

2ND YEAR / IV Semester

ARCH 401: ARCHITECTURAL DESIGN STUDIO – III

COURSE	COURSE AREA	COURSE TYPOLOGY	NAME OF THE COURSE	TEACHING SCHEME					EVALUATION							TOTAL MARKS	EXAM DURATION (HRS)			
				L	T	S	CREDIT	TOTAL CLASS HRS	THEORY				STUDIO							
									MST 1 10%	MST 2 10%	A. MST 10%	SS 50% OR 30%	ESUE 40%	TOT AL	IA 10% OR 60%			EV 10% OR 40%	TOTAL	
ARCH 401	AR	STUDIO	ARCHITECTURAL DESIGN STUDIO III			1 2	1 2	12								240	160	400	400	

L - THEORY; S- STUDIO, T-TUTORIAL; C - CREDIT;HRS: HOURS; MST - MIDTERM TEST, A.MST - AVERAGE OF MIDTERM, ESUE - END SEMESTER UNIVERSITY EXAMINATION; IA - INTERNAL ASSESSMENT PROGRESSIVE;SS- FOLIO FINAL Sessional (INTERNAL) , EV - EXTERNAL VIVA VOICE,RVW - INTERMEDIATE REVIEW

COURSE OVERVIEW:

This course is intended to provide skills for designing a single use, small span and single-one storey buildings.

OBJECTIVES OF THE COURSE:

To develop abilities in design in the context of user requirements.

EXPECTED SKILLS / KNOWLEDGE TRANSFERRED:

To enhance the understanding of the complexities of architectural design for residential needs and develop creative design solutions for good living environments. Use of standards, handling of space, and application of knowledge gained from other subjects in design.

FOCUS: Habitat, Environment & Services

- The student will develop the understanding of Environmental, Cultural and Place Dimensions of Space
- The student will explore the design at building element level, building level, cluster level and site level
- The student will establish a connection between the building space and natural evolved space to convert into the comprehensive liveable environment.

COURSE CONTENTS:

- Society, Culture, place and its specific impact on usage of space. Environment and its influence on built-form.
- Field studies, analytical study of indigenous settlements, to understand use pattern, cultural elements, climatic elements of space and form.
- Understanding of Appropriate Technologies and Methods of Construction.
- Dwelling and community – Unit and Cluster combinational principles.
- **Theme & Focus of Design:** Study & analysis of various user types & their activities in public buildings; Development of design programme; Concept & detailed design with a focus on RCC structures.
- **Basic Components:** Behavioral Science; Functionality; Building Materials; Theory of Design; Form Development; Tectonic decisions: Structures, Building Materials, Services; Site Planning; Building Control Regulations; Inclusive Design; Design Communication.
- **Landscape Detail:** Importance, exploring & understanding the essence; Detailing process; User analysis; Elements; Functionality & aesthetics; Materials. This Minor Exercise will be represented through conceptual development (sketches, physical & digital models).
- **Exploration of Sloping Sites:** Exploration & analysis of existing iconic designs on sloping sites; Understanding design philosophy & process; Learning from design quality; Literature/book reviews; Architectural critiques.
- **Design Exercise:** Design of Multi-Functional Building/s for 30 to 40 users; Typology: Art Gallery, Library, Motel, Cultural Centre, Nursery, Kindergarten, Recreational Club, Guest House, etc.; Site extent - sloping site up to 8000 m2; Topography - average slope ranging from 1:5 to1:8.

GUIDELINES

One Major And Minor tasks/ exercises are to be set from the entire syllabus

The topic of the project is to be displayed on Institute Notice Board fifteen days in advance OF commencement of the classes

NOTE :

Evaluation is to be done through viva voce by an external examiner appointed by the university at Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva - voice

Necessary theoretical inputs to be given highlighting the norms and design issues. The topics not covered as design problems will have to be covered by the Studio faculty members through lecture/slideshow sessions and site visits.

At least one major exercises and one minor design with two-time problems should be given.

The final submission shall necessarily include a model for at least one of the two main problems.

In end exam which is a viva-voce, the students have to present the entire semester work for assessment.

