

Choice Based Credit System (CBCS) Scheme in the light of NEP-2020 by COA

B. ARCH (2021-26)

## **COURSE CONTENT**

ARCH 401: ARCHITECTURAL DESIGN - III

			GY		п	ACH	NG S	CHEME			EV	ALUATION SC	HEME			s	(HRS)
URSE	ORE	E AREA	IYPOLOGY	NAME OF THE COURSE						THE	ORY		-	STUDIO		MARK	DURATION
COL	3	COURSE	COURSET	NAME OF THE COURSE	ι	T	s	CREDIT	2 -TERM EX AM 20%	TA 20%08 30%	ESUE 40%0R 50%	TOTAL	TA 10% OR 50%	EV 10% OR 50%	TOTAL	TOTAL	
STUDIO									INT	EX		INT	EX				
ARCH 401	PC	AR	STUDIO	ARCHITECTURAL DESIGN III			8	8					200	200	400	400	

L - THEORY; S- STUDIO, T - TUTORIAL; C - CREDIT; HRS: HOURS; MST - MIDTERM TEST, A MST - AVERAGE OF MIDTERM, ESUE - END SEMESTER UNIVERSITY EXAMINATION; IA - INTERNAL ASSESSMENT PROGRESSIVE, SS- FOLIO FINAL Sessional (INTERNAL), EV - EXTERNAL VIVA VOICE, RVW - INTERMEDIATE REVIEW

2<sup>ND</sup> YEAR / IV Semester

# ARCH 401: ARCHITECTURAL DESIGN - III

Syllabus: 15 weeks (8 hours/week) Total Teaching hours: 120 Hr

### COURSE OBJECTIVE:

To develop abilities in design in the context of user requirements.

#### COURSE OUTCOME:

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

- Interpret Environmental, Cultural and Place Dimensions of Space
- Explore the design at the building element level, building level, cluster level and site level
- Demonstrate the connection between the built space and natural evolved space to convert it into a comprehensive livable environment.

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. Use of standards, handling of space, and application of knowledge gained from other subjects in design.

FOCUS: Habitat, Environment & Services

• The student will develop an understanding of the Environmental, Cultural and Place Dimensions of Space

• The student will explore the design at the building element level, building level, cluster level and site level

• The student will establish a connection between the building space and natural evolved space to convert it into a comprehensive liveable environment.

# COURSE OVERVIEW:

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

# COURSE CONTENTS:

	. NO. SIGN	SYLLABUS: TOPIC	SUBTOPIC		TEACHING G HOURS:
			the usage on built-for Field stud settlements, Understand Methods o Dwelling a combinati Theme & various us buildings;	ulture, place and its specific i of space. Environment and its m. ies, analytical study of ir s, to understand use patter climatic elements of space a ding of Appropriate Technol f Construction. and Community – Unit an onal principles. Focus of Design: Study & a er types & their activities Development of design pro & detailed design with a focu	ndigenous n, cultural nd form. x ogies and d Cluster analysis of in public ogramme;
rperson		Chairpe	rson	Controller of Examination	Joint Registrar

Chairperson	Chairperson	Controller of Examination	Joint Registrar
Board of Studies	Faculty of Studies	Shri Vaishnav Vidyapeeth	Shri Vaishnav Vidyapeeth
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## **COURSE CONTENT**

## ARCH 401: ARCHITECTURAL DESIGN - III

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URSE	DRE	E AREA	IYPOLO	NAME OF THE COURSE						THE	ORY			STUDIO		MARK	ATION
CO	CO	COURSE	COURSE 1	HANK OF HIL COURSE	ι	T	s	CREDIT	2 -TERM EX AM 20%	TA 20%0R 30%	ESUE 40%0R 50%	TOTAL	TA 10% OR 50%	EV 10% OR 50%	TOTAL	TOTAL	EXAM DUR
STUDIO									INT	EX		INT	EX				
ARCH 401	PC	AR	STUDIO	ARCHITECTURAL DESIGN III			8	8					200	200	400	400	

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		<ul> <li>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.</li> <li>Landscape Detail: Importance, exploring &amp; understanding the essence; Detailing process; User analysis; Elements; Functionality &amp; aesthetics; Materials. This Minor Exercise will be represented through conceptual development (sketches, physical &amp; digital models).</li> <li>Exploration of Sloping Sites: Exploration &amp; analysis of existing iconic designs on sloping sites; Understanding design philosophy &amp; process; Learning from design quality; Literature/book reviews; Architectural critiques.</li> <li>Design Exercise: Design of Multi-Functional Building/s for 30 to 40 users; Typology: Art Gallery, Library, Motel, Cultural Centre, Nursery, Kindergarten, Recreational Club, Guest House, etc.; Site extent - sloping site up to 8000 m2; Topography - average slope ranging from 1:5 to1:8.</li> </ul>	
1	Preparatory exercises/ Programmatic and site analysis	<ul> <li>Factors affecting house form <ul> <li>Climate o Topography</li> <li>The social and economic aspects</li> <li>Temporary (Nomadic) and permanent (Settler) house structure</li> </ul> </li> <li>Traditional settlement (settler) <ul> <li>Community-based</li> <li>Security based</li> <li>Income-based climatic and topographic conditions</li> </ul> </li> <li>Temporary settlement (Nomadic) <ul> <li>Community-based</li> <li>Security-based</li> <li>Security-based</li> <li>Community-based</li> <li>Security-based</li> <li>Community-based</li> <li>Security-based</li> <li>Security-based</li> <li>Climatic and topographic conditions</li> </ul> </li> <li>Site Analysis <ul> <li>Site location or context (Inside city/outside city)</li> <li>Culture and Socioeconomic condition</li> <li>Climate and Topography</li> <li>Built/open relation</li> <li>Distribution of open space/green space</li> </ul> </li> </ul>	14 hrs
2	Conceptual stage and Schematic design	<ul> <li>Distribution of open space/green space</li> <li>Concept of Mass housing</li> <li>Type of housing</li> <li>Private housing</li> <li>Public housing</li> </ul>	14 hrs

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### **COURSE CONTENT**

20 hrs

12 hrs

<b>ARCH 401</b>	ARCHITECTURAL	<b>DESIGN – III</b>
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URSE	ORE	E AREA	IYPOLO	NAME OF THE COURSE						THE	ORY			STUDIO		MARK	ATION
COL	20	COURSE	COURSET	NAME OF THE COURSE	ι	т	s	CREDIT	2 -TERM EX AM 20%	TA 20%08 30%	ESUE 40%0R 50%	TOTAL	TA 10% OR 50%	EV 10% OR 50%	TOTAL	TOTAL	EXAM DURA
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- Socio-economic condition
  - Income-based
    - Low income
    - Middle income
    - High income
  - Community/socioeconomic based
  - Public participation
  - Construction technology-based .
- Different types of concepts on housing in the present
  - Student Housing
  - Old people's housing
  - Green building
  - Sustainability
- Typology of Mass housing
  - Income-based
  - н. Community-based
  - Climatic & topographic conditions н.
    - Typology of the house form
    - Low-rise housing
    - Midrise housing
      - High-rise housing
      - Mix use housing
  - Scale of housing
    - Cluster
      - Neighbourhood
    - Sector
    - н. Block
    - City
    - Scale of housing .
    - Nos of Family Nos of units
  - Characteristic of housing Cluster or grouped

    - Streets
  - **Open spaces**
- Supporting facilities
  - Public open space/Garden/Park/Public square/playground
    - **Public Amenities**
  - Local commercial area

#### **GUIDELINES**

One Major and Minor task/ exercises are to be set from the entire syllabus The topic of the project is to be displayed on the Institute Notice Board fifteen days in advance OF the commencement of the classes

#### NOTE :

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

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Preliminary design 3 Design to development

- Design Resolution 4 with Synthesis of
- design parameters



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## ARCH 401: ARCHITECTURAL DESIGN - III

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URSE	ORE	E AREA	TYPOLO	NAME OF THE COURSE						THEORY STUDIO					MARK	ATION	
CO	2	COURSE	COURSET	NAME OF THE COURSE	τ	т	s	CREDIT	2 -TERM EX AM 20%	TA 20%0R 30%	ESUE 40%0R 50%	TOTAL	TA 10% OR 50%	EV 10% OR 50%	TOTAL	TOTAL	EXAM DUR
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Necessary theoretical inputs 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.

At least one major exercise and one minor design with two-time problems should be given.

The final submission shall necessarily include a model for at least one of the two main problems.

In the end, in an exam which is a viva-voce, the students have to present the entire semester's work for assessment.

SUGGESTED READINGS:

Barquin, Carlos. How the Other Half Builds. Vol. 2: Plots, Centre for Minimum Cost Housing, McGill University, 1986. w.e.f. the academic year 2020-21 and onwards

Bhatt, Vikram. How the Other Half Builds. Vol. 3: Self-Selection Process, Centre for Minimum Cost Housing, McGill University, 1990.

Bosma, Koos, et al. Housing for the Millions: John Habraken and the SAR (1960-2000). NAI Publishers, 2000.

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.

Correa, Charles. Charles Correa Housing and Urbanisation. Thames & Hudson, 2000.

