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UNIVERSITY OF MYSORE

Estd. 1916

VishwavidyanilayaKaryasoudha
Crawford Hall, Mysuru- 570 005

No.AC2(S)/164/2021-22

Dated: 16-02-2022

Notification

Sub:- Curriculum & Syllabus of 4th year (7th & 8th Semester) (CBCS) of Bachelor of Architecture (CB) for the candidates admitted during the year 2020-21.

Ref:-
1. Decision of Board of Studies in Architecture (CB) meeting held on 24-11-2021.
2. Decision of the Faculty of Science & Technology Meeting held on 20-12-2021.
3. Decision of the Academic Council meeting held on 23-12-2021.

*****

The Board of studies in Architecture (CB) which met on 24-11-2021 has recommended the Curriculum & Syllabus of 4th year (7th & 8th Semester) (CBCS) of Bachelor of Architecture (CB) programme retrospectively, for the candidates those who are admitted during the Academic the year 2020-21.

The Faculty of Science & Technology and Academic Council at their meetings held on 20-12-2021 and 23-12-2021 respectively have also approved the above said proposal and it is hereby notified.

The Curriculum & Syllabus is annexed herewith and the contents may be downloaded from the University Website i.e., www.uni-mysore.ac.in.

DRAFT APPROVED BY THE REGISTRAR

Deputy Registrar (Academic)
University of Mysore
Mysore-570 005

Deputy Registrar(Academic)

To:-

1. The Director, School of Planning and Architecture, Manasagangotri, Mysore.
2. The Registrar (Evaluation), University of Mysore, Mysuru.
3. The Chairman, BOS/DOS, in Architecture (CB), Manasagangothri, Mysore.
4. The Dean, Faculty of Science & Technology, DoS in Earth Science, MGM.
5. The Director, PMEB, Manasagangothri, Mysore.
6. The Deputy Registrar/Assistant Registrar/Superintendent, Administrative Branch and Examination Branch, University of Mysore, Mysuru.
7. The PA to Vice-Chancellor/ Registrar/ Registrar (Evaluation), University of Mysore, Mysuru.
8. Office Copy.

SCHOOL OF PLANNING AND ARCHITECTURE

UNIVERSITY OF MYSORE,
Manasagangotri, Mysuru.

BACHELOR OF ARCHITECTURE - Five Year Degree Programme
4th Year B.arch (VII & VIIISem)
Curriculum & Syllabus

SEMESTER – VII

Sl.No	Course Code	Course Title	L	T	P	C	Marks			Mode of Exam
							I	E	Total	
1	ARS701	Architectural Design-VI	0	0	15	15	100	100	200	Jury
2	ART702	Professional Practice and Ethics	3	0	0	3	50	50	100	2hrs
3	ART703	Urban Planning	3	0	0	3	50	50	100	2hrs
4	ART704	Interior Design & Detailing	0	0	4	4	100	-	100	Progressive Marking
5	ARE705	**Elective-IV**				2				
6	ARE706	**Elective -V**				2				
TOTAL NO.OF CREDITS						**29**				

Courses which can be chosen during semester-VII in Elective-IV and Elective-V

Sl.No	Course Code	Course Title	L	T	P	C	Marks			Mode of Exam
							I	E	Total	
Elective - IV										
1	ARE705-1	Architectural Conservation	2	0	0	2	50	50	100	2hrs
2	ARE705-2	Research Methodology	2	0	0	2	50	50	100	2hrs
3	ARE705-3	Building Automation & Management System	2	0	0	2	50	50	100	2hrs
Elective - V										
1	ARE706-1	Earthquake Resistant Structures	2	0	0	2	50	50	100	2hrs
2	ARE706-2	Construction Technology & Management	2	0	0	2	50	50	100	2hrs
3	ARE706-3	Urban Economics & Sociology	2	0	0	2	50	50	100	2hrs

SEMESTER – VIII

Sl.No	Course Code	Course Title	L	T	P	C	Marks			Mode of Exam
							I	E	Total	
1	ARS801	Professional Training	16 weeks			**10**	-	200	200	JURY(Viva Voice)

DETAILED SYLLABUS – 2020-21 CBCS

YEAR-4 SEMESTER-VII

Subject: ARCHITECTURAL DESIGN - VI		
Code : ARS 701	**Credits : 15**	**Hours / Week: 15 hrs.**
Progressive Marks : 100	**Examination Marks : 100**	**Mode of Exam : Jury**

AIM

Expose the students to understand the socio – cultural & economic needs of contemporary urban society in housing and the complexity of designing the large campus buildings.

PEDAGOGY:

• Direct method: Lectures are supported by PPT presentation on each topics.
• ICT and Digital support: Video tutorial on respective topics i.e, TED talks, YouTube, etc.
• Flipped Classroom: Selected topics will be presented ahead along with discussion on the same with the class
• Live case study/ Literature case studies.
• Site visits, open jury, Group discussions
• Book reviews.
• Continuous internal and external assessment

CONTENT:

Scale and Complexity: Buildings and small complexes that address the social and cultural needs of contemporary urban life (residential. Commercial, institutional) with a thrust on experiential qualities; multi bayed, multiple storied and circulation intensive; passive and active energy Areas of concern/ focus behavioural aspects and user satisfaction

- Socio-cultural aspects
- Designing for the differently abled
- Building byelaws and rules
- Appropriate materials and construction techniques
- Climatic design

Typology/ project:

Housing Projects- detached, semi-detached, row housing, cluster housing, apartment; housing and facilities for other user groups- Old age Home, orphanage; Museum/ Art/ Cultural centre, Educational campuses(Medical, Engineering, Universities etc.), Malls, etc. Understanding DCR and its applications

- Understanding Campus Planning
- Sensitive to Socio-Economic aspects

COURSE OUTCOME:

On successful completion of the course, the students will be able to:

• Acquaint the knowledge on housing clusters and its behaviour in the built environment focusing on arrangement of units in a significant way to achieve all aspects of architectural feature like built form, services, etc.

