Shri Vaishnav Vidyapeeth Vishwavidyalaya
Shri Vaishnav institute of Architecture
Choice Based Credit System (CBCS) Scheme in the light of NEP-2020 by COA
B. ARCH (2021-26)

ARCH 501: Architectural Design – IV

Cou rse Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem Universit y Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessm ent* (30%OR 20%)	End Sem Universit y Exam (50%OR 10%)	Teachers Assessm ent* (50%OR 10%)	TOTAL				
PC	AR	STUDIO	ARCH 501	ARCHITECTURAL DESIGN IV				200	200	400			8	8

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

ARCH 501: Architectural Design – IV

Course Educational Objectives (CEOs)::
To develop abilities in design in the context of user requirements.

Course outcomes (COs):

At the end of the course, students will be able to	• Students will learn and develop design vocabulary which would define the institutional character through its organization principles, • Students will understand construction techniques and materials. • Student will achieve the capacity of Site analysis, Landscape systems, Abstract Models, Part detail constructional models, and design development methods that clarify part-whole relationships.
Expected Skills / Knowledge Transferred:	To enhance the understanding of the complexities of architectural design for residential needs and develop creative design solutions for good living environments.
Focus: : Institutional & Building Systems, Services	Use of standards, handling of space, and application of knowledge gained from other subjects in design.

Course Overview:
This course is intended to provide skills for designing single-use, small-span and single-storey buildings.

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
	Design : Institutional scale ;The institutional theme, image, concept ;Organization and disposition of spaces ;The character of the institutional building ;The density of user groups and circulation patterns ;The studio also emphasizes the resolution of appropriate systems, such as spatial, structural and building along with programmed and un-programmed spaces		17 hrs
I.	**Theme & focus of design:**	Study, analysis & utilization of Non-Conventional Systems (alternative building technologies). Understanding, exploration & development of design programme, concepts & detailed design with a focus on Stabilized Mud Blocks, Bamboo, Ferro-cement, etc. in urban &/or rural contexts.	15 hrs
II.	**Basic Components:**	Behavioral Science; Functionality; Building Materials; Theory of Design; Form Development; Tectonic decisions: Structures, Building Materials, Services; Site Planning; Building Control Regulations; Inclusive Design; Design Communication.	32hrs
III.	**Gateways & Thresholds:**	Importance, Exploring & Understanding the essence; detailing process; User analysis; Elements; functionality, aesthetics; Materials. This Minor Exercise will be represented through conceptual development (sketches, physical & digital models).	35hrs
IV	**Design Analysis:**	Exploration & analysis of iconic Eco-sensitive Architecture; Understanding design philosophy & process; Learning from design quality, Literature/book reviews; Architectural critiques.	
V	**Design Exercise:**	Building Design. The complexity of design: Site planning involving multiple buildings; Detailing of anyone building with alternative technology. Typology: Co-operative Societies,	35 hrs

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PC	AR	STUDIO	ARCH 501	ARCHITECTURAL DESIGN IV				200	200	400			8	8

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; S – Studio; C - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Vocational Training Centers, Rural Residential Schools, Bus Stations, Veterinary Centers, Temporary Shelters, Labour Camps, Ayurveda Centers, Naturopathy Centers, SOS Villages, Horticultural Centers, Ashrams etc. Site extent: Flat site up to 8000 m2.

Sessional work:

Guidelines

Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes

Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.

One Major And the rest minor tasks are to be set from the entire syllabus

Assignments:

Design Exercise: Building Design. The complexity of design: Site planning involving multiple buildings; Detailing of anyone building with alternative technology. Typology: Co-operative Societies, Vocational Training Centers, Rural Residential Schools, Bus Stations, Veterinary Centers, Temporary Shelters, Labour Camps, Ayurveda Centers, Naturopathy Centers, SOS Villages, Horticultural Centers, Ashrams etc. Site extent: Flat site up to 8000 m2.

Note:

Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

Necessary theoretical inputs are to be given highlighting the norms and design issues. The topics not covered as design problems will have to be covered by the Studio faculty members through lecture/slideshow sessions and site visits.

Suggested Readings:

Bousmaha Baiche & Nicholas Walliman, Neufert Architect's data, Blackwell Science Ltd.

Building Code – ISI

Chiara Joseph de and Others. Time Savers Standards of Building Types. McGraw – Hill, 1990.

Ching, Francis D.K. Architecture: Form, Space, and Order, 2nd Ed. Van Nostrand Reinhold, New York, 1996.

Criss B. Mills, Designing with models: A Studio Guide to making & using architectural models, Thomson & Wadsworth, USA,2000.

DeChiara and Callender, Time-saver standards for building types, Mc Graw Hill Company

Hand Book of Planning and Design Data.

Hanks, A. David. Decorative Designs of Frank Lloyd Wright, Dover Publications, Inc. New York, 1999.

Hepler, E. Donald, Wallach, I. Paul. Architecture Drafting and Design, 3rd Ed. McGraw-Hill Book Company, New York, 1977.

Itten, Johannes. Design and Form: The basic course at the Bauhaus, Thames and Hudson Ltd., London 1997.

Kirk, Paul Hayden and Sternberg, D. Eugene. Doctors Offices and Clinics, 2nd Ed. Reinhold Pub., USA, 1960.

Konya, Allan. Libraries: A Briefing and Design Guide. The Architectural Press, London, 1986.

Krier, Rob. Architectural Composition, Academy Editions, London, 1988.

Maier Manfired Basic Principles of Design, Vol.1, 2, 3 & 4, Van Nostrand Reinhold, NY. (1977)

Meiss, Pierre Von. Elements of Architecture: From Form to place, E and FN Spon, London, 1992.

Mike w.Lin, Drawing & Designing with confidence – A step by step guide, John Wiley & Sons, USA,1998.

National Building Code - ISI

Neufert, Ernst. Ernst Neufert Architects Data, Granada Pub. Ltd., London,2000.

Patricia Tutt and David Adler, New Metric Handbook — The Architectural Press

Peloquin, Albert. Barrier-Free Residential Design. McGraw-Hill, Inc., New York,1994.

Pevsner, Nikolaus. A History of Building Types. Thames and Hudson, London,1976.

Ramsey / Sleeper, National Architectural graphic standards, The American Institute of Architects

Rosenfield, Isadore. Hospital Architecture and Beyond. Van Nostrand Reinhold, New York, 1969.

Sam F Miller, Design process– Van Nostrand Reinhold

Shah, S. Charanjit. Architects Hand Book Ready Reckoner. Galogotia Pub., New Delhi, 1996.

Smithies, K.W. Principles of Design in Architecture. Chapman and Hall, 1983.

Stone, G. Louis. Institutional Buildings Architecture of Controlled Environment.

Tergsone, W.R. Practical Laboratory Planning.

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ARCH 501: Architectural Design – IV

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
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PC	AR	STUDIO	ARCH 501	ARCHITECTURAL DESIGN IV				200	200	400			8	8

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Time-saver standards for building types,

Untermann, Richard and Small, Robert. Site Planning for Cluster Housing.

Wild, Friedemann, Libraries for Schools and Universities. Van Nostrand Reinhold, New York, 1972.

