

Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal
BACHELOR OF ARCHITECTURE

VI Semester (CBGS) For batches admitted in July, 19 (w.e.f. July, 2019)

S. No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot							
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
1.	AR321	Architectural Design – VI	DC- 12	100	30	20	50	100	300	6	2	2	2(1.5)	7

Purpose: This program gives special emphasis on role of technology in architecture. The design projects to be dealt in the studio should respond to the importance of structure and services including acoustical treatments.

COURSE OUTCOME:-

After completion of this course student will be able to-

1. Understand the role of technology in architecture. The design projects to be dealt in the studio should respond to the importance of structure
2. Deal with the importance of structure in design
3. Learn how to layout services

Course Content:

- The range of design problems shall include projects of progressively increasing complexity.
- Exercises related to public buildings i.e. Commercial centre, hospital, auditorium, cinema, sports complex & educational buildings on sloping/ flat sites.
- Study and incorporation of building bye-laws should be complete in this Sem.
- Simultaneously, stress should be given on the interior treatment of small and large spaces.
- Freedom in design is to be given with preliminary introduction of importance and role of bye laws in building design.

Minimum one time problem of 18 hrs. duration is to be attempted in class, in addition to the major design problems.

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 / external experts. There should be regular site visits to the building types dealt in the studio problems of which audio-visual should be prepared. The various aspects of the design problem shall be dealt with lectures, group discussions and library research so as to provide the necessary philosophical and attitudinal background to a rational design approach.

LIST OF TEXT AND REFERENCE BOOKS:

AR321-Design-VI

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 Lockwood & Sons Ltd.
4. EDWARD D. MILLS, "Planning the Architects Hand Book".
5. National Building Code.

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2.	AR322	Building Construction - VI	BSAE-16	50	30	20	20	30	150	5	2	1	2(1.5)	6

COURSE OUTCOME:-

After completion of this course student will be able to-

1. Understand the properties and use of steel.
2. How to cover any large span as well as small span spaces with steel trusses
3. Learn various joinery details in steel construction.
4. Understand various types of trusses and advance foundation.

The aim of the subject is to introduce the students about Execution of building component with their constructional details and presentation of working drawing.

1. Steel North Light roof trusses.
2. Monitor type trusses and Industrial roofing in Steel.
3. Tubular trusses and built- in trusses in steel. Industrial glazing, industrial cladding.
4. Canopies in steel, covered path ways in steel.
5. Advanced foundation types; grillage, pile, raft etc.

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).
- iii) Sessional shall be prepared in the form of hand made drawings on the above mentioned topics.

LIST OF TEXT AND REFERENCE BOOKS:

1. MITCHEL, "Advanced Building Construction", Allied Publishers Pvt. Ltd.
2. P.N. KHANNA, "Handbook of Civil Construction", Engineering Pub. New Delhi.
3. W. B. Mckay, "Building Construction Vol. 3, 4, Orient Longman.
4. R.BERRY, "Construction of Buildings", The English language book society London-1976.
5. Catalogues of various manufacturers of Steel sections

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3.	AR323	Adv. Building Services	DC- 13	50	30	20	-	-	100	4	2	2	-	4

COURSE OUTCOME:-

After completion of this course student will be able to-

1. understand the of important Services in buildings.
2. To develop, definitions and terms used, functioning and their applications in building
3. Know various Sound absorbing and sound insulating materials.
4. Learn about the safety measure against fire.
5. consider the fire safety norms while designing.

Course content

SECTION - A

Acoustics:

- Definition of sound. Fundamental characteristics of sound.
- Behaviour of sound in enclosed spaces in general and few enclosed functional spaces in particular without involving much of mathematical complexity. Need to study acoustics.
- Development of this science through different periods. Pioneers and their works.
- Properties of sound, its origin propagation and sensation. Behavior of sound with respect to various surfaces, openings and in an enclosed space.
- Study of various sound absorbing materials, single and in combination of various frequencies of sound, panel absorbers, porous materials and cavity resonators.
- Reverberation time, Sabine's formula. Criteria for acoustics environment for reverberation in spaces.
- Sound application systems. Constructional and planning measures for good acoustical design.
- Acoustical defects and remedies. Sound application systems. Case studies for the above aspects.
- Noise and its effects on man. Physiological and psychological principles of noise control including acoustic lent insulation for various domestic services and industrial fitting and constructions. Structure borne and air borne noise, their effects and control.