**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

Habraken, N. J., and Jonathan Teicher. Supports: an Alternative to Mass Housing. Urban International Press, 2011.

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.

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

Leupen, Bernard, and Harald Mooij. Housing Design: a Manual. NAi Uitgevers, 2018.

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., New Metric Handbook – Patricia Tutt and David Adler – 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

Richard Weston, Plan sections & elevations of key buildings of the 20th century, Lawrence King Publishing, London, 2004.

Rybczynski, Witold. How the Other Half Builds. Vol. 1: Space, Centre for Minimum Cost Housing, 1984.

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.

Time-saver standards for building types, DeChiara and Callender, Mc Graw Hill Company, Time-saver standards for landscape architecture – Charles W Harris – Mc Graw Hill,

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

Wates, Nick, and Jeremy Brook. The Community Planning Handbook: How People Can Shape Their Cities, Towns, and Villages in Any Part of the World. Earthscan from Routledge, 2017,

White, Edward T. Site Analysis: Diagramming Information for Architectural Design. ArchiBasX Press, 2013.

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

# ChairpersonChairpersonController of ExaminationJoint RegistrarBoard of StudiesFaculty of StudiesShri Vaishnav VidyapeethShri Vaishnav VidyapeethShri Vaishnav VidyapeethShri Vaishnav Vidyalaya IndoreVishwavidyalaya IndoreVishwavidyalaya IndoreShri Vaishnav Vidyapeeth



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B. ARCH (2021-26)

## **COURSE CONTENT**

ARCH 403:	BUILDING	<b>MATERIAL &amp;</b>	CONSTRUCTION	-IV
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		GY		1	EACH	ING S	CHEME	EVALUATION SCHEME								(HRS)	
OURSE	RE	E AREA	rpolo	NAME OF THE COURSE						THE	ORY			STUDIO	i)	MARKS	DURATION
COL	CORE	COURSE	COURSE T	NAME OF THE COURSE	ι	т	s	CREDIT	2 -TERM EX AM 20%	<b>TA</b> 20%0R 30%	ESUE 40%08 50%	TOTAL	<b>TA</b> 10% OR 50%	EV 10% OR 50%	TOTAL	TOTAL	EXAM DURA
THEORY	CUM S	STUD	10						INT	EX		INT	EX				
ARCH 403	BS&AE	TE	THEORY CUM STUDIO	BUILDING MATERIALS & CONSTRUCTION - IV	1		2	3	30	30	60	120	15	15	30	150	3

# ARCH 403: BUILDING MATERIAL & CONSTRUCTION – IV

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

COURSE OBJECTIVE:

To introduce and expose students to various aspects involving the use of steel for the construction activity of buildings and structures.

COURSE OUTCOME:

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

1. Summarize the building material steel and various construction techniques concerning classification, and composition.

2. Identify the chemical, and physical properties leading to structural strength and aesthetic qualities.

3. Analyze the constructional systems and detailing of metal building components.

4. Demonstrate the construction practices and details about curtain walls.

5. 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, staircase and partitions using different materials

FOCUS: ADVANCED IN TECHNOLOGY

#### **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:** 

SR. NO.	SYLLABUS: TOPIC	SUBTOPIC	Teaching G Hours:
1		<ul> <li>Precast elements and their applications</li> <li>Pre-stressing &amp; post-tensioning – definition and use</li> <li>The conceptual, functional, and structural dimensions of complex elements</li> </ul>	10Hrs.
2		Long span structures - flat slab, beam and ribbed slab, waffle slab, vault, dome, shell structure, steel trusses, girder, portal frame, folded plate structure, PEB	10Hrs.
3		• Different types of Interiors, Exterior, Vertical & Horizontal Finishes i.e. Plaster, Paint, Texture, Paving, Cladding etc.	
4		<ul> <li>Alternative building materials &amp; technology: Mud construction: COB, Rammed earth, Adobe, Daub, Stabilized mud blocks (SMB), compressed stabilized mud blocks (CSMB): bamboc technology, Ferro cement, Fiber-reinforced concrete, Filler SLABS</li> </ul>	10Hrs.
5		<b>Finishes:</b> Wall finishes, floor finishes, roof finishes, waterproofing, insulations – thermal & acoustical. False ceilings. Panelling.	5 Hrs.

#### NOTE: This is a studio subject and students should be made to prepare construction drawings for studio

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#### **COURSE CONTENT**

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COU	5	COURSE				т	s	CREDIT	2 -TERM EX AM 20%	TA 20%0R 30%	ESUE 40%0R 50%	TOTAL	TA 10% OR 50%	EV 10% OR 50%	TOTAL	TOTAL	EXAM DURATION
HEORY	CUM	STUD	10						INT	EX		INT	EX				
ARCH 403	BS&AE	TE	THEORY CUM STUDIO	BUILDING MATERIALS & CONSTRUCTION - IV	1		2	3	30	30	60	120	15	15	30	150	

exercises along with the theoretical inputs. The studio work should be supplemented with appropriate site visits.

SUGGESTED READINGS:

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. NewDelhi, 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

**Board of Studies** Shri Vaishnav Vidyapeeth Vishwavidyalaya Indore

## Chairperson

Faculty of Studies Shri Vaishnav Vidyapeeth Vishwavidyalaya Indore

# **Controller of Examination**

Shri Vaishnav Vidyapeeth Vishwavidyalaya Indore

Joint Registrar

Shri Vaishnav Vidyapeeth Vishwavidyalaya Indore



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## **COURSE CONTENT**

## **ARCH 404 WORKING DRAWING**

			LOGY	NAME OF THE COURSE	Т	EACH	ING S	CHEME	EVALUATION SCHEME								
COURSE	CORE	E AREA	SE TYPO						THEORY					STUDIO			
	00	COURSE			ι	т	S	CREDIT	2 -TERM EX AM 20%	<b>TA</b> 20%08 30%	ESUE 40%0R 50%	TOTAL	TA 10% OR 50%	EV 10% OR 50%	TOTAL	TOTAL	EXAM DUR
STUDIO								о	INT	EX		INT	EX				
ARCH 404	SE	sк	STUDIO	WORKING DRA WING			3	3					75	75	150	150	

L - THEORY; S- STUDIO, T -TUTORIAL; C - CREDIT; HRS: HOURS; MST - MIDTERM TEST, A MST - AVERAGE OF MIDTERM, ESUE - END SEMESTER UNIVERSITY EXAMINATION; IA - INTERNAL ASSESSMENT PROGRESSIVE, SS- FOLIO FINAL Sessional (INTERNAL), EV - EXTERNAL VIVA VOICE, RVW- INTERMEDIATE REVIEW

# **ARCH 404 WORKING DRAWING**

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

#### COURSE OBJECTIVE:

To impart training in the preparation of working drawings for buildings with specific reference to the code of practice as per IS Code No. 962 of 1969 and incorporating specifications as complementary to the working drawings.

To sensitize the students in preparing finer design details required for buildings.

The objective of this course is to develop the skills and techniques of preparation of production drawings by taking an already self-designed project from the earlier semester and imparting training in the drafting of working drawing details.

### COURSE OUTCOME :

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

1. Develop Set-out marking, Centerline, Excavation, and Plinth Beam Layout for a building.

- 2. Develop Floor Plans Ground Floor, First Floor, Terrace Floor for a building.
- 3. Develop Sections, Elevations, Detailed Sections, and Stairs for a building.
- 4. Develop Electrical, Plumbing, and Toilet layout for a building.

5. Plan Site Development, Door and Window details.

EXPECTED SKILLS / KNOWLEDGE TRANSFERRED:

To prepare working drawings for a project and resolve complex aspects in the buildings with appropriate materials and design details.

Techniques of estimating and costing and writing specifications related to building construction. **COURSE OVERVIEW:** 

The focus of the course is to impart skills related to the preparation of drawings meant for construction work on the site and to improve the students' ability to detail.

The course deals with various methods of quantity surveying, rate analysis of building and valuation and specifications for different materials used.

Set-out marking, Centerline, Excavation, Plinth Beam Layout, Floor Plans – GF, FF, Terrace, Sections, Elevations, Detailed Section, Stairs, Electrical, Plumbing, Toilet Site Development, Door and Window Details

#### **COURSE CONTENTS:**

SR. NO.	SYLLABUS: TOPIC	SUBTOPIC	Teaching G Hours:
1		<ul> <li>Overview: Working Drawing, Estimation &amp; Specifications; Liaison drawings; Standards, guidelines for execution of works, Units of measurements; Writing specifications; Methods of estimation; Rate analysis of relevant items. Preparation of working drawings: Suitable scales of drawings, methods of giving dimensions: on plans, sections, elevations and other standards.</li> </ul>	6hrs
2		<ul> <li>Site development details; Paving, Site drainage, compound wall, gate, etc. Centerline drawing, Excavation drawing, Foundation details &amp; Floor Plans: Roof Plan including roof drainage, Stair room plan. Preparation of Plans Building marking plan, centerline plan, foundation plan, column</li> </ul>	6hrs

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	BE	E AREA	POLO	NAME OF THE COURSE						THEORY STUDIO						MARK	ATION	
	S	COURSE	COURSET	COURSE IY	COURSET	NAME OF THE COURSE	ι	т	s	CREDIT	2 - TERM EX AM 20%	TA 20%0R 30%	ESUE 40%0R 50%	TOTAL	TA 10% OR 50%	EV 10% OR 50%	TOTAL	TOTAL
STUDIO							- 840 		INT	EX		INT	EX					
ARCH 404	SE	sк	STUDIO	WORKING DRA WING			3	3					75	75	150	150		

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centerlines drawings, floor plans, terrace floor plan.

	plan.	
3 •	Elevation and Sections, Wall sections; Kitchen & Toilet details; Sanitary & plumbing; Rainwater harvesting; water tank & septic tank as per	6hrs
	calculations. Detailing of architectural elements. Door &window: Details, installation & hardware.	
	Railing details. Wall finishes & colour scheme.	
4 •	Staircase & its components.	8hrs
•	Electrical layout with furniture; Circuit drawing;	01110
	Conduit drawing; Voice & data; Fixture mounting	
	heights etc.	
5 •	Overview: Working Drawing, Estimation &	10hrs
	Specifications; Liaison drawings; Standards,	
	guidelines for execution of works, Units of	
	measurements; Writing specifications; Methods of	
	estimation; Rate analysis of relevant items.	
	Preparation of working drawings: Suitable scales	
	of drawings, methods of giving dimensions: on	
	plans, sections, elevations and other standards.	