Wucius, Wong. Principles of Two-Dimensional Design. Van Nostrand Reinhold 1972.

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ARCH 502: Landscape Design & Site Planning

Cou rse Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)	TOTAL				
PC	AR	THEORY CUM STUDIO	ARCH 502	LANDSCAPE DESIGN & SITE PLANNING	60	30	30	15	15	150	1		2	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

ARCH 502: Landscape Design & Site Planning

Course Educational Objectives (CEOs)::
To expose the students to the various techniques of site analysis and planning,
To teach the importance of the site and its content in architectural creations, to orient the students towards several influencing factors which govern the sitting of building or group of buildings in a given site
to introduce various techniques of site analysis through exercises and case studies, the methodology of preparing a site analysis diagram, which serves as a prelude to any architectural creation through **exercises**
Understanding the environment, human interventions and their impacts on it and knowledge about various measures of protecting it. Exposure to various concepts, ideas and techniques prevalent in landscape architecture.
To expose the students to the various techniques of site analysis and planning,

Course outcomes (COs):

At the end of the course, students will be able to	This course introduces students to site planning and relates it to the design and planning of built environments and landscape design and relates it to the design and planning of built environments.
It provides an overview of the development of landscape design, site studies, plant studies and the application of the knowledge at various levels of design. To expose the students to the various techniques of site analysis and planning,
To teach the importance of the site and its content in architectural creations, to orient the students towards several influencing factors which govern the sitting of building or group of buildings in a given site
Expected Skills / Knowledge Transferred:	The contextual importance of on-site analysis can be understood based on the various site factor concerning the study area.
A first-hand understanding of site drawings for Landscape Architecture and Urban design is studied.
Various scientific and analytic site analysis techniques are understood.
A methodological approach for the preparation of master plans for small-scale and large-scale projects can be understood.
To develop an understanding of the importance of site conditions for the creation of good architectural solutions and focus on the site as a fundamental component of building design. examines the interrelationship of intended site use with the environment and also topography, vegetation and landscape, climate, geography, as well as theoretical aspects of site development. conceptual understanding of landscape design and site planning principles. skills in integrating landscape design with built environments
Focus: Landscape and site planning	to introduce various techniques of site analysis through exercises and case studies, the methodology of preparing a site analysis diagram, which serves as a prelude to any architectural creation through exercises
Understanding the environment, human interventions and their impacts on it and knowledge about various measures of protecting it. Exposure to various concepts, ideas and techniques prevalent in landscape architecture.
To expose the students to the various techniques of site analysis and planning,

Course Overview:
This course introduces students to site planning and relates it to the design and planning of built environments, it introduces students to landscape design and relates it to the design and planning of built environments. It provides an overview of the development of landscape design, site studies, plant studies and the application of the knowledge at various levels of design.

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
	Site Planning		

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ARCH 502: Landscape Design & Site Planning

Cou rse Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
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PC	AR	THEORY CUM STUDIO	ARCH 502	LANDSCAPE DESIGN & SITE PLANNING	60	30	30	15	15	150	1		2	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

I	Introduction	Philosophical and design issues related to site development – sitting of buildings, spatial and contextual relationships of built and outdoor space and circulation, site and its relationship to surroundings. Importance of climate and social factors in the development of the site.	**11 hrs**
II	Process	The process of design development. Identifying the functional requirements of the site. Development of site by mutual exploitation of forms and use of grading principles.	**11 hrs**
III	Principles	Introduction to Site Planning: site drawings ;Introduction To Site Analysis ; site context ; Design Of Landforms In A Site: Site Planning Principles And Techniques: Site survey and appraisal ; Contemporary concepts and concerns:	**11 hrs**
	Landscape Design		
IV	Introduction	Introduction to Landscape Architecture: History of Landscape Architecture: Elements in Landscape Design: Hardscape & Softscapes: Plants and Design: Landscape Services & Sustainability ;Urban Landscape: Contemporary concepts and concerns ;Environmental impact assessment: methodologies and techniques, the Environmental legislation: planning techniques: evaluation techniques:	**6 hrs**
V	Exercise	Exercise for site planning and landscape detailing	**6 hrs**

Sessional work:

Guidelines
Necessary theoretical inputs are to be given highlighting the norms and design issues. The topics not covered as design problems will have to be covered by the Studio faculty members through lecture/slideshow sessions and site visits.

Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes

Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.

One Major And the rest minor tasks are to be set from the entire syllabus

Assignments:
Site Studies – Plot, site, land and regions, size and shape of the site, Analysis of accessibility, Topography, Climate, landforms, Surface Drainage, Soil, Water, Vegetation, Ecology, and Visual aspects.

 Simple exercises in using plants and landscape elements, Studio exercises emphasizing the relationship between built form and outdoor areas, and site planning issues. Landscape design of a neighbourhood open space (area of 2000 to 3000 sq. metres)

Note:
Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

Suggested Readings :

B.C.Punmia, Ashok. k.Jain, Arun. K.Jain, Surveying Vol I, Firewall Media, 2005

Blake, Alan. Landscape Construction and Detailing. B.T. Batsford Ltd., London, 1996.

Brian Hacket, Planting Design

Bring, M, "Japanese Gardens: "design & Meaning

Colvin, Brenda. Land and Landscape.

Diane Y. Carstens, "Site Planning & Design for the Elderly", Van Nostrand Reinhold, New York, 1993

Edward.TQ, Site Analysis, Architectural Media,1983

Geoffrey And Susan Jellicoe, The Landscape of Man, Thames And Hudson, 1987

Grant W Reid, From Concept to Form in Landscape Design, Van Nostrand Reinhold Company, 1993

Hacheat, Brian. Planting Design.

Harris, C.W. and Dines, T. Nicholas. T.S.S for Landscape Architecture. McGraw Hill, New York, 1995.

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PC	AR	THEORY CUM STUDIO	ARCH 502	LANDSCAPE DESIGN & SITE PLANNING	60	30	30	15	15	150	1		2	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

James B. Root, "Fundamentals of Landscaping & Site Planning", AVI Pub. Co., Westport, 1985

John l.Mutloch. Introduction to Landscape Design, 2nd Ed.John Wiley &Sons, Inc, New York,2001

John Ormsbee Simonds, "Landscape Architecture: A manual of site planning & design", McGraw Hill,1961.

Joseph De Chiarra and Lee Coppleman, "Planning Design Criteria", Van Nostrand Reinhold Co., New York, 1968

Laurie, Michael. An Introduction to Landscape, 2nd Ed. Prentice-Hall, New Jersey, 1986.

Lynch, Kevin. Site Planning. MIT Press, Massachusetts, 1962.

R. Gene Brooks, "Site Planning - Environment, Process and Development", Prentice-Hall, 1988

Richard Untermann and Robert Small, "Site planning for cluster housing", Van Nostrand Reinhold Company, 1977

Santapau. H. Common Trees. National Book Trust, New Delhi, 1981.

Simonds, J.O., "Earthscape: A Manual of Environmental planning", McGraw Hill Book Co., New York,1978.

