

FIRST YEAR (1ST SEMESTER)

1RARC101: ARCHITECTURAL DESIGN - I

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		FIRST SEMESTER				In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks		
FIRST	1RARC101	ARCHITECTURAL DESIGN– I	2	0	5	100	50	50	200	7	8

OBJECTIVES:

- Orientation of students to the professional of architecture.
- Introduction to basic design and the basic *understanding* of form and space in architecture.

CONTENTS:

Orientation to the Architecture Profession: Role of an Architect in the built environment, Building process, role of other professional in building. A general survey of the changes in habitat in history.

Architects act. C.OA. I.I.A.. NASA.

Space and Architecture: Understanding design as to create for a particular purpose and architectural design as to create space - exercise in terms of simple drawing and sketching of objects available in nature and surroundings. Form created through lines (columns) and planes (volumes), combination there of

Form and Transformations: Additive dimensional, subtractive- exercises primarily through 3 D models of simple geometry.

Scale in Architecture: Simple measurement exercises.

Order in Architecture: Geometrical, structural, dimensional, material, spatial orders - through observation of surroundings as well as simple exercises in 2D and 3D.

Exercises in order and transformations of form and space.

APPROACH:

- Drawing and model making skills will be taught along the subject to improve the abilities to understand space and form.

References:

1. Ching, Francis D. K. (2007). *Architecture: Form, Space and Order*, John Wiley and Sons Inc., 3rd Edition, New Jersey, Canada, ISBN 978-0-471-75216-5
2. Lidwell, W., Holden, K. & Butler, J. (2003). *Universal Principles of Design*. Rockport – Publications. Massachusetts.

1RARC102: BUILDING CONSTRUCTION & MATERIALS - I

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		FIRST SEMESTER				In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks		
FIRST	1RARC102	BUILDING CONSTRUCTION & MATERIALS - I	1	0	5	100	50	50	200	6	7

OBJECTIVES:

- To familiarize the students with constituents, properties and uses of traditional building materials used in construction.
- To understand the use of these traditional building materials in simple building works

CONTENTS:

1. MATERIALS -

Clay and Clay Products: Mud including stabilized, Burnt Bricks, Brick Tiles, Brick Ballast and Surkhi.

Stone : Classification, Availability, Characteristics and uses.

Lime: Availability, Preparation & Uses.

Cement: Manufacture and properties.

Sand & Surkhi: Availability, Characteristics and uses.

Mortar: Mud, Lime and Cement

Concrete: Lime and Cement.

D.P.C.: Asphalt, Bitumen, Synthetic.

2. CONSTRUCTION –

Element of Building: Terminology, nomenclature of various parts of building from foundation to roof.

Brick Work: Brick Terminology, Simple bonds in Brick work. Details at junctions and Quoins.

Stone Work: Elementary Stone Masonry, Types of joints. Random, Square & Ashlars Stonework.

Foundation: Need, Design criteria. Foundation Concrete, Details of simple spread foundations for load bearing walls of various thicknesses.

D.P.C.: Introduction to Horizontal D.P.C.

APPROACH:

- The students would be familiarized with glossary of vernacular terminology as prevalent in this part of the country.
- The emphasis will be construction details as applicable to Indian conditions.
- Site visits to timber, Lime Kiln and Cement factory.

References:

1. McKay, W. B. (1955). *Building Construction*. Volume I, II, III and IV. Longmans. Harlow.

2. Ching, F. D. K., Adams & Cassandra (2000). *Building Construction Illustrated*. Wiley and Sons.
3. Barry R. (2007). *The Construction of Buildings – Barry Volume I, II, III and IV*. Blackwell Science Ltd.
4. Chudley, Roy (2005). *Construction Technology*. Longmans.
5. Mitchell & Charles F. (1934). *Building Construction (Elementary and Advanced)*. B. T. Batsford.
6. Rangwala, S. C. (2007). *Building Construction*. Charotar Publishing House.
7. Punmia B. C., Jain A. J., and Jain A.J. (2005). *Building Construction*. Laxmi Publications.
8. Rangwala S.C. (2014). *Building Materials*. Charotar Publishing House.
9. Gambhir M., Jamwal Neha. (2011). *Building Materials Products, Properties and Systems*. Tata McGraw Hill Publishers, New Delhi.
10. Gupta R. K. (2009). *Civil Engineering Materials and Construction Practices*. Jain brothers, New Delhi.
11. National Building Code of India, 2005, Bureau of Indian Standards.
12. Morris, M., (2000). *Architecture and the Miniature: Models*. John Wiley and Sons.
13. Raghuwanshi, B.S. (2001). *A Course in Workshop Technology - Vol. I and II*. Dhanpat Rai and Co.