#### GUIDELINES

One Major And Minor task/ exercises are to be set from the entire syllabus

The topic of the project is to be displayed on the Institute Notice Board fifteen days in advance OF the commencement of the classes

#### NOTE :

Students shall prepare at least two working drawing sets, one for a small residence and one for a large building than the other All units to include drawings & details; estimation & specifications. of one-storied building

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

#### SUGGESTED READINGS:

Arora, K.R. Surveying Vol. I, 6<sup>th</sup> Ed. Standard Book House, Delhi, 2000.

CPWD Specifications of Government of India

Datta, B.N. Estimating and Costing in Civil Engineering: Theory and Practice, 23rd ed. UBS Pub. Distributors Ltd., New Delhi, 1993. detailing, 2nd ed. New York: Wiley, 1987.,

Robert, C. Mc Hugh. Working Drawing Hand Book, New York: VNR, 1977.

Dutta, Estimating and Costing, S. Dutta and Co., Lucknow 1983

environment, 3rd ed. Tata McGraw Hill Pub., co. Ltd, New Delhi, 1996.

Govt. of Maharashtra. Standard Specifications, Government Press, Nagpur, 1972.

Indian Standards Institution. National Building Code of India 1983. Indian Standards Institution, New Delhi, 1984.

John Wiley and Sons, New York, 1983.

Leers, Jack. Engineering Construction Specification.

Lewis, R. Jack. Building Construction Specifications. Prentice-Hall, Inc., NewJersey, 1975.

Liebing, W. Ralph and Raul, Ford Mimi. Architectural Working Drawings, 2nd ed.

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

M. Chakraborti, Estimation, Costing, Specification and Valuation in Civil engineering.

Macey, W. Frank. The specification in Detail, 5th ed. Technical Press Ltd, London, 1955.

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B. ARCH (2021-26)

#### **COURSE CONTENT**

## **ARCH 404 WORKING DRAWING**

<i>P</i> .			GY		1	TEACHING SCHEME			EVALUATION SCHEME							S	(HRS)
COURSE	SE ST	E AREA	rPOLO						THEORY				STUDIO			MARK	ATION
	CO	COURS	COURSET		NAME OF THE COURSE	L	Т	s	CREDIT	2 -TERM EX AM 20%	TA 20%08 30%	ESUE 40%0R 50%	TOTAL	TA 10% OR 50%	EV 10% OR 50%	TOTAL	TOTAL
STUDIO							17		INT	EX		INT	EX				
ARCH 404	SE	SK	STUDIO	WORKING DRA WING			3	3					75	75	150	150	

L - THEORY; S- STUDIO, T -TUTORIAL; C - CREDIT; HRS: HOURS; MST - MIDTERM TEST, A MST - AVERAGE OF MIDTERM, ESUE - END SEMESTER UNIVERSITY EXAMINATION; IA - INTERNAL ASSESSMENT PROGRESSIVE, SS- FOLIO FINAL Sessional (INTERNAL), EV - EXTERNAL VIVA VOICE, RVW- INTERMEDIATE REVIEW

Punmia, B.C. Surveying Vol. 1, 13<sup>th</sup> Ed. Laxmi Publications Pvt. Ltd., New Delhi, 1996. PWD Specifications of Tamil Nadu State Government

Rangwala, S.C. Valuation of real Properties, 6th ed. Charotar Pub. 6 House, Anand, 2003.

Shah, M.G., and Others. Building Drawing: with an integrated approach to building

Standard Specification and rates, Government of Andhra Pradesh, government press, Hyderabad

Standard Specification of Government of Andhra Pradesh State.

The bride, G.S. Estimating and Costing, 2nd ed. Dhanpat Rai and Sons, Delhi, 1982.

Wakita, Osamu A. & Linde, Richard M. The professional practice of architectural

BIS (1993) Code of Practice for Architectural and Building Drawings (is.962:1989). Bureau of Indian Standards, New Delhi Styles, K. (2014). Working drawings handbook. Elsevier.

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## Controller of Examination

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B. ARCH (2021-26)

## **COURSE CONTENT**

## ARCH 405: HISTORY OF ARCHITECTURE & CULTURE – IV

COURSE			GY		T	EACH	ING S	CHEME			EV	ALUATION SCI	HEME			S	(HRS)
	ORE	E AREA	ITPOLO	NAME OF THE COURSE					THEORY				STUDIO			MARK	ATION
	CO	COURS	COURSET	MANIE OF INE COURSE		т	s	СВЕРП	2 -TERM EX AM 20%	TA 20%OR 30%	ESUE 40%OR 50%	TOTAL	TA 10% OR 50%	EV 10% OR 50%	TOTAL	TOTAL	EXAM DUR⊅
THEORY									INT	EX		INT	EX				
ARCH 405		AR	THEORY	HISTORY OF ARCHITECTURE & CULTURE -IV	2			2	20	30	50	100				100	3

SS-FOLIO FINAL Sessional (INTERNAL), EV - EXTERNAL VIVA VOICE, RVW - INTERMEDIATE REVIEW

# ARCH 405: HISTORY OF ARCHITECTURE & CULTURE – IV

Syllabus: 15 weeks (2 hours/week) Total Teaching hours: 30 Hrs.

### COURSE OBJECTIVE:

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 OUTCOME:

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

- Demonstrate an understanding of different styles of Indian architecture
- Compare prominent/important historic buildings by their style of design in the Asian world.
- Formulate the contributing factors to the design development of different styles.

EXPECTED SKILLS / KNOWLEDGE TRANSFERRED:

1) Acquire knowledge to identify the common characteristics among the monuments of a particular style.

2) Acquire graphic skills to present a building, analyze its elements and explain the composition.

3) Acquire knowledge of good practices of architecture in the past.

FOCUS: Indian & Mughal

- The student will develop an understanding of architecture and urban form in settlements of the medieval period
  - The student will get exposure to the processes and causes that led to the creation of the architecture of the Middle Ages

#### 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, a structural solution, construction methods and ornamentation. The study should focus on the general trends and not on specific e.g., of buildings.

COURSE (	CONTENTS:		
SR. NO.	SYLLABUS: TOPIC	SUBTOPIC	TEACHING HOURS:
		<ul><li>Islamic architecture in India: universal abstract principles, regional expressions</li><li>Scales of city, institutions, dwellings</li></ul>	
		<ul> <li>Development of specialized building types and their architectural schemes</li> </ul>	
		• Parallels in contemporaneous cities in India: Vijayanagar and Jaipur etc.	
1	Vedic Era	Introduction to Vedic era, society and culture, later Vedic era; Jana padas, the rise of Mahajan padas, Magadha Jainism and Buddhism: Introduction to new religion and ideas	4 hrs
2	Mauryan, Chalukyan and Harshvardhan era	<ul> <li>Introduction to Mauryan empire, life and culture, important rulers Western Chalukyan architecture, and Badami Chalukyan Architecture Introduction</li> </ul>	8 hrs

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Vishwavidyalaya Indore	Vishwavidyalaya Indore		



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B. ARCH (2021-26)

#### **COURSE CONTENT**

## ARCH 405: HISTORY OF ARCHITECTURE & CULTURE – IV

		JOC A		T	EACH	NG S	CHEME			EV	ALUATION SC	HEME			v	(HRS)	
IRSE	BE	E AREA	IYPOLO							THE	ORY			STUDIO	,	MARK	ATION
COL	CO	COURS	COURSE T	NAME OF THE COURSE		СВЕВИ	2 - TERM EX AM 20%	TA 20%08 30%	ESUE 40%OR 50%	TOTAL	TA 10% OR 50%	EV 10% OR 50%	TOTAL	TOTAL	EXAM DURA		
THEORY									INT	EX		INT	EX				
ARCH 405	PC	AR	THEORY	HISTORY OF ARCHITECTURE & CULTURE -IV	2			2	20	30	50	100				100	3

SS-FOLIO FINAL Sessional (INTERNAL), EV - EXTERNAL VIVA VOICE, RVW - INTERMEDIATE REVIEW

		to Gupta empire, life and culture, important rulers, life and culture. Harshvardhan Era: Introduction to new religion and ideas Rock-cut architecture of the era	
3	Islam and India	Islamic Architecture: Introduction to Islamic culture worldwide; early Islamic architecture in India beginnings under the slave kings (Cir. A.D. 1200 to 1290), The Sayyid (1414-51) and the Lodi (1451- 1526) dynasties, Provincial styles (Bengal, Gujarat, Malwa Deccan, Sasaram).	10 hrs
4	Mughal and Islam in the south of India	Mughal architecture and its spread across India. Islamic architecture of the south of India.	8Hrs

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

#### SUGGESTED READINGS:

"Mughal art and architecture." The Columbia Encyclopedia, 6th ed.. 2015. Encyclopedia.com. 14 Mar. 2016

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

Brown, Percy (1942) Indian Architecture (Islamic Period). D B Taraporevala Sons & Co. Bombay.

