

# RAJIV GANDHI PROUDYOGIKI VISHWA VIDYALAYA, BHOPAL (M.P.)

## SCHEME OF EXAMINATION - BACHELOR OF ARCHITECTURE

### FOURTH YEAR – SEVENTH SEMESTER

#### SEMESTER – VII

S. No.	Course Code	Subjects	Period Per Week		Total Teaching Hours	Distribution of Marks											Grand Total	Total Credits
						Theory Block					Theory Exam Duration (Hrs.)	Practical Block						
						End Sem exam	MST	Quiz Assignment	Total theory block	Credits		End Sem	Term work/ Sessional	Contin uous Assess ment	Total Practical block	Credits		
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1	AR411	Design-VII	3	7	10	100	30	20	150	03	06	50	50	50	150	07	300	10

**Aim:** The aims of the course is to emphasize and evolve the methodology for architectural design with reference to the previous knowledge of functional aesthetics as well as present and future scenario of urban and rural development, their problems and prospects.

**Course content:**

- Design with application of principles and theory of urban design, urban and regional planning aspects and philosophies of contemporary architects.
- The attempt is towards developing ones own language and philosophy of architect on guide towards exploring alternative building forms for different activities which help in understanding the relationship of structure and possibilities in building forms.
- Design of cost effective, sustainable structures for various economic and social groups to solve problem of efficient housing in urban India, post disaster rehabilitation & earth quake resistant structures, etc
- Emphasis on consideration of advanced construction materials and techniques with RCC framed structure, Steel structure for large span buildings, and use of lightweight prefabricated panels and other etc
- Details of services like sanitary, water supply, electrical and mechanical, acoustics, fire fighting, parking etc
- Detailed Site planning of the scheme with the details of landscaping and site agglomeration
- Design under the framework of existing local zoning regulations and other relevant Building codes.

**Design problems:**

- Design of large housing schemes and neighborhood planning etc with emphasis on above parameters
- Design of multistoried commercial complex, specialized market, five star hotels, motels, shopping malls, multiplexes, etc

Final Scheme of Examination, (4+1) for Bachelor of Architecture (B. Arch.), RGPV, Bhopal, w. e. f. July 2010 batch.

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- Design of universities, institutional campus, multistoried office buildings, town planning schemes, public buildings, Computer centers, IT Parks, and other infrastructure
- Design of conference halls, science museums, sports complex etc
- Design of specialized hospitals/ college campus and other medical facilities

Design approach:

The literature survey & data collection is necessary. There should be regular site visits to buildings dealt in studio problems. Documentation should be done with the help of photographs, slides, video etc.

There should be minimum one time problem of 24 hrs. Duration apart from min. two 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:**

#### **AR411 - DESIGN-VII**

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	AR412	Adv. Building Construction-VI	3	4	07	50	20	10	80	03	03	50	50	20	120	04	200	07

**Aim:** 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 such as pile, grillage etc.
6. Steel structural joineries

**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.

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## **SCHEME OF EXAMINATION - BACHELOR OF ARCHITECTURE**

### **LIST OF TEXT AND REFERENCE BOOKS:**

#### **AR 412 - Advance Building Construction - VI**

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	AR413	Adv. Building Services-III	3	2	05	50	20	10	80	03	03	-	30	20	50	02	130	05

**Aim:** The aim of the course is to introduce the students about the aspects of acoustics and security systems in a building.

**Course content:**

#### **SECTION - A**

**Acoustics:**

- Definition of sound. Fundamental characteristics of sound.
- Behavior 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 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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## **SCHEME OF EXAMINATION - BACHELOR OF ARCHITECTURE**

### **SECTION – B**

Security Systems:

- Types of security systems and their working.
- Apparatus and system of alarms.
- Firefighting equipment, 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 etc. as per above topics.

### **LIST OF TEXT AND REFERENCE BOOKS:**

#### **AR 413 - ADVANCED BUILDING SERVICES-III**

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. Otto Koeingsberger, “Manual of Tropical Climate”, Orient longman.
6. E. J. RICHARDSON, “Acoustics for Architecture”.
7. J.E. MOORE, “Design for good acoustics”.
8. VERN O KNUDSEN, CYRIL M.HARRIS “, Architectural Acoustics “, John Wiley & Sons.

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4	AR414	Ecology & Environment	3	2	05	50	20	10	80	03	03	-	30	10	40	02	110	05

**AIM:** After successful completion of this course, student should be able to reflect a general awareness for the preservation and protection of the environment, in the planning and construction of their building / development projects.

