

# Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal

## BACHELOR OF ARCHITECTURE V Semester (CBGS)

S.N o	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)	
			End Sem	Mid Sem Test	Assignm ent/ Quiz	End Sem	Lab/ Studio Work				
1	AR311	Design- V	50	30	20	50	150	2	-	6	8

Design of imaginative forms to develop the creativity in terms of built form. Design with application of principles and theory of Architectural design and philosophies of contemporary architects.

The attempt is towards developing one's own language and philosophy of architecture to guide towards exploring alternative building forms for different activities which help in understanding the relationship of structure and possibilities in building forms. Design problems should include problems of simple and complex nature i.e. temple, gathering places, exhibition pavilion, clubs, cafe, community hall, museums, art gallery, pavilion, sport complexes, nursing homes.

Emphasis shall be given more on three dimensional studies to develop an understanding for man and space relationship and also relevant building bye-laws.

There should be variety of problems in the studio work with changing focus for each problem from theory to construction techniques (local) and site layouts, covering organization and detailing of open spaces with the aim to learn to work with practical limitations.

One group exercise of making measure drawings of a building for documentation.

Minimum one time problem is to be attempted in class, of 18 hrs duration.

**Note:** Sessional should be done in the form of drawing sheets and reports for the design projects.

Assessment shall be done on the basis of regular reviews.

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2.	AR312	Building Construction – IV	50	30	20	50	100	2	-	4	6

1. Design and Constructional details of sliding, sliding folding, revolving doors, swing doors and sliding windows in timber.
2. Design and construction details of fix glazing, side hung doors in aluminum, fully glass door, rolling shutter and collapsible shutter.
3. Study of metal and aluminum sectioned curtain wall.
4. Study of compound wall (advanced type) with security arrangement, study of wicket gate and large entrance gates rolling on wheels.
5. Study of water proofing and roof light. Study of details of various methods of facade treatment and interior finishes.

**Note:** i) There should be regular site visits to buildings under construction or constructed to explain the above topics. Use of audio-visuals should be stressed.  
ii) Minimum 8 sheets shall be prepared out of which two may be in sketch form (scaled).

### List Of Text And Reference Books:

1. W.B. McKay, "Building Construction Vol.1 to IV, Orient Longman.
2. R. Chudley, "Building Construction Handbook Vol. 1 To 4 "British Library Cataloguing In Publication Data 1990.
3. Dr. B.C. Punamia, "Building Construction", A. Sauraby & Co. Pvt. Ltd.
4. R. Berry, "Construction Of Buildings". The English Language Book Society London 1976.
5. Mitchel, " Advance Building Construction", Allied Publishers Pvt. Ltd.

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3.	AR313	History of Indian Architecture	50	20	10	-	20	2	1	1	4

This course is studied in order to see how builders in the past solved their structural, functional and aesthetic problems. This survey of history gives the student a chance to study the structural basis of great styles, methods of admitting daylight, for decoration, for planning and so on, as related to structure. Importance is also attached to the sociological background i.e. political, economic, religious, technical and philosophic ideas and ideals which lie behind all buildings. This will be studied with the help of selected samples of buildings under the various historical civilizations of Indian and the oriental in general, in chronological order.

1. Pre-Gupta Architecture i.e. upto 3rd cen.A.D.
2. Gupta, Chalukayan, Indo Aryan.
3. Dravidian & Rajput Architecture i.e. upto 11th cen.A.D.
4. Medieval Hindu & Jain architecture.
5. Indo-Islamic architecture.
6. Rajput palaces.
7. Colonial Architecture in India.

**Note:** Sessional will be submitted in the form of sketches (min. say 20) notes, audio-visuals and reports of site visit to some historical buildings etc. as per program scheduled by the Dept. / Institution.