REFERENCE BOOKS:

- Bousmaha Baiche & Nicholas Walliman**, Neufert Architect's data, Blackwell Science Ltd.
Building Code – ISI
Chiara Joseph de and Others, Time Savers Standards of Building Types. McGraw – Hill, 1990.
Ching, Francis D.K., Architecture: Form, Space, and Order, 2nd Ed. Van Nostrand Reinhold, New York, 1996.
Criss B.Mills, Designing with models: A Studio guide to making & using architectural models, Thomson & Wadsworth, USA,2000.
DeChiara and Callender, Time-saver standards for building types, Mc Graw Hill company
Hanks, A. David, Decorative Designs of Frank Lloyd Wright, Dover Publications, Inc. New York, 1999.
Hepler, E. Donald, Wallach, I. Paul, Architecture Drafting and Design, 3rd Ed. McGraw-Hill Book Company, New York, 1977.
Itten, Johannes, Design and Form: The basic course at the Bauhaus, Thames and Hudson Ltd., London 1997.
Kirk, Paul Hayden and Sternberg, D. Eugene, Doctors Offices and Clinics, 2nd Ed. Reinhold Pub., USA, 1960.
Krier, Rob, Architectural Composition, Academy Editions, London, 1988.
Maier Manfred Basic Principles of Design, Vol.1, 2, 3 & 4, Van Nostrand Reinhold, NY. (1977)
Meiss, Pierre Von, Elements of Architecture: From form to place, E and FN Spon, London, 1992.
Mike w.Lin, Drawing & Designing with confidence – A step by step guide, John Wiley & sons, USA,1998.
Neufert, Ernst, Ernst Neufert Architects Data, Granada Pub. Ltd., London,2000.
Peloquin, Albert, Barrier-Free Residential Design. McGraw-Hill, Inc., New York,1994.
Pevsner, Nikolaus, A History of Building Types. Thames and Hudson, London,1976.
Ramsey / Sleeper, National Architectural graphic standards, The American Institute of Architects
Sam F Miller, Design process– Van Nostrand Reinhold
Shah, S. Charanjit, Architects Hand Book Ready Reckoner. Galogotia Pub., New Delhi, 1996.
Smithies, K.W., Principles of Design in Architecture. Chapman and Hall, 1983.
Untermann, Richard and Small, Robert, Site Planning for Cluster Housing.
Wucius, Wong, Principles of Two Dimensional Design. Van Nostrand Reinhold 1972.
Time saver standards for building types, DeChiara and Callender, Mc Graw Hill company
National Building Code – ISI
Time saver standards for landscape architecture – Charles W Harris – Mc Graw Hill
New Metric Handbook – Patricia Tutt and David Adler – The Architectural Press
Richard Weston, Plan sections & elevations of key buildings of the 20th century, Lawrence King Publishing, London,2004.

ARCH 403: BUILDING MATERIAL & CONSTRUCTION – IV

COURSE	COURSE AREA	COURSE TYPOLOGY	NAME OF THE COURSE	TEACHING SCHEME					EVALUATION									TOTAL MARKS	EXAM DURATION (HRS)
				L	T	S	CREDIT	TOTAL CLASS HRS	THEORY						STUDIO				
									MST 1 10%	MST 2 10%	A. MST 10%	SS 50% OR 30%	ESUE 40%	TOT AL	IA 10% OR 60%	EV 10% OR 40%	TOTAL		
ARCH 403	TE	THEORY CUM STUDIO	BUILDING MATERIALS & CONSTRUCTION – IV	2		3	5	5	15	15	15	45	60	120	0	30	30	150	3

L - THEORY; S- STUDIO , T -TUTORIAL : C - CREDIT-HRS: HOURS : MST - MIDTERM TEST , A.MST - AVERAGE OF MIDTERM , ESUE - END SEMESTER UNIVERSITY EXAMINATION: IA - INTERNAL ASSESSMENT PROGRESSIVE,SS- FOLIO FINAL Sessional (INTERNAL) , EV - EXTERNAL VIVA VOICE,RVW - INTERMEDIATE REVIEW

COURSE OVERVIEW:

The coursework deals with principles, methods and construction practices of structural steelwork. The outcome of this course is the ability to SPECIFY building materials as per the demands of Design Program.

OBJECTIVES OF THE COURSE:

To introduce and expose students to various aspects involving the use of steel for construction activity of buildings and structures.

