORK	• Identification of Tools and Materials in Leather work • Characteristics of Leather	6 hours
6	EXHIBITION OF LEATHER PRODUCTS	• Meaning, Types and Importance of Exhibition • Planning and Preparing the Exhibition • Mounting the Exhibition • Terms Used in Leathe rwork	9 hours

L= Lecture, W= Workshop, S= Studio, C= Credit

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Course Code	**2AREA02**
Course Title	**Pottery**

Course Learning Outcomes (CLO):

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

- Relate to different types and forms of clay, clay work, and pots.
- Illustrate the use of a potter's wheel.
- Apply the basic knowledge of working with clay and tools in designing a product.
- Create a product with finishing with hands-on working on the potter's wheel.

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45 Hrs**

Sr.No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**
1	Introduction to mud and mirror work	• Basic rules& principles • Mud and Mirror Work (also known as Lippan Kaam) is a traditional mural craft of Kutch. • Clay and dried donkey dung powder is mixed together in almost equal proportions to make a thin slurry. This slurry is applied as the base of the artwork.	9 hours

2	Making Geometrical Design , and Tracing on MDR Making Dough.	• Mike en Place or “everything in its place”. … • Mixing. ... • Bulk (Primary) Fermentation. ... • Punching Down. ... • Benching. ... • Shaping and Panning the Loaves. ... • Proofing the Loaf (Secondary Fermentation) ... • Step 10: Stage 10: Baking.	6 Hours
3	Tools and Raw Materials	• The tools and raw materials used • Wooden board/ Hardboard • Clay,Glue,Chalk Powder,Sawdust, • Scale,Pencil,Frame,Color,Mirror,Waste Cloth	6 hours
4	Learning Different Architectural patterns in mud-work	• Design pattern Architectural Patterns • Design frame work, • Design Plywood /hardboard • Design is drawn on the wooden piece using pencil	9 hours
5	Kneading clay and making dough and making pinching exercise	• Squeezing and kneading • Poking and pinching • Rolling , Pressing ,Cutting • Stamping ,Constructing • Imagining • Plasticine or modelling clay	9 hours
6	Hands on potter wheel making post/vases.	• Lubrication Is Vital while Throwing • The Proper Method for Centering Clay on the Potter's Wheel. • Speed and Movement While Throwing. • Compress the Pot's Rim after Every Throw • The Mechanics of Throwing a Pot's Walls • Sponge Up Excess Liquid after Each Throw • Third Throw of the Pot's Walls	6 hours

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Course Code	**2AREA03**
Course Title	**Clay work / Terracotta/ Ceramics**

Course Learning Outcomes (CLO):

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

- Relate to different types and forms of clay, clay work, and pots.
- Relate to the different types of terracotta products and their production methods.
- Illustrate the knowledge of the processes involved in preparation and finishing of terracotta tiles and products.

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45 Hrs**

Sr.No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**
1	Introduction Clay work / Terracotta	Introduction to structural clay products	9 hours
2	Basic tools Terracotta Clay	• Types of terracotta. • Building bricks, roofing tiles & hollow Bricks • Raw materials used for body preparation General properties shape, colour, strength, resistance to	6 hours

		• weathering and colour on firing • Specification and tests of terracotta products	
3	Method of Manufacture of Terra Cotta Products	• Method of manufacture for common building bricks, face bricks, blue bricks, paving bricks,sand lime bricks, Method of aging, pugging and souring, Various methods of shaping. • Manufacture of tiles such as roofing tiles, drain tiles,hollow tiles, etc. • Methods of drying of products and firing techniques • Kilns used for firing terracotta products	6 hours
4	Sanitary Wares	• Types of sanitary wares, earthen wares and stoneware sanitary wares, Details of fire clay sanitary wares and vitreous sanitary wares. • Raw materials used for manufacture of fire claysanitary wares, earthenware and vitreous sanitary wares.	9 hours
5	Defects and Remedies	• Defects occurred in various types of traditional ceramics such as Pinholes, bubbles, cracks, bloating, crawling, rolling of glaze, spinouts, crazing and Denting etc. • Remedies of various defects Occurring in various types of traditional ceramics	6 hours
6	Tiles	• Various tiles: • wall ,floor,Porcelain and vitrified tiles • Introduction of tiles, • Manuf acture process of various tiles. • Raw materials used for various tiles. • Method of body preparation for various Tiles. • Methods of shaping of various tiles	9 hours

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Course Code	**2AREA04**
Course Title	**Furniture Design**

Course Learning Outcomes (CLO):
At the end of the course, students will be able to –

- Relate Furniture Design with respect to ergonomics, aesthetics, and construction joinery.
- Interpret the commercial / retail aspect of furniture design in the profession
- Illustrate the use of material and processes involved in preparation of a furniture
- Design and build a piece of furniture after preparing drawings and prototypes.