REFERENCES

1. Richard P. Dober, "Campus Planning" - Society for College and University Planning, 1996.
2. Kanvinde, "Campus design in India", American year Book, 1969
3. Kevin Lynch, "Site planning", Literary Licensing, LLC, 2012
4. Sam F. Miller, "Design Process: A Primer for Architectural and Interior Design", Van Nostrand Reinhold, 1995
5. Bye-Laws of the Local Planning Authority
6. Neufert, Ernst. Ernst Neufert Architects Data, Granada Pub. Ltd., London, 1970.
7. Chiara Joseph de and others. Time Savers Standards of Building Types. McGraw – Hill, 1980.

Subject: PROFESSIONAL PRACTICE AND ETHICS		
Code : ART 702	**Credits : 3**	**Hours / Week: 3 hrs.**
Progressive Marks : 50	**Examination Marks : 50**	**Duration of Exam: 2 hrs.**

OBJECTIVE:

- To understand the Professional responsibilities within the ambit of laws of the land, building codes, contract documents and ethics.
- To gain insight into valuation, arbitration and building bye laws.

PEDAGOGY:

- Direct method: Lectures are supported by PPT presentation on each topics.
- ICT and Digital support: Video tutorial on respective topics i.e, TED talks, YouTube,
- etc.
- Differentiated Instruction
- High achievers: Flexible pace learning, Presentation of seminar topics.
- Mediocre achievers: Written assignments on similar topics.
- Slow learners: Peer tutorials, practice/ written assignments
- Flipped Classroom: Selected topics will be presented ahead along with discussion on
- the same with the class
- Group discussions
- Continuous internal and external assessment

COURSE CONTENTS

Unit I: The Architect's registration Act. 1972, Salient features of Act- Role of Professional Bodies: Council *of* Architecture and Indian Institute *of* Architects. Ethics and etiquette *of* a professional, Professional duties and responsibilities- conditions of engagement and scale *of* Charges, Setting up *of* an Office, Need for good communication practices, Architectural competitions- Rules and regulations, copyright protection, Professional liability, Consumer Protection Acts and its implication, Elementary accounting Principles.

Unit II: Construction Contracts, Duties responsibilities of parties involved in contract, Concept of primacy of Contract. Contract- Indian Contract law- salient features, Termination *of* contract- Breach *of* contract, Conditions and compensation.

Unit III: "Tender- Inviting notices, Opening and acceptance of tender, Preparation of schedule and documents, Type of Tenders.

Unit IV: Arbitration -Definitions, Advantages and disadvantages, Power and duties *of* Architect, Role *of* Architect in Arbitration, Award publication and filing *of* award.

Unit V: Building byelaws, Fire regulations and salient portions from National Building code.

COURSE OUTCOME:

On successful completion of the course, the students will be able to:

• Acquaint with knowledge of Professional aspects of Architecture profession with respect to the duties and responsibilities of an architect to perform better in his/her profession, Professional liabilities/ Acts.

REFERENCES

1.Krishnamurthy K G and Ravindra S V, Professional practice - Prentice Hall India Learning Private Limited (2014)

2. **Prof. S.C.Garg& Dr. YogeshK.Garg**, Professional Practice of Architecture - SatyaPrakashan, New Delhi; 2014 edition

3**.** Nanavati, Roshan**,** Professional Practice: With Elements of Estimating, Valuation, Contract and Arbitration - Lakhani Book Depot; First edition (2016)

Subject: URBAN PLANNING		
Code : ART 703	**Credits : 3**	**Hours / Week : 3 hrs**
Progressive Marks : 50	**Examination Marks : 50**	**Duration of Exam : 2 hrs**

COURSE OVERVIEW:

Urban planning (urban, city, and town planning) is a technical and political process concerned with the control of the use of land and design of the urban environment, including transportation networks, to guide and ensure the orderly development if settlements and communications. It concerns itself with research and analysis, strategic thinking, urban design, public consultation, policy recommendations, implementation and management.

PEDAGOGY:

• Direct method: Lectures are supported by PPT presentation on each topics.
• ICT and Digital support: Video tutorial on respective topics i.e, TED talks, YouTube, etc.
• Differentiated Instruction
High achievers: Flexible pace learning, Presentation of seminar topics.
Mediocre achievers: Written assignments on similar topics.
Slow learners: Peer tutorials, practice/ written assignments.
• Flipped Classroom: Selected topics will be presented ahead along with discussion on the same with the class
• Live case study/ Literature case studies.
• open jury, Group discussions
• Book reviews/ Research paper reading.
• Continuous internal and external assessment

CONTENTS:

Unit 1: History of town planning

History of town planning: Development of town planning in the historical perspective – Ancient town patterns in India, Impact of industrialization and technology – Evolution of modern planning concepts.