1RARC103: STRUCTURES - I

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		FIRST SEMESTER				In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks		
FIRST	1RARC103	STRUCTURE - I	2	1	0	50	50	-	100	3	5

OBJECTIVES:

To understand the basic principles of structural mechanics. so that it forms the basis for study of structural design.

CONTENTS:

Simple stresses and Strains: Elasticity, stress. strain. Types of stresses. Elastic limit. Hook's Law. Modulus of Elasticity. Stresses in Composite Bars.

Primary or Linear Strain. Poissons ratio. shear stress. Principal stresses and strains.

Centre of Gravity: Definition, Methods of finding out C.G. of simple figures. Centre of parallel forces.

Moment of Inertia: Definition, important theorems. section modulus. Calculation of MI by first principles and its application. MI of Composite sections.

Elements of Statics: Law of parallelogram of forces, Resolution of a force. Law of triangular of forces, Polygon of forces, Theorem of resolved parts. resultant of number of concurrent coplanar forces, Conditions of equilibrium. moment of a force, Moment and arm of a couple, Theorems on couples.

Shearing force and Bonding Moments: Beams Shearing force and bending moment, Moment of resistance. S.F. and B.M. diagrams of simple cases.

APPROACH:

- The lectures by the experts in the field will be arranged for the students so as to give them exposure to the practical aspects of design.

References:

1. Nautiyal B. D., "Introduction to Structural Analysis", B.H.U.
2. Punmia P. C., "Strength of Materials & Mechanics of Structures".
3. Khurmi R. S., "Strength of Materials".
4. Senol Utku , "Elementary Structural Analysis".
5. Ramamrutham S., "Strength of Materials".

1RARC104: ARCHITECTURAL DRAWING - I

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		FIRST SEMESTER			In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks			
FIRST	1RARC104	ARCHITECTURAL DRAWING – I	2	5	0	50	50	-	100	7	4

OBJECTIVES:

- Familiarization with drawing tools and accessories.
- To give a basic knowledge of good drafting and lettering techniques.
- To develop comprehension and visualization of geometrical forms.

CONTENTS:

Drawing tools and Accessories: Introduction to the subject and drawing equipment.

Setting of drawing equipment.

B.LS/ code of practice for architectural designs.

Drafting and quality of lines with pencil.

Basic technical drawing: Concept and types of line.

Division of lines and angles.

Drawing polygons.

Inscribing and circumscribing circles in polygons.

Drawing geometrical curves helix, conoid etc.

Orthographic Projections: Definition, meaning a concept

Planes of Projections.

First angle projections.

Projection of points lines and planes in different positions.

Projection of regular rectilinear and circular solids (prisms, pyramids, cones, cylinders, spheres etc.) in different positions.

Sections of regular rectilinear and circular solids (prisms, pyramids, cones, cylinders, spheres etc.) in varying conditions of sectional plane.

Development of Surfaces: Types and uses of scales.

Scales used by an architect

Reducing and enlarging scales.

Lettering: Free hand and mechanical lettering.

APPROACH:

- Maximum drafting work will be done in the studio.
- Models of solid will be used as teaching aids.
- Exercises for each topic will be undertaken.

References:

1. Morris, I. H. (2004). *Geometrical Drawing for Art Students*. Orient Longman, Madras.
2. Ching, F. D. K. (1964). *Architectural Graphics*, Van Nostrand Rein Hold Company, New York.

3. Bhatt, N. D. (2010). *Elementary Engineering Drawing (Plane and Solid Geometry)*. Charotar Publishing House, India.
4. Stegman, G. K. & Stegman, H. J. (1974). *Architectural Drafting: Functional Planning and Creative Design*. American Technical Society, U.S.A.
5. Martin, C. L. (1961). *Architectural Graphics*. The Macmillan Company. New York.

1RARC105: ARTS & GRAPHICS - I

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		FIRST SEMESTER			In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks			
FIRST	1RARC105	ART & GRAPHICS - I	1	5	0	50	50	-	100	6	4

OBJECTIVES:

- Introduction to art and appreciation of art and its philosophies.
- Familiarization with principles and theories and graphic and architectural composition.
- Development of art and graphic skills.

CONTENTS:

Philosophy of Art: Relevance of art of life: Art and artist. Art and society . Art and religion. art and mysticism.

Appreciation of art: Painting, Sculpture and Architecture.

