SEMESTER-III														
S.No.	**CODE**	**SUBJECTS**	**L**	**TS**	**PS**	**CREDITS (L+0.5TS+1.5PS)**	**MSE**		**ESE**		**TA**	**MARKS**	**Course Category**	**Total Periods**
							Theory	**Viva**	**Theory**	**Viva**				
1	ARPC2111	Architectural Design-III	3	3	1	6	30	20	0	50	100	200	Professional Core (PC)	7
2	ARPC2112	History of Hindu, Buddhist and Jain Architecture	3	0	0	3	30	0	50	0	20	100	Professional Core (PC)	3
3	AREP2111	Building Materials & Construction Techniques-III	2	1	1	4	30	20	50	40	60	200	Essential Program Requirements (EPR)	4
4	AREP2112	Mechanics of Structures	3	0	0	3	30	0	50	0	20	100	Essential Program Requirements (EPR)	3
5	AREP2113	Water Supply and Sanitation Building Services	3	0	0	3	30	0	50	0	20	100	Essential Program Requirements (EPR)	3
6	AREP2114	Climate Responsive Architecture	3	0	0	3	30	0	50	0	20	100	Essential Program Requirements (EPR)	3
7	AREP2121	Computer Aided Drafting	0	2	0	1	0	20	0	40	40	100	Essential Program Requirements (EPR)	2
8	AREP2122	Architectural Communication Tecnhiqeus	0	2	0	1	0	20	0	40	40	100	Essential Program Requirements (EPR)	2
Total			**17**	**8**	**2**	**24**						**1000**		**27**

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B.Arch Syllabus

Semester-III

1.	Department proposing the course	Architecture
2.	Course Title	**Architectural Design-III**
3.	L-TS-PS Structure	3-3-1
4.	Credits/# of period	6/7
5.	Course number (Code)	**AR203101AR**
6.	Status (Core/Essential/Elective)	Professional Core (PC)
7.	Pre-requisites (course no./title)	ARPC1211-Architectural Design-II
8.	Frequency of offer	Annual
9.	Course Objectives (CO): 1. To understand Site, Contours, Natural Features and Vernacular Practices. 2. To understand Cultural Influences in Architecture. 3. To adapt lessons learnt from Architectural History in design development. 4. To develop forms through space-making and their interrelationship.	
10.	Course Syllabus: All courses learnt in this semester and in all previous semesters are subservient to Architectural Design-III course. Projects shall be dealt through collecting information, critical evaluation, and representation through literary and visual resources. There shall be at least two design problems during this course to achieve the objectives stated here above. This may be done through designing built-forms emphasizing on Development of Forms and interaction between Form and Space. The design shall encompass local contexts, handling contours/site features/vernacular practices. The suggestive design topics may include 5 to 8 spaces *viz.* bungalows, farm house, office/residence of professionals, cafe and restaurant, dispensary, primary health care center, fuel station, creche, play school, kindergarten, post office, bank etc. Deliverable shall be in the form of Portfolio/Sheets/Models/Reports/Multimedia Presentation, etc.	
11.	References: i. Ching, F. D. (2014). Architecture: Form, space, and order. John Wiley & Sons. ii. De Chiara, J. (2001). Time-saver standards for building types. McGraw-Hill Professional Publishing. iii. Neufert, E., Neufert, P., & Kister, J. (2012). Architects' data. John Wiley & Sons.	