Unit 2: Planning Principles

Planning principles and concepts – enunciated by Patrick Geddes, Ebenezer Howard, Clarence Arthur Perry, Le- Corbusier, Doxiadis – their relevance to Indian conditions. Study on radburn layout, satellite towns, Ribbon development and basic concepts in regional planning.

Unit 3: Urban Form

Components of an urban settlement – Land use, zoning, zoning regulation and activity pattern, traffic and road network, density of population and population distribution. Central business district, suburbs and fringe areas. Planning remedial measures of

various parts of the urban settlements particularly the CBD and old parts of the settlement.

Unit 4: Planning process

Process of preparation of Master plans and development plans – structure plans – survey techniques and analysis of the various criteria involved in town planning.

Unit 5: Transportation and communication

Principles of planning and design of road network and engineering classification of roads, intersections and elevated roads. Potential and limitations of roadways, railways, airways and waterways in the development of a settlement.

COURSE OUTCOME:

On successful completion of the course, the students will be able to:

• Acquaint with knowledge base on special characteristics of the build environment in an urban context focusing on site planning and landscape having significant architectural feature.

• Understand the complexity in architectural character of the built environment and respond positively through appropriate use of built form, choice of building materials, structural clarity and services, etc.

REFERENCE BOOKS:

1. Bhagiratha Rao, E.L.Land Acquisition Manual in Andhra Pradesh.
2. Buch, N. Mahesh. Planning the Indian city.
3. Chand, Mahesh &Puri, Vinay Kumar. Regional Planning in India. Allied Pub. Ltd., Bombay, 1990.
4. Doxiadis, C.L. Ekistics: Introduction to the science of Human Settlement.
5. Gallion, B. Arthur & Eisner, Simon. Urban Pattern: City Planning & Design, 5th ed. Van Nostrand Reinhold, New York, 1986.
6. Hyderabad Urban Development Authority. Hyderabad Urban Development Authority, HUDA, 1981.
7. Khosla, R.K. Urban and Rural Development in India.
8. Patterson, T. William. Land-use Planning Techniques of Implementation.
9. Rama Reddy, Padala&Srinivas Reddy, Padala. Commentates on Hand Reforms Laws in Andhra Pradesh.
10. RameGowda, K.S. Urban and Regional Planning. Univ. of Mysore, Mysore, 1972.
11. Rangwala, S.C. & Others. Town Planning, 18th ed. Charotar Pub. House, Anand, 2003.
12. Rappoport, Amos. House, Form and Culture.
13. Singh, Alok Kumar, & Others (ed). Strategies in Development Planning.

Subject: INTERIOR DESIGN AND DETAILING		
Code : ART 704	**Credits : 4**	**Hours / Week: 4 hrs.**
Progressive Marks : 100		

AIM:
To introduce the students to detailed study of History, principles and elements that go into making of an interior space more aesthetic, pleasing and functional with a few projects as practical.

OBJECTIVE:

- To provide emphasis on space planning process (block diagram, concept statement)
- To evaluate the historical process of style and proportion with creative integration of principles and elements
- To make the students understand Anthropometry and Ergonomics
- To enable a student to apply materials, colours and its implied factors like texture, furnishings, lighting etc.
- To document a portfolio which involves free hand sketches, rendering on different softwares and exploration of varied graphic compositions

PEDAGOGY:
• Direct method: Lectures are supported by PPT presentation on each topics.
• ICT and Digital support: Video tutorial on respective topics i.e, TED talks, YouTube, etc.
• Differentiated Instruction
High achievers: Flexible pace learning, Presentation of seminar topics.
Mediocre achievers: Written assignments on similar topics.
Slow learners: Peer tutorials, practice/ written assignments.
• Flipped Classroom: Selected topics will be presented ahead along with discussion on the same with the class
• Live case study/ Literature case studies.
• open jury, Group discussions
• Book reviews/ Research paper reading.
• Activity/Exercise based learning to understand and experience practical teaching concepts and issues.
• Continuous internal and external assessment

CONTENTS:
Unit-I: Introduction and history
Interior design process, Vocabulary of design in terms of principles and elements, Introduction to the design of interior spaces as related to typologies and functions, themes and concepts - Study and design.

Brief study of the history of interior designthrough the ages relating to historical context, design movements and ideas etc, Brief study of folk arts and crafts (Vernacular design in India) with reference to interior design and decoration.

Unit-II: Elements and Principles with Anthropometry

Elements: Line, shape, form, texture, color, value

Principles: Unity, harmony, rhythm, proportion and scale, movement, variety, repetition

Composition: Rules for interior layout construction drawings

Perspective: Basic one- and two-point perspective construction for interior architecture and furniture.

Study of Proxemics, Designing the size and form of interior spaces using user – activity, analysis and anthropometrics, effect of enclosure, fenestration, color and lighting on perception of interior space, application of scale, proportion to enhance the quality of interior space, psychological effects of space.

Focuses on physical, psychological behavioral and human settings

Unit-III: Elements of enclosing elements

Introduction to various **elements of interiors** like floors. Ceilings, walls, staircases, openings, interior service elements. incidental elements etc. and various methods of their treatment involving use of materials and methods of construction in order to obtain certain specific functional, aesthetic and psychological effects.