T.K. Bose and Chowdhury, Tropical Garden Plants in Colour, Horticulture And Allied Publishers, Calcutta,1991

Thomas H. Russ, "Site Planning and Design Handbook" Pearson Education, 2002

Time Savers Standards for Site Planning, McGraw Hill, Inc, 1995

Trivedi, P. Pratibha. Beautiful Shrubs. Indian Council of Agricultural Research, New Delhi, 1990.

TSS for Landscape Architecture, McGraw Hill, Inc, 1995

William M. Marsh, "Environmental Analysis for Land Use and Site Planning", McGraw-Hill, 1978

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ARCH 503: Building Material and Construction –V

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
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BS& AE	TE	THEORY CUM STUDIO	ARCH 503	BUILDING MATERIALS & CONSTRUCTION – V	60	30	30	15	15	150	1		2	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

ARCH 503: Building Material and Construction –V

Course Educational Objectives (CEOs)::
To introduce and expose students to various aspects involving the use of steel for the construction activity of buildings and structures.

Course outcomes (COs):

At the end of the course, students will be able to	Summarize the building material steel and various construction techniques concerning classification, and composition.
	Identify the chemical, and physical properties leading to structural strength and aesthetic qualities.
	Analyze the constructional systems and detailing of metal building components.
	Demonstrate the construction practices and details about the curtain wall.
	Determine the appropriate structural system and conceptual design of long-span structures.
Expected Skills / Knowledge Transferred:	To understand the techniques of constructing Steel and Pre-Fab, staircases and partitions using different materials
Focus: Steel	The student will understand the long-span building construction system
	Students will develop an understanding of different types of Finishes
	The student will learn the relationship between construction techniques and architecture vocabulary.

Course Overview:
The coursework deals with principles, methods and construction practices of structural steelwork. The outcome of this course is the ability to SPECIFY building materials as per the demands of the Design Program.

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
	STEEL ;Introduction: Steel Work Connections:		
I.	Metal Building components:	windows, doors, stairs, collapsible gates, rolling shutters, railings, BIS Codes. **Steel Members:** Columns and stanchions, stanchions or column bases, beam and girders, column and beam connections plate girders, lattice or Warren girder.	6hrs
II.	Frame & Roof systems:	Steel stanchions, girders, trusses: Characteristics, Types, components, selection, applications, structural sizing, fabrication & erection. Castellated Beam, Portal frames, Steel connections. Analysis & Design of simple trusses.	14hrs
III.	Steel Roof Trusses:	Steel trusses, types for various spans, tubular steel roofs, monitor roof, north light roof truss, details of steel–roof trusses.	10hrs
IV.	Curtain wall:	**Curtain wall:** Characteristics, Types, components, selection, applications, structural sizing, connections. Lantern light, dome light, structural steel practice and drawings as per IS Code. Portal frame, Geodesic principles, cable net and tensile structures.	10hrs
V.	Advanced Systems:	Space frames; Pre-engineered buildings, fire protection. Overview: tall structures, • Different types of Interior, Exterior, and Vertical & Horizontal Finish i.e.Plaster, Paint, Texture, Paving, Cladding etc. Long span structures - flat slab, beam and ribbed slab, waffle slab, vault, dome, shell structure, steel trusses, girder, portal frame, folded plate structure, PEB	5hrs

Sessional work:

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Cou rse Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
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BS& AE	TE	THEORY CUM STUDIO	ARCH 503	BUILDING MATERIALS & CONSTRUCTION – V	60	30	30	15	15	150	1		2	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Guidelines	Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes
	Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.
	At least two exercises are to be done in the construction yard.
	The classwork and home assignments should include appropriate site visits by the students.
	The student will maintain field observations/record books.
Assignments:	Each Unit should include a market survey and construction site to visit compulsorily with the studio working on sheets a minimum of 12 to 15 Nos A-1 Sheets
Note:	Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice
	This is a studio subject and students should be made to prepare construction drawings as studio exercises along with the theoretical inputs. The studio works in large-span structures. should be supplemented with appropriate site visits.

Suggested Readings :

MORGAN, Elements of Structures

SALVADORI, Structures in Architecture

A.Agarwal –Mud: The potentials of earth-based material for third world housing – IIED, London 1981**.**

Barry, R. The Construction of Buildings Vol. 2, 5th Ed. East-West Press. New Delhi, 1999.

Bindra, S P.and Arora, S P. Building Construction: Planning Techniques and methods of Construction, 19th ed. Dhanpat Rai Pub. New Delhi, 2000.

Dr B.C.Punmia – Building Construction

Francies D.K.Ching – Building Construction Illustrated. VNR, 1975.

Hailey and Hancock, D.W. Brick Work and Associated Studies Vol. 2. MacMillan, London, 1979.

HUDCO – All you wanted to know about soil stabilized mud blocks, New Delhi, 1989.

McKay J.K. Building Construction Metric Vol. 4, 4th Ed. Orient Longman Pvt. Ltd., Mumbai, 2002.

Mitchell. Advanced Structures.

Moxley, R. Mitchell's Elementary Building Construction, Technical Press Ltd.

R.Chudley – Building Construction Handbook – BLPD, London 1990.

R.Chudley, Construction Technology.

Rangwala, S.C. Building Construction, 22nd ed. Charotar Pub. House, Anand,2004.

Rangwala, S.C. Engineering Materials: Material Science, 31st Ed. Charotar Pub. House, Anand, 2004**.**

Sushil Kumar. T.B. of Building Construction, 19th ed. Standard Pub, Delhi, 2003.

Use of Bamboo and a Reed in Construction – UNO Publications

W.B. Mackay – Building Construction Vol 1,2 and 3 – Longmans, UK 1981.

Chairperson	**Chairperson**	**Controller of Examination**	**Joint Registrar**
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B. ARCH (2021-26)

ARCH 505: History of Architecture & Culture – V

Cou rse Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
PC	AR	THEORY	ARCH 505	HISTORY OF ARCHITECTURE & CULTURE -V	50	20	30			100	2			2

Legends: L - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

ARCH 505: History of Architecture & Culture – V

Course Educational Objectives (CEOs)::
To expose the students to a wide spectrum of architectural styles ranging from pre-historic to modern times.
To explain to the students the evolution of architecture over time with special emphasis on social, religious and environmental factors.
To make the students understand the developments in construction technology in different periods.

Course outcomes (COs):

At the end of the course, students will be able to	Students will learn the evolution of a new language from the new conditions
	Students will learn about the new concepts of space and form – parallels in the Arts and Sciences
	The student will learn about the beginning and the causes of the Modern and subsequent movements
	The student will learn about the context through which ideas developed as a linear consequence of events
	The student will become aware of the theories developed in the latter part of the 20th century
Expected Skills / Knowledge Transferred:	Acquire knowledge to identify the common characteristics among the monuments of a particular style.
	Acquire graphic skills to present a building, analyze its elements and explain the composition.
	Acquire knowledge of good practices of architecture in the past.
Focus: Colonial & Early industrial Theories, Modern, Post Modern & Contemporary Architecture	The student will learn about the post-Enlightenment worldview, the machine age and industrialization, mass culture

Course Overview:
History of Architecture to be studied as the development of building forms in response to social, religious, aesthetic and environmental factors. The study should focus on the three-dimensional forms, plan forms, façade organization, structural solution, construction methods and ornamentation. The study should focus on the general trends and not on specific e.g., on buildings.