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B.Arch Syllabus
Semester-III

1.	Department proposing the course	Architecture
2.	Course Title	**History of Hindu, Buddhist and Jain Architecture**
3.	L-TS-PS Structure	3-0-0
4.	Credits/# of period	3/3
5.	Course number (Code)	**AR203102AR**
6.	Status (Core/Essential/Elective)	Professional Core (PC)
7.	Pre-requisites (course no./title)	NIL
8.	Frequency of offer	Annual
9.	Course Objectives (CO): 1. To understand the Philosophical Principle in Hindu, Buddhist and Jain Architecture. 2. To learn impact of geographical, geological, climatic, historical, technological, social and religious factors influencing Architecture. 3. To understand the architectural characters.	
10.	Course Syllabus: **Unit-1: Temple Architecture in North and West India** a. Philosophical Principles b. Examples of North and West Indian Temples **Unit-2: Temple Architecture in East and central India** a. Philosophical Principles b. Examples of East and central Indian Temple **Unit-3: Temple Architecture in South India** a. Philosophical Principles b. Examples of South Indian Temples **Unit-4: Buddhist and Jain Architecture (with special emphasis on religious architecture and Public Buildings)** a. Philosophical Principles of Buddhist and Jain Architecture b. Development of Buddhist and Jain Architecture in North, East South West and Central c. Examples and influences. **Unit-5: Hindu, Buddhist and Jain Architecture in neighboring countries (with special emphasis on religious architecture)** a. China, Japan, b. SE Asia, c. Afghanistan etc.	
11.	References: i. Brown, P. (1983). Indian Architecture (Buddhist and Hindu Period). Bombay, Taraporevala and Sons. ii. Fletcher, B., & Cruickshank, D. (1996). Sir Banister Fletcher's a history of architecture. Oxford: Architectural Press. iii. Grover, S. (2003). The Architecture of India (Buddhist and Hindu Period). New Delhi, Vikas Publishing Housing Pvt. Ltd. iv. Handa, O.C. (2002). Temple Architecture of the Western Himalaya: Wooden Temples. New Delhi, Indus Publishing Company. v. Hardy, A. (2007). The Temple Architecture of India. John Wiley & Sons. vi. Harle, J C. (1994). The art and architecture of Indian subcontinent. Yale, Yale University press. vii. Kostof, S. (1985). A History of Architecture - Setting and Rituals. London, Oxford University Press. viii. Michell, G. (1986-2001) Encyclopaedia of Indian Temple Architecture North and South India in Seven volumes (Set of 14 Books). UK, Manohar Publishers and Distributors. ix. Michell, G. (1988). The Hindu temple: an introduction to its meaning and forms. Chicago, University of Chicago Press. x. Nagach, B.L., Suresh, K.M. and Sharma, D. P. (2009). Encyclopedia of Indian Architecture: Hindu, Buddhist, Jain and Islamic. Delhi, Bharatiya Kala Prakashan. xi. Pandya, Y. (2013). Concepts of Space in Traditional Indian Architecture. Grantha Corporation. xii. Roth, L. M. (2007). Understanding architecture: Its elements, history, and meaning. Boulder, Colo: Westview Press. xiii. Sahai, S. (2008). Forts & Palaces of India. Delhi, Prakash Books. xiv. Stierlin, H. (1977). Encyclopaedia of world architecture (Vol. 1). Macmillan. xv. Tadgell, C. (1990). The History of Architecture in India from the Dawn of civilization to the End of the Raj. London, Longmon Group U.K.Ltd.	