Ching, Francis D.K. Mark Jarzombek and Vikrmaditya Prakash. 2007. A Global History of Architecture. Hoboken, NJ: J. Wiley & Sons. Fazio, Michael W., Marian Moffett, Lawrence Wodehouse, and Marian Moffett. 2008. A World History of Architecture Boston: McGraw-Hill. Ferguson J., Burgess, J., & Spiers, R. P. History of Indian and Eastern Architecture. New Delhi: Munshiram Manoharlal, 1972 Fletcher, 1987. Banister. Sir Banister Fletcher's A History of Architecture. London: Butterworths.

George Michell - Architecture of the Islamic World - - (its history and social meaning), Thames and Hudson, London, 1978.

Graber, O.1980. "Kubbat al-Sakhra". In Bosworth, C.E.; van Donzel,, al. The Encyclopedia of Islam, Volume 2, Part -1 (new ed.). Leiden: E.J.Brill. Guruswamy Vaidyanathan Gateway to Indian Architecture, Edifice Publication, 2003

Hillenbrand, Robert 1994. Islamic Architecture: Form, Function, and Meaning. New York: Columbia University Press.

Islamic Architecture, Form, Function and Meaning, Robert Hillenbrand, Edinburgh University Press, 1994

Kamiya Takeo. The Architecture of the Indian Subcontinent. Architecture Autonomous.

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

Lewis, Bernard. The World of Islam. Thames and Hudson, Ltd.

Moffett, Marian; Fazio, Michael W.; Wodehouse, Lawrence 2003. A World History of Architecture (illustrated ed.). London: Laurence King Publishing.Murray, Peter; Architecture of the Italian Renaissance, 1969

Nikolaus Pevsner, An Outline of European Architecture, Pelican, 1964

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

Percy Brown, Indian Architecture (Islamic Period) - Taraporevala and Sons, Bombay, 1983

Satish Grover, The Architecture of India (Islamic) Vikas Publishing House Pvt. Ltd., New Delhi, 1981. Subhadra Sen Gupta(2013), " Fatehpur Sikri: Akbars Magnificent city on a hill", Niyogi books

Tadgell, Christopher (1990). The history of architecture in India: from the dawn of civilization to the end of the Raj. London: Architecture Design and Technology. Tadgell, Christopher. A History of Architecture. London: Ellipsis, 2000.

Ward, John B. 1979. History of World Architecture. London: Faber. Print

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B. ARCH (2021-26)

## **COURSE CONTENT**

## **ARCH 406: THEORY OF ARCHITECTURE**

			61		TEACHING SCHEME			CHEME			EV	ALUATION SC	HEME			s l	(HRS)
JRSE	CORE	E AREA	WPOLO	NAME OF THE COURSE						THE	ORY			STUDIO		MARK	DURATION
COL	3	COURSE	COURSET	NAME OF THE COURSE	L	т	s	CREDIT	2 -TERM EX AM 20%	TA 20%08 30%	ESUE 40%0R 50%	TOTAL	TA 10% OR 50%	EV 10% OR 50%	TOTAL	TOTAL	EX AM DUR
THEORY									INT	EX		INT	EX				
ARCH 406	PC	AR	SEMINAR	THEORY OF ARCHITECTURE			2	2					50	50	100	100	

L - THEORY; S- STUDIO, T -TUTORIAL; C - CREDIT; HRS: HOURS; MST - MIDTERM TEST, A MST - AVERAGE OF MIDTERM, ESUE - END SEMESTER UNIVERSITY EXAMINATION; IA - INTERNAL ASSESSMENT PROGRESSIVE, SS- FOLIO FINAL Sessional (INTERNAL), EV - EXTERNAL VIVA VOICE, RVW - INTERMEDIATE REVIEW

# **ARCH 406: THEORY OF ARCHITECTURE**

Syllabus: 15 weeks (2 hours/week) Total Teaching hours: 30 Hrs.

COURSE OBJECTIVE:

To impart the skills of three-dimensional visualization and presentation.

To train the students in the field of Analytical approach

To expose the students to a wide spectrum of architectural styles and theories.

To explain to the students how architecture evolved with special emphasis on social, religious and environmental factors.

#### COURSE OUTCOME:

At the end of the course, students will be able to -To impart the skills of three-dimensional visualization and presentation.

EXPECTED SKILLS / KNOWLEDGE TRANSFERRED:

To develop an understanding of the basic principles of space and mass, circulation and architectural composition

Acquire knowledge to identify the common characteristics among the monuments of a particular Style.

#### COURSE OVERVIEW:

To provide the student of architecture a foundation in the conception of forms, spatial aspects, compositions and their analysis in buildings.

To impart knowledge about the various processes in design that have been prevalent in the world over time.

COURSE CONTENTS:

SR. NO. SYLLABUS: TOPIC SUBTOPIC

#### 1 THEORY OF DESIGN DESIGN

Definition of design, understanding of design, the purpose of design, nature of good design and evaluation of design, types of design classifications, the role of designer, and design in history.

#### **DESIGN PROCESS**

The context for architectural design problems, design process, stages in the design process, different considerations, and different ideas of design methodology. **DESIGN PROBLEMS AND SOLUTIONS** 

Different approaches to design, problem-solving or intuitive, formulation of problems, nature of creative design problems, and goals in design.

#### **DESIGN THINKING**

Understanding the terms - creativity, imagination, etc. Theories on thinking, convergent and divergent thinking, lateral and vertical thinking, creative techniques like checklists, brainstorming, syntactic, etc. design puzzles and traps, blocks in creative thinking.

DESIGN CONCEPTS, PHILOSOPHIES AND STRATEGIES

Various approaches to generate ideas for architectural design - types of concepts, personal philosophies and

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TEACHING G HOURS: 10

hrs.



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## **COURSE CONTENT**

## **ARCH 406: THEORY OF ARCHITECTURE**

			GY		п	TEACHING SCHEME				EA	ALUATION SC	HEME			5	(HRS)	
IRSE	ä	E AREA	IYPOLO	NAME OF THE COURSE						THE	ORY			STUDIO		MARK	DURATION
COU	CO	COURS	COURSE T	NAME OF THE COURSE	L	L T S B	2 -TERM EX AM 20%	TA 20%08 30%	ESUE 40%0R 50%	TOTAL	TA 10% 08 50%	EV 10% OR 50%	TOTAL	TOTAL	EXAM DURA		
THEORY									INT	EX		INT	EX				
ARCH 406	PC	AR	SEMINAR	THEORY OF ARCHITECTURE			2	2					50	50	100	100	

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strategies of individual designers, channels that foster creativity in architecture.

THEORY ARCHITECTURE

2

OF

ARCHITECTURAL SPACE AND MASS 20 Definition of architecture- elements of architecture - Space hrs. defining elements, openings in space-defining elements, spatial relationship, spatial organization Primary forms. form, a transformation properties of of forms dimensional transformation, subtractive, additive forms, organization of additive forms - Articulation of forms AESTHETIC COMPONENTS OF DESIGN Exploration of the basic principles of design such as

Proportion, scale, balance, rhythm, symmetry, hierarchy, and the axis with building e.g. CIRCULATION

Components of building circulation - The building approach, The building entrance, Configuration of the path, Path space relationship, Form of circulation space -Circulation diagram for residence and restaurant PRINCIPLES OF COMPOSITION

Involves the study of the basic principles that govern architectural components such as Unity, Harmony, Dominance, Fluidity, Emphasis, Contrast etc. DESIGN PROCESS AND ANALYSIS OF BUILDING

Design process -integration of aesthetics and function -Understanding of formative ideas, organization concepts, spatial characteristics, - Massing and circulation in the design analysis of the following buildings: Falling water house,& Guggenheim museum by F. L. Wright -Villa Savoye & Chapel of Notredame DuHaut by Le Corbusier.

**NOTE**: -Emphasis should be laid on understating of building evolution and form w.r.t climate. The continuous evaluation shall be made of students' work based on various models, assignments and sketching

The topics here are to be dealt with keeping in mind Indian climatic conditions. NBC and BIS guidelines/standards have to be introduced in all relevant contexts

SUGGESTED READINGS:

Benevolo, Leonardo. History of Modern Architecture: the modern movement Vol.2. Routledge and Kegan Paul, London, 1971.