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45Hr**

Unit No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**:
1	Introduction to fundamentals of Furniture Design	• Different types of joints and joinery. • Examples of the usage of joints and joinery • Understanding details through drawings and measured drawings • Understanding joints: through preparation of dummy models • Field visit (optional)	6 hours
2	Getting to know the Workshop	• Introduction to workshop and equipment (Optional field visit) • Understanding machines • Preparation of joints in the workshop	3 hours
3	Furniture Design: Design	• Identifying the product to be constructed • Preparation of drawings	6 hours

	Development	• Resolving details • Preparation of Final Working Drawing	
4	Furniture Design: Ordering and preparing material	• Calculation and estimation of the quantity of material required • Preparing material to be used for the identified product • Sizing of members	3 hours
5	Furniture Design: Preparing the first model	• Preparation of first prototype: Assembling the members with temporary joints	10.5 hours
6	Finalizing Design	• Resolution of issues and queries and refining design • Preparation of the final product	10.5 hours
7	Finishes	• Learning techniques used for finishing touches to product • Applying finishing touches on the product	6 hours

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Suggested Readings:

1. Stem, Seth, *Designing Furniture from concept to shop drawing: a practical guide, A Fine Woodworking Book*. The Taunton Press, Newtown, CT, 1989
2. Lawson S (2013) *Furniture Design: An Introduction to Development, Materials and Manufacturing*, Laurence King Publishing Ltd
3. Boran S, Çavdar A, Barbu M (2013) *Evaluation of Bamboo as Furniture Material and Its Furniture Designs*. Pro Ligno
4. Graves, Garth (1997) *Woodworker's guide to furniture design : the complete reference for building furniture the right size, the right proportion and the right style*. Popular Woodworking Books (Ohio,Cincinnati etc)
5. Nielson, Karla J. (2002) *Interiors : an introduction*. Taylor, David A.
6. Rüegg, Arthur. (2012) *Le Corbusier: Furniture and Interiors 1905–1965*. Scheidegger & Spiess, Zurich, Switzerland

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Course Code	**2AREA05**
Course Title	**Performing Arts (Dance, Drama, Music)**

Course Learning Outcomes (CLO):

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

- Relate to various fields of performing arts.
- Identify the basic elements of dance, drama and music
- Take part in dance/music/drama performance

Syllabus: 15 **weeks (3 hours/week)** **Total Teaching hours**: **45 Hrs.**

Sr.No.	Syllabus: Topic	Sub Topic	Teaching hours:
1	Dance	• Explore and communicate ideas, feelings and thoughts • The basic elements of dance: actions, dynamics, space, relationships, choreographic devices, introduction to contact, performance skills, choreographic skills and appreciation skills	15 hours
2	Drama	• Explore a theme/topic/issue • Basic elements of drama and its vocabulary • Write reviews and develop an interesting script	15 hours
3	Music	• Basic elements of music • Use different forms of music	15 hours

		• Practical skills - new computer technology and keyboards, and will be encouraged to take part in group performances, both vocal and instrumental	

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Course Code	**2AREA06**
Course Title	**Graphic Signage**

Course Learning Outcomes (CLO):
At the end of the course, students will be able to –

- Interpret the importance and relevance of Graphic Signages
- Illustrate the use of various techniques of typography
- Develop the knowledge of various compositions based on the typology.

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45 Hr**

Unit No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**:
1	History	Brief History of Signage	6 hours
2	Symbol, Signs & Pictograms	Symbol, Signs & Pictograms	6 hours
3	Principles s in graphic design	Principles of Compositions in graphic design and Detail (Importance of Visual Balance & colors in signage)	9 hours
4	Types of Signage	Different types of Signage – Indoor & Outdoor,	3 hours
5	Introduction Of graphic Software	I.E. Coral Draw, Adobe Photoshop, Adobe Illustrators, Lightroom (Over View And Biggner Level Exploration)	9 hours
6	Execution of Graphics	Introduction Of Printing or/and physically various method of execution of graphics	12 hours

L= Lecture, W= Workshop, S= Studio, C= Credit

Suggested Readings:

1. Rafael Concepcion (2018). Adobe Photoshop CC and Lightroom CC for Photographers Classroom in a Book, 2nd Edition, Adobe Press.
2. Meggs, P. B., Purvis, A. W., & Meggs, P. B. (2006). Meggs' history of graphic design. Hoboken, N.J: J. Wiley & Sons.
3. Cees W. de Jong, Alston W. Purvis, Jan Tholenaar (2019). Type: A Visual History of Typefaces and Graphic Styles, Taschen GmbH.