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
I.	colonial development	• European colonial expansion and colonial development in India ; Imposition, modification and assimilation. New modes of organization, new materials and techniques, and new building types; The industrial revolution: new materials, techniques new modes of production. The industrial city and reform movements.; The transformation of the building process and impacts on architecture. Abstraction, standardization, mass production.	6 hrs
II.	evolution of form & Artistic Movements	To study the evolution of form and growth of architectural vocabulary from Neo-Classical to Contemporary architecture. Artistic Movements like Bauhaus, De Stijl, Art Nouveau, CIAM etc. Modernism in Europe & the U.S. (Louis Sullivan, Frank Lloyd Wright, Mies Van Der Rohe, Le Corbusier etc.).	6hrs
III.	Works of architects	Works of architects like Alvar Aalto, Eero Saarinen, Louis Kahn, Robert Venturi	6hrs

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B. ARCH (2021-26)

ARCH 505: History of Architecture & Culture – V

Cou rse Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					MARKS TOTAL	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
PC	AR	THEORY	ARCH 505	HISTORY OF ARCHITECTURE & CULTURE -V	50	20	30			100	2			2

Legends: L - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

		• Post-Modernism - Philip Johnson, Charles Moore, Michael Graves, Richard Meier, James Stirling and others. De-constructivism and Post- Structuralism	
IV.	Industrial Revolution	Influence of the Industrial Revolution on building materials, Construction Technology, the evolution of new building types and increasing user requirements.	6hrs
		Characteristic styles of modern architecture up to the First World War. Steel structures, Arts and crafts movement, Art Nouveau, Vienna School, Chicago School, Monumentalism, Expressionism and the beginning of RCC. Theories of John Ruskin, William Morris, Henry Vande Velde, Otto Wagner, Peter Behrens and Louis Sullivan.	
		Contributions to Architecture and Theory were made by pioneers Le Corbusier, Frank Lloyd Wright, Walter Gropius, and Mies Van der Rohe during the periods between the Worlds Wars.	
V.	Characteristics of modern architecture	Characteristics of modern architecture after the Second World War. Study of Alvar Aalto, Ero Saarinen, Richard Neutra, Louis I Kahn, Phillip Johnson, etc.	6hrs
		Design theories and contributions of Engineers- architects like Pier Luigi Nervi, Felix Candela, Buckminster Fuller, and Frei Otto.	
		Pre-independence architecture in India: Development of secular architecture from the end of the 18th Century to the middle of the 20th Century.	

Sessional work:

Guidelines   Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes

Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.

Assignments: Emphasis should be laid on understating building evolution and form. The continuous evaluation shall be made of students' work based on various models, assignments and sketching

Note: Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

NOTE:-Emphasis should be laid on understating building evolution and form. The continuous evaluation shall be made of students' work based on various models, assignments and sketching

SUGGESTED READINGS:

Fletcher, Banister. Sir Banister Fletcher's A History of Architecture. London: Butterworths, 1987.

Kostof, Spiro. A History of Architecture: Settings and Rituals. New York: Oxford UP, 1985.

Tadgell, Christopher. A History of Architecture. London: Ellipsis, 2000.

Ching, Francis D. K., Mark Jarzombek, and Vikramaditya Prakash. A Global History of Architecture.Hoboken, NJ: J. Wiley & Sons, 2007.

History of World Architecture. London: Faber, 1979.

Norberg-Schulz, Christian, and Pier Luigi Nervi. History of World Architecture. New York: Abrams, 1971.

Bagenal, Philip. The Illustrated Atlas of the World's Great Buildings: A History of World Architecture. S.1.: Leisure, 1980.

Fazio, Michael W., Marian Moffett, Lawrence Wodehouse, and Marian Moffett. A World History of Architecture. Boston: McGraw-Hill, 2008.

Peter Scriver (Editor), Vikramaditya Prakash (Editor) Colonial Modernities: Building, Dwelling and Architecture in British India and Ceylon (Architect). Routledge; New Ed edition (April 21, 2007)

Nilsson, Sten (1968). European Architecture in India 1750 – 1850. London: Faber and Faber

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ARCH 505: History of Architecture & Culture – V

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
PC	AR	THEORY	ARCH 505	HISTORY OF ARCHITECTURE & CULTURE -V	50	20	30			100	2			2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Thapar, Bindia (2004). Introduction to Indian Architecture. Singapore: Periplus Editions.

Building Construction: The history of building construction » The second industrial age", Encyclopedia Britannica. Accessed June 2009.

Mignot, Claude. The architecture of the 19th Century. Köln: Evergreen (Benedikt Taschen), 1994. .

Pevsner, Nikolaus. A History of Building Types. Princeton, NJ: Princeton UP, 1976.

Hofmann, Werner, and Udo Kultermann. Modern Architecture in Color. New York: Viking, 1970. .

Michell, George; The Penguin guide to the monuments of India, 2 vols, 1989

Porter, Andrew (1998). The Nineteenth Century, The Oxford History of the British Empire Volume III.Oxford University Press.

Marshall, PJ (1996). The Cambridge Illustrated History of the British Empire. Cambridge University Press

Olson, James (1996). Historical Dictionary of the British Empire. Greenwood Publishing Group.

McGowan, F.; Radosevic, S.; and Tunzelmann, N. von. Emerging Industrial Architecture in Europe. Hoboken: Taylor and Francis, 2004.

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B. ARCH (2021-26)

ARCH 506: Agritecture

Course Core	Course Area	Course Typology	Course Code	Course Name	THEORY End Sem University Exam (50%OR 40%)	THEORY Two Term Exam (20%)	THEORY Teachers Assessment* (30%OR 20%)	STUDIO End Sem University Exam (50%OR 10%)	STUDIO Teachers Assessment* (50%OR 10%)	TOTAL MARKS	L	T	S	CREDITS
PC	AR	THEORY	ARCH 506	AGRITECTURE	50	20	30			100	2			2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

ARCH 506: Agritecture

Course Educational Objectives (CEOs)::
The course aim s to introduce the culture and knowledge systems of indigenous people

Course outcomes (COs):

At the end of the course, students will be able to	Explain how conventional agricultural methods contribute to climate change. Define terms such as urban agriculture, controlled environment agriculture (CEA), and vertical agriculture. Describe technologies relevant to CEA, such as hydroponics, aeroponics, and aquaponics. Discuss how CEA can enhance food security and bring social value to underserved communities
Expected Skills / Knowledge Transferred:	conventional agricultural methods contribute to climate change. urban agriculture, controlled environment agriculture (CEA), and vertical agriculture. Describe technologies relevant to CEA, such as hydroponics, aeroponics, and aquaponics. Explain how conventional agricultural methods contribute to climate change.
Focus: culture and knowledge systems of indigenous people	

Course Overview:
Seeds of Change: Architects and landscape architects are helping create new growth strategies to combat climate change, protect fragile ecosystems, and feed burgeoning populations. The course deals with various methods of farming and architecture related to farming

