

Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal

BACHELOR OF ARCHITECTURE III 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.	AR 211	Design -III	50	30	20	50	150	2	-	6	8

SECOND B. ARCHITECTURE - THIRD SEMESTER

Aim: The aim of the subject is systematic introduction to issues related with the design of human habitat, its components and space standards. The objective of the studio will be on understanding residential spaces in both the urban and traditional contexts, user needs and how they translate into program and manifestation in design in terms of space, materials and construction methodology in both the urban and traditional contexts.

Course Content:

- Design of a simple building for residential use in the immediate or observable environment with a focus on program and use.
- Exercises relating personal experiences to behavioral needs and translating them into architectural program requirements
- Study of vernacular architecture, emerging out of the traditional way of life of the people in a given climatic context and region .
- Understanding how the social and physical environment, climate of the place, materials and methods of construction impact vernacular architecture. This study could be part of a village or part of a small town and would involve measuring buildings and a topographic survey
- The study will be followed by the design of a simple building / adaptive reuse in the context of the study
- Problems aimed at drafting and presentation skills in 2-D and 3D in both manual and electronic format.

Methodology:

- Free hand architectural sketching should be given importance while doing all the exercises
- Minimum 4 problems should be attempted in whole semester in which 2 should be time problems of one week duration.
- Final results can be computer generated also with focus on architectural presentation
- Evolution of design through model making should be in focus
- Weekly assessment of studio work should be done
- Study tour should be done with on-site exercises and daily reviews

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2.	AR 212	Building Construction - II	50	30	20	50	100	2	-	4	6

Aim: The aim of the subject is to introduce the students about timber construction technology.

1. Timber floor:

- Single (ground) , Single (First) floors (Drawing sheet)
- Double floors (Drawing sheet)
- Framed or Triple floor(Drawing sheet)

2. Timber staircase

- Introduction to staircase, Types of staircase (Drawing sheet)
- Straight flight timber staircase and joinery related (Sketches & Assignment)
- Dog legged staircase. (Drawing sheet)

3. Timber Roofs:

- Study of various types of single roofs i.e. flat roof, lean to roof, double lean to roof, couple and close couple roof, collar roof. (Drawing sheet)
- Timber King post, Queen post. (Drawing sheet)
- Introduction to double or Purlin roofs, Basic information of the same only. (Sketches & Assignment)

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4. **Timber Balcony and canopy** (Drawing sheet)
5. **Design & constructional details of furniture made of timber and related materials.**
 - Dining table, wardrobe, study table, book shelf, sofa set
6. **Case study and market survey on relevant topics.**

Note:

- There should be regular site visits to buildings under construction or constructed to explain the above topics. Use of audio-visuals should be stressed. The Sessional shall be in the form of handmade drawings, and the evaluation will be through review system presented before the Faculty and Studio In charge.

LIST OF TEXT AND REFERENCE BOOKS:

AR 212 - Construction Components of Sub & Super Structure

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, " AdvanceBuilding Construction", Allied Publishers Pvt. Ltd.

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3.	AR 213	Climatology – Environmental & Energy Systems	50	20	10	-	20	2	1	1	4

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Course Content:

- Introduction to the elements of climate and its types with reference to tropical climate and site climate
- Global climatic factors
- Thermal comfort, heat gain and loss, u-values for wall and roofs
- Solar geometry and its application
- Shading devices and its application
- Solar heating and cooling and its application
- Passive systems and its application
- Ventilation and air movement illumination and day lighting
- Response to climate by man and building
- Study of building materials and construction techniques of energy efficient building design for tropical climate

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4.	AR 214	Analysis of Structures – Steel Structures	50	20	10	-	20	2	1	1	4

AIM: The aim of the subject is to introduce the students about the fundamentals of stability of any built structure in steel structures and various factors of steel structure designing. The objective of the course is to develop in the students a feel for structural principles of steel structures in design.