**Benevolo, Leonardo**. History of Modern Architecture: the tradition of modern architecture Vol.1. Routledge and Kegan Paul, London, 1971.

Bryan Lauson - How Designers Think, Architectural Press Ltd., London, 1980.

Curtis, J.R. William. Modern Architecture since 1900. Prentice-Hall, Inc., New Jersey, 2002.

Ernest Burden, Elements of Architectural Design – A Visual Resource, Van Nostrand Reinhold Company, 1994

Frampton Kenneth Modern Architecture: A Critical History London: Thomes & Hudson, 1980

Francis D. K. Ching, Architecture - Form, Space and Order, Van Nostrand Reinhold Company, 1979

Geoffrey Broadbent - Design in Architecture - Architecture and the human sciences - John Wiley & Sons, New York, 1981

Giedion, Sigfried, Space, Time and Architecture: the growth of a new tradition, 4th ed. Harvard University Press, Cambridge, 1962. Hilberseimer, L. Contemporary Architecture: Its roots and trends. Paul theobald, Chicago, 1964.

**K.W.Smithies**, Principles of Design in Architecture, Van Nostrand Reinhold Company, 1981

Nigel Cross - Developments in Design Methodology, John Wiley & Sons, 1984

Norberg Schulz C., Principles of Modern Architecture, London Andreas papadakes, 2000.

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#### **COURSE CONTENT**

## **ARCH 406: THEORY OF ARCHITECTURE**

			loGY		т	EACH	ING S	CHEME			EV	ALUATION SC	HEME			S	(HRS)
IRSE	H.	E AREA	IYPOLO							THE	ORY			STUDIO	8	MARK	DURATION
COU	CORE	COURSE	COURSE T	NAME OF THE COURSE	ι	LTS	CREDIT	2 -TERM EX AM 20%	TA 20%08 30%	ESUE 40%0R 50%	TOTAL	TA 10% OR 50%	EV 10% OR 50%	TOTAL	TOTAL (	EXAM DURA	
THEORY									INT	EX		INT	EX				~
ARCH 406	PC	AR	SEMINAR	THEORY OF ARCHITECTURE			2	2					50	50	100	100	

L - THEORY; S- STUDIO, T-TUTORIAL; C - CREDIT; HRS: HOURS; MST - MIDTERM TEST, A.MST - AVERAGE OF MIDTERM, ESUE - END SEMESTER UNIVERSITY EXAMINATION; IA - INTERNAL ASSESSMENT PROGRESSIVE, SS-FOLIO FINAL Sessional (INTERNAL), EV - EXTERNAL VIVA VOICE, RVW - INTERMEDIATE REVIEW

Pevsner, Nicolaus Oersonem: Pioneers of Modern Design from William Morris to Walter Gropius-.

Roger H. Clark, Michael Pause, Precedents In Architecture, Van Nostrand Reinhold Company, 1996

Sam F. Miller, Design Process - A Primer For Architectural & Interior Design, Van Nostrand Reinhold Company, 1995

Sharp, Dennis. Twentieth-Century Architecture: A Visual History, Facts On File. New York, 1991

Tom Heath - Method in Architecture, John Wiley & Sons, New York, 1984

V.S.Pramar, Design Fundamentals In Architecture, Somaiya Publications, New Delhi, 1973

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## **COURSE CONTENT**

## ARCH 407: STRUCTURAL DESIGN I

			LOGY		1	TEACHING SCHEME				EV	ALUATION SC	HEME			s	(HRS)	
JRSE	CORE	E AREA	IYPOLO	NAME OF THE COURSE						THE	ORY			STUDIO		MARK	ATION
COL	S	COURS	COURSET	NAME OF THE COURSE	L	т	s	CREDIT	2 -TERM EX AM 20%	TA 20%08 30%	ESUE 40%0R 50%	TOTAL	TA 10% OR 50%	EV 10% OR 50%	TOTAL	TOTAL	EXAM DURA
THEORY									INT	EX		INT	EX				
ARCH 407	BS& AE	TE	THEORY	STRUCTURAL DESIGN I	2			2	20	30	50	100				100	3

L - THEORY; S- STUDIO, T - TUTORIAL; C - CREDIT; HRS: HOURS; MST - MIDTERM TEST, A MST - AVERAGE OF MIDTERM, ESUE - END SEMESTER UNIVERSITY EXAMINATION; IA - INTERNAL ASSESSMENT PROGRESSIVE, SS- FOLIO FINAL Sessional (INTERNAL), EV - EXTERNAL VIVA VOICE, RVW - INTERMEDIATE REVIEW

# **ARCH 407: STRUCTURAL DESIGN I**

Syllabus: 15 weeks (2 hours/week) Total Teaching hours: 30 Hrs.

COURSE OBJECTIVE:

To develop the structural design skills in RCC elements

COURSE OUTCOME:

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

- to enable students to design simple RCC structures and their basic components, viz, columns, beams, slabs and staircases. (To design a beam for a given system of loading and structural geometry, for flexure and shear. Evaluate To design a slab for a given building floor for different end support conditions, a column for given axial load and moments, and a dogleg staircase for a given stairwell space in a residential or public building.)

to understand RC structure and its application in a consecutive design project.

To distinguish and classify various types of RCC material depending on the strength and durability parameters.

To outline the features of IS code provisions regarding limit state method for designing the concrete structure

To summarize the conceptual idea behind the development of pre-stressed structural components for general use

EXPECTED SKILLS / KNOWLEDGE TRANSFERRED:

Ability to analyze the standard members in structures IN R.C.C.

#### COURSE OVERVIEW:

This course focuses on the structural design of different elements of building in RCC.

#### COURSE CONTENTS:

SR. NO.	SYLLABUS:	TOPIC	SUBTOPIC

				G HOURS:
1	Introduction	•	Introduction to RCC design, Design Philosophies:	6hrs
2	slabs	•	Situations were doubly reinforced beams T-beams: Slabs: Columns Design of the staircase	6hrs
3	beams	•	Design of lintels and cantilever beams and slabs using limit state method only	6hrs
4	footings	•	Design of RCC Isolated footings for columns (Square and Rectangle) – Limit state method.	6hrs
5	Pre-stressed, tension	pre •	Introduction, to prestressed concrete, Pretension & Post-tensioning methods, Problems of beams.	6hrs

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

#### SUGGESTED READINGS:

A.K.Jain. Reinforced Concrete: Limit State Design, 5th Ed. New Chand and Bros., Roorkee, 1999. Ramamrutham. S. and Narayan, R. Design of RCC Structures, 12th Ed. Dhanpat Rai Pub. Co. Pvt. Ltd., Delhi, 1998.

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**TEACHING** 



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## **COURSE CONTENT**

## **ARCH 408: COMPUTER APPLICATION II**

		REA	loGY		Π	ACH	NG SC	CHEME			EV	ALUATION SC	HEME			ks	(HRS)
S N N		P O	NAME OF THE COURSE						THE	ORY		STUDIO			MARK	DURATION	
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# **ARCH 408: COMPUTER APPLICATION II**

Syllabus: 15 weeks (2 hours/week) Total Teaching hours: 30 Hrs.

COURSE OBJECTIVE:

To familiarize the students with the concepts of 3D modelling. To enable them to experiment with forms, mapping, rendering and presentation techniques.

COURSE OUTCOME:

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

• Develop the understanding of parametric design & digital fabrication

• Maximize the understanding of digital three-dimensional modelling by further exploring computers as a tool for architectural representation.

• Create Architectural Visualization & Develop 3D Rendering of a computer-generated model.

EXPECTED SKILLS / KNOWLEDGE TRANSFERRED:

understanding architecture about the virtual world to help explain the design properly.

FOCUS: Computer-Based Skill

- The student will develop an understanding of the computer-generated model
- The student will develop an understanding of complex parametric designs through the software
- The student will develop an understanding of digital fabrication and create models using the 3d er
- The student will learn to Design Scripts

COURSE OVERVIEW:

To enhance the visualizing skills of the students by exposing them to the latest modelling software.

COURSE CONTENTS:

SR. NO. SYLLABUS: TOPIC	SUBTOPIC	TEACHING G HOURS:
1	<ul> <li>Application of CAD Software in Design Development</li> <li>Parametric Designs</li> <li>Design Scripts –Python, Grasshopper, Rhino</li> <li>Digital Fabrication – 3d Ing</li> <li>Documentation, Rendering</li> <li>3D Modelling in Cad:</li> </ul>	
2	<ul> <li>INTRODUCTION TO 3DS MAX:</li> <li>Rendering &amp; Animation: TEXTURES AND TEXTURE MAPPING:</li> <li>Site Modelling: MODELLING TECHNIQUES:</li> <li>Building Modelling:</li> <li>Customization:</li> <li>Presentation: Rendering views, Creating walkthrough, layouts.</li> <li>Photo Editing and Desktop Publishing (application)</li> </ul>	30 hrs
3	<ul> <li>Parametric Design (Rhino Grasshopper or Equivalent)</li> <li>Introduction to Parametric Design</li> <li>Small Design (or Installation) Project</li> </ul>	
4	<ul> <li>Digital Fabrication</li> <li>Introduction to Digital Fabrication &amp; its applications</li> <li>Introduction to 3D printing</li> </ul>	

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B. ARCH (2021-26)

#### **COURSE CONTENT**

## **ARCH 408: COMPUTER APPLICATION II**

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Small Design (or Installation) Project

- 3D Max, V-Ray or equivalent software
- Generating 3D rendered visualization (understanding Material, Texture, Natural Light, Artificial Light etc.)