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
I.	introduction	What are agritecture (agro green), Urban Farming and agro-urban architecture difference between traditional and new modes of farming Historical account and current implementation with local to global implications	6 hrs
II.	History and its influence	Agrarian society and its impact on architecture Crop pattern, domestic animals, equipment and its relation to various living and storage spaces; Agricultural practices and waste contributing to materials & techniques. Living style, beliefs, festivals and Spaces Space- Activity relationship; living style and beliefs reflected on space usage and design. Conscious efforts for environmental design; Indian Festivals and built habitats.	4hrs
III.	Environmental and global perspective	Global Issues in the farm sector Environmental food crisis Scalable solutions, micro scale personal, small- and large-scale community, commercial New ways of community food production Benefits of greening with green community spaces	6hrs
IV.	Indian perspective	Indian Artisans and contribution to spaces Artisans as integrating the thread of civilization. Product, utilitarian concept, design, Trade and business; Spaces as a reflection of artisan's skills using local material Building materials and Technology with region-based, Vernacular Use of Local materials leading to the climate-responsive design, regional character reflecting organic development, and Vernacular	4hrs

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ARCH 506: Agritecture

Cou rse Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					MARKS TOTAL	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
PC	AR	THEORY	ARCH 506	AGRITECTURE	50	20	30			100	2			2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio;   **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

		thought leading to sustainable habitat. Ease of modification, extension, and intervention due to people-based technology.	**6hrs**
V.	settlement design and other issues	Water, its judicial use and management Water as location criterion, rivers in Indian traditions; the phenomenon of Monsoon, Techniques of making reservoirs, social contribution to Scarcity, pollution and management of water.	**4hrs**
		Water, its judicial use and management Water as location criterion, rivers in Indian traditions; the phenomenon of Monsoon, Techniques of making reservoirs, social contribution to Scarcity, pollution and management of water.	
		Settlement design and issues Settlement types and their guiding principles restoring social, economic & environmental resilience; Scale and location of various structures, Issues and limitations in design, Historical references in scripts and LOKVIDYA	

Sessional work:
Guidelines

Sessional work: The assignment will be in the form of a journal or small project showing the application of the methods

Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes

Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.

One Major And the rest minor tasks are to be set from the entire syllabus

Assignments:

Sessional work: The assignment will be in the form of a journal or small project showing the application of the methods

Note:

Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

Suggested Readings:

Wagner Walter, Green Architecture, Design for a sustainable future Energy-efficient buildings
Hawkes Dean and Foster Wayne, Architecture, Engineering and Environment
Koenigsberg, Manual of Tropical Housing and Climate
Milli Mujumdar, Energy Efficient Buildings in India **Houben Hugo Publications from - CBRI -** Roorkee, Earth Construction
Sarao, Gaabi and Singh, Refrigeration and Airconditioning
Rangwala, Water supply and Sanitary Engineering (Environmental Engineering)
F Hall, Plumbing Services and Design Guide –Compiled and published by Institute of Plumbing Building Services and Equipment (Part I & Part II) **Frank R Dagostino** Mechanical and Electrical Systems in Construction and Architecture-by
Lynn S Beedle(Council of tall buildings and urban habitat) Advances in Tall Buildings
Lechor Worbert Heating, Cooling and lighting design methods for architecture. By
M. K. Gandhi, Gram Swaraj by Navjeevan Trust publication, Ahmedabad
Rashtrasant Tukdoji Maharaj, Govt. of Maharashtra publication. of Center of Sciences for Villages, Gram Geeta
Dharamitra, Dattapur, Wardha. Tribes of Central India, Publications of Vriksha Mitra, Chandrapur, M. S.
Ar. Anil Laul, New Delhi. Green is Red, https://www.agritecture.com/research-articles,https://www.intechopen.com/books/advances-in-landscape-architecture/urban-agriculture-the-allotment-gardens-as-structures-of-urban-sustainability,https://mithun.com/project/center-for-urban-agriculture/ https://www.detail-online.com/article/agro-urban-architecture-34394/,https://www.designboom.com/tag/urban-farming/,Urban Growth: A Synthesis of Agriculture and Architecture by Ashley Marcynuk,https://continuingeducation.bnpmedia.com/courses/architectural-,ecord/urban-,griculture/3/,https://www.archdaily.com/tag/urban-farming,https://futurearchitectureplatform.org/projects/2b2c35a3-091c-46d9-b6e7-a494f49e0f97/

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B. ARCH (2021-26)

ARCH 507: Structural Design – II

Cou rse Core	Course Area	Course Typology	Course Code	Course Name	THEORY			STUDIO		MARKS TOTAL	L	T	S	CREDITS
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
BS& AE	TE	THEORY	ARCH 507	STRUCTURAL DESIGN II	50	20	30			100	2			2

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; S – Studio; C - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

ARCH 507: Structural Design – II

Course Educational Objectives (CEOs):
To develop the structural design skills of the student in steel.

Course outcomes (COs):

At the end of the course, students will be able to	Design of simple connections, rivets, welds, bolts and pins. Design of welded connections. Cognitive Creating Design of compression members. Design of column base and footing. Design of Tension members Cognitive Creating Design beams and Gantry Girders Develop the capability to design Steel structures.
Expected Skills / Knowledge Transferred:	
Focus: design Steel structures	Discusses loads on structures, stresses, the concept of factor of safety, methods of design and gives an introduction of a type of rolled steel sections.

Course Overview:
- The course focus is on the Structural Design of elements of Industrial Buildings in Steel.

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
I.		Design of simple beams including a check for shear and deflection for laterally supported and unsupported conditions, analysis of simple beams from strength and stiffness considerations. Design of built-up beams with flange plates only, Introduction to plate girders (No Design calculations)	5hrs
II.		Axially loaded tension members: introduction, net effective areas, analysis and design of tension members including rivet and welded connections, (L-Angle and T-section only) Columns: Analysis and design of axially loaded steel columns using a single Section, 2 channels placed back to back and toe to toe, 4-angles etc., including a lacing system.	5hrs
III.		Design of slab base and gusseted base for axial loads (without moments) for different columns. Design of grillage Foundation for isolated columns only	5hrs
IV.		Purlins: Introduction, Dead load, live load and wind loads, the design of angle purlin and I-section purlin	5 hrs
V.		Bracket Connections, Riveted & Welded Connections design of Joints.	5hrs

Sessional work:

Guidelines	Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys. One Major And the rest minor tasks are to be set from the entire syllabus
Assignments:	Emphasis should be laid on understating building evolution and form. The continuous evaluation shall be made of students' work based on various models, assignments and sketching
Note:	Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained

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ARCH 507: Structural Design – II

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
BS& AE	TE	THEORY	ARCH 507	STRUCTURAL DESIGN II	50	20	30			100	2			2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio;   **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

at the Institute level for the viva-voice

Suggested Readings:
Ram Chandra. Design of Steel Structures Vol. I, 10th Ed. Standard Book House, Delhi, 1999.
Dayaratnam, P. Design of Steel Structures. Wheeler Pub., Allahabad, 1992.
Ramamrutham, S. and Narayanan, R. Design of Steel Structures, 4th Ed. Dhanpat Rai and Sons, Delhi, 1995. **IS CODE FOR STEEL**

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ARCH 508: Building Information Modelling

Cou rse Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					MARKS TOTAL	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	SK	STUDIO	ARCH 508	BUILDING INFORMATION MODELLING				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

ARCH 508: Building Information Modelling

Course Educational Objectives (CEOs)::
To develop the BIM skil ls of the student.