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Course Code	**2AREA07**
Course Title	**Collages & Montages**

Course Learning Outcomes (CLO):
At the end of the course, students will be able to –

- Tell different types and techniques of collages and/or mantages
- Illustrate the importance of collages and/or montages as a tool to represent and communicate ideas
- Compose a collage/montage

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45Hr**

Unit No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**:
1	Brief History of collages & montages	Brief Timeline, manual & digital ways, modern approaches etc	3 hours
2	Different types of collages	2D Collages 3D Collages	21 hours
3	Different types of Montages		21 hours

L= Lecture, W= Workshop, S= Studio, C= Credit

Suggested Readings:

1. Simpson, L., & Alexander, E. (2018). Lorna Simpson collages. San Francisco: Chronicle Books.
2. Moore, A. (2018). Collage Ideas Book. Octopus Publishing Group.
3. Taylor, T., & Plowman, R. (2010). Masters: Collage: Major works by leading artists. New York: Lark Books.

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Course Code	**2AREA08**
Course Title	**Metal Craft**

Course Learning Outcomes (CLO):

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

- Relate to the different types of metal and metal crafts.
- Develop a sense of using different tools, techniques to work with metal
- Create a finished product or article of metal craft.

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45Hr**

Unit No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**:
1	Introduction	• Introduction to different metals i.e. Iron, Steel, Aluminum, Copper, Bronze, Brass • Properties of different metals • Appropriateness of the metal for particular work	3 hours
2	Metal and working technology	• Learning different techniques required to work i.e. cutting, welding, bolting, riveting • Importance of the technique • Advantages and disadvantages of the techniques	9 hours
3	Production	• Design and make different objects from metal • Detail design • Precautions while making the object • Final finishes	33 hours

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Course Code	**2AREA09**
Course Title	**Casting / Molding (POP, metal, raisin, fiber)**

Course Learning Outcomes (CLO):
At the end of the course, students will be able to –

- Relate to different types of casting and molding methods, and their use in daily life.
- Illustrate the use of these methods
- Design and construct a finished piece of product using these techniques.

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45Hr**

Unit No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**:
1	Introduction and etiquettes	• Introduction • Discipline of the workspace and instruments of it	3 hours
2	Importance	• Understanding traditional ways of product making • Mass production by using molding and casting	12 hours
3	Production	• Design and make different objects by using the technique • Detail design • Precautions while making the object • Final finishes	30 hours

L= Lecture, W= Workshop, S= Studio, C= Credit

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Course Code	**2AREA10**
Course Title	**Print (Lithography / Linography / wood cut / metal print)**

Course Learning Outcomes (CLO):
At the end of the course, students will be able to –

- Tell different types of prints and their roles importance
- Illustrate the methods of reproduction of the same artwork
- Design and construct a print using one/many methods and techniques

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45Hr**

Unit No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**:
1	Introduction and etiquettes	• Introduction • Understand the discipline of the workspace and instruments	3 hours
2	Importance	• Traditional methods and importance • Understanding of different material • Different sizes and types of prints • Reproduction of print	18 hours
3	Production	• Prints from various methods and materials • Precautions while printing • Mass production of the print • Preservation of print materials	24 hours

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Course Code	**2AREA11**
Course Title	**Color in Architecture**

Course Learning Outcomes (CLO):
At the end of the course, students will be able to –

- Define the role, importance, and impact of color in architecture
- Demonstrate color as a medium of sensory perception and its physiological, psychological effect in architecture.
- Analyze and explain the effect of different colors in design to create specific effects in spaces

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45Hr**

Unit No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**:
1	Introduction to Colour in Architecture	• Understanding colour, colour wheel, and types of colour • Colour in architecture	6 hours
2	Role of colour in Architecture	• Impact of colour in architecture • Theory and systems of using color in architecture • Role and effect of colour and texture in spaces • Colour Symbolism	9 hours
3	Analysis of Space w.r.t. colour	• Analysis of space using monochromatic or achromatic abstractions in 2-Dimension • Analysis / Difference in space using colour • Examining the difference in space with	9 hours

		different colours	
4	Colour in Architecture as a Sensory Tool	• Perception of colour in space • Architectural psychology • Visual Ergonomics • Psychosomatics	10.5 hours
5	Color Psychology in spatial context	• Behavior and effects of colour composition • Impression of colour and how it supports the function of a space	10.5 hours

L= Lecture, W= Workshop, S= Studio, C= Credit

Suggested Readings:

1. Holtzschue, Linda. (2017). *Understanding color : an introduction for designers*. John Wiley & Sons (New Jersey)
2. Chijiiwa, Hideaki. (1987). *Color harmony : a guide to creative color combinations.* Rockport Pub. Inc. (Massachusetts)
3. Gerritson, Frans. (1975*). Theory and practice of color : a color theory based on laws of perception*. Studio Vista Pub. (London)
4. Renner, Paul. (1964). *Color : order and harmony.* Reinhold Book Corp. (New York)
5. Feisner, Edith Anderson (2014). *Color studies*. Fairchild Books (New York)
6. Porter, Tom Ed. (2009). *Colour for architecture today.* Taylor & Francis (New York)