## **GUIDELINES**

5

One Major and Minor task/ exercises are to be set from the entire syllabus The topic of the project is to be displayed on the Institute Notice Board fifteen days in advance OF the commencement of the classes

#### NOTE :

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

#### SUGGESTED READINGS:

3DS MAX 8 Bible - Kelly C.Murdock

3DS MAX- Advanced 3D modelling and animation - C & M, CADD Centre

Adobe Creative Team. Adobe Photoshop CS (Class Workbook).

Adobe Photoshop 7.0 Classroom in a Book - Adobe creative team

AUTODESK Publications Autodesk REVIT 9.1 Manual, Autodesk publications

Bachman, D. (2017). Grasshopper: Visual Scripting for Rhinoceros 3D. South Norwalk (CT): Industrial Press.

Droblas, Adele. Fundamental Photoshop: A Complete Introduction, Greenberg.HTML Black Book

Dunn, N. (2012). Digital fabrication in architecture. London: Laurence King.

Farrelly, L. (2008). Representational techniques. Lausanne: AVA Book. 4

Hogrefe, A. (2016). Visualizing architecture volume 4: Architecture portfolio. Boston, MA: Alex Hogrefe Visualization LLC.

Jabi, W. (2013). Parametric design for architecture. London: Laurence King Publishing.

Jongh, R. (2010). Sketchup 7.1 for architectural visualization: Beginners guide. Birmingham, UK: Packt Publishing.

Kuhlo, M., & Eggert, E. (2017). Architectural rendering with 3ds Max and V-Ray: Photorealistic visualization. New York: Focal Press.

Photoshop CS Bible – Deke McClelland

Photoshop CS Bible - Deke McClelland REVIT 9.1 Tutorials, Autodesk publications

Sagman. Microsoft Office for Windows, India Addison Wesley, 1999.

Tal, D. (2013). Rendering in Sketchup: From modelling to presentation for architecture, landscape architecture and interior design. Hoboken, NJ: Wiley.

Woody, Leon Hard. Microsoft Office 2000, Prentice Hall of India, New Delhi.

Tedeschi, A. (2010). Parametric Architecture with Grasshopper: Primer. Brienza: Le Penseur

#### Chairperson

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Faculty of Studies Shri Vaishnav Vidyapeeth Vishwavidyalaya Indore

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B. ARCH (2021-26)

#### **COURSE CONTENT**

## ARCH 409: BUILDING SYSTEMS AND SERVICES -III ACOUSTICS & ADVANCED

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# ARCH 409: BUILDING SYSTEMS AND SERVICES -III ACOUSTICS & ADVANCED

Syllabus: 15 weeks (2 hours/week) Total Teaching hours: 30 Hrs.

COURSE OBJECTIVE:

To gain knowledge regarding the layout of utilities and services in the building envelope, the functioning of services and their applications in the building

COURSE OUTCOME:

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

1. Interpret the behavior of sound and the acoustical properties of materials.

2. To analyze and design various built spaces with the different end-user acoustical requirements.

3. Identify the requirements for an acceptable illumination system for various functions in buildings. Propose lighting schemes in building design.

4. List and outline the requirement and arrangements for the mechanical transport system, fire safety and firefighting systems in the building. Combine this and develop a building design.

5. Interpret the relevant building code/ regulations for compliance in design and detailing.

6. Integrate the application of artificial intelligence in building services systems towards an optimized, efficient, reliable management system

EXPECTED SKILLS / KNOWLEDGE TRANSFERRED:

Acquire knowledge of good practices in services for better layout planning.

• The student will learn the theory, principles & Design of acoustics

COURSE OVERVIEW:

Study of Building Services and Utilities generally installed in buildings and their role in enhancing the utilitarian value of the buildings. The study focuses on understanding basic working, principles, terms and definitions, as well as practical aspects and solutions utilized in architecture

#### COURSE CONTENTS:

1

2

SR. NO. SYLLABUS: TOPIC SUB TOPIC

TEACHING HOURS:

	<ul> <li>Sound &amp; Acoustics: Principles &amp; design</li> </ul>
	• Acoustics: Physics of sound - Sound propagation;
	Sound Measurement; Sound in enclosed space -
	Properties & behaviour; Acoustical Defects;
	Constructional measures; various sound-
	absorbing material & its applications. Acoustical
	properties of building materials, Sound insulation;
	Room acoustics: Reverberation time - control;
	design for the listening room; acoustical
	requirements; Effects of noise - Environmental
	noise, Impact noise, Sound Transmission -
	airborne & structure-borne noise, STC, Noise
	control techniques in different building types.
acoustics	Acoustical Design: for performance spaces-
	drama hall, music, speech, cinemas, open-air
	theatre, workplaces, education spaces, & other
	acoustically sensitive environments; Design of
	Theaters & Concert Halls, recording rooms-
	open-air theatres; Designing of the stage,

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seating & false

ceiling

design,

Sound



3

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B. ARCH (2021-26)

#### **COURSE CONTENT**

## ARCH 409: BUILDING SYSTEMS AND SERVICES -III ACOUSTICS & ADVANCED

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amplification systems; Acoustical treatment materials, Case studies; Calculations & designing of acoustical treatment of various spaces.

- Sound waves, their nature, power, transmission& 12 hrs spread pattern. The intensity of the sound output
- level of various activities hearing mechanicsear's sensitivity.
- Noise control and protection methods
- Acoustics methods and material, designed for desired hearing.
- Sound insulation, introduction to reverberation
- Case study and demonstration in building design with suitable conditions.
- Lighting Sunlight, its principles, radiation Spectrum and onwards aspects of a building
  - Vision, Colors and Visual Comfort
  - Day-Lighting in buildings, its sources, lighting criteria, the visual field, Behavior-transmission, reflection
  - Daylighting factor, prediction methods
  - Physics of light, Photometry
  - Artificial lighting, lighting levels for various activities

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

SUGGESTED READINGS :

Poella. L. Lestie. Environmental Acoustics.

Moore, J.E. Design of Good Acoustics, The Architectural Press, London, 1961.

Burris, Harold. Acoustics for the Architect.

Lord, Peter and Templeton, Duncan. The Architecture of Sound: Designing

Places of Assembly, Architectural Press Ltd., London, 1986.

Egan, David. Architectural Acoustics, Mc Graw-Hill Book Company, New York, 1988

Handbook for Building Engineers in Metric systems, NBC, New Delhi, 1968.

Philips Lighting in Architectural Design, McGraw Hill, New York, 1964.

Dr.V. Narasimhan - An introduction to Building Physics- Kabeer ing works, Chennai -5

Jaramillo, Ana. M. Steel, Chris. Architectural Acoustics. New York: Routledge, 2015

Ermann, Michael. Architectural Acoustics Illustrated. USA: John and Wiley Sons, Inc, 2015

Egan, M Paul. Architectural Acoustics: J. Ross Publishing Classics, Jan 2007

Noise mapping in the EU: models and procedures.New York: CRC Press Taylor & Francis Group, 2013

Muneer, T. & others. Windows in buildings: thermal, acoustic, visual and solar performance. Oxford, Amsterdam, New York: Architectural Press 2000

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# Chairperson Faculty of Studies

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Sound & Acoustics

Lighting

aspects of a building



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B. ARCH (2021-26)

## COURSE CONTENT

## ARCH 410: INTERNSHIP II

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L - THEORY; S- STUDIO, T -TUTORIAL; C - CREDIT; HRS: HOURS; MST - MIDTERM TEST, A.MST - AVERAGE OF MIDTERM, ESUE - END SEMESTER UNIVERSITY EXAMINATION; IA - INTERNAL ASSESSMENT PROGRESSIVE, SS- FOLIO FINAL Sessional (INTERNAL), EV - EXTERNAL VIVA VOICE, RVW - INTERMEDIATE REVIEW

# ARCH 410: INTERNSHIP II

## SUMMER INTERNSHIP

Syllabus: 5 weeks (6 hours/week) Total Teaching hours: 30 Hr. COURSE OBJECTIVE:

- To allow the student to see how classroom concepts and skills are professionally practised.
- To expose students to aspects of landscape architecture, planning, and design that are best experienced in practice.