### List Of Text And Reference Books:

1. Percy Brown, "Indian Architecture (Buddhist & Hindu), Taraporewala & Sons, Bombay.
2. Christopher Tadgill, "History Of Architecture In India", Phaidon Press.
3. Batleys Portfolio.
4. Satish Grover, "The Architecture Of Indian (Buddhist & Hindu)", Vikas Publishing Housing Pvt. Ltd. New Delhi.
5. A Vol Wansen, "Living Architecture (Indian)", Oxford & Ibh London.
6. "Elements Of Indian Architecture".

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4.	AR314	Study Tour, Working & Measurement Drawings&	-	-	-	20	30	-	1	1	2

Study Tour, Working Drawing & Measurement Drawings: One week measurement tour (local or out of station) to measure a building of historical or architectural importance and Study tour is compulsory.

## List Of Text And Reference Books:

1. "Graphic Standards".
2. "Time Saver Standards".
3. Fred A. Stitt, "Architects Detail Library", Van Nostrand Reinhold.

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5.	AR315	Modern Structural Systems	50	20	10	-	20	2	1	1	4

1. Design of Flat Slab
2. Design of continuous and isolated footings
3. Design of combined footing: - types of combined footing, design of combined footing (rectangular and trapezoidal only)
4. Appropriate methods for an analysis for frames by portal method, cantilever method (horizontal forces only)
5. Pre stressed concrete:- pre stress and pre stressing methods, type and classification of pre stressing, losses of pre stress

**NOTE:** i) I.S code 456 is permitted in examination.

ii) Sessional work should include the analysis and design of simple elements along with the drawings.

## List Of Text And Reference Books:

1. Salvadori, " Structures In Architecture".
2. Salvadori, " Structural Design In Architecture".
3. Robert, E. Fischer, "New Structure", Mcgraw Hill Co.
4. Wolfgang Schueller, "The Design Of Building Structures".

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6.	AR316	Building Science (Energy Systems)	50	20	10	-	20	2	1	1	4

1. Types, sources, availability and reserves of conventional and non-conventional energy, Role and importance of Energy in Buildings.

2. Assessment of energy consumption in a building and methods of energy conservation:-

(a) Through minimizing wastages.

(b) Through appropriate use of climatology.

(c) Through appropriate design and planning of buildings.

3. Introduction to Bio-Climatic architecture, Study of solar radiation on earth's surface, Measurement , angles, estimation and analysis, Orientation of building, with reference to solar radiation. Special design and planning detailing. Active solar architecture. Passive solar architecture.

4. Introduction to wind oriented architecture, study and analysis of micro level wind. Design and planning of building considering winds.

5 Study of energy efficient building material and construction techniques. Case study of national and international examples. Studio problem.

**Note:** the sessional work should include reports, drawings, experiments etc. in assignment / seminar form.

### List Of Text And Reference Books:

1. Wagner, Walter, "Energy Efficient Buildings"

2. Theo.C. Steemers, "Solar Architecture in Europe", Prism press.

3. A.S. Miffat, "Landscape Design that saves energy", William Morrow & Co., INC, NY.

4. Claude L. Robbins, "Day lighting Design & Analysis", Van Nostrand Reinhold.

5. B. Givoni, "Passive cooling for buildings".

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7.	AR317	Elective – I	-	-	-	50	50	-	1	3	4

### 1. Architectural Presentation techniques-

Study of graphical presentation techniques in different medium of expression and architectural delineation.

Hints for selection of observers' location for better perspective view. Hand drafted bird's eye view, normal perspective and interior views and use of different mediums and techniques in perspective.

Rendering techniques in perspective by showing shades, shadows, human figures, trees, related background and foreground to create suitable environment- manually and also with the computer.

**Note:** There should be regular site visits to buildings for explaining the above course and learning with the help of audio-visual techniques should be emphasized. The students should be encouraged to work manually.