Unit -IV:Applied components of Interior spaces and their elements- Colour, Lighting and Landscapes

Colours in interiors – Colour Theory, Effect of light on colour, various colour schemes like analogues, complementary, triadic etc. Colour symbolism. Psychology of colour, Industrial colour codes. International standards

Interior lighting - different types of lighting - types of lighting fixtures- their effects and suitability in different contexts through change of levels and structural form modulation through artificial and natural lighting, emphasis of focal points and unity in interior design.

Interior landscaping elements: rocks, plants, water, flowers, fountains, paving, artifacts, etc., their physical properties and effects on spaces, plane and fixtures in relation to emphasis of background of space through change of levels and structural form modulation through artificial and natural lighting, emphasis of focal points and unity in interior design

Unit-V: Furniture design

Furniture categories, exploration of the idea of furniture, role of furniture in interior design, Design approaches in furniture design. Brief overview of the evolution of furniture from Ancient to present: Various stylistic transformations. Furniture designers and movements.

Analysis of furniture in terms of human values, social conditions, technology and design criteria

Storage systems: Functional analysis of storage systems and thereby deriving types of cabinets needed for interior spaces – kitchen cabinets, wardrobes closets, book cases, show cases , display systems etc.

OUTCOME:

Varied interior schemes of different functional types: Residential / Commercial/ Hotels and Cafes/ Office spaces/ Institutions at different scales will form the major design assignments.
Focus is on Portfolio creation by producing a complete and correct set of working drawings, from plans through details and specifications with material samples

TEXTBOOKS:

1. Francis.D. Ching& Corky Bingelli, Interior Design Illustrared, 2nd edition, Wiley publishers, 2004.
2. Julius Panero& Martin Zelnick, Human Dimension & Interior Space: A source book of Design Reference standards, Watson – Guptill, 1979.
3. Maureen Mitton, Interior Design Visual Presentation: A Guide to Graphics, Models, and Presentation Techniques. John Wiley and Sons, 2003
4. Mark.W. Lin, Drawing and Designing with Confidence: A step-by-step guide, Wiley and Sons, 1993.
5. Robert Rengel, Shaping Interior Space, Fairchild Books & Visuals ,2002
6. "Human Dimension and Interior Space" by PaneroJulious&Zelink Martin
7. "Design of Interior Environment" by Alexander and Mercourt
8. "Interior Design Illustrated" by Francis D K Ching and Corky Binggeli

REFERENCES:

1. Steport - De Van Kness, Logan and Szebely, *Introduction to Interior Design* Macmillan Publishing Co., NY 1980.
2. *Inca / Interior Design* Register, Inca Publications, Chennai, 1989.
3. Kathryn .B. Hiesinger and George H.Marcus, *Landmarks of twentieth Century Design*; Abbey Ville Press, 1993.
4. SyanneSlesin and Stafford Ceiff - *Indian Style*, Clarkson N. Potter, Newyork, 1990.
5. The Impulse to adorn - *Studies in traditional Indian Architecture* - Editor Dr.SaranyaDoshi, Marg Publications, 1982.

ELECTIVE - IV

Subject: ARCHITECTURAL CONSERVATION		
Code : ARE 705-1	**Credits : 2**	**Hours / Week : 3 hrs**
Progressive Marks : 50	**Examination Marks : 50**	**Duration of Exam : 2 hrs**

AIM

To develop understanding of the significance of historic structures and encourage conservation and preservation of built environment.

OBJECTIVES:

- To develop understanding of the significance of historic buildings and cities.
- To familiarise the students with the status of conservation in India and the various agencies involved in the field of conservation and their policies.
- To outline the status of conservation practice in the country and the various guidelines for the preservation, conservation and restoration of buildings.
- To inform the students about the character and issues in our heritage towns through case studies.
- To develop professional level skills on conservation using various skills

PEDAGOGY:

• Direct method: Lectures are supported by PPT presentation on each topics.
• ICT and Digital support: Video tutorial on respective topics i.e, TED talks, YouTube, etc.
• Differentiated Instruction
High achievers: Flexible pace learning, Presentation of seminar topics.
Mediocre achievers: Written assignments on similar topics.
Slow learners: Peer tutorials, practice/ written assignments.
• Flipped Classroom: Selected topics will be presented ahead along with discussion on the same with the class
• Literature case studies.
• open jury, Group discussions
• Activity/Exercise based learning to understand and experience practical teaching concepts and issues.
• Continuous internal and external assessment

COURSE CONTENTS

Unit I Introduction to conservation

Understanding Heritage. Types of Heritage. Heritage conservation- Need, Debate and purpose. Defining Conservation, Preservation and Adaptive reuse. Distinction between

Architectural and Urban Conservation. International agencies like ICCROM, UNESCO and their role in Conservation

Unit II Conservation in India
Monument conservation and the role of Archeological Survey of India –role of INTACH – Central and state government policies and legislations- select case studies of sites such as Hampi, Golconda, Mahabalipuram etc.

Unit III Conservation practice
Brief study on Listing –Grading-Documentation - Assessing architectural character of historic structures. Guidelines for preservation, rehabilitation and adaptive re-use of historic structures

Unit IV Urban conservation
Understanding the character and issues of historic cities in Karnataka. Upgradation programmes in old areas and development strategies for regeneration of inner city areas– select case studies of towns like Srirangapatna, Mysuru and Bijapur. Historic districts and heritage precincts.