Art in architecture: psychological and emotional aspect of aesthetics.

Theory of Design: Elements of design-Line. Direction, Shape size (**Introduction to Graphic Composition**) and form, Texture, Colors.

Art & Graphic Skills: Exercise to develop free hand skills-drawing lines, joining points. drawing curves, comprehension of scale.

Still life drawing-from observation.

Drawing from nature-shrubs, trees, grass, plants, flowers, rocks, and water.

APPROACH:

- The theory part of the course will be an overview, covered through audiovisual lectures delivered by experts in the field.
Studio exercises of graphic composition will be in the form of drawings, collapses and models.
- The students would be taught to handle various mediums in studio work as part of development of art and graphics skills.
- The examination paper would so set so as to test the knowledge and understanding of the student for each district part of the syllabus.

References:

1. Morris, I. H. (2004). *Geometrical Drawing for Art Students*. Orient Longman, Madras.
2. Ching, F. D. K. (1964). *Architectural Graphics*, Van Nostrand Rein Hold Company, New York.
3. Bhatt, N. D. (2010). *Elementary Engineering Drawing (Plane and Solid Geometry)*. Charotar Publishing House, India.
4. Stegman, G. K. & Stegman, H. J. (1974). *Architectural Drafting: Functional Planning and Creative Design*. American Technical Society, U.S.A.

1RARC106: HUMAN VALUES

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		FIRST SEMESTER				In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks		
FIRST	1RARC106	HUMAN VALUES	1	2	0	50	50	-	100	3	2

CONTENTS:

Introduction –Need, Basic Guidelines and Content

1. Understanding the need , basic guidelines, content and process for value Education
2. Self Exploration – What is it? – its content and process: ‘Natural Acceptance’ and Experiential Validation – as the mechanism for self explanation
3. Continuous Happiness and Prosperity – A look at basic Human Aspirations

Process for Value Education

1. Right Understanding, Relationship and Physical Facilities – basic requirements for fulfillment of aspirations of every human being with their correct priority
2. Understanding Happiness and prosperity correctly – A critical appraisal of the current scenario
3. Method to fulfill the above human aspirations; understanding and living in harmony at various levels

Understanding Harmony in the Human Being

1. Understanding human being as a co-existence of the sentient ‘I’ and the material ‘Body’
2. Understanding the needs of Self (‘I’) and ‘Body’ – Sukh and Suvidha
3. Understanding the Body as an instrument of ‘I’ (I being the doer, seer and enjoyer)

Harmony in Myself

1. Understanding the characteristics and activities of ‘I’ and harmony in ‘I’
2. Understanding the harmony of I with the Body: Sanyam and Swasthya: correct appraisal of Physical needs, meaning of Prosperity in detail
3. Programs to ensure Sanyam and Swasthya – practice exercises and Case Studies will be taken up in Practice Sessions

**Understanding Harmony in the Family and Society –
harmony in
Human - Human Relationship**

1. Understanding harmony in the family – the basic unit of human interaction
2. Understanding values in human relationship; meaning of Nyaya and Program for its fulfillment to ensure Ubhay-tripti Trust (Vishwas) and Respect (Samman) as the foundational values of relationship.

References:

1. Ivan Illich, (1974), *Energy & Equity*. The Trinity Press, Worcester, and harper Collins, USA
2. Schumacher E.F., (1973). *Small is Beautiful; a study of economics as if people mattered*. Blond & Briggs, Bratrain
3. Tripathy A.N., (2003). *Human values*. New Age International Publishers
4. Banerjee B P, (2005). *Foundations of Ethics and Management*, Excel books
5. Bajpai B.L., (2004). *Indian Ethos and Modern Management* , New Royal book Co; Lucknow.

1RARCP107: WORKSHOP (PRACTICAL)

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		FIRST SEMESTER				In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks	Contact Hours	Credits
FIRST	1RARCP107	WORKSHOP (PRACTICAL)	0	1	1	50	-	50	100	2	2

OBJECTIVES:

- To develop skills in understanding the complexities and constrains of brick masonry and joinery in carpentry.
- To familiarize the student with the basic skills of photography for use in architectural work.
- To familiarize the student with the use of 'various materials for model making.

CONTENTS:

Workshop: Relevance of art of life: Art and artist, Art and society, Art and religion. Art and mysticism.

Appreciation of art: Painting, Sculpture and Architecture.

Art in architecture: psychological and emotional aspect of aesthetics.

Photography: Creative composition in photography and its role in documentation and creative design process.