### 2. Graphic Design:

Graphic Design is intended to be a first course in computer aided page design. The skillful combining of images and text become the core of this course. It is a working studio class and through demonstrations and hands on work students will learn to solve visual problems using Adobe Photoshop CS2 - CS6. This "hands on" experience is the key to success in this class. In the end, the students will work on traditional design problems leading to a portfolio of 10 pieces illustrating concepts learned. From postage stamps to giant billboards, graphic design permeates our environment. Understanding how to apply basic design concepts to the presentation of informative or persuasive material is crucial to communicating with an audience. Typography, image, space, color, and form will be integrated as the term progresses. The main emphasis of the course will be on students and their work. By actually working, taking risks, experimenting, making mistakes and creating with the computer, much is to be learned.

### 3. Animation

**Principles** • Understanding principles that translate sequential images into action to make animation believable • Understanding properties of matter • Making use of the wave principle, delayed secondary action, slow and fast action impact, speed, weight, tendency of weight to move in a certain way, recoil effects, squash and stretch related to weight, overlapping action, follow through • Animating force acting on objects, object weight, construction, flexibility, object behaviour when force acts on them • Principles of Timing • Gaining an insight into the invisible concept of time in nature • Understanding the basic unit of time

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in animation • Emphasizing the difference between caricature, drama, humour • Timing governing acting and movement • The use of anticipation, action, reaction • Methods of doping, writing exposure sheets, bar sheets • Planning accents, beats, scene timing, spacing of drawings, holds, easing in and out • Animating to music • Principles of Movement • Understanding the meaning of movement and movement in nature and what movement expresses • Awareness of how mood and feeling can be conveyed through movement and animate and inanimate object behaviour • Examining the laws of motion in the context of animation; cause and effect, thrown objects, rotating, force, oscillating movement, friction, resistance • Studying the tendency of weight to move in a particular manner • Simplification and exaggeration of movement Animation History • To gain an understanding of the evolution of animation • Delving into animation history- both of India and the world. • Precursors to animation: Cave paintings, animation toys • Animation before Disney • Studio animation • Feature animation • Experimental animation • Personal films and expression • Adult animation • Animation Today

### References for principles and theory:

1. Harold Whitaker and John Halas, Timing for Animation, Focal Press, Oxford, 2002 2. Preston Blair, Cartoon Animation, Walter Foster Publishing Inc., CA, 1995 3. Edited by Peter Hames, Dark Alchemy, The Films of Jan Svankmajer, Greenwood Press, 1995 4. John Culhane, Disney's Aladdin – The Making of an Animated Film Hyperion, NY, 1992

### References for History:

1. Dave Smith, The Official Encyclopedia – Disney A to Z Hyperion, NY, 1998 2. Vol : 18, Special Issue of Art History, March 1985 3. Leonard Maltin, Of Mice and Magic – A History of American Animated Cartoons Plume, Penguin Books. USA, 1990 4. Bob Thompson, Disney's Art of Animation – From Mickey Mouse to Hercules Hyperion, NY, 1997 5. Donald Craften, Before Mickey – The Animated Film [1898 – 1928], The University of Chicago Press, 1993 6. Peter Hames (edited by), Dark Alchemy, 7. The Films of Jan Svankmajer, Greenwood Press, 1995

### VISUAL COMMUNICATION:

#### INTRODUCTION:

UNIT: I Need and important of Human and Visual Communication, Communication as a process, Understanding Communication.

UNIT: II Communication as a process: Message, Meaning, Connotation and Denotation culture / code etc. Levels of communication: Technical, Semantic and pragmatic.

UNIT: III Principles of visual and other sensory perceptions. Color Psychology and theory (some aspects) Definition, Optical / Visual illusion etc.

UNIT: IV Types of Media – Traditional media, Print media, Electronic media and new media.

UNIT: V Basic of Graphic Design, Definition, Elements of Graphic Design. The process of developing ideas – Verbal, Visual, Combination and thematic, visual thinking, design execution and presentation.

### Reference:

1. Lester, E (2000) Visual Communication: Image with messages. 2. Visual Elements of Arts and Design (1989) Longman Porter. 3. Media presentation of Visual Arts and artists; University of Luton press Palmer, Frederic.

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