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B.Arch Syllabus

Semester-III

1.	Department proposing the course	Architecture
2.	Course Title	**Building Materials and Construction Techniques-III**
3.	L-TS-PS Structure	2-1-1
4.	Credits/# of period	4/4
5.	Course number (Code)	**AR203001AR**
6.	Status (Core/Essential/Elective)	Essential Program Requirement (EPR)
7.	Pre-requisites (course no./title)	AREP1211-Building Materials and Construction Techniques-II
8.	Frequency of offer	Annual
9.	Course Objectives (CO): 1. To introduce glass, metal and PVC as building materials. 2. To understand various building components made up of glass, metals and PVC and their application techniques. 3. To introduce concepts of scaffolding, underpinning and form-work.	
10.	Course Syllabus: The course focuses on glass, metal and PVC as building materials. Other associated building materials, with fixing details, required to explain the topics should be incorporated for comprehensive understanding. Emphasis should be given to on-site construction practices. **Unit-1: Introduction to Glass, Metal (Steel and Aluminium), PVC as building materials** a. Glass – Types, Properties, Uses, Fixing details, etc. b. Steel – Types, Properties, Uses, Fixing Details, etc. c. Aluminium – Types, Properties, Uses, Fixing Details, etc. d. PVC – Types, Properties, Uses, Fixing Details, etc. **Unit 2: Doors, Windows and Glazing** a. Doors – Glass, Aluminium, Steel, PVC, Composite, etc. b. Windows – Glass, Aluminium, Steel, PVC, Composite, etc. c. Glazing – Types, Uses, Components, Fixing details, etc. **Unit 3: Partitions, False Ceilings and Flooring** a. Partitions – Glass, Aluminium, Steel, PVC, Composite, etc. b. False Ceiling – Types, Uses, Components, Fittings and Fixtures, Finishes, etc. c. Flooring – Types, Uses, False Flooring, Components, Fittings and Fixtures, Finishes, etc. **Unit 4: Paneling, Cladding** a. Paneling – Types based on various materials (Glass, Aluminium, Composite, etc.), Components, Finishes. b. Cladding – Types based on various materials (Glass, Aluminium, Composite, etc.), Components, Finishes. **Unit 5: Glazing and Curtain Walls** a. Types, Uses, Components, Fixing details, etc. *Note: Deliverable shall be in form of portfolio/sheets/models/reports/multi-media presentations, etc. with hands-on experience.*	
11.	References: i. Barry, R. (1999). The Construction of Buildings Series. 5th Ed. New Delhi: East-West Press. ii. Ching F.D.K. (2014). Building Construction Illustrated. 5th Ed. NJ: John Wiley and Sons iii. Chudley, R. (2008). Building Construction Handbook. 7th Ed. London: Butterworth-Heinemann. iv. Foster, J. and Mitchell, S. (1963). Building Construction: Elementary and Advanced, 17th Ed. London: B.T. Batsford Ltd. v. Hailey and Hancork, D. W. (1979). Brick Work and Associated Studies Vol. II. London: MacMillan. vi. McKay, W. B. (2005). Building Construction Metric Vol. I–IV. 4th Ed. Mumbai: Orient Longman. vii. Moxley, R. (1961). Mitchell's Elementary Building Construction. London: B. T. Batsford. viii. Punmia, B.C. and Jain, A. K. (2016). Building Construction. 11th Ed. New Delhi: Laxmi Publications. ix. Rangwala, S. C. (2017). Engineering Materials: Material Science. 43rd Ed. Anand: Charotar Publishing House Pvt. Ltd. x. Rangwala, S. C. (2019). Building Construction 33rd Ed. Anand: Charotar Publishing House Pvt. Ltd. xi. Sushil-Kumar, T. B. (2003). Building Construction. 19th Ed. Delhi: Standard Publishers.	

