

RKDF UNIVERSITY
THIRD YEAR – FIFTH SEMESTER

SEMESTER – V

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	STUD IO / T	Total Contact Hour	I					II			I+II	
1	AR311	Design-V	3	7	10	200	30	20	250	18	50	100	150	400	

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 ones 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 lay outs, covering organisation 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.

LIST OF TEXT AND REFERENCE BOOKS:

AR311-Design-V

1. "Planning by E. & O.E". Liffie 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	AR312	Building Construction-IV	3	4	7	100	20	10	130	3	50	70	120	250	

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 aluminium sectioned curtain wall.
4. Study of steel railing, jalisi, grills, staircase and ladders. Study of compound wall (advanced type) with security arrangement, study of wicket gate and large entrance gates rolling on wheels.
5. Study of expansion joints, 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:

AR312 - Building Construction-IV

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	Building Services-I (Sanitation & Plumbing)	3	2	5	50	10	10	70	3	-	30	30	100	

A) SANITATION

1. Basic principles of sanitation, introduction to modern plumbing system. Study of Indian standards and plumbing bye laws. General introduction to various sanitary fitting & fixtures their placement and functions. Study of internal & external drainage system including study of duct for large variety of buildings including small residences, apartments, block of houses, public buildings etc.
2. Study of various types of sanitary pipes, construction of joints and laying of pipes. Study of traps, inspection chamber, man hole, septic tanks, soak pit and public sewage line. Study of various stages of disposal of domestic effluent from fitting to sewer line. Study of "Sulabha" complex & other "CBRI" toilet details. Study of storm water disposal in various buildings and road side.
3. Importance of sanitary services in the economics of buildings, planning & design disposal of city effluent, various treatment methods of city

effluent and recycle of waste water. Study of refuse chutes in multistoried buildings and collection of refuse and recycle of city solid wastes.

B) PLUMBING:

4. Study of sources of water and water treatment for city domestic purpose. Study of quality of potable water.

5. Study of Indian standards and water supply network. Architectural approach to plan the domestic water storage facilities and water distribution system in buildings.

Note: Sessional will be prepared in the form of sanitation schemes, water supply schemes and design of toilets of the given buildings or buildings.

LIST OF TEXT AND REFERENCE BOOKS:

AR313 - Building Services-I (Sanitation & Plumbing)

1. RANGWALA, "Water Supply and Sanitary Engineering", Charotar Pub.
2. BIRDIE, "Water Supply and Sanitary Engineering", Dhanpat Rai & Sons.
3. W.B. MCKAY, "Building Construction", Orient Longman.
4. "Handbook on water supply and drainage", Bureau of Indian Standards.
5. R. BERRY, "Construction of Buildings. Vol-5", Elbs. Pub.

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4	AR314	Study Tour, Working Drawing & Measurement Drawings	-	5	5	-	-	-	-	-	50	70	100	100	

AR314 - Study Tour, Working Drawing & Measurement DrawingsAR314 – 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:

AR314 - Study Tour, Working Drawing & Measurement Drawings

1. "Graphic standards".
2. "Time saver standards".
3. FRED A STITT, "Architects detail library", Van Nostrand Reinhold.
4. Detailing by E. & O. E.
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5	AR315	Modern Structural Systems	3	1	4	80	10	10	100	3	-	30	30	130	

1. Structures”. 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 prestressing methods, type and classification of prestressing, losses of prestress

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:

AR315 - Modern Structural Systems

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

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6	AR316	Building Science-II (Energy Systems)	3	2	5	70	10	10	90	3	-	30	30	120	

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: AR316 – Building Sciences – II (Energy Systems)

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. ROBBINGS, "Day lighting Design & Analysis", Van Nostrand Reinhold.
5. B. GIVONI, "Passive cooling for buildings".