

RKDF UNIVERSITY

SECOND YEAR – FOURTH SEMESTER

SEMESTER – IV

S. No.	Course Code	Subjects	Period Per Week		Total Teaching Hours	Distribution of Marks								Grand Total	
						Theory Block				Theory Exam Duration (Hrs.)	Practical Block				
						End Sem exam	M S T		Total theory block		End Sem	Term work/ Sessional	Total Practical block		
						Theory Quiz									
			L	STUDIO / T	Total Contact Hour	I					II				I+II
1	AR221	Design-IV	3	7	10	150	30	20	200	12	50	100	150	350	

Study of natural environmental factors, their impact and consideration by human settlements of a town on a part of a city. Especially on housing forms, open spaces, their activities and construction methods including energy efficient structures. Emphasis on the following attitudes is important :- Detailed study of one or more of the following aspects - climatic considerations and relationship with life style. Emphasis on Consideration of constructional details, basic details of services like kitchen, toilets etc. and site planning of the scheme. Design problems with natural and manmade parameters dealing with independent bungalows, farm houses, combined units, duplex type their cluster or grouping etc. along with relevant Building codes.

There should be minimum one time problem of 12 hrs. duration apart from regular design problems in the studio.

Note: The sessionals will be in the form of drawings and models along with technical report for the design dealt with. The evaluation should be done in intermediate review consisting of internal and external experts. There should be regular site visits to the building types dealt in the studio problems of which audio-visual should be prepared.

LIST OF TEXT AND REFERENCE BOOKS:

AR221 - Design-IV

1. "Planning by E. & O.E". Liffé book Ltd., London.
2. D.E. CHIRAIRA & CALLENDAR, "Times Saver Standard for Building Types".
3. RUDOLF HERGE, "Nuferts Architects Data", Cross By Lockwod & Sons Ltd.
4. EDWARD D. MILLS, "Planning the Architects Hand Book".
5. National Building Code.

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2	AR222	Building Construction-III	3	4	7	100	10	10	120	3	50	30	80	200	

1. Shoring – Types and detailing
2. Industrial steel floor (fire proof), jack Arch roofing, stone slab roofing, stone stairs, stone floor on girder.
3. Steel roofs-types and detailing of simple trusses only
4. Precast components (C.B.R.I.)
5. Design & construction details of domestic furniture in timber & hollow tube sections, slab flooring, stone stairs.

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:

AR222 - Building Construction-III

1. W.B. MCKAY, "Building Construction Vol.1to 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	AR223	Building Science-I (Climatology)	3	2	5	70	10	10	90	3	-	30	30	120

1. Introduction to the elements of climate and its types with reference to tropical climate and site climate.
2. Vernacular techniques of shelter design as per climatic regions (Rural and Urban).
3. Principles of thermal design and control, ventilation and air movement illumination and day lighting, response to climate by man and building.
4. Elements of architecture design with climate by using different prediction tools and design aids.
5. Study of building materials and construction techniques of energy efficient building design for tropical climate.

Note: There should be regular site visits to various scientific labs, buildings sites. There should be use of audio visuals explaining the above course and sessionals.

LIST OF TEXT AND REFERENCE BOOKS:

AR223 - Building Science-I (Climatology)

1. O.H. KOENIGSBERGER, "Manual of Tropical Housing & Building-I", Orient Longman.
2. MARTIN EVANS, "Housing Climate & Comfort", Architectural Press, London.
3. B. GIVONI, "Man, Climate & Architecture", Applied Science Banking Essex.
4. A. KONYA, "Design Primer for Hot Climates", Architectural Press London.
5. "Climatic Datas", CBRI.
6. R. VICTOR WOLGAY, "Design with Climate".

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4	AR224	History of Arch.-III	3	1	4	80	10	10	100	3	-	30	30	130	

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.

Pre-Gupta Architecture i.e. up to 3rd century .A.D.

1. Gupta, Chalukayan, Indo Aryan.
2. Dravidian & Rajput Architecture i.e. up to 11th century .A.D.
3. Medieval Hindu & Jain architecture.
4. Indo-Islamic architecture.
5. Rajput palaces.
6. 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 Department / Institution.

LIST OF TEXT AND REFERENCE BOOKS:

AR224 - History of Arch.-III

1. PEERCY 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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5	AR225	Structure-IV	4	1	5	80	10	10	100	3	-	30	30	130

1. Introduction to R.C.C., Working Stress method, Limit State method
2. Design of Beams :- analysis of beams, design of singly, doubly reinforced beam, T-beam, L-beam, (cantilever and simply supported) lintel, chhajjas
3. Design of Slabs :- analysis of slabs, design of One way, Two way, Continuous, Cantilever Slabs (simply supported and continuous)
4. Design of Columns:- axially loaded, columns with Uni-axial and Bi-axial bending
5. Design of Staircases :- dog-legged, and open well only

Note: Sessional work should include the analysis of simple elements along with the drawings.

LIST OF TEXT AND REFERENCE BOOKS:

AR225-Structure-IV

1. RAMAMURTHAN, "Theory of Structures", Dhanpat Rai & Sons.
2. DR. B.C. PUNAMIA, "Strength of Materials & Theory of Structure Vol.2", Laxmi Pub.
3. JINDAL, "Indeterminate Structure".
4. SOLOMAN, "R.C.C. Vol.I", CBS Publishers.
5. SUSHIL KUMAR, "Treasure of R.C.C"

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6	AR226	Survey & Leveling	2	3	5	70	10	10	90	3	50	30	80	170

1. Aspects of surveying for the Architect. Surveying instruments classification by function. Useful data and formulae, basics of Mensuration.
2. Scales-Plain scale, diagonal scale, comparative scale, shrunk scale, vernier scale.
3. Study, test, degree of accuracy, use and care of surveying instruments and accessories.
4. Site survey techniques: Chain surveying, compass surveying, plain table, theodolite.
5. Leveling and contouring, Topographic Survey.

Note: Class work and field work of the above subject should be oriented towards the layout of buildings and preparation of measured drawings. Students should also be taken to site visits for explaining the practical aspects of surveying.

LIST OF TEXT AND REFERENCE BOOKS:

AR226-Survey & Leveling

1. T. P. KANETKAR & S.V. KULKARNI, "Surveying & Leveling", Pune Vidyarthi Griha Pub.
2. DR. B.C. PUNAMIA, "Surveying Vol.1", Laxmi Pub.
3. SHAHANE AND IYENGAR, "A Text book of Surveying & Leveling", Engineering Book Co.
4. BERNARD H. KNIGHT, "Surveying and Leveling for students".