Course outcomes (COs):

At the end of the course, students will be able to	Build digital 3d models and rendered images using any suitable 3d software. Develop simple animations. Make use of different commands and features to build a BIM model. Build basic parametric Revit Families for BIM Model. Build virtual walkthroughs and experience architectural designs in Virtual Reality. Develop the capability to design with BIM.
Expected Skills / Knowledge Transferred: Focus: Manual Skills	The student will be able to create the design in BIM software and generate working drawings The student will be able to handle multi-disciplinary coordination (Architecture, MEP, Structure, Landscape, etc.) The student will learn presentation skills

Course Overview:
The course focus is on BIM. Demonstrate multi-disciplinary coordination (Architecture, MEP, Structure, Landscape, etc.)
Apply the skills to improve the presentation of drawings
Create the design in a BIM software and generate working drawings

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching G Hours:
I.	An overview	An overview of BIM technology What is BIM? Introduction: History: BIM vs. Geometric Modeling Elements of BIM	5hrs
II.	Application of BIM	Application of BIM Software's Management of building information models BIM in construction management BIM in facility operation BIM in green building	
III.	Creation and conversion of the design	Creation and conversion of the design into BIM Software's Basic modelling Introduction to Building Information- Modelling – BIM and Revit- User interface – Levels- Grids & Columns – Walls – Doors – Windows – Floors – Stairs – Ceilings – Roofs – Sections - Elevations	10hrs
IV.	Design development and documentation	Design development and documentation in 3 Dimension Extended modelling and outputs Curtain walling - 3d views - Rendered outputs - Schedules - Families (basic content creation)- Details & Callouts - Linked files - Layouts & Plotting Conceptual modelling Collaboration & Analysis Organic conceptual modelling - Linking to other modelling software - Collaboration - BIM Analysis	10hrs
V.	basic parametric elements	Understanding of basic parametric elements	5 hrs

Sessional work:

Guidelines   Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes
Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.

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B. ARCH (2021-26)

ARCH 508: Building Information Modelling

Cou rse Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem Universit y Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessm ent* (30%OR 20%)	End Sem Universit y Exam (50%OR 10%)	Teachers Assessm ent* (50%OR 10%)					
SEC	SK	STUDIO	ARCH 508	BUILDING INFORMATION MODELLING				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio;   **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Assignments:
One Major And the rest minor tasks are to be set from the entire syllabus
Emphasis should be laid on understating building evolution and form. The continuous evaluation shall be made of students' work based on various models, assignments and sketching

Note:
Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

Suggested Readings:

Brad Hardin, Dave McCool, BIM and Construction Management: Proven Tools, Methods, and Workflows

Briscoe, Danelle. (2015) Beyond BIM: Architecture Information Modeling. London Routledge Taylor and Francis Group.

Danelle Briscoe, Beyond Bim: Architecture Information Modeling

Dominik Holzer, The BIM Manager's Handbook: Guidance for Professionals in Architecture, Engineering, and Construction

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.

Finith E Jernigan Aia, Big Bim Little Bim

Garber, Richard. (2014). BIM Design: Realising the Creative Potential of Building Information Modelling. Wiley. 1 edition.

Kensek, Karen M. Noble, Douglas E. (2014). Building Information Modeling: BIM in Current and Future Practice. Wiley.

Prof. Bimal Kumar, A Practical Guide to Adopting BIM in Construction Projects

Ray Crotty   The Impact of Building Information Modelling

Richard Garber, BIM Design: Realising the Creative Potential of Building Information Modelling

Robert Klaschka, BIM in Small Practices: Illustrated Case Studies

Stefan Mordue, Paul Swaddle, David Philp Building Information Modeling For Dummies

Steve Race, BIM Demystified

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B. ARCH (2021-26)

ARCH 510: Study Tour -III

Cou rse Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					MARKS	TEACHING SCHEME/WEEK			
					THEORY			STUDIO			L	T	S	CREDITS
					End Sem Universit y Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessm ent* (30%OR 20%)	End Sem Universit y Exam (50%OR 10%)	Teachers Assessm ent* (50%OR 10%)	TOTAL				
SEC	SU	INTERNS HIP	ARCH 510	STUDY TOUR III				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

ARCH 510: Study Tour -III

Course Educational Objectives (CEOs):
To analyse various art forms, a nd understand the techniques involved in creative thinking.

Course outcomes (COs):

At the end of the course, students will be able to	Get exposure to the various built environments at different places of architectural relevance across the state, region, country and the world. Apprise the relevance of the built environment by observing & photo documentation of selected places
Expected Skills / Knowledge Transferred:	different skills for creative thinking, understanding various art forms and appreciating art and architecture. a paper presentation and a summer case study • Students will get an understanding of the "synthesis of learning from various courses" by observing; registering & mapping-built buildings. • Programme outcome will be extremely valuable in creating a knowledge base on the architecture field not only in India but in nearby countries as well. • Production of Accurate and precise drawings of many a monument, institutions, and settlements in India, which become a basis for future research. Provides knowledge on the traditional art form, innovations in and influences on architecture and thinking process in design;
Focus: Manual Skills	Students will get an understanding of the "synthesis of learning from various courses" by observing; registering & mapping built buildings. The programme outcome will be extremely valuable in creating a knowledge base in the architecture field not only in India but in nearby countries as well. Production of Accurate and precise drawings of many a monument, institutions, and settlements in India, which become a basis for future research. Provides knowledge on the traditional art form, innovations in and influences on architecture and thinking process in design;

Course Overview:
Students will develop the skills & understanding of measure drawing.

Course Contents:

Unit	Syllabus: Topic Subtopic	Teaching Hours:

The STUDY TOUR (SBP) at the Institute of Architecture is a unique contribution to Architectural education. Initially called measure drawings, it is intended to take the students out into the field to get a first-hand experience of traditionally built environments. This subject recognizes the value of traditional architecture as well as the importance of field experiences

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ARCH 510: Study Tour -III

Course Core	Course Area	Course Typology	Course Code	Course Name	End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)	TOTAL MARKS	L	T	S	CREDITS
					THEORY			**STUDIO**			**TEACHING SCHEME/WEEK**			
SEC	SU	INTERNSHIP	ARCH 510	STUDY TOUR III				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

and travels in the learning of architecture. The students are encouraged to learn about not only the architectural form but also related components of architectural relevance.
• Student and faculty members stay at the selected Village for 8 to 15 days.
• Students will get a comprehensive awareness of that village.
• Students will measure the built environment in terms of a cluster of houses, individual houses, and building elements of that house.
• Students will also document the social, cultural, and environmental aspects of that village.
• Students came back to the institute and made the final Drawings and reports within the remaining days.