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Course Code	**2AREA12**
Course Title	**Building Energy Modeling and Simulation**

Course Learning Outcomes (CLO):
At the end of the course, students will be able to –

- Demonstrate understanding of range of building modeling and simulation approaches and tools
- Develop the understanding to construct simple models with tools commonly used in the building professions
- Apply models to common building industry functions such as code compliance and energy audits

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45Hr**

Unit No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**:
1	Introduction Of Energy Modeling	Brief Of Building Energy Modeling and simulation	3 hours
2	Principles	Principles of Building Energy Modeling and simulation and detail parameters	6 hours
3	Organization reorganization in Building Energy	GHIRA, LEED Introduction and Type of Resignation and recognition by organization and examination	12 hours
4	Introduction Of Building Energy	I.E. Honey bee, Autodesk Ecotech, Diva Rahino, Window (Glass Panel Energy), Laybug (any Chosen by appropriate resource and outcome)	12 hours

	Modeling and simulation Software		
5	Graph and Simulation	Learning to read of graphs and Simulation	9 hours
6	Site Visit	Site visit	3 hours

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Suggested Readings:

1. Managing Indoor Environments and Energy in Buildings with Integrated Intelligent Systems (Green Energy and Technology by Triantafyllia Nikolaou (Author), Dionysia Kolokotsa (Author), George Stavrakakis (Author), Apostolos Apostolou (Author), Corneliu Munteanu (Author)
2. Energy Performance Modelling and Heat Recovery Efficiency Assessment Paperback – Import, 25 Sep 2015 by L Harmati Norbert (Author), Foli (Editor), Magyar Zoltan (Editor)
3. Data Mining and Machine Learning in Building Energy Analysis (Computer Engineering) 1st Editio by Frédéric Magoules (Author), Hai-Xiang Zhao (Author)
4. Building Energy Simulation: A Workbook Using DesignBuilder™ BY Vishal Garg, Jyotirmay Mathur, Surekha Tetali, Aviruch Bhatia
5. GHIRA, organization and examination handbook
6. LEED, organization and examination handbook

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Course Code	**2AREA13**
Course Title	**Methods of Architectural Documentation**

Course Learning Outcomes (CLO):

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

- Illustrate the use of various techniques of architectural documentation
- Demonstrate the skills and prepare the framework of an architectural documentation
- Create an architectural work portfolio

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45 Hrs**

Sr.No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**:
1	Introduction to techniques of documentation	• Written and visual documentation • Photographic documentation • Video documentation	**12 hours**
2	Content writing and framework of a portfolio	• How to create a content for making an effective portfolio? • Graphics and framework of a portfolio • Learn the skills required for making a portfolio	**15 hours**
3	Portfolio	• Compositions and layouts	**18 hours**

		• Create a portfolio	

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Course Code	**2AREA14**
Course Title	**Stage & Set design**

Course Learning Outcomes (CLO):

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

- Interpret the script analysis techniques necessary to collect visual information required for the design
- Outline the various types of stage design
- Construct scaled ground plans, sectional drawings and construction drawings pertinent to a specified script and a particular stage type stated above
- Build a part or whole stage/set for a chosen script

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45 Hrs.**

Sr.No.	Syllabus: Topic	Sub Topic	Teaching hours:
1	How to think visually	• Taking written ideas from a particular dramatic script and describing/curating them • Visual, physical and verbal representation of the idea	9 hours
2	Understanding the theatre design process	• Script - As the source for the design • Sketches & drawings -Demonstrating an initial visual design	9 hours

3	Creating drawings	• Scaled Drawings -Demonstrating the finished design via 2 dimensional medium • Models -Demonstrating the finished design via a 3 dimensional medium • Sections • Rendered sketches	18 hours
4	Stage/set design	• Practically create a stage / part of the stage/set as a group work	9 hours

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Course Code	**2AREA15**
Course Title	**Art Appreciation**

Course Learning Outcomes (CLO):

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

- Relate to different works of art
- Demonstrate the processes involved in artistic production
- Analyse and interpret the role and effect of arts in society, history and world culture

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45Hr**

Unit No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**:
1	Introduction to Art Appreciation	Explore the concept of art Theories of art aesthetics and how to apply the to an artwork Formal art criticism and will apply these steps to various artworks	3 hours
2	Elements of Art	Elements of Art including: line, shape, form, value, color, space, and texture Elements in a variety of artworks to increase fluency in artistic perception Basic representations of the elements to develop confidence in creative expression	3 hours
3	Principles of Design	Principles of Design including: balance, rhythm, movement, contrast, emphasis, and unity Principles in a variety of artworks to increase their fluency in Artistic Perception Basic representations of the elements to develop confidence in creative expression	6 hours
4	Art Making	Art making techniques of drawing, painting, sculpture, printmaking, and photography Materials used and the techniques artists most often utilize in their artmaking	6 hours