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B.Arch Syllabus

Semester-III

1.	Department proposing the course	Architecture
2.	Course Title	**Mechanics of Structures**
3.	L-TS-PS Structure	3-0-0
4.	Credits/# of period	3/3
5.	Course number (Code)	**AR203002AR**
6.	Status (Core/Essential/Elective)	Essential Program Requirement (EPR)
7.	Pre-requisites (course no./title)	NIL
8.	Frequency of offer	Annual
9.	Course Objectives (CO): 1. To understand the theories of column, arches and their applications. 2. To understand load bearing masonry structure and its application.	
10.	Course Syllabus: **Unit-1: Columns** a. Theory of columns, Types of end conditions, Equivalent length, Axial loads. b. Combined bending and axial loads, Indian Standard Code recommendations. c. Euler's formula for long columns, Rankine's formula, Practical applications. **Unit-2: Arches** a. Theory of arches, classification of arches, Analysis of three hinged and two hinged arches. b. Bending moment diagram for given loads, Normal thrust and radial shear. **Unit-3: Introduction to Load Bearing structures** a. Basic terminology, Design considerations, Scope, Materials, Supports and Stability. b. Effective dimension of wall, column, foundation and openings, Eccentricity and Slenderness ratio. **Unit-4: Structural Design of Load Bearing structures** a. Masonry properties and Codes of practice for Structural Masonry. b. Lateral load analysis, Design of wall and column for different types of loading systems. **Unit-5: Methods of Construction** a. Types, Workmanship, Joints to control deformation and cracking. b. Corbelling. Design calculations for Residential building according to BS 5628.	
11.	References: i. B., J. S., & B., J. S. (n.d.). Mechanics of structure. Bombay: Vivele Pub., 2011. ii. BS 5628-3. (2005). Code of practice for the use of masonry. Materials and components, design and workmanship, GoI. iii. Khurmi, R. S. (2007). A Textbook of Engineering Mechanics (SI Units). S. Chand. iv. Punmia, B. C. (1984). Strength of materials and mechanics of structures. Delhi: Standard Pub Dist. v. Reddy, C. S. (2011). Basic structural analysis. Tata McGraw-Hill Education. vi. Vazirani, V. N., & Ratwani, M. M. (1996). Analysis of Structures. Textbook for Engineering Students. vii. Punmia, B. C. (2004). SMTS-II Theory of Structures. Firewall Media. viii. Bhavikatti, S. S. (2005). Structural Analysis-I. Vikas Publishing House. ix. Bhavikatti, S. S. (2016). Structural Analysis-II. Vikas Publishing House. x. Hendry, A. W., Sinha, B. P., & Davies, S. R. (2003). Design of masonry structures. CRC Press. xi. Rai, D. C. (2005). Structural use of unreinforced masonry. IITK-GSDMA EQ, 12, 19. xii. Curtin, W. G. (1983). Loadbearing Brickwork Crosswall Construction. Brick Development Association Publication,(Apr.), 1983.	

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B.Arch Syllabus

Semester-III

1.	Department proposing the course	Architecture
2.	Course Title	**Water Supply and Sanitation Building Services**
3.	L-TS-PS Structure	3-0-0
4.	Credits/# of period	3/3
5.	Course number (Code)	**AR203003AR**
6.	Status (Core/Essential/Elective)	Essential Program Requirement (EPR)
7.	Pre-requisites (course no./title)	NIL
8.	Frequency of offer	Annual
9.	Course Objectives (CO): 1. To understand need and importance of water supply and sanitation. 2. To study water supply system in buildings. 3. To understand components of various sewage systems. 4. To study and understand solid waste management system.	
10.	Course Syllabus: **Unit-1: Water Supply-I** a. Sources, Quantity and Quality of potable water. b. Water demand calculations, norms and standards. c. Water treatment for domestic purpose, etc. a. Run-off calculation, Rain water harvesting system, Recycling of water, etc. **Unit-2: Water Supply-II** a. Water storage, overhead tank, sump, etc. b. Water distribution systems. c. Guidelines for laying of water supply lines. d. Water supply pipe materials, apparatus, joints, fixtures and valves., etc. **Unit-3: Sanitation-I** a. Basic principles and standards of sanitation. b. Modern plumbing system. c. Types of pipe systems, Types of traps and their uses. d. Types of sanitary systems and network. **Unit-4: Sanitation-II** a. Gully trap, inspection chamber, intercepting trap, grease trap, man holes, etc. b. Calculation for Gradient and slope in sewage disposal. c. Various sanitary fixtures,fittings and its connections. d. Sewage disposal to septic tank, cess pool, soak pit, etc. e. Connection of building/campus drainage to public sewer. **Unit-5: Solid waste Management** a. Introduction to Solid waste and its management. b. Placement of refuse chute, collection points, etc. c. Storm water disposal at site and settlement level.	
11.	References: i. Birdie, G. S., & Birdie, J. S. (2013). Water Supply and Sanitary Engineering (including Environmental Engineering and Pollution control Acts). ii. G.M. Fair, J.C.Geyer & D.Okin, Water and Waste water engineering Vol II, John Wiley & Sons, Inc. N Y, 1968 iii. Husain, S. K. (1974). Water supply and sanitary Engineering. iv. International Plumbing Code by International Code Council v. Manual of water supply & treatment, 2nd edition, CPHEEO, Ministry of works and housing, New Delhi 1977 vi. Manual on sewerage and sewerage treatment, CPHEEO – Ministry of works and housing, New Delhi, 1980. vii. Modern Plumbing by E. Keith Blankerbaker viii. Rangwala, S. C., Rangwala, K. S., & Rangwala, P. S. (1990). Water supply and sanitary engineering. Charotar. ix. Wise, A. F. E. and Swaffield, J. (2012). Water, sanitary and waste services for buildings. Routledge.	