EXPECTED SKILLS / KNOWLEDGE TRANSFERRED:

To understand the techniques of constructing Steel And Pre Fab, staircase and partitions using different materials

FOCUS: ADVANCED IN TECHNOLOGY

COURSE CONTENTS:

- Precast elements and their applications
- Pre-stressing & post-tensioning – definition and use
- The conceptual, functional, structural dimensions of complex elements
- Long span structures - flat slab, beam and ribbed slab, waffle slab, vault, dome, shell structure, steel trusses, girder, portal frame, folded plate structure, PEB
- Different types of Interior, Exterior, Vertical & Horizontal Finishes i.e. Plaster, Paint, Texture, Paving, Cladding etc.
- **Alternative building materials & technology:** Mud construction: COB, Rammed earth, Adobe, Daub, Stabilized mud blocks (SMB), compressed stabilized mud blocks (CSMB): bamboo technology, Ferro cement, Fiber reinforced concrete, Filler SLABS
- **Finishes:** Wall finishes, floor finishes, roof finishes, waterproofing, insulations – thermal & acoustical. False ceilings. Panelling.

GUIDELINES FOR QUESTION PAPER SETTING

All Theory cum studio-based courses

- Part- A (5 NOS X 6 MARKS = 30 MARKS) Answer all questions
- Part- B (2 NOS X15 MARKS = 30MARKS)
- (Either or type)

(Since they are a mix of drawing and theory content, all

Part-A questions relate theory

Part-B questions are drawing based.

It is not possible for a candidate to answer more than 4 drawing questions in a three-hour duration)to theory and all

- Students will be required to attempt 5+2 questions from the Eight questions, are to be set from entire syllabus. where 2 questions may be short answer , 2 questions may be short answer type with 2- 3 subheads and 2, short with 4 subheads answer type and 2 essay type questions which is compulsory.

- Students should attempt total 7 Questions including the compulsory question.

- Question paper is to be set covering the entire syllabus.

Note: This is a studio subject and students should be made to prepare construction drawings for studio exercises along with the theoretical inputs. The studio work should be supplemented with appropriate site visits.

REFERENCE BOOKS:

A.Agarwal –Mud: The potentials of earth-based material for third world housing – IIED, London 1981.

Barry, R. The Construction of Buildings Vol. 2, 5th Ed. East-West Press. NewDelhi, 1999.

Bindra, S P.and Arora, S P. Building Construction: Planning Techniques and methods of Construction, 19th ed. Dhanpat Rai Pub. New Delhi, 2000.

Dr.B.C.Punmia – Building construction

Francies D.K.Ching – Building Construction Illustrated. VNR, 1975.

Hailey and Hancock, D.W. Brick Work and Associated Studies Vol. 2. MacMillan, London, 1979.

HUDCO – All you wanted to know about soil stabilized mud blocks, New Delhi, 1989.

McKay J.K. Building Construction Metric Vol. 4, 4th Ed. Orient Longman Pvt. Ltd., Mumbai, 2002.

Mitchell. Advanced Structures.

Moxley, R. Mitchell's Elementary Building Construction, Technical Press Ltd.

R.Chudley – Building Construction Handbook – BLPD, London 1990.
R.Chudley, Construction Technology.
Rangwala, S.C. Building Construction, 22nd ed. Charotar Pub. House, Anand,2004.
Rangwala, S.C. Engineering Materials: Material Science, 31st Ed. Charotar Pub. House, Anand, 2004.
Sushil Kumar. T.B. of Building Construction, 19th ed. Standard Pub, Delhi, 2003.
Use of Bamboo and a Reed in Construction – UNO Publications
W.B. Mackay – Building construction Vol 1,2 and 3 – Longmans, UK 1981.

ARCH 405: HISTORY OF ARCHITECTURE - IV

COURSE	COURSE AREA	COURSE TYPOLOGY	NAME OF THE COURSE	TEACHING SCHEME					EVALUATION								TOTAL MARKS	EXAM DURATION (HRS)	
				L	T	S	CREDIT	TOTAL CLASS HRS	THEORY					STUDIO					
									MST 1 10%	MST 2 10%	A. MST 10%	SS 50% OR 30%	ESUE 40%	TOT AL	IA 10% OR 60%	EV 10% OR 40%			TOTAL
ARCH 405	AR	THEORY	HISTORY OF ARCHITECTURE IV	2			2	2	10	10	10	50	40	100				100	3

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COURSE OVERVIEW:

History of Architecture to be studied as the development of building forms in response to social, religious, aesthetic and environmental factors. The study should focus on the three-dimensional forms, plan forms, façade organization, a structural solution, construction methods and ornamentation. The study should focus on the general trends and not on specific e.g. of buildings.