		Understanding of the materials and methods of creative expression	
5	Art History Early Civilizations	Art from the earliest known civilizations including rock/wall art, sculpture, and architecture Artworks and architecture from Ancient Egypt, Ancient Greece, and Rome Cultural background and context for a holistic understanding of the historical and cultural context of the selected pieces	3 hours
6	Early Christian to Gothic	Artworks and architecture from the Early Christian Era, Byzantine Era, and from Islamic cultures	3 hours
7	Renaissance to Rococo	Art of the Proto-Renaissance, Renaissance, Mannerism, Baroque, and Rococo eras, including major socio-political changes, artmaking differences, stylistic differences, and accompanying works Shifts in medium (introduction of oil paints) and techniques (chiaroscuro and tenebrism) as part of their process of understanding the historical and cultural context of art	6 hours
8	Early Modernism	Trace the changes in art through the following eras: Enlightenment, Neoclassical, Romanticism, Realism, Impressionism, Post-Impressionism, Symbolism, Expressionism, Cubism Style of each era, the links to socio-political changes that influenced the era, and to describe representative artists and artworks from these eras	6 hours
9	Modernism	Work of Modernists, Dadaists, Abstract artists, Pop Art, Super-realists, and Contemporary Art Develop art vocabulary to include terms such as chromatic abstraction, installation art, conceptual art, and more	6 hours
10	Exploring World Art	Artworks from Africa and Asia, including wall paintings, power figures, relic guards, and masks Asian artworks, including Buddhist and Hindu art such as architecture, sculpture, landscapes, ink paintings, and printmaking	3 hours

L= Lecture, W= Workshop, S= Studio, C= Credit

Suggested Readings:

1. Carlson, Allen. Aesthetics and the environment : the appreciation of nature, art and architecture. Pt.1 : the appreciation of nature. Pt.2 : landscapes, art and architecture.. Routledge (London & New York). 2002.
2. Barlingay, S. S.. Modern introduction to Indian aesthetic theory. D.K. Printworld (P) Ltd (New Delhi), 2007.
3. Gauldie, Sinclair. Architecture : the appreciation of the arts. Oxford Uni. Press (Madras,Singapore etc). 1969.
4. Knobler, Nathan. Visual dialogue : an introduction to the appreciation of art. Holt, Rinehart & Winston (Toronto,New York etc). 1971.
5. Carroll, Noel; Paul K. Moser. Philosophy of art : a contemporary introduction. Routledge (London). 1999.

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Semester-IV

L	W	S	C
1	2	-	2

Course Code	**2AREA16**
Course Title	**Creative Writing**

Course Learning Outcomes (CLO):

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

- Demonstrate ideas through writing
- Develop a final piece of work (story, poem or personal essay)
- Originate a platform to initiate further study in the field

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45Hr**

Unit No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**:
1	Basics of Creative expression	Discussion on the fundamentals of creative expression	9 hours
2	Fundamentals of creative writing	Overview of texts fundamental to creative writing	9 hours
3	Writing Techniques	Technique of writing, such as rhythm, metre, point of view, voice, narrative, pacing	12 hours
4	Modes of writing	Writing prompts to be able to write essays, stories, poems, figurative writing, persuasive writing, theme based writing, etc.	15 hours

L= Lecture, W= Workshop, S= Studio, C= Credit

Suggested Readings:

1. Ganguly, Subrata. Symbol, script and writing : (from petrogram to painting and further..). Sharada Publishing House (Delhi), 2004.
2. Morley, David. Cambridge introduction to creative writing. Cambridge Uni. Press (Delhi), 2010.

3. Ramadass, P.; Aruni, A. Wilson. Research and writing : across the disciplines. MJP Pub. (Chennai), 2009.
4. Shaw, Mark. Copywriting successful writing for design, advertising and marketing. Laurence King Publishing (London). 2012.
5. Schmalz, Bill. Architect's guide to writing. Images Pub. Group Pty Ltd. (Victoria). 2014.