Unit V Conservation planning
Conservation as a planning tool. - Financial incentives and planning tools such as Transferable
Development Right (TDR)-urban conservation and heritage tourism infrastructure facilities.
Conservation management- community participation and financing conservation.

OUTCOME
1. The student understands importance of heritage, issues and practices of conservation through case studies.
2. The student will gain understanding on historic materials and their properties various technologies for investigating masonry, foundation and also traditional and modern repair methods

REFERENCE BOOKS
1. Donald Appleyard, “The Conservation of European Cities”, M.I.T. Press, Massachusetts, 1979.
2. James M. Fitch, “Historic Preservation: Curatorial Management of the Built World” University Press of Virginia; Reprint edition, 1990
3. Robert E. Stipe, a Richer Heritage: Historic Preservation in the Twenty-First Century”.
Univ. of North Caroling press, 2003.
4. Conservation Manual, Bernard Fielden; INTACH Publication, 1989..

REFERENCES
1. B.K. Singh, “State and Culture”, Oxford, New Delhi
2. A.G. K. Men ed. “Conservation of Immovable Sites”, INTACH Publication, N.Delhi., 1988
3. Seminar Issue on Urban Conservation

4. Feilden, Bernard M. and Jokilehto, Jukka. (1998). Management Guidelines for World Cultural Heritage Sites. Rome: ICCROM.
5. Tandon, Rajeshwari, editor. (2002). A Case for National Policy for Heritage Conservation & Management. New Delhi: INTACH, August 2002.
6. Feilden, Bernard. (1989). Guidelines for Conservation: A Technical Manual. New Delhi: Indian National Trust for Art and Cultural Heritage (INTACH).
7. Indian National Trust for Art and Cultural Heritage (INTACH). (1999). Architectural Heritage Division, New Delhi. Conserving the Heritage of Our Historic Cities: Pre Seminar Working Document. New Delhi: INTACH.
8. Bisht, A.S., et al. (2000). Conservation of Cultural Property in India. Agam Kala Prakashan, Delhi.

Subject: RESEARCH METHODOLOGY		
Code : ARE 705-2	**Credits : 2**	**Hours / Week : 3 hrs**
Progressive Marks : 50	**Examination Marks : 50**	**Duration of Exam : 2 hrs**

AIM:

- To introduce perspectives on research framework and methods in architectural design which can be quantitative, qualitative as well as techniques in visual, special and contextual evaluation.

OBJECTIVES:

- To introduce research concepts to students enabling them to identify research questions and formulate hypothesis. They should be able to evolve research strategies for their dissertation and thesis projects.
- To inculcate ethical practices in research, report writing and publishing.

PEDAGOGY:

• Direct method: Lectures are supported by PPT presentation on each topics.
• ICT and Digital support: Video tutorial on respective topics i.e, TED talks, YouTube, etc.
• Differentiated Instruction
High achievers: Flexible pace learning, Presentation of seminar topics.
Mediocre achievers: Written assignments on similar topics.
Slow learners: Peer tutorials, practice/ written assignments.
• Flipped Classroom: Selected topics will be presented ahead along with discussion on the same with the class
• Book reviews/ Research paper reading.
• Continuous internal and external assessment

CONTENTS:

Unit IIntroduction to research: Domain of Architectural Research; Understanding the nature of research in architecture- Need & significance; Objectives; Characteristics; Ethics; Research methods in Architecture.

Unit IIResearch Process: Types of research and Aims of research Quantitative and Qualitative research Literature search; Research methods & Research methodology; Research Process; Review of literature, research statement; Research design – need, components and considerations.

Unit III Data Collection & Survey: Primary data and Secondary data; methods of data collection; survey & observation; characteristics; recording, limitations and documentation.
Questionnaires - types, aspects, sequence,
Other Methods of Survey - visual, use of mechanical and digital media and online research devices etc.

Unit IVData Analysis: Overview of measuring & scaling techniques; Processing & analysis of data - descriptive & inferential; graphical representation of analysis.

Unit VReport, Paper & proposal writing: Purpose, characteristics, guidelines, steps, format, structure, contents, presentation, referencing style, ethical issues: plagiarism etc.

OUTCOMES:

- At the end of the course, the students shall be able to apply the theoretical knowledge in small research projects. They shall be able to prepare research reports and technical papers in accepted formats.
- Students shall get familiar with recent research in Architecture and relate fields of Built environment.
- Students shall be confident to publish their research reports in journal

REFERENCES:

1. Groat L.& Wang D. (2002), Architectural Research Methods, John Wiley and Sons Inc
2. Creswell, John W. 2003 Research Design: Qualitative, Quantitative and Mixed Methods Approach Sage Publications
3. Day R A 1989 How to Write and Publish a Scientific Paper Cambridge University Press
4. Kothari C. R. 1990 Research Methodology Sultan Chand & Sons, New Delhi
5. Manna, Chakraborti 2012.Values and Ethics in Business Profession Prentice Hall of India, New Delhi
6. Panneerselvam 2012 Research Methodology Prentice Hall of India, New Delhi
7. Ranjit Kumar 2005 Research Methodology: A step by step Guide for Beginners Sage Publications
8. Garg, B.L., Karadia, R., Agarwal, F. and Agarwal, U.K., 2002. An introduction to Research Methodology, RBSA Publishers.
9. Sinha, S.C. and Dhiman, A.K., 2002. Research Methodology, EssEss Publications. 2 volumes.
10. Fink, A., 2009. Conducting Research Literature Reviews: From the Internet to Paper. Sage Publications
11. Satarkar, S.V., 2000. Intellectual property rights and Copy right. EssEss Publications.