COURSE OUTCOME :

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

- Gain an understanding of workplace dynamics, professional expectations, and the influence of culture on both.
- Build proficiency in a range of business or industry skills appropriate to the field of the internship placement, including professional and inter-cultural communication through written, verbal, and non-verbal means.
- Refine and clarify professional and career goals through critical analysis of the internship experience or research project
- Give academic value to the internship.
- Add an analytical dimension to the overall experience
- Encourage a professional approach to academic work

## EXPECTED SKILLS / KNOWLEDGE TRANSFERRED:

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

- Ability to translate skills and knowledge of architecture acquired at university into a professional setting.
- Knowledge of the professional practice of architecture.
- Increased skills in performing tasks in a professional office
- Increased ability to communicate in a professional setting
- Increased understanding of the social and ethical role of the architect
- Advanced skills in using software applications in a professional context

By the end of this course, students will be able to articulate a reflection and draw personal insights related to their own beliefs and worldviews about individuals and society, based on the cultural and professional dimensions of their experience, namely:

• what makes their company succeed – or not – in its field, how it operates as a community and in the community, what main issues it has to face, both internally and on the market;

• what it takes to work in/with other cultures (and/or languages) and to adapt to an unfamiliar environment to be part or at the service of a new community, how to approach cultural differences in their daily experience and what they can learn from them, both about themselves and others – as individuals but also as part of a global world;

• what they can bring to a professional environment, how they can draw skills from experience and process challenges, how they can contribute to a company's project and community;

• who they are as a result of this growing process, in terms of civic-mindedness, cultural awareness, professional goals, and personal aspirations.

## COURSE OVERVIEW:

Students will develop professional skills & understanding.

COURSE CONTENTS:

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B. ARCH (2021-26)

## **COURSE CONTENT**

## ARCH 410: INTERNSHIP II

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L - THEORY; S- STUDIO, T-TUTORIAL; C - CREDIT; HRS: HOURS; MST - MIDTERM TEST, A MST - AVERAGE OF MIDTERM, ESUE - END SEMESTER UNIVERSITY EXAMINATION; IA - INTERNAL ASSESSMENT PROGRESSIVE, SS- FOLIO FINAL Sessional (INTERNAL), EV - EXTERNAL VIVA VOICE, RVW - INTERMEDIATE REVIEW

#### SR. NO. SYLLABUS: TOPIC SUBTOPIC

## TEACHING G HOURS:

This course provides an opportunity for students to experience a working environment in an architecture firm in which to observe and apply their knowledge and skills for the degree. Projects will be negotiated between the School and the host organisation, involving students in a variety of design stages from preliminary design, design development, documentation, and presentation to a client. Students may also be involved in meetings, clerical work and administration to gain insight into the day-to-day functioning of а business.

The course will be offered to students based on academic merit through a competitive application and interview process. Students must complete the course to the satisfaction of the host organisation and academic supervisor

#### GUIDELINES

The place of the internship is to be finalised and displayed on the Institute Notice Board fifteen days in advance of the commencement of the vacation

Internship: During the internship phase (last seven weeks of the program), students will be working at their internship placement around 28 hours a week, from Mondays to Thursdays

**NOTE:** Evaluation is to be done through viva voce by an external examiner appointed by the university at Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice Evaluation: Stages: Proposal and on final submission of the paper /DOCUMENTATION of places visited Students contribute to the topic/area is of critical importance.

#### 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 the building and analyse the building and a word of the concept according to the architect.

#### FRAUD AWARENESS

Students are reminded that to maintain the academic integrity of all programs and courses, the university has a zero-tolerance approach to students offering money or significant value goods or services to any staff member who is involved in their teaching or assessment. Students offering lecturers or tutors or professional staff anything more than a small token of appreciation is unacceptable, in any circumstances. Staff members are obliged to report all such incidents to their supervisor/manager, who will refer them for action under the university's student disciplinary procedures.

## ATTENDANCE PENALTIES FOR THIS COURSE\*

1 absence from a workshop = 1 point off the course final grade

1 absence from work (internship placement) = 1 point off the course final grade more than 3 unexcused absences = f for the course

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## **COURSE CONTENT**

ARCH 410: INTERNSHIP II

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L - THEORY; S-STUDIO, T-TUTORIAL; C - CREDIT; HRS: HOURS; MST - MIDTERM TEST, A MST - AVERAGE OF MIDTERM, ESUE - END SEMESTER UNIVERSITY EXAMINATION; IA - INTERNAL ASSESSMENT PROGRESSIVE, SS-FOLIO FINAL Sessional (INTERNAL), EV - EXTERNAL VIVA VOICE, RVW - INTERMEDIATE REVIEW

unsubmitted written work\* = f (0 points) for the assignment in question work handed in late = 1 point off the assignment per day

unsubmitted midterm evaluation = 2 points off the course final grade

poorly filled out midterm evaluation = 1 point off the course final grade

plagiarism = f (0 points) for the assignment in question

\* past Friday – week 5 (11:59 pm), no written work will be accepted (grade for the assignment = 0).

**WRITTEN WORK** Total length for all assignments combined: 15 pages in English General goal These written assignments will cover all aspects of the internship experience: the company, the sector, the intercultural experience, and the individual professional development. The final result will be a comprehensive account of the experience and its impact. Each section must incorporate elements related to the student's internship credits.

## Analytical Approach

The general idea for this course is to encourage students to truly reflect on the varied subjects it covers, and not merely state facts and observations. The first crucial step for this consists in raising the right questions. Investigation (within the company, through research, through self-questioning) follows, allowing to find nuanced answers or further questions. Organized Outline This writing process is the opportunity to put into practice, a method consisting in organizing ideas in a structured outline. The format includes visible titles and subparts with explicit titles for all sections. Specific angles General Introduction The introduction will present the student's background, motivations and initial goals for the internship.

The Company and its Sector: In this section, the student must show an insider's understanding of the organization, not only through a clear description of the company, what it does/offers, and how it operates internally, but also through an analysis of its strengths and weaknesses, of the general context in which it operates, of the challenges it faces, of its identity as a community and position in a border community. It should NOT be written in the first person.

The Intercultural Experience: In this section, the student will account for his/her experience and understanding of cultural differences, both on a general scale, as a process of adjustment, and through specific examples related to human relationships, work environment and ethics, the vision of life or society and issues related to the sector.

The Professional Experience: In this section, the student will recount his/her internship experience in terms of missions and tasks, but also in terms of accomplishments, challenges, lessons, developed skills or competencies, and contribution to the community.

General Conclusion The conclusion will focus on the outcomes of this experience, how the student has evolved, what kind of professional they aspire to be and how this experience will impact future professional or personal choices. Assignments will be emailed as Microsoft Word documents. Methodological handouts and readings are available on Blackboard. Please note: it is the students' responsibility to organize their time and respect deadlines.

#### Employment Requirements and Internship Initiation Summary:

1. Minimum of 4-5 weeks (summer semester) of full-time work. For summer interns, this allows securing a position as late as June 1st, and working until fall classes begin. Note that internships may begin as early as 4th-year schedules can be arranged, providing a 7-8 month opportunity.

2. Must be under the supervision of a graduate Architect or other design professional. Registered Architects, Engineers, and Certified Planners also qualify.

3. Submit 2 copies of the Internship Program Application to the Internship Coordinator, before starting the internship.

#### Notes

• the internship should be supervised by a licensed or registered design professional (LA, Architect, Planner, Engineer). However, the qualification as a graduate design professional is also acceptable. • For Design-Build settings, there must be another landscape architect on the staff (if not registered, then someone with an LA degree). Internship work must have a design/office component, preferably at least 50% of the time. Credit is not given for "build" work only.

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COURSE CONTENT

**ARCH 410: INTERNSHIP II** 

• For Arboretum/Botanical Garden settings, must be supervised by an LA or professional horticulturist. An office component is desirable, but if the internship involves outdoor training, etc., there should be no problem.

• With unusual internship opportunities, it's required to talk with the Intern Coordinator ahead of time. • If you are having trouble locating an internship, contact the Intern Coordinator. For year students and Grads: even if an internship has not been secured for the summer, advance enrols. If an internship is not secured, an incomplete will be given in the fall, allowing an additional year to satisfy the requirements. If you fall in this category, talk to the Internship Coordinator.

• Intended primarily to give students office experience, the program is flexible enough to allow a balance of both in the field, and in the office situations, if appropriate. Positions involving only site construction or maintenance, while valuable in their own right, are not permitted for internship credit.

#### Requirements:

1. Submit at least 3-weekly reports during the internship (form will be sent to internship location, by intern coordinator).

2. Paper – A 2-page, single-spaced, paper describing your experience, specifically discussing office structure, clients, responsibilities, and accomplishments, is due the first Monday of October.

3. An 8 1/2" x 11" graphic brochure describing your place of employment with appropriate contact information is due the first Monday of October.

4. Mentoring – Work with at least one student and assist them in focusing their search and acting as a resource. Identify students, contact them and meet with the Internship coordinator. Work with them to create a one-page plan by the first Monday of December.

5. Panel display – A panel will be assigned for you to create an interesting display describing your internship and place of employment. This will be up for 2 weeks beginning It is the responsibility of the student to display and remove it promptly.

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Controller of Examination

Shri Vaishnav Vidyapeeth Vishwavidyalaya Indore Joint Registrar Shri Vaishnav Vidyapeeth Vishwavidyalaya Indore



Choice Based Credit System (CBCS) Scheme in the light of NEP-2020 by COA

B. ARCH (2021-26)

## **COURSE CONTENT**

## ARCH 419: ELECTIVE – IV

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# ARCH 419: ELECTIVE – IV

Syllabus: 15 weeks (2 hours/week) Total Teaching hours: 30 Hrs.