OBJECTIVES OF THE COURSE:

To expose the students to a wide spectrum of architectural styles ranging from pre-historic to modern times.

To explain the students the evolution of architecture in relation to time with special emphasis on social, religious and environmental factors.

To make the students understand the developments in the construction technology in different periods.

EXPECTED SKILLS / KNOWLEDGE TRANSFERRED:

- 1) Acquire knowledge to identify the common characteristics among the monuments of a particular style.
- 2) Acquire graphic skills to present a building, analyze its elements and explain the composition.
- 3) Acquire knowledge of good practices of architecture in the past.

FOCUS: Colonial & Early industrial Theories

- Student will learn the post Enlightenment world view, the machine age and industrialization, mass culture
- Students will learn the evolution of a new language from the new conditions
- Students will learn about the new concepts of space and form – parallels in the Arts and Sciences

COURSE CONTENTS:

- European colonial expansion and colonial development in India
- Imposition, modification and assimilation. New modes of organization, new materials and techniques, new building types.
- The industrial revolution: new materials, techniques new modes of production. The industrial city and reform movements.
- The transformation of the building process and impacts on architecture. Abstraction, standardization, mass production.

GUIDELINES FOR QUESTION PAPER SETTING

All Theory Courses

- Part- A (5 NOS X 2 MARKS = 10 MARKS) Answer all questions
- Part- B (2 NOS X15 MARKS = 30 MARKS)
- (Either or type)

• Students will be required to attempt five questions from the Eight questions, are to be set from entire syllabus. where 2 questions may be short answer type which is compulsory with 2- 3 subheads and 2, short with 4 subheads answer type and 4 essay type questions.

• Students should attempt total Seven Questions including the compulsory question.

• Question paper is to be set covering the entire syllabus.

NOTE:-Emphasis should be laid on understating of building evolution and form. The continuous evaluation shall be made of students work based on various models, assignments and sketching

Reference books:

1. Fletcher, Banister. Sir Banister Fletcher's A History of Architecture. London: Butterworths, 1987. Print.
2. Kostof, Spiro. A History of Architecture: Settings and Rituals. New York: Oxford UP, 1985. Print.
3. Tadjell, Christopher. A History of Architecture. London: Ellipsis, 2000. Print.
4. Ching, Francis D. K., Mark Jarzombek, and Vikramaditya Prakash. A Global History of Architecture. Hoboken, NJ: J. Wiley & Sons, 2007. Print.
5. History of World Architecture. London: Faber, 1979. Print
6. Norberg-Schulz, Christian, and Pier Luigi Nervi. History of World Architecture. New York: Abrams,1971. Print.

7. Bagenal, Philip. The Illustrated Atlas of the World's Great Buildings: A History of World Architecture. S.1.: Leisure, 1980. Print.
 8. Fazio, Michael W., Marian Moffett, Lawrence Wodehouse, and Marian Moffett. A World History of Architecture. Boston: McGraw-Hill, 2008. Print.
 9. Christy Anderson. Renaissance Architecture. Oxford 2013
 10. Murray, Peter: Architecture of the Italian Renaissance, 1969
 11. Hale, J.R.; The Civilization of Europe in the Renaissance, 1993
 12. Nikolaus Pevsner, An Outline of European Architecture, Pelican, 1964
 13. Ilan Rachum, The Renaissance, an Illustrated Encyclopedia, 1979, Octopus
 14. Howard Saalman, Filippo Brunelleschi: The Buildings, London: Zwemmer, 1993
 15. Tadgell, Christopher (1990). The history of architecture in India: from the dawn of civilization to the end of the Raj. London: Architecture Design and Technology Press
 16. "Mughal art and architecture." The Columbia Encyclopedia, 6th ed. . 2015. Encyclopedia.com. 14 Mar. 2016
 17. Subhadra Sen Gupta(2013), " Fatehpur Sikri: Akbars Magnificent city on a hill", Niyogi books
 18. Lewis, Bernard. The World of Islam. Thames and Hudson, Ltd.
 19. Brown, Percy (1942) Indian Architecture (Islamic Period). D B Taraporevala Sons & Co. Bombay.
 20. Kamiya Takeo. The Architecture of the Indian Subcontinent. Architecture Autonomous.
- Christopher Tadgell**, The History of Architecture in India, Long man Group, U.K. Ltd., London, 1990
- George Michell** - Architecture of the Islamic World - - (Its history and social meaning), Thames and Hudson, London, 1978.
- Guruswamy Vaidyanathan** Gateway to Indian Architecture, Edifice Publication, 2003
- Islamic Architecture**, Form, Function and Meaning, Robert Hillenbrand, Edinburgh University Press, 1994
- Percy Brown**, Indian Architecture (Islamic Period) - Taraporevala and Sons, Bombay, 1983
- Satish Grover**, The Architecture of India (Islamic) Vikas Publishing House Pvt. Ltd., New Delhi, 1981.
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ARCH 406: SUSTAINABLE DESIGN