Sessional work:

Guidelines	Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes
	Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.
	One Major And the rest minor tasks are to be set from the entire syllabus
Assignments:	Evaluation: Stages: Proposal and on final submission of the paper /DOCUMENTATION of places visited Students contribute to the topic/area is of critical importance.
	Site Studies – Plot, site, land and regions, size and shape of the site, Analysis of accessibility, Topography, Climate, landforms, Surface Drainage, Soil, Water, Vegetation, Ecology, and Visual aspects.
Note:	Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice
	detailed out as per the academic calendar; a paper presentation on any subject of interest in the core or elective subjects.; The student needs to identify an area for research and in consultation with a guide propose first. On approval, this is to be developed through the summer and culminate as a research paper. Requirements (from students): Proposal, reviews, final presentation and paper.; a summer case study where the student has to select a built building by one of the architects and have a live document of the building and analyse the building and a Word of the concept according to the architect.

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ARCH 519: Elective – V

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)	TOTAL				
SEC	SU	THEORY /STUDIO	ARCH 519	ELECTIVE - V (POOL II)				50	50	100			2	2

Legends: L - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio;   **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

ARCH 519: Elective – V

5 Sem	Elective V
519.1	Alternative construction techniques
519.2	Lightweight structures
519.3	Graphics design
519.4	MOOC : Poetics & Politics In Shaping Architecture : Acedge

Course Educational Objectives (CEOs):
overall nurturing of the student with issues in practice and field outside

Course outcomes (COs):

At the end of the course, students will be able to	overall nurturing of the student with issues in practice and field outside
Expected Skills / Knowledge Transferred:	better grooming than just books and theories.
Focus: Manual Skills	The creative electives provide an opportunity to express talents that are different from architecture but related to imagination, visualization & creation. They offer hands-on experience of unique ingenuity & workmanship. The essence of a creative domain can be achieved by exploring different materials, techniques, and processes; developing creative products; and finishing & presenting the product for the concepts that evolved. The outcome will be through portfolio & presentations. As Per Pool Electives Choices Stage I odd semester pool

Course Overview:
The following is a representative list of Institute projects: Seminars,   Tutorials/ additional classes for any course, Guest Lectures, Workshops, Providing knowledge to support students being sensitive to design;

Sessional work:

Guidelines	The topic of the project is to be displayed on the Institute Notice Board fifteen days in advance OF the commencement of the classes Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes
Assignments:	One Major And the rest minor tasks are to be set from the entire syllabus Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva–voice
Note:	Evaluation: Stages: Proposal and on final submission of the paper /DOCUMENTATION of places visited Students contribute to the topic/area is of critical importance. Evaluation is to be done through viva voce, Portfolios after the university exam shall be retained at the Institute level for the viva–voice

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ARCH 519.1: Alternative construction techniques

Alternative construction techniques	Students will learn about Furniture Design for designing with Ergonomics & aesthetics in context. The student will be able to Understand elements of furniture in Commercial (Retail) Interiors. Exploring the possibilities of designing furniture

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ARCH 519: Elective – V

Cou rse Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					MARKS TOTAL	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem Universit y Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessm ent* (30%OR 20%)	End Sem Universit y Exam (50%OR 10%)	Teachers Assessm ent* (50%OR 10%)					
SEC	SU	THEORY /STUDIO	ARCH 519	ELECTIVE - V (POOL II)				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

with optional Materials and processes.

Elements of Furniture including Shop Fronts, Lighting, Window Display & Signage. Surveying collecting data through a live case study and evaluation of a case study and concluding design parameters. Presentation through detailed sketches, drawings & study models and material board to demonstrate the design process from the conceptual stage to the final furniture product design

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

Learn about various aspects of alternative construction techniques.

Apply the knowledge of construction techniques in building design.

Design prototypes of buildings using non-conventional building methods and compare them with conventional methods.

1 Overview ; Importance of Alternative construction technique ; Pros and cons of Alternative construction technique

2 Approaches to different techniques ; Techniques ; Material ; Processes Case study and presentation to explain the same

3 Alternative techniques of load-bearing construction Different materials i.e. Brick, Stone, Mud and their construction techniques Case study and presentation to explain the same

Alternative techniques of frame construction Study different Alternative techniques of frame construction i.e. light steel frame construction, long-span construction, etc. Case study and presentation to explain the same

Alternative techniques of composite construction ; Study of different Alternative techniques of a combination of load-bearing & frame construction i.e. Vernacular buildings Case study and presentation to explain the same

4 Non-conventional material ; Study of non-conventional material as building material Case study and presentation to explain the same

5 Comparing conventional and alternative construction ; Cost compression ; Durability ; Maintenance ; Easy of construction

Suggested Readings:

• Elizabeth Lynne and Adams Cassandra. (2000). Alternative Construction Systems: Contemporary Natural Building Methods. New York, NY: John Wiley & Sons.

• Johan van Lengen. (2008). The Barefoot Architect: A Handbook for Green Building. Bolinas, CA, 94924 USA: Shelter Publications.

• Levy Matthys and Salvadori Mario. (2002). Why Buildings Fall: How Structures Fail. New York: W.W. Norton

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ARCH 519.2 : Lightweight structures

Lightweight structures

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

• Understand the behavior of material and structural properties in a lightweight structure

• Learn about lightweight structure from concept to the actual construction process

• Apply knowledge to design and build lightweight structures

- Process of building structure Structure and Structure form What are Structure and its importance in Architecture? Structural form - solid, Surface, skeleton, Membrane, hybrid Structural form - in Nature Structural form - man-made Structural material strength, stiffness, shape

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ARCH 519: Elective – V

Cou rse Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)	TOTAL				
SEC	SU	THEORY /STUDIO	ARCH 519	ELECTIVE - V (POOL II)				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

- The broad categorization of structural system Structure types Membrane - Cable/membrane tents, cable nets, pneumatics Hybrids - Tension-assisted structures
- States of stresses Vertical, Horizontal, Rational settlement and earthquake behavior
- Basic requirements of structure Structural Elements Strut, tie, beam, slab/plate, panel Structural Element behaviour Tensile, compressive, shear, torsion, bending Model testing and discussion Discussion on why it fails?
- Types of loads & supports Load on Structure Permanent – Temporary Dead load, Imposed load, Thermal load, Dynamic load

ARCH 519.3: Graphics design

Graphics design	At the end of the course, students will be able to – Interpret the importance and relevance of Graphic Signage Illustrate the use of various techniques of typography Develop knowledge of various compositions based on the typology **Objective:** To explore and investigate the visual representation of data through a range of techniques and to understand the basic working of elements and principles for composition in various mediums. **Outline:** Fundamentals of graphic design: To convey denotative and connotative messages using analogue and digital image-making techniques. A Radical Approach to learning typographic terminology and rules for creating typography in both a functional and expressive manner. Using elements – Shapes, Textures, patterns and colours, an abstract design is processed by composing work that ranges from complex to minimal. Plan, Grids and layout. Progress in graphic design: Awareness of the relationship of design history to create new designs in digital art. An outline of the evolution of Graphics from Industrialization to the present: Various stylistic transformations, branding and other movements. Understanding the current design trends, tools, and techniques for future visions in the field of graphic design. Branding & advertisement: To explore various types of logo design and study of brand and its identity. To comprehend and analyze different products, their material - medium of packaging and scheming based on the fundamentals of graphics to appeal to the end-users. **Infographics & web design:** To acquire knowledge on Plans, Grids and layouts applied in infographics. To explore making maps and various charts that focus on the bar, line, and pie using software mediums like Adobe Photoshop, Illustrator and other page layout software etc.