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SECTION – B

Fire fighting:

- **Introduction** - Fire, causes of fire and spread of fire, fire fighting, protection & fire resistance.
- Fire safety Equipment & methods of fighting fire,.
- Code of fire safety, fire regulations, fire insurance, combustibility of materials.
- Structural elements and fire resistance, planning and design of Fire escape routes and elements, wet risers, dry risers, sprinklers, smoke detectors, fire dampers, fire doors, water curtains etc
- Firefighting bye-laws governing various types of public buildings, fire escape, fire safety in high rise buildings.

Note: Sessional shall be prepared in the form of notes and calculations, drawings / layout exercises and case studies if required.

LIST OF TEXT AND REFERENCE BOOKS:

1. R.G.EDKIE, "Architectural Acoustics & illumination", EKWEERA PRAKASHAN, NAGPUR - 12
2. SIRASKAR, "Acoustics in Building Design"
3. S.OMEN & B. J. SMITH, "Acoustics & Noise Control"
4. T.S.S - Design data..
5. E. J. RICHARDSON, "Acoustics for Architecture".
6. J.E. MOORE, "Design for good acoustics".
7. VERN O KNUDSEN, CYRIL M.HARRIS ", Architectural Acoustics ", John Wiley & Sons.
8. National Building Code (N.B.C.)

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4.	AR324	Working Drawing	PAEC-2	-	-	-	50	50	100	5	1	-	4	3

COURSE OUTCOME:-

After completion of this course student will be able to-

1. Understand the properties of materials.
2. Learn execution techniques of various item of works
3. Execute the project

COURSE CONTENT:

- Introduction to need and relevance of working drawings and presentation drawings.
- Introduction to various graphic, numeric, text components and their precise function in a set of working drawing.
- Preparation of check list as guide for list of workingdrawing.
- Method of representing various contents and specific information inworking drawing.
- Preparation of details for various building units.

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5.	AR325	Estimating and Costing	DE- 4	50	30	20	-	-	100	4	2	2	-	4

COURSE OUTCOME:-

After completion of this course student will be able to-

1. Know the types and importance of estimates.
2. Calculate quantities of component materials and manpower in composite items of work
3. Analysis of rates.
4. Tender document

Course content:

ESTIMATING & COSTING:

1. Introduction to quantity surveying, methods of preparing estimates, data required for framing an estimate, types of estimates.
2. Measurement, standard mode of measurements, schedule of rates commercial abbreviations. Methods and procedure of taking off abstractions, working up and billing.
3. Examples and exercises in taking in all items from excavation to painting including R.C.C. and steel work.
4. Rate analysis, cost of materials and labour for various works, detailed rate analysis of important items of construction work. Measurement of work for interim and final certificates of payments to contractors.
5. General terms: Administrative approval technical sanction, competent authority, deposit works, issue rates, payment on accounts, suspense accounts, imprest, indent of stores, muster roll, measurement book, materials site account, stock account, establishment charge etc.
6. Method and contents of technical report for obtaining technical/financial sanction.

Note: Sessionals are to be prepared in the form of exercises and small reports on above mentioned topics.

The sessional work will include notes, tests, and home assignments particularly about proprietary materials along with manufacturer's specification.

LIST OF TEXT AND REFERENCE BOOKS:

1. P.W.D. Hand book.
2. B. N. DUTTA, "Estimating and costing in civil Engineering", U.B.S. Pub.
3. M. Chakraborti, "Estimating and costing in Civil Engineering", "Bhaktivedanta Book Trust, Sreemayapor.
4. RANGWALA, "Estimating & Costing", Charotar Pub. house.
5. NAMAVATI, "Professional Practice", Lakhani Book Depot.
6. C.P.W.D. Hand book.

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6.	AR326	Structural. Project Report	PAEC-3	-	-	-	50	50	100	4	2	-	2	3

COURSE OUTCOME:-

After completion of this course student will be able to-

1. Understand about the structure of multi storied projects.
2. Prepare a structural report for any project..

Course Content:

The course will contain structural design of two to four storied R.C.C building consisting of halls, basements etc. along with detailed drawings and or steel structures such as industrial buildings, godowns, etc with detailed structural report file.

Note: Regular site visits may be arranged to R.C.C. buildings to explain the project.
The use of audio visuals may be made for explanations

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7.	AR327	Tour/ seminar / Workshop Training during winter break	SEC-7	-	-	-	-	50	50	2	-	-	2	1

Course Content:

The course will contain Tour/ seminar / Workshop Training during winter break. Students are required to submit the Report for the same.