COURSE	COURSE AREA	COURSE TYPOLOGY	NAME OF THE COURSE	TEACHING SCHEME					EVALUATION							TOTAL MARKS	EXAM DURATION (HRS)	
				L	T	S	CREDIT	TOTAL CLASS HRS	THEORY					STUDIO				
									MST 1 10%	MST 2 10%	A. MST 10%	SS 50% OR 30%	ESUE 40%	TOT AL	IA 10% OR 60%			EV 10% OR 40%
ARCH 406	AR	THEORY	SUSTAINABLE DESIGN	2			2	2	10	10	10	50	40	100			100	3

L - THEORY; S- STUDIO , T -TUTORIAL; C - CREDIT-HRS: HOURS ; MST - MIDTERM TEST , A.MST - AVERAGE OF MIDTERM , ESUE - END SEMESTER UNIVERSITY EXAMINATION: IA - INTERNAL ASSESSMENT PROGRESSIVE;SS- FOLIO FINAL Sessional (INTERNAL) , EV - EXTERNAL VIVA VOICE,RVW - INTERMEDIATE REVIEW

COURSE OVERVIEW:

A growing worldwide concern for the conservation of energy & environment has led to the emphasis on sustainable habitats as a key solution to growing urban concerns. Sustainable architecture aims to create environment – friendly and energy efficient building by actively harnessing renewable nature sources of energy (solar energy etc) and utilizing materials that least pollute the environment.

OBJECTIVES OF THE COURSE:

The objectives include creating awareness of the need for green buildings and imparting knowledge of designing green buildings, advocating of the application of the passive and active use of renewable energy system and the promotion of efficient use of water, materials and waste through the sustainable concept of Reduce, Recycle and Reuse.

EXPECTED SKILLS / KNOWLEDGE TRANSFERRED:

Sustainable designs and related theory.

COURSE CONTENTS:

- Introduction: Concepts of Reduce, Reuse & Recycle; Environmental Legislations ; Climate change Protocols & Conventions ;
- Passive Systems:
- Energy Systems:
- Water Management
- Waste Management:

GUIDELINES FOR QUESTION PAPER SETTING

All Theory Courses

- Part- A (5 NOS X 2 MARKS = 10 MARKS) Answer all questions
- Part- B (2 NOS X15 MARKS = 30 MARKS)
- (Either or type)

- Students will be required to attempt five questions from the eight questions, are to be set from entire syllabus. Where 2 questions may be short answer type which is compulsory with 2- 3 subheads and 2, short with 4 subheads answer type and 4 essay type questions.
- Students should attempt total Seven Questions including the compulsory question.
- Question paper is to be set covering the entire syllabus.

NOTE:-Emphasis should be laid on understating of Principle the continuous evaluation shall be made of students work based on various models, assignments and sketching

REFERENCES:

Arvind Krishnan & Others – Climate Responsive Architecture, Tata Mcgraw –Hill New Delhi 2001.
 Lawson.B, Building Materials, Energy And The Environment: Towards Ecologically Sustainable Development Raia, Act, 1996
 Ralph M.Lebens – Passive Solar Architecture in Europe – 2, Architecture Press, London 1983.
 Sandra Mendler, William Odell, The Guide Book Of Sustainable Design, John Wiley & Sons, 2000.
 Sustainable design manual, Vols 1& 2, The energy and Resource Institute, New Delhi.