Subject: BUILDING AUTOMATION AND MANAGEMENT SYSTEMS		
Code : ARE 705-3	**Credits : 2**	**Hours / Week : 3 hrs**
Progressive Marks : 50	**Examination Marks : 50**	**Duration of Exam : 2 hrs**

AIM:

The course is designed to impart the basic knowledge about Building Automation & Management System (Intelligent Buildings) w.r.t. safety, security and building automation and integrated building management systems

OBJECTIVES:

- To familiarize the student with minimum safety requirements for a building with exposure to NBC.
- To study fire alarm systems and fire suppression systems and their installation.
- To inform students of various types of security systems and their application in building.
- To outline the importance and objectives of an integrated building management system.

PEDAGOGY:

• Direct method: Lectures are supported by PPT presentation on each topics.
• ICT and Digital support: Video tutorial on respective topics i.e, TED talks, YouTube, etc.
• Differentiated Instruction
High achievers: Flexible pace learning, Presentation of seminar topics.
Mediocre achievers: Written assignments on similar topics.
Slow learners: Peer tutorials, practice/ written assignments.
• Flipped Classroom: Selected topics will be presented ahead along with discussion on the same with the class
• Site visits, Group discussions
Continuous internal and external assessment

COURSE CONTENTS:

Unit I - Introduction

Concept and application of Building Automation and Management system (Intelligent buildings)

Concepts, definitions of intelligent buildings, intelligent architecture and structure, evolution of intelligent buildings,

Unit II – Building Automation System (BAS)

Design issues related to building automation and its effect on functional efficiency

Integrated approach in design, maintenance and management system. Current trend and innovation in building automation systems.

Binary data, digital controller, input and output units, sensors and actuators; architecture and configuration of BAS.

Unit III- Components of building automation system

1. **Components of building automation system:** HVAC, electrical, lighting, modern security system, alarm-system, fire-protection, inter-communication, monitoring devices, mechanical means of vertical and horizontal transportation etc.

Security and safety control systems: CCTV systems, analogue CCTV systems and IP-surveillance systems; Access control system, different types of access control, intelligent readers and system topologies; Burglar alarm system, functions of burglar alarm systems;
Fire alarm systems::Typical fire detectors, conventional fire panels, and addressable fire panels.
Lighting control systems: Purpose of lighting control, basic components of lighting and lighting control systems, analogue control and digital control, DXM512-A, digital addressable lighting interface (DALI), systems based on common automation protocols, energy management and lighting control strategies

Unit IV – Applications of internet technologies in BMS

Impact of information Technology; Concept of artificial intelligence; Knowledge base and decision support systems.
System for hi-tech buildings.

- Local Area Network (LAN) and BAS communications standards: Local Area Network (LAN), protocol standards and OSI model, medium access schemes, LAN standards, Ethernet, ARC net, Lon Talk, wireless technologies, Zig Bee, application s of wireless technologies in BAS.
- Internet and Internet protocols, convergence networks and total integration Central air-conditioning system control and optimization: VAV and CAV system control and optimization, ventilation control and optimization, Automated mechanical ventilation systems.

OUTCOMES:

• At the end of the course, the students shall be able to apply the theoretical knowledge in their design about building automation and management systems.

REQUIRED READING:

1. Building Automation Systems – A Practical Guide to selection and implementation – Author: Maurice Eyke
2. National Building Code of India 1983 (SP 7:1983 Part IV) – Published by Bureau of Indian
Standards
3. IS 2189 – Selection, Installation and Maintenance of Automatic fire Detection and Alarm
System – Code of Practice (3Revision) – Published by Bureau of Indian Standards.

REFERENCES:

1. The Principles and Practice of Closed Circuit Television – Author: Mike Constant and Peter Turnbull
2. Rules of Automatic Sprinkler Installation – 2Edition – Published by Tariff Advisory Committee.
3. Fire Suppression Detection System – Author: John L. Bryan
4. Design and Application of Security/Fire Alarm system – Author: John E. Traister.
5. CCTV Surveillance – Author: Herman Kruegle
6. Security Systems and Intruder Alarm Systems – Author: Vivian Capel
7."Automation Systems in Smart and Green Buildings (Modern Building Technology)" by V. K. Jain
8. Intelligent Buildings and Building Automation,Shengwei Wang.

ELECTIVE - V

Subject: EARTHQUAKE RESISTANT STRUCTURES		
Code : ARE706-1	**Credits : 2**	**Hours / Week : 3 hrs**
Progressive Marks : 50	**Examination Marks : 50**	**Duration of Exam : 2 hrs**

OBJECTIVES

- To understand the fundamentals and the basic terminologies of Earthquake.
- To expose the student to grasp the idea about vibration control techniques.
- To make student understand the effects of earthquake and response of structures to earthquake.
- To familiarize the students with design codes and building configuration.
- To apply the knowledge gained in an architectural design assignment.