#### COURSE CONTENTS:

**Introduction, Structure and Function:** Introduction to ecology, its meaning and growing importance in daily life. Basic terms used in ecology and their meanings. Fundamental concepts of ecology. Ecology – Environment relationship. Concept of spaceship earth. Structure and function of eco- system. Major biomes of the world. Bio-geo-chemical cycles: Energy flows in eco-system. Species diversity, dominance, natural selection, habitat, niche, evolution etc. Eco-system equilibrium. Importance of micro organisms. Succession and community development limiting factors and other concepts. Ecological cybernetics

**Relationship with Nature:** Man's relationship with nature in the past: Food-collecting, hunting, fishing, farming and other developmental stages in human civilization. Man's relationship with nature in the present: Industrial activities, urbanization, de-forestation, mining and similar incursions on nature for technological progress. Environmental impacts of these activities. The ecological crisis. Relevant case studies from abroad and India

**Importance of Ecology:** Relevance and growing importance of ecology in a highly urbanized and technological world with reference to dwindling resources, increasing demands and advancing technology. Adaptation of life-styles, and adoption of alternate technologies to harmonize with the natural environment. Discussion on alternatives available. Guiding environmental principles

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Ecological applications to Architecture and Planning: Ecological applications to Architecture and Planning. Preserving and improving the human settlement in harmony with nature. Conservation of natural resource for improving the quality of life on earth and attempting to ensure its continuity for the future of humanity. Eco cities, eco-communities and eco buildings: Archeology. Designing settlements and other man-made eqo-systems. Ecological and environmental cities for sustainable future.

### **LIST OF TEXT AND REFERENCE BOOKS:**

#### **AR414-Ecology & Environment**

1. Fundamentals of Ecology by E.P. Odum
2. The Ecology of Man: An Ecosystem Approach by Robert Leo Smith
3. Introduction to Ecology by Kurmundi
4. Review Our Dying Planet by Sarala Devi
5. Ecological Crisis: Reading for Survival by G. A. Love & R.M. Love
6. Environmental Science : The Way the World Works by B.J. Mebol
7. Modern Concepts of Ecology by H.D. Kumar



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5	AR415	Town Planning	3	3	06	50	20	10	80	03	03	-	30	20	50	03	130	06

**Aim:** The objective of the course is to investigate urban networks and processes. This course requires taking up an area level study and proceed to formulate design guidelines on the issues.

#### Course content:

- Basic components of urban areas and regions.
- Role of urban & regional planning at national level, metro level concepts. Basic planning, settlements, theories, models etc.
- Socio – cultural and land use planning, general principles, survey techniques, utopian thoughts, models for planning and their relevance in Indian context.
- Planning norms and development norms for urban and regional approaches, techniques of development for existing areas and renewal schemes, conservation and development.
- Transportation modes, planning and development survey techniques etc.
- Review of regional plans.

**Note:** Sessional will include the report on case studies based on data collection, surveys and other empirical evidences and its presentation in the form of seminars.

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### **LIST OF TEXT AND REFERENCE BOOKS:**

#### **AR415 – Town Planning**

1. V.K. BHEDASGAONKAR, “Handbook of Town Planning”, Amar Mudranalaya.
2. G.K.HIRASKAR, “Fundamentals of Town Planning”, Dhanpt Rai & Sons.
3. PATRICK ABERCROMBIE, “Town and Country Planning”, Oxford univ. Press.
4. KEEBLE, “Principles and Practice of Town and Country Planning”.
5. S.C. RANGWALA, “Town Planning”, Charotar Publishing House.
6. BANDYOPADHYAY, ABIR, “A Text Book of Town Planning”, New Central Book Agency, Calcutta.

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6	AR416	Dissertation	-	3	03	-	-	-	-	-	-	50	50	20	120	03	130	03

**AIM:** Objective of subject Dissertation is to enlighten students on the fundamentals of Research methods before attempting final year Project Thesis.

Basics of research to be understood by the students are:

- Basic research principles and research methods.
- Report writing skills

Dissertation will be part of Thesis Project (**AR- 421**) to be further carried and completed in VIII semester.

#### **Course Content:**

- First phase of dissertation allows students to identify the broad area / field of Architecture of their interest in which they may intend to do the research. This is to be done by studying and reproducing the brief of technical papers in the form of report review.
- Second phase allows the students to do the study of sample example of research already done by choosing the specific aspect / area relevant to broader field they have selected in first phase. This exercise involves the writing of report / review of book / journal dedicated to that specific aspect or area. This review writing is aimed to understand the method of collecting data (survey methods), analysis of data (statistics and mathematical formulas), drawing inferences and conclusion as attempted by the author of the book.
- Third phase is the writing of detailed dissertation report. Students are expected to choose their own topic of research by referring the area / field already identified in other two phases.

**NOTE:** Sessionals will be submitted in the form of review reports and Dissertation report.

#### **LIST OF TEXT AND REFERENCE BOOKS: AR 416 - Dissertation**

1. Instruction Manuals on report writing.