- History Brief History of Signage
- Symbol, Signs & Pictograms Symbol, Signs & Pictograms
- Principles s in graphic design Principles of Compositions in graphic design and Detail (Importance of Visual Balance & colours in signage)
- Types of Signage Different types of Signage – Indoor & Outdoor,
- Introduction Of graphic Software I.E. Coral Draw, Adobe Photoshop, Adobe Illustrators, Lightroom (Over View And Biggner Level Exploration)

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Cou rse Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					MARKS	TEACHING SCHEME/WEEK			
					THEORY			STUDIO			L	T	S	CREDITS
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)	TOTAL				
SEC	SU	THEORY /STUDIO	ARCH 519	ELECTIVE - V (POOL II)				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

- Execution of Graphics Introduction Of Printing or/and physically various methods of execution of graphics
- Rafael Concepcion (2018). Adobe Photoshop CC and Lightroom CC for Photographers Classroom in a Book, 2nd Edition, Adobe Press.
- Meggs, P. B., Purvis, A. W., & Meggs, P. B. (2006). Meggs' history of graphic design. Hoboken, N.J: J. Wiley & Sons. Cees W. de Jong, Alston W. Purvis, Jan Tholenaar (2019). Type: A Visual History of Typefaces and Graphic Styles, Taschen GmbH Mendiritta B D, Composing and typography today, 1983 Knuth Donald E, Digital typography, 1999 Heller Steven; Fernandes Teresa, Becoming a graphic designer, 2007. Gill Bob, Graphic design as a second language, 2003 Gordon Bob; Gordon Magic, Complete guide to digital graphic design, 2002 Street Rita; Lewis Ferdinand, Touch: Graphic design with tactile appeal, 2001

ARCH 519.4. MOOC

Course Educational Objectives (CEOs):
overall nurturing of the student with issues in practice and field outside

Course outcomes (COs):

At the end of the course, students will be able to	Tell different types and techniques of collages and/or manages Illustrate the importance of collages and/or montages as a tool to represent and communicate ideas mpose a collage/montage
Expected Skills / Knowledge Transferred: Focus: Manual Skills	better grooming than just books and theories. The creative electives provide an opportunity to express talents that are different from architecture but related to imagination, visualization & creation. They offer hands-on experience of unique ingenuity & workmanship. The essence of a creative domain can be achieved by exploring different materials, techniques, and processes; developing creative products; and finishing & presenting the product for the concepts that evolved. The outcome will be through portfolio & presentations. As Per Pool Electives Choices Stage I odd semester pool

Course Overview:
The following is a representative list of what may :
Tutorials/ additional classes for any course on online mode of platforms, Provides knowledge to support student being sensitive to design;

- a paper presentation

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ARCH 520: Seminar I

Course Core	Course Area	Course Typology	Course Code	Course Name	End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)	TOTAL MARKS	L	T	S	CREDITS
					THEORY			STUDIO						
SEC	SK	THEORY	ARCH 520	SEMINAR (RESEARCH IN ARCHITECTURE)	50	20	30	20		100	2			2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

ARCH 520: Seminar I

Course Educational Objectives (CEOs)::
- architectural communication is emphasized

Course outcomes (COs):

At the end of the course, students will be able to	Learn about various approaches to research in the field of Architecture Explore various aspects related to research Develop a preliminary research proposal
Expected Skills / Knowledge Transferred:	a seminar on what is architecture addressing as an introduction to it.
Focus: Research Skills	To inculcate the habit of reading books related to architecture and allied subjects in a structured manner. Course Content This course involves library-based study and report writing. The students are expected to read two or more books in a given subject area or by a particular author, as assigned by the faculty. They are expected to write critical essays, book reviews or research reports based on their readings. In addition, students are expected to follow academic writing and referencing conventions from this Semester onwards.

Course Overview:
Provides knowledge on a traditional art form, innovations in and influences on architecture and thinking process in design;

Course Contents:

Sr. No.	Syllabus: Topic	Subtopic	Teaching Hours:
I.	Overview	Introduce undergraduate students to contemporary architectural culture. Introduce students to projection through scales. Develop critical problem-solving skills based on architectural design methodologies. Provide an introduction to the tools and materials associated with an architectural education. Develop public speaking and presentation skills.	
II.	Introduction to Research	What is research? Types of research. Social research and Architectural research.	7 hrs.
III.	Formation of a research idea	Literature Review Formation of Aim and Objective. Research scope and limitation. The output of research.	17 hrs.

Sessional work:

Guidelines	Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes
	Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.
	One Major And the rest minor tasks are to be set from the entire syllabus
Assignments:	Evaluation: Stages: Proposal, Mid-Review and final submission of the paper.

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ARCH 520: Seminar I

Cou rse Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					MARKS TOTAL	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	SK	THEORY	ARCH 520	SEMINAR (RESEARCH IN ARCHITECTURE)	50	20	30	20		100	2			2

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; S – Studio; C - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Note:

Students' contribution to the topic/area is of critical importance.

This shall be the outcome of logical research on a topic related to any aspect of Architecture and allied subjects. It is expected that the students will demonstrate effective oral presentation in a hall of audience, as well as structured writing. Students may choose a topic related to theory/philosophy / current issues related to architecture and allied subjects. The topics must be vetted by the subject teacher/s. The emphasis must be on critical understanding, logical reasoning, and structured argument/discussion about the topic chosen. The student is expected to draw inferences based on a structured study as above. By the end of the semester, students are expected to submit a written paper of approximately 2000 words. Students must adhere to Standard referencing conventions and technical writing norms. The final assessment of the student's work may be based on oral communication as well as written communication. However, greater weightage may be given to the oral communication of the students.

Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

Suggested Readings:

Hammon, Michal and Jerry wellington .2013. Research Method: The Key Concepts.NewYork: Routledge

Creswell, John W. 2009. Research Design: Qualitative, Quantitative and mixed methods Approaches. 1000 oaks,

Warburton, Nigel. 2006. The Basics of essay writing. New York: Routledge

Turabian, Kate L 2007. A manual for Writer of Research Papers, Thesis and Dissertation, Seventh Edition Chicago: University of Chicago Press.

Wehrli, Robert, Environmental Design Research: How to Do It and How to Apply It, New York, Wiley: 1986

Todd, Alden, Finding Facts Fast: How to Find Out What You Want and Need to Know, Berkeley, Ten Speed Press: 1979

Snyder, James, Architectural Research, New York, Van Nostrand Reinhold: 1984

Zeisel, John, Inquiry by Design: Tool for Environment-Behavior Research, Cambridge, Cambridge University Press: 1981

Sandhoff, Henry, Visual Research Methods in Design, Van Nostrand Reinhold: 1991

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