4 Sem		ELECTIVE IV
	419.1	Spatial narratives: STORIES ON STILL
	419.2	Building Performance and Compliance
	419.3	Road Safety and Civic Sense
	419.4	MOOC: DESIGNERS, KNOW YOUR DUTIES /SENSE N SENSIBILITY: ACEDGE

COURSE OBJECTIVES:

overall nurturing of the student with issues in practice and field outside

COURSE OUTCOME:

At the end of the course, students will be able to -overall nurturing of the student with issues in practice and field outside

better grooming than just books and theories. **EXPECTED SKILLS / KNOWLEDGE TRANSFERRED:** better grooming than just books and theories.

**COURSE OVERVIEW:** 

1

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 design;

COURSE CONTENTS: SR. NO. SYLLABUS: TOPIC SUE

SUB TOPIC

TEACHING HOURS:

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; finishing & presenting the product for the concepts evolved. The outcome will be through portfolio & presentations.

 As Per Pool Electives Choices Stage II odd semester pool

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

**NOTE:** Evaluation is to be done through viva voce, Portfolios after the university exam shall be retained at the Institute level for the viva-voice

Spatial narratives

Introduction: Concepts of spatial narratives in the built environment; significance; Terminologies; Physical expression of

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B. ARCH (2021-26)

COURSE CONTENT

ARCH 419: ELECTIVE – IV

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socio-cultural aspects; Environmental Psychology; Cognitive mapping; Defensible spaces, perceptions, association to space. Elements: Leading to perception & interpretation of built & urban space; Development of experiential quality; Interrelationships between space & its user; Delineation of space; Stimulation of activities: Timescale & temporal transformations.Indian architecture & spatial narrative: Factors affecting the process of experiencing Indian architecture, its complexities, & spatial narrative; Impact of socio-cultural aspects; Religious complexes, civic buildings & fortified settlements. Urban space & spatial narrative: Experiencing & perceiving urban spaces; Methods of comprehension; Spatial order; Sequence of experiencing a space; Understanding multi-layered information system in an urban space. Exploring spatial narratives: Case studies; Learnings from architectural reviews; Development of personal philosophies through primary experience; Critical analysis of experience through writings, visuals & sketches; Comparisons of interpretations. After completion of this course, the student will be able to: 1. Analyze the performance of the building based upon different parameters. 2. Apply the knowledge of Building Energy codes in building components. 3. Make use of an integrated design approach related to code compliance. 4. Make use of energy simulation software for early design decisions concerning ventilation, lighting, etc. 5. Conceptualize the building design concerning benchmark values of the different applicable codes like ECBC, NBC, BIS SP 41, etc. Objective: To understand the parameters, terminologies and technologies associated with Building performance assessment Building performance Outline: Building performance assessment, Building Code and and compliance Energy Conservation Building Code, Various compliance approaches; Building Envelope; Comfort Systems; Lighting systems; Electrical and renewable energy systems, Energy Plus™ to model both energy consumptions for heating, cooling, ventilation, lighting and process loads and water use in buildings, Heat balance-based solution of radiant and convective effects. Kubba, S. (2012). Handbook of green building design and construction: LEED, BREEAM, and Green Globes. Butterworth-Heinemann. Haselbach, L. (2010). The engineering guide to LEED-New Construction: Sustainable construction for engineers (GreenSource). McGraw-Hill, New York. https://energyplus.net/ https://www.designbuilder.com/ Objective: To introduce the concepts, principles, tools and aids Road safety and civic of road safety and civic sense to the students of B.Arch. to sense acquaint them with the design and safety standards for roads.

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B. ARCH (2021-26)

## **COURSE CONTENT**

ARCH 419: ELECTIVE – IV

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also, inculcate the practice of safe road behaviour and a civic sense among them.

Methodology: lectures, tutorials and case studies.

Unit 1: introduction to road safety

Road as an active space, types of users, user behaviour, sensory factors like vision and hearing in user behaviour.

Types of vehicles: heavy vehicles, light motor vehicles, twowheelers, auto-rickshaw, bicycles and cycle rickshaws, nonmotorized vehicles

Vehicle characteristics: dimensions, weight, turning radii, braking distance, lighting system, tyres, etc.

Type of hazards: conflicts and accidents.

Unit II: a typology of roads: components and design

Road classification: national highways, state highways, district roads (MDR and ODR), Village Roads Urban Road classification: expressway, arterial, sub-arterial, collector, local, service roads, one-way, two-way etc .mountainous roads, speed limits of the road types

Design of roads: cross-sectional elements -the right of way, carriageway, median, shoulders, sidewalks, lanes cycling track green strip, curbs, camber etc. spatial standards for the crosssection design, relationship between road design and road safety.

Unit III: Types of road intersections: basic forms of at-grade junctions (T, Y, Staggered, skewed, cross, scissors, rotary etc. grade-separated junctions (with or without interchange )three-leg, four-leg, multi-leg etc.

Design of intersections: design and spatial standards for traffic islands, turns, turning radii, directional lanes, pedestrian crossings, median openings, traffic calming components like speed breakers and tabletop crossing etc

Design considerations for diverging, merging and weaving traffic Location and design for traffic signals

Unit IV: Requirement of pedestrian infrastructure: sidewalks and footpaths, recommended sidewalk widths, pedestrian crossings, pedestrian bridges, subways, cycle tracks, etc.

Barrier-free design: location and design standards for ramps for wheelchair access, other provisions like tactile for visually challenged etc

Safety provisions: pedestrian railings, anti-skid flooring, pedestrian signal, walk button, etc.

Unit V: Traffic signs and road markings

Type for traffic signs: principles and types of traffic signs, danger

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B. ARCH (2021-26)

## **COURSE CONTENT**

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signs, prohibitory signs, mandatory signs, informatory signs, indication signs, direction signs, place identification signs, route marker signs etc. reflective signs, LED Signs, static and dynamic signs.

Standards for traffic signs: location, height and maintenance of traffic signs

Types of road markings: centre lines, traffic lane lines, pavement edge lines, no-overtaking zone marking, speed markings, hazard markings, stop lines, pedestrian crossings, cyclist crossings, route material, colour and typography of the markings.

Unit VI: Traffic signals, traffic control aids, street lighting

Traffic signals: introduction, advantage and disadvantages

Signal indications: vehicular, pedestrian and location of the signals.

Signal face, illustration of the signals, red, amber, green signals and their significance, flashing signals warrant of signals coordinated control of signals

Traffic control aids roadway delineators (curved and straight sections ), hazard markers, object markers, speed breakers, tabletop crossings, rumble strips, guard rails, crash barriers etc.

Street lighting: the need for street lighting, type of lighting, illumination standard, location and intermediate distance

Unit VII: Nature and types of road accidents(grievously injured, slightly injured, minor injury, non-injury etc)

The situation of road accidents in India (yearly), fatality rates etc. Factors(and violations) that cause accidents, prevention and first aid to victims Collision diagrams and condition diagrams exercises.Traffic management measures and their influence on accident prevention.

Unit VIII: Road safety and civic sense need for road safety, category of road users and road safety suggestions Precautions for driving in difficult conditions (night, rain, fog, skidding conditions, non-functional traffic lights, etc)

Types of breakdowns and mechanical failures. Accident sign (warning light, warning triangle, etc)

Introduction to the concept of civic sense and its relationship to road safety: the importance of civic sense, road etiquettes and road user behaviour, rules of the road, right of the way. assisting accident victims. sensitisation against road rage

Unit ix: Traffic regulations, laws and legislation

Indian motor vehicles act (chapter viii: control of traffic to be discussed in detail)

Regulations concerning traffic: cycles, motorcycles and

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B. ARCH (2021-26)

## COURSE CONTENT

ARCH 419: ELECTIVE – IV

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> scooters, rules for pedestrian traffic, keep to the left rule, overtaking rules, turning rules, priority rules, hand signals etc, Speed and hazard management. penal provisions. National road safety policy, central motor vehicle rules, state motor vehicle rules introduction to good practices Suggestive readings: Srinivasa Kumar, Introduction to traffic engineering LR Kadiyali, Traffic engineering and transport planning Ministry of road transport and highways (govt of India )Book on road safety signage and signs, MORT& H Pocketbook for highway engineers, 2019(3rd revision) Publications by UTTIPEC namely, street design guidelines, UTTIPEC road markings, UTTIPEC guidelines and guidelines for specifications for crash barriers, pedestrian railing and dividers, UTTIPEC standard typical crossing design Street design standards as provided in times savers, neuferts etc

# Publications by Indian Road Congress

## 4. MOOC

**COURSE OBJECTIVE:** overall nurturing of the student with issues in practice and field outside

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

COURSE OUTCOME: EXPECTED SKILLS / KNOWLEDGE TRANSFERRED: better grooming than just books and theories. COURSE CONTENTS: SR. NO. SYLLABUS: SUBTOPIC TOPIC

TEACHING G HOURS:

The creative MOOC provide an opportunity to access a different form of architecture related to imagination, visualization & creation. They offer the experience of unique ingenuity, theory or workmanship. The essence of the creative domain can be achieved by exploring different materials, techniques, and processes; developing creative products/theories; finishing & presenting the product for the concepts evolved. The outcome will be through portfolio & presentations. Where these workshops or MOOCs help them explore the different topics relevant to individual interests and in the palette of choices for the semester

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