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Semester-IV

L	W	S	C
1	2	-	2

Course Code	**2AREA17**
Course Title	**Film Appreciation**

Course Learning Outcomes (CLO):

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

- Take part in active viewing of cinema and develop one's own informed perspective through personal engagement with films using analytical tools and techniques
- Analyse that content, form, and contexts work together to create meaning in the film
- Adapt to using the key concepts, models and tools used in film criticism

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45 Hrs.**

Sr.No.	Syllabus: Topic	Sub Topic	Teaching hours:
1	Film vs. Theatre	• Differences and similarities between film and theatre • Stage vs. screen	6 hours
2	Films	• Types of films • Timeline of film making – black and white to 3D experience	9 hours
3	Movies for Fun & Profit, Art & Communication	• Movies and their roles in our lives • Film: looking for meaning • From theaters to Netflix to iPhones	9 hours

		• The current film landscape	
4	Film and Its Impact on Society	• Films beyond just entertainment • Pushing the envelope: Case studies	12 hours
5	Criticism and Analysis	• What is a critic? • Approaches to analysis and interpretation	9 hours

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L	W	S	C
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Course Code	**2AREA18**
Course Title	**Journalism- An introduction**

Course Learning Outcomes (CLO):
At the end of the course, students will be able to

- Apply the concept of journalism in the field of Architecture
- Appraise the role of architectural journalism in identifying and formulating relevent buildings
- Develop the capacity to write critics on selected projects

Syllabus: 15 weeks (3 hours/week) **Total Teaching hours**: **45 Hrs.**

Unit No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**:
1	Introduction To Journalism	Concept of Journalism, Definition, History	9 hours
3	Fundamentals of Journalism	Advantages of Journalism, concept of Ethical journalism, Journalism in design field	18 hours
4	Role of Journalism in general & in design field	Case Studies –Global & Local, Short Project	18 hours

L= Lecture, W= Workshop, S= Studio, C= Credit

Suggested Readings:

1. Al-Asad, M., & Musa, M. (2006). Architectural criticism and journalism: global perspectives: proceedings of an international seminar organised by the Aga Khan Award for Architecture in association with the Kuwait Society of Engineers, 6-7 December 2005, Kuwait. Turin, Italy: Umberto Allemandi & C. for Aga Khan Award for Architecture.
2. Allan, S. (2010). The Routledge companion to news and journalism. New York, NY: Routledge.

3. Booth, G. G. (1918). The spirit of journalism and architecture. Place of publication not identified.
4. Franklin, B. (2005). Key concepts in journalism studies. London: SAGE.
5. Harcup, T. (2004). Who, what, where, when, why and how?: an introduction to journalism. London: Sage.
6. Willis, J. (1990). Journalism: state of the art. New York: Praeger.
7. LEED, organization and examination handbook

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Semester-IV

L	W	S	C
1	2	-	2

Course Code	**2AREA19**
Course Title	**Programming Language - Fundamentals**

Course Learning Outcomes (CLO):
At the end of the course, students will be able to –

- Relate to the concepts that underlie programming languages
- Illustrate how computer applications work and will be able to write their own application
- Utilize the application this knowledge to the field of architecture

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45 Hr**

Unit No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**:
1	Introduction Of Programming	Brief Of Programming	6 hours
2	Choose the right language	Introduction of various language in programming and choose form one of it.	9 hours
3	Language introduction	Introduction in particular language	9 hours
4	Architecture Modeling/ Simulation/Design / Data Mining	Application in Architecture	21 hours

L= Lecture, W= Workshop, S= Studio, C= Credit

Suggested Readings:

1. Processing: A Programming Handbook for Visual Designers,
   Second Edition; Casey Reas and Ben Fry.
2. Generative Design; Hartmut Bohnacker, Benedikt Gross, Julia Laub, and Claudius Lazzeroni.
3. Processing: Creative Coding and Generative Art in Processing 2; Ira Greenberg, Dianna Xu, Deepak Kumar.
4. Urban Algorithms for Visual Design Using the Processing Language; Kostas Terzidis.

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Semester-IV

L	W	S	C
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Course Code	**2AREA20**
Course Title	**Temporary Structures**

Course Learning Outcomes (CLO):
At the end of the course, students will be able to –

- Relate to different types of "temporary structures".
- Identify the requirements and importance of the "temporary structures"
- Analyze aspects, issues to design "temporary structures"

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45Hr**

Unit No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**:
1	Introduction	• What is a temporary building and what are its requirements?	15 hours
2	Requirements and importance	• Requirement of temporary structure with respect to Place, environment, social and cultural dimensions as a designer	15 hours
3	Methodology and construction	• Various technics for design and construction of temporary buildings.	15 hours

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w.e.f. academic year 2020-21 and onwards

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Semester-IV

L	W	S	C
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Course Code	**2AREA21**
Course Title	**Bamboo construction**

Course Learning Outcomes (CLO):

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

- Relate to "Bamboo" as a material and different types of "Bamboo" and their qualities.
- Interpret the importance of bamboo as construction material.
- Apply different construction techniques using bamboo as a construction material.