PEDAGOGY:

• Direct method: Lectures are supported by PPT presentation on each topics - The concepts of seismology, Plate tectonic theories
• ICT and Digital support: Video tutorial on respective topics i.e, TED talks, YouTube, The earthquake control building design technologies are introduced. etc.
• Differentiated Instruction
High achievers: Flexible pace learning, Presentation of seminar topics.
Mediocre achievers: Written assignments on similar topics.
Slow learners: Peer tutorials, practice/ written assignments.
• Flipped Classroom: Selected topics will be presented ahead along with discussion on the same with the class
• Live case study/ Literature case studies.
• Activity/Exercise based learning to understand and experience practical teaching concepts and issues.
• Continuous internal and external assessment

COURSE CONTENTS

Unit I

Elements of Seismology – Causes of Earthquake – Plate Tectonic theory – Elastic rebound Theory – Characteristic of earthquake -Magnitude and intensity of earthquakes- Seismograph - prominent earthquakes of India

Unit II

Vibration Control - Tuned Mass Dampers – Principles and application, Basic Concept of Seismic Base Isolation – various Systems- Case Studies of Important structures.

Unit III

Site planning, building forms, horizontal and vertical irregularities, mass and stiffness Irregularities, soft storey effects, Architectural design concepts for earthquake resistance, shear

Unit IV

Walls, redundancy, setbacks, torsion, pounding. Behavior of ground, buildings, power plants, services in the past earthquakes, types of failure, Liquefaction, social and economic consequences of earthquakes, concepts of repair and seismic

Unit V

Strengthening, methods of retrofitting, seismic base isolation, construction quality control

Seismic detailing provisions – RCC structures, masonry and adobe. Design and detailing as per IS: 13920 – 1993.

COURSE OUTCOME:

On successful completion of the course, the students will be able to:

• Acquaint with knowledge on design and detailing of Earthquake resistant structures by considering all the aspects responsible for failure of the buildings.

REFERENCES

1. Roberto Villaverde, “Fundamental Concepts of Earthquake Engineering”,CRC Press Taylor
2. & Francis Group, 2009.
3. IS 1893: 2002, (Part I) “Criteria for Earthquake Resistant Design of Structures - Part 1 :General Provisions and Buildings”, BIS, New Delhi, 2002.
4. IS 13920: 1993 ,”Ductile detailing of reinforced concrete structures subjected to seismic forces - Code of practice”, Reaffirmed,2003, BIS, New Delhi, 2003
5. Short term course on “Seismic Retrofit of Multistoreyed Reinforced concrete Buildings”, National Programme on Earthquake Engineering Education (NPEEE), IIT, Madras, July, 2005.

Subject: CONSTRUCTION TECHNOLOGY AND MANAGEMENT		
Code : ARE706-2	**Credits : 2**	**Hours / Week : 3 hrs**
Progressive Marks : 50	**Examination Marks : 50**	**Duration of Exam : 2 hrs**

OBJECTIVE:
To introduce modular and fabricated systems, green technology and new innovative materials.

PEDAGOGY:
• Direct method: Lectures are supported by PPT presentation on each topics.
• ICT and Digital support: Video tutorial on respective topics i.e, TED talks, YouTube, etc.
• Differentiated Instruction
High achievers: Flexible pace learning, Presentation of seminar topics.
Mediocre achievers: Written assignments on similar topics.
Slow learners: Peer tutorials, practice/ written assignments.
• Flipped Classroom: Selected topics will be presented ahead along with discussion on the same with the class
• open jury, Group discussions
• Continuous internal and external assessment

COURSE CONTENTS

Unit I
Planning – Cast in situ construction (ready mixed pumped etc.) – Reinforcement concrete and prestressed concrete constructions pre-cast concrete– Structural schemes.

Unit II
Offsite and onsite conditions for prefabricated construction. Different types of precast elements, modular coordination, typification, finishes.

Unit III
Equipment for materials handling, transportation and erection. Uses of the following: Tractors, bulldozers, shovels drag lings, cableways and belt conveyors, batching plants – Transit mixers and agitator trucks used for ready mix concrete pumps. Gunitingequipments – Air compressors – welding equipment – cranes and other lifting devices Choice of construction equipment for different types of works

Unit IV
Construction management techniques, Construction Planning, Scheduling and Controlling Phases. Use of Management techniques – Project Cost Analysis using CPM

Unit V
Properties, Application, specification and standards (Indian and International) Teflon, special glasses, aluminum composite panel etc. - Nano technology applications in construction.

COURSE OUTCOME:

On successful completion of the course, the students will be able to:

• Well equipped with knowledge of construction technology and management of projects execution with respect to new techniques in concrete like cast in situ, pre fab construction, etc.

REFERENCES:

1. "Innovative Constructional Materials", proceedings of seminar on Innovative Construction Materials, VeeramataJeejabai
Technical
Institute, Mathuga Mumbai, Jan 20-21, 2001
2. Directory of Indian Building Materials Products Building materials and Technology Promotion Council and Centre for Symbiosis of Technology, Environment Management, Bangalore, 2000-2001,
3. HenrikMissen, "Industrialized Building and Modular Design", C&CA UK, 1972.
4. KonzT,"Manual of Precast concrete Construction", Vol, I, II, III Banverlag GMBH, 1971.
1. 5. William P. Spence, Construction Materials, Methods, and Techniques ,200

Subject: URBAN SOCIOLOGY AND ECONOMICS		
Code : ARE706-3	**Credits : 2**	**Hours / Week : 3 hrs**
Progressive Marks : 50	**Examination Marks : 50**	**Duration of Exam : 2 hrs**

AIM

Familiarizing students with the basic concepts of Sociology and their influence on Architecture.