Course Content:

1. Steel work connections: Riveted connections, Bolted and pinned connections, Welded connections.
2. Design of Tension members: Types of tension members, permissible stresses, Design of members subjected to axial tensions and bending. Tension splices, lug angles.
3. Design of compression members: Types of compression members, failures, end conditions, effective length, design by I.S. Code method. Strength of compression members, splices, encased columns.
4. Design of flexural members: Beams simple and built up, plate girder, criteria of design, design of laterally supported and laterally unsupported beams. web crippling and web buckling.
5. Design of roof trusses: To determine the forces in members due to various loads, types of roof trusses, components of roof trusses, purling, lateral bracing of end trusses, roof covering.

Note: i) Sessional work should include design and analysis of simple elements as stated above with drawings.
ii) Steel table & I.S. code 800 is permitted in examination.

LIST OF TEXT AND REFERENCE BOOKS: AR214 - Analysis of Structures – Steel Structures

1. L.S. Negi, "Design of Steel Structures", Tata McGraw Hill.
2. Arya & Ajamani, "Design of Steel Structures", Nemchand & Bros. Roorkee.
3. M. Raghupathi, "Design of Steel Structures", Tata McGraw Hill.
4. P. Dayaratnan, "Design of Steel Structures", Wheeler & Company Ltd.
5. I.S 800-1984, BIS.

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1.	AR 215	History Of Western Architecture	50	20	10	-	20	2	1	1	4

Aim: This course aim to develop understanding of the influence of geographical, geological & climatic, religious, cultural and political situation on the architecture in expressing philosophical and aesthetic concepts in built form. This course is also 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.

Course Content:

- Greek
- Roman
- Early Christian
- Byzantine
- Medieval Romanesque
- Gothic
- Renaissance
- Impact of Industrial revolution (up to 1942)

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1.	AR216	Surveying Leveling & Measurement Drawing	50	20	10	-	20	1	-	3	4

Aim: This course is studied in order to develop an understanding of the importance of site conditions for the creation of good architectural solutions. To expose the students to the various techniques of site analysis and planning.

The student will be able to understand the importance of measurement drawings, of existing buildings – Heritage and modern.

Course Content:

Surveying Leveling:

- Importance of site analysis ; on site and off site factors; Analysis of natural, cultural and aesthetic factors; topography, hydrology, soils, landforms, vegetation, climate, microclimate. Site selection criteria for housing and institutional projects.
- Contours, slope, grading process; grading criteria; drainage, functional
- Aspects of surveying for the Architect. Surveying instruments classification by function. Useful data and formulae.
- Scales-Plain scale, diagonal scale, comparative scale, shrunk scale, vernier scale.
- Study, test, degree of accuracy, use and care of surveying instruments and accessories.
- Site survey techniques: Chain surveying, compass surveying, plain table, theodolite.
- Leveling and contouring.

Measurement Drawing: (No question regarding working drawing shall be included in Theory paper of Surveying Leveling)

- Introduction to various building components and precise purpose of measurement drawings.
- The students will be learning to use various surveying and measurement tools for the measurement of existing buildings.
- At least during the semester the students shall prepare measurement drawing of at least one heritage building as sessional work.

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7.	AR 217	Art Major Idea generation	-	-	-	-	50	-	-	2	2

Aim: The aim of the subject is to let students explore the artist within themselves by choosing a particular sub-topic and present it at the end of the session.

Course Content:

History of Art, Art through the ages, Architecture as Art, milestones in art from the prehistoric, Paleolithic, Neolithic and classical, medieval, renaissance and modern periods, Indian art heritage. Indus valley to present day

Art consciousness- aesthetics, perception, symbolism, expression, style, fashion, appropriateness, values.

Critical appraisal of examples from the visual as well as performing arts, seminar course.

- Painting (Minimum 3 works of art on A2 canvas)
- Sculpture (Minimum 3 works using suitable medium)
- Photography (Minimum 30 photographs on 4-5 themes)
- Motion Art (Minimum 2 {INDIVIDUAL AND GROUP WORK} short films of upto1 -2 minutes length)
- Fashion

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