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B.Arch Syllabus

Semester-III

1.	Department proposing the course	Architecture
2.	Course Title	**Climate Responsive Architecture**
3.	L-TS-PS Structure	3-0-0
4.	Credits/# of period	3/3
5.	Course number (Code)	**AR203004AR**
6.	Status (Core/Essential/Elective)	Essential Program Requirement (EPR)
7.	Pre-requisites (course no./title)	NIL
8.	Frequency of offer	Annual
9.	Course Objectives (CO): 1. To obtain knowledge required for understanding the influence of climate on architecture. 2. To understand design and settings of buildings for various elements of climate. 3. To study various building design strategies in different climatic zones.	
10.	Course Syllabus: **Unit-1 Elements of climate** a. Weather, Climate and its formation, Sun-Earth relationship. b. Elements of climate, measurement and data collection. c. Microclimate and Macroclimate. **Unit-2 Principles of thermal comfort** a. Physiological impact of elements of climate. b. Comfort indices, human comfort conditions. c. Natural and artificial methods of achieving thermal comfort. **Unit-3 Air movement and illumination** a. Ventilation and air movement. b. Natural illumination and day lighting. c. Artificial illumination. **Unit-4 Climate responsive design-I** a. Classification of climate at national and global level. b. Introduction to traditional design measures in various climates. c. Architectural design considerations for various climatic zones in India. **Unit-5 Climate responsive design-II** a. Study of materials and construction techniques for climate responsive design. b. Application of solar passive design techniques. c. Case studies of climate responsive designs.	
11.	References: i. B. Givoni (1981), Man, Climate and Architecture, Architectural Sciences Series - Applied Science Publishers Ltd.,London ii. B. Givoni (1994) Passive and Low Energy Cooling of building,Van Nortrand Reinhold New York, USA. iii. Evans, M. (1980). Housing, climate and comfort. London: The Architectural Press. iv. Koenigshberger, O. H., Ingersoll, T., Mayhew, A., & Szokolay, S. V. (2010). Manual of tropical housing and building: Climatic design. Hyderabad, India: Universities Press. v. Krishan, A. (2001). Climate responsive architecture: A design handbook for energy efficient buildings. New Delhi: Tata McGraw-Hill Publ. vi. Olgyay, V., & Olgyay, A. (2015). Design with climate: Bioclimatic approach to architectural regionalism. Princeton, NJ: Princeton University Press. vii. Solar Control and Shading Devices /Olgay and Olgay	