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45Hr**

Unit No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**:
1	Introduction	• Bamboo as a building material and its different types. • Qualities and properties of different types of Bamboo as a construction material.	15 hours
2	Design and construction methodology. (Part 1)	• Designing with bamboo. • Applying the proper construction methodologies for the task at hand.	15 hours
3	Design and construction methodology. (Part 2)	• Solving problems as they arise Setting priorities and keeping work on schedule.	15 hours

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Suggested Readings:

1. Traditional bamboo housing in Asia.
2. Mari Tanaka, Daisuke Niwa, Naohiko Yamamoto and Shuji Funo,
Bamboo as a Building Material in Japan : Transition and Contemporary use.
3. H.N. Jagadeesh and P.M. Ganapathy ,Traditional Bamboo-based Walling/Flooring Systems in Buildings and Research Needs.
4. Karen Edwards and Hcny Doing, The Importance of Bamboo and Housing Construction : A Case Study in Flores.
5. Oscar Arce, Bamboo Housing in Seismic-prone Areas/
6. Emmanuel D. Bello and Florence Pascua-Soriano,
Typhoon-resistant Bamboo Housing in the Philippines.
7. Purwito, The Application of Bamboo for Earthquake-resistant Houses.
8. Oscar Hidalgo , Study of Mechanical Properties of Bamboo and its use as Concrete Reinforcement : Problems and Solutions.

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Semester-IV

L	W	S	C
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Course Code	**2AREA22**
Course Title	**Biomimicry**

Course Learning Outcomes (CLO):
At the end of the course, students will be able to: –

- Relate to Biomimetic approaches to design
- Illustrate Nature inspired design thinking.
- Identify sustainable solutions to human's problem by mimicking and emulating nature in its analogies, phenomenon and patterns.

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45Hr**

Unit No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**: **(Weeks)**
1	Observe and understand nature's designs, process, systems, strategies and mechanisms	• Origins of patterns and shapes • Shapes and their causes • Self assembly and self organisation • Emergence: spatial or spacio-temporal structures • Fractal shapes • Morphogenetic processes in nature • Form, efficiency and ecology • Bio-inspired technologies: locomotion, construction, structural materials, surfaces, optics, etc	15 hours
2	Biomimetic approaches to design	• Design looking to biology (Top-Down approach) • Biology influencing design (Bottom-Up approach) • Three levels of mimicry: the organism level, behavior level and ecosystem level	15 hours

		• Understand principles and processes in biomimesis	
3	Application of nature inspired design thinking and innovation	• Bio-inspired structure and construction, Minimal surfaces, Architectural interpretation, Geometry and computation • Explore design method and techniques to apply biomimetic concepts	15 hours

L= Lecture, W= Workshop, S= Studio, C= Credit

Suggested Readings:

1. Macnab, M. (2012). *Design by nature: Using universal forms and principles in design*. Berkeley: New Riders.
2. Chaplain, M. A. J., McLachlan, J. C., & Gurdev, S. (1999). *On growth and form: Spatio-temporal pattern formation in biology*. New York: Wiley.
3. Thompson, D. A. W. (1968). *On growth and form: Vol. 1*. Cambridge: Cambridge University Press.
4. Thompson, D. A. W. (1979). *On Growth and form: 2*. Cambridge: Univ. Pr.
5. Kapsali, V. (2016). *Biomimicry for designers: Applying nature's processes and materials in the real world*. New York, New York : Thames & Hudson.
6. Vogel, S. (2018). *Why the wheel is round: Muscles, technology, and how we make things move*.
7. Vogel, S. (2000). *Cats' paws and catapults: Mechanical worlds of nature and people*. New York: Norton.
8. Benyus, J. M. (2009). *Biomimicry: Innovation inspired by nature*. New York, NY: Perennial.
9. Pawlyn, M. (2016). *Biomimicry in architecture*. Newcastle upon Tyne: Riba Publishing

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Semester-IV

L	W	S	C
1	2	-	2

Course Code	**2AREA23**
Course Title	**MS office**

Course Learning Outcomes (CLO):
At the end of the course, students will be able to –

- Find out about using word, power point, excel and other related software
- Find out about various aspects, use of software in professional manner
- Demonstrate the use MS Office as a holistic software.

Syllabus: 15 weeks (3 hours/week) **Total Teaching hours: 45Hr**

Unit No.	Syllabus: Topic	Sub Topic	Teaching hours:
1	Getting started	The Word/power point/Excel window New documents Document navigation	3 hours
2	Editing	Working with text The Undo and Redo commands Cut, copy, and paste Find and replace	6 hours
3	Text formatting	Character formatting Tab settings Paragraph formatting Paragraph spacing and indents	9 hours
4	Tables	Creating tables Working with table content Changing the table structure	6 hours
5	Page layout	Headers and footers Page setup	9 hours
6	Graphics	Adding graphics and clip art Working with graphics	5 hours

7	Proofing, printing, and exporting	Spelling and grammar AutoCorrect Printing and exporting documents	5 hours

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L	W	S	C
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Course Code	**2AREA24**
Course Title	**Building Information Modelling**

Course Learning Outcomes (CLO):