PEDAGOGY:

• Direct method: Lectures are supported by PPT presentation on each topics.
• ICT and Digital support: Video tutorial on respective topics i.e, TED talks, YouTube, etc.
• Differentiated Instruction
High achievers: Flexible pace learning, Presentation of seminar topics.
Mediocre achievers: Written assignments on similar topics.
Slow learners: Peer tutorials, practice/ written assignments.
• Flipped Classroom: Selected topics will be presented ahead along with discussion on the same with the class
• Group discussions
• Continuous internal and external assessment

COURSE CONTENTS

Unit – I

Nature, scope and utility of Sociology; relation between Sociology and society. Essential elements of society; bio-social and socio-cultural system. Rural and urban communities and their characteristics.

Unit – II

Migration and its impact on urbanizations, social problems of urbanization, problems relating to public health, public transport and public housing, sociological understanding of slums, social survey and research.

Unit – III

Definition of urbanization – patterns of life and influence of urbanization on rural life, urbanization process in India. Issues relating to public health, public transport and public housing.

Origin, growth and influence of cities. Industrialization.

Unit – IV

Citing example of self developed-cities – effect of social structure on form and growth of cities – Introducing concepts of typology etc.

Unit – IV

Definition of Economics, economic organization of society. Consumption wants, laws based upon them. Urban land values, land utilization, factors involved in development of urban land. Cost and cost indices, preliminary for building. Concepts of life cycle costing with reference to buildings. Time value of money-present worth and inflation. Sources of finance for buildings.

COURSE OUTCOME:

On successful completion of the course, the students will be able to:

• Acquaint with knowledge of social problems caused because of Urbanization and growth of cities/ industrialization and its impact which is caused due to migration of people from rural to urban areas.

REFERENCES

1. A R Desai (1984), Rural Sociology, Popular Prakashan, Bombay
2. Neil J Smelsa (1981) Sociology, Prentice Hall, New Jersey
3. Mclvar R M and Page Charles (1974) Sociology-An introduction analysis, Macmillan India, New Delhi
4. R P Mishra and Bhoosan B S (1979) Human settlements in Asia, Heritage Publishers, New Delhi
5. Urban Economics by Warner Z Hirsch.

YEAR 4 SEMESTER – VIII

Subject: PROFESSIONAL TRAINING		
Code : ARS 801	**Credits : 10**	**Hours / Week : Office Training**
Examination Marks : 200		**Mode of Exam : Jury**

COURSE CONTENTS

- Professional training is for a period of 16 weeks.
- Students are required to gain placements under an Architect / Architectural firm, who is registered with the Council of Architecture at least for a period of 5-8 years. The training coordinator will help streamline this process.
- The college will guide the students towards placement and interact with the architectural firms while introducing the student.
- Students will maintain a log-book for recording their studio works, participation in the office on a daily basis. The log book shall be signed by the Architect / Firm at the end of the tenure.
- Upon end of tenure, students should follow up to receive certificate of internship from the office.
- The student is expected to be exposed to preparation of working drawing, detailing, preparation of architectural models, computer applications in design and drafting, filing system in respect of documents, drawing and preparation of tender documents.
- A jury will evaluate the student's works at the end of the semester. Students should present details of work and projects that they have been involved in the office. Clear representation of involvement is to be made known.

Evaluation Criteria

- **Training Report**: This shall contain copies of various drawings done by the student either drafted or designed. It shall also contain other works like photographs of sites visited, models done, computer output produced etc.,

- **Building Study**: A critical appraisal of any ONE project from the training office, a building of the student's choice (after getting necessary approval for the same from the office and occupants/clients), preferably completed and occupied. Report to include documentation and an interview with the Architect and Design team. Analysis to include how the project was initiated, how the programmatic strategies were evolved, revised and finalized, changes that happened from inception to completion. Architectural studies to include functional analysis, influences and responses of statutory rules, climatic & contextual influences, form and space, choice of materials, building systems, agencies involved and the coordination that took place. A chapter to include the experiential quality of the building and reactions from the users/occupants.

- **Building Material Study**: A detailed study of one building material / construction type OR a building system OR an innovative product for the building. (Submission for the semester-end review).

- **Detailing study:** This shall be a study of any interesting detail done in the firm where the student has undertaken training. This shall include sketches and photographs of the detail.

NOTES:

- Professional Training should be carried out in a single firm for a period of 16 weeks.
- Student's choice of the architectural firm should be approved by the Department and the HoD.
- The detailed report and drawings prepared during Practical Training by students will be evaluated at a viva-voce by a jury consisting of one external, one internal and head of the department or his nominee.
- After submission of the report the department at its convenience will arrange for the conduct of the viva-voce examination.
- The professional training report shall be submitted to the Department with a day to day record authorized by the Architect prior to external viva-voce
- A candidate failing in the viva examination shall repeat the training afresh for 16 weeks, the starting date coinciding with the beginning of the next successive year.
- After the successful completion of the training, the student has to submit Joining letter, monthly progressive report, completion certificate, portfolio containing works done during the training period. The works to be attested by the Architect/ firm.