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B.Arch Syllabus

Semester-III

1.	Department proposing the course	Architecture
2.	Course Title	**Computer Aided Drafting**
3.	L-TS-PS Structure	0-2-0
4.	Credits/# of period	½
5.	Course number (Code)	**AR203005AR**
6.	Status (Core/Essential/Elective)	Essential Program Requirement (EPR)
7.	Pre-requisites (course no./title)	NIL
8.	Frequency of offer	Annual
9.	Course Objectives (CO): 1. To develop theoretical understanding of computer aided design and its relevance in Architecture. 2. To prepare presentation drawings, generating 2D and presentation drawings.	
10.	Course Syllabus: The course shall elaborate use of computer in Architecture. The practical exercises shall be assigned to students for drafting of 2 dimensional architectural drawings. To explain the drafting process and use of software, following shall be incorporated: a. Introduction to computer aided designing, tools and basic set up. b. Theoretical understanding. c. Comprehension of tools and systems for 2dimensional drafting. The students shall draft 2 dimensional drawings by using various software (like AutoCAD, Revit Architecture, ArchiCAD, etc.). Manipulation and alteration of existing architectural drawings through various tools and techniques shall also be incorporated. Deliverable shall be in the form of Portfolio/Sheets/Reports/Multimedia Presentation, etc.	
11.	References: i. Argelia Barcena, Revit Architecture – Fundamentals. ii. Cadfolks, AutoCAD 2019 for Beginners iii. Paul, A. (2013). Renaissance Revit: Creating Classical Architecture With Modern Software. iv. Prof. Sham Tickoo, Exploring Autodesk Revit 2019 for MEP v. Wing, E. (2016). Autodesk Revit 2017 for Architecture: No Experience Required. John Wiley & Sons.	

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B.Arch Syllabus

Semester-III

1.	Department proposing the course	Architecture
2.	Course Title	**Architectural Communication Techniques**
3.	L-TS-PS Structure	0-2-0
4.	Credits/# of period	½
5.	Course number (Code)	**AR203006AR**
6.	Status (Core/Essential/Elective)	Essential Program Requirement (EPR)
7.	Pre-requisites (course no./title)	NIL
8.	Frequency of offer	Annual
9.	Course Objectives (CO): 1. To develop the presentation and architectural communication skills. 2. To develop the understanding of architectural and graphical representation.	
10.	Course Syllabus: **Unit-1: Architectural Representations** a. Methods and techniques to draw various views. b. Learning of graphical strokes and architectural representations of human, trees, etc. **Unit-2: Pictographical Analyses** a. Understanding Pictography, grid, etc. with basic design principles of architecture. b. Learning the principles of framing and composition. **Unit-3: Advanced Graphical skills -I** a. Introduction to various perspective techniques by showing shades, shadows. b. To generate suitable scenario of focused objects and its surroundings. **Unit-4: Advanced Graphical skills -II** a. Various Architectural Presentation techniques. b. Enhancing writing and verbal skills. c. Methods of multimedia presentation. **Unit-5: Practical applications** a. Development of subject portfolio with learning outcome.	
11.	References: i. Atkin, W. (1983). Architectural Presentation Techniques (1st ed.). New York: Van Nostrand Reinhold. ii. Baden-Powell, C., Hetreed, J., & Ross, A. (1997). Architect's pocket book (2nd ed.). Oxford, UK: Architectural Press(An imprint of Elsevier Science). iii. Ching, F. (1943). Architectural graphics (6th ed.). New Jersey: John Wiley and Sons, Inc iv. Davis, J., & Watkins, J. (2001). Architectural Delineation: Presentation Techniques and Projects (2nd ed.). Dubuque, Iowa: Kendall Hunt Publishing. v. Dernie, D. (2014). Architectural Drawing (2nd ed.). London: Laurence King Publishing. vi. Farrelly, L. (2008). Basics Architecture 01: Representational Techniques (1st ed.). Lausanne: AVA Publishing SA. vii. Kemper, A. (1978). Presentation drawings by American architects = (1st ed.). Taipei: Morion. viii. Rani, R. (2015). Guide to visual presentation. Rockport, United States: Rockport Publishers Inc. ix. Zell, M. (2002). The Architectural Drawing Course (2nd ed.). Hauppauge, NY.: Barrons Educational Series Inc.	