ARCH 407: THEORY OF STRUCTURES – III

COURSE	COURSE AREA	COURSE TYPOLOGY	NAME OF THE COURSE	TEACHING SCHEME					EVALUATION								TOTAL MARKS	EXAM DURATION (HRS)	
				L	T	S	CREDIT	TOTAL CLASS HRS	THEORY					STUDIO					
									MST 1 10%	MST 2 10%	A. MST 10%	SS 50% OR 30%	ESUE 40%	TOT AL	IA 10% OR 60%	EV 10% OR 40%			TOTAL
ARCH 407	TE	THEORY	THEORY OF STRUCTURES III	2			2	2	10	10	10	50	40	100				100	3

L - THEORY; S- STUDIO , T -TUTORIAL; C - CREDIT-HRS: HOURS : MST - MIDTERM TEST , A.MST - AVERAGE OF MIDTERM , ESUE - END SEMESTER UNIVERSITY EXAMINATION: IA - INTERNAL ASSESSMENT PROGRESSIVE,SS- FOLIO FINAL Sessional (INTERNAL) , EV - EXTERNAL VIVA VOICE,RVW - INTERMEDIATE REVIEW

COURSE OVERVIEW:

Gives an in-depth understanding of the concepts associated with different Elements of Structures.

OBJECTIVES OF THE COURSE:

To impart sound knowledge of strength, the behaviour of various materials and techniques in the analysis of structures.

EXPECTED SKILLS / KNOWLEDGE TRANSFERRED:

Ability to analyze the standard members of structures.

COURSE CONTENTS:

- Analysis of indeterminate structures. Introduction to stiffness and distribution factors, introduction to moment distribution factors, introduction to moment distribution method.
- Indeterminacy of a frame, comparison of post and lintel system and portal frames. Importance of portal frames in resisting horizontal forces.
- Continuous beams: moment Distribution Method: Kani's method / Rotation Contribution Method:
- Columns and Struts: wind pressure on chimneys, Maximum & Minimum intensities of stress at bottom of chimneys Retaining walls subjected to earth pressure.
- Torsion of Shafts:
 - Arch as a curved element. Arch in history, the efficiency of an arch. Three hinged arches. Simple problems to illustrate the importance of the shape of an arch, rise end conditions and loading.
 - Steel as a structural material, structural systems in steel with case studies.

GUIDELINES FOR QUESTION PAPER SETTING

All Theory Courses

- Part- A (5 NOS X 2 MARKS = 10 MARKS) Answer all questions
- Part- B (2 NOS X15 MARKS = 30 MARKS)
- (Either or type)
 - Students will be required to attempt five questions from the eight questions, are to be set from entire syllabus. Where 2 questions may be short answer type which is compulsory with 2- 3 subheads and 2, short with 4 subheads answer type and 4 essay type questions.
 - Students should attempt total Seven Questions including the compulsory question.
 - Question paper is to be set covering the entire syllabus.

Reference books:

1. James Ambrose, Building Structure, Canada Wiley, 2012
2. Punmia, B. C., Comprehensive Design of Steel Structures, New Delhi, Laxmi Publications Pvt. Ltd., 2012
3. Deplazes, Andrea, Constructing Architecture Materials Processes Structures: A Handbook, Switzerland, Birkhauser- Publisher of Architecture, 2013
4. Subramanian, N., Design of Steel Structures, New Delhi, Oxford University Press, 2012
5. Biggs, John M., Introduction to Structural Dynamics, New Delhi, McGraw Hill Education India Pvt Ltd, 2014
6. Junnarkar, S. B., Mechanics of Structures Vol – 1, Anand, Charotar Publishing House, 2012
7. Pandya, N. C., Steam Tables: Entirely in SI Units including Mollier Chart, Anand, Charotar Publishing House, 2013
8. Steel Design, Newyork, DAAB Publication, 2007
9. Khurmi, R. S., Strength of Materials: Mechanics of Solids, New Delhi, S. Chand & Company Ltd., 2013
10. Laursen, Harold I., Structural Analysis, New Delhi, McGraw Hill Education India Pvt Ltd, 2014
11. Hibbeler, Russell C., Structural Analysis, India, Pearson Education Asia Pte. Ltd., 2013
12. Pandit, G. S., Structural Analysis: A Matrix Approach, New Delhi, Tata McGraw