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

- Demonstrate the multi-disciplinary coordination (Architecture, MEP, Structure, Landscape, etc.)
- Apply the skills to improve presentation of drawings
- Create the design in a BIM software and generate working drawings

Syllabus: **15 weeks (3 hours/week)** **Total Teaching hours**: **45Hr**

Unit No.	**Syllabus**: **Topic**	**Sub Topic**	**Teaching hours**:
1	Overview of BIM Technology	What is BIM? Introduction: History: BIM vs. Geometric Modeling Elements of BIM	3 hours
2	Application of BIM Softwares	Management of building information models BIM in construction management BIM in facility operation BIM in green building	3 hours
3	Basic modelling	Introduction to Building Information- Modelling – BIM and Revit- User interface – Levels- Grids & Columns – Walls – Doors – Windows – Floors – Stairs – Ceilings – Roofs – Sections - Elevations	15 hours
4	Extended modelling and outputs	Curtain walling - 3d views - Rendered outputs - Schedules - Families (basic content creation)- Details & Callouts - Linked files - Layouts & Plotting	12 hours
5	Conceptual modelling Collaboration & Analysis	Organic conceptual modelling - Linking to other modelling software - Collaboration - BIM Analysis	12 hours

L= Lecture, W= Workshop, S= Studio, C= Credit

Suggested Readings:

1. Garber, Richard. (2014). BIM Design: Realising the Creative Potential of Building Information Modelling. Wiley. 1 edition.
2. Kensek, Karen M. Noble, Douglas E. (2014). Building Information Modeling: BIM in Current and Future Practice. Wiley..
3. Eastman, Chuck. Teicholz, Paul. Sacks, Rafael. Liston, Kathleen (2011) BIM Handbook : A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors. John Wiley & Sons.
4. Briscoe, Danelle. (2015) Beyond BIM : Architecture Information Modeling. London Routledge Taylor and Francis Group.

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Semester-IV

L	W	S	C
1	2	-	2

Course Code	**2AREA25**
Course Title	**Advanced Structures**

Course Learning Outcomes (CLO):

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

- **Develop advances in technology and Structural understanding at higher level of complexity**
- **Learning of understand system of restressed concrete construction**
- **Develop understanding between light weight structure and surface Structures**

Syllabus: 15 weeks (3 hours/week) **Total Teaching hours: 45Hr**

Unit No.	Syllabus: Topic	Sub Topic	Teaching hours: (Weeks)
1	**structural concept of folded plate, shells, hyperbolic and paraboloid forms**	• **Introduction of advanced structural systems** • **Concept and analysis of advanced structural system**	12 hours
2	**Behavior and systems of prestressed concrete construction**	• **Concept and analysis of Prestressed concrete system**	9 hours
3	**Prefabrication in Steel/RCC**	• **Detail understating of prefabrication in steel and RCC**	9 hours
4	**Lightweight and Surface structures**	• **Difference between light weight and Surface structure.** • **Concept and analysis of light weight and Surface Structure structure**	9 hours

L= Lecture, W= Workshop, S= Studio, C= Credit

Suggested Readings:

1. Hibbeler, Russell C., Structural Analysis, India, Pearson Education Asia Pte. Ltd., 2013
2. Pandit, G. S., Structural Analysis: A Matrix Approach, New Delhi, Tata McGraw-Hill Publishing Company Ltd., 2008
3. Charleson, Andrew., Structure as architecture : Source book for architects and structural engineers, London, Taylor & Francis, 2015
4. Bali, N. P., Textbook of Engineering Mathematics, New Delhi, Laxmi Publications Pvt. Ltd., 2011

5. Ramamrutham, S., Theory of Structures, Delhi, Dhanpat Rai & Sons, 2013
6. Kumar, Ashok, Theory of Structures, New Delhi, Laxmi Publications Pvt. Ltd., 2004
7. Parikh, Janak, Understanding Concept of Structural Analysis and Design, Anand, Charotar Publishing House
8. Levy, Matthys, Why Buildings Fall Down: How Structures Fail, New York, W. W. Norton and Co., 2002
9. Schodek, Daniel L. Structures. Englewood Cliffs, NJ: Prentice-Hall, 1980. Print.
10. Millais, Malcolm. Building Structures: From Concepts to Design. London: Spon, 2005. Print.
11. Corkill, P. A., H. L. Puderbaugh, and H. K. Sawyers. Structure and Architectural Design. Iowa City: Sernoll, 1974. Print.
12. Ambrose, James E. Building Structures. New York: Wiley, 1988. Print.
13. IS 456:2000, Indian Standard, Plain and Reinforced Concrete – Code of Practice, Bureau of Indian Standards.
14. SP – 16, Design Aids for Reinforced Concrete to IS 456
15. National Building Code of India, 1983
16. IS 1905, Code of Practice for Structural Safety of Buildings.