Construction of simple-3 dimensional form and preparing of detail models of architectural forms in different materials.

APPROACH:

- Most of the assignments shall be done in the college workshop.
- Laboratory demonstration of developing and printing of Black and White photographs.

References:

1. Burbank, N. (1986). *House Carpentry Simplified*. McGraw Hill Publications, NY.
2. Choudhury, H. (1998). *Workshop Technology, Vol 1*. Media Promoters & Publishers P. Ltd, Bombay.
3. Krendlise, L. N. (1984). *Wood Working*. MIR Publications, Moscow.
4. Readers Digest (1983-1990). *Readers Digest Complete Guide to Home Improvements*. Readers Digest, Sydney.
5. Schilling, A. (2007). *Basics Model building*. Birkhauser Architecture. 1st edition.
6. Congdon, Roark T., (2010), *Architectural Model Building: Tools, Techniques and Materials*, Fairchild Publications.
7. Miyoung, P. (2013). *Architectural Models: Construction and Design Manual*. DOM Publishers.
8. Schmal, P. C. & Elser, O. (2012). *The Architectural Model: Tool, Fetish, Small Utopia*. Scheidegger & Spiess.

1RARCP108: COMMUNICATION TECHNIQUES (PRACTICAL)

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		FIRST SEMESTER				In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks		
FIRST	1RARCP108	COMMUNICATION TECHNIQUES(PRACTICAL)	0	1	1	50	-	50	100	2	2

OBJECTIVES:

- To develop in students communicative writing and presentation skills.
- To enable them to record ,report, analyzes, evaluate and understand architecture, both in its theoretical and practical form.

CONTENTS:

Revision: Sentence, phrase. clause and parts of speech: noun-gender. number case: pronoun-personal’ reflexive, emphatic, demonstrative. Indefinite, distributive, reciprocal: adjective: article: preposition:

Words and Idioms: Vocabulary, word building and word formation, phrases and idioms, proverbs, reading a dictionary, using a thesaurus.

Composition and Comprehension: Essay, story and letter writing. Summarizing, comprehension-unseen passages.

Architectural Journalism: Recording/Collecting material writing pertaining to events/activities. Writing reports on design projects/buildings/complexes.

APPROACH:

- The grammatical parts of writing to focus on communicative rather than structural aspects.
- The students shall be exposed to works of professional art and architecture critics such as , Vikram Bhatt, Vincent Scully, Gautam Bhatia etc.
- Various forms of architectural journalism shall be studies from magazines and journals.

References:

1. Raman Meenakshi and Sharma Sangeeta (2008). “*Technical Communications – Principles and Practices*”. Oxford University Press. New Delhi.
2. Ashraf Rizvi M. (2005). *Effective Technical Communication*, Tata McGraw-Hill
3. Shiv K. Kumar & Hemalatha Nagarajan, *Learn Correct English: Grammar, Usage and Composition*. Pearson, New Delhi, India
4. Sukhdev Singh & Balbir Singh, *Grammar of the Modern English Language*. Foundation Books, New Delhi.

1ARC1010: SEAMLESS LEARNING

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		FIRST SEMESTER				In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks		
FIRST	1ARC1010	SEAMLESS LEARNING	0	0	2	100	-	-	100	2	1

Course objectives:

- To sensitize among the students importance of values in a social system.
- To develop a sense of social responsibility among the students and encourage them to take up the initiative to serve for the noble cause.

METHODOLOGY

1. The course shall be inclusive of the various activities which shall be performed under the expert guidance of the course instructor.

1ARC1011: CO – CURRICULAR ACTIVITIES

	SUBJECT CODE	SUBJECT NAME	L	T	P/S	Evaluation				Contact Hours	Credits
YR		FIRST SEMESTER			In Sem.	End Sem. Theory	End Sem. Jury and/or Exam.	Total Marks			
FIRST	1ARC1011	CO- CURRICULAR ACTIVITIES	0	0	2	100	-	-	100	2	1

Course objectives:

- To sensitize among the students importance of co-curricular activities in a social system.
- To give an opportunity of brushing up the skills to a limit of perfection and facilitating for the overall development of the students.
- To encourage the students for taking up the challenge of competing with the students of the other schools to ensure the enhancement of their interaction and coherent development.

METHODOLOGY

1. The students shall be informed about the various competitions/ conferences, being organized in and around at National and International level, by the respective club and/ or course co-ordinators.
2. The students shall be given effective guidance related to the respective clubs and other activities.
3. The students shall be enrolled in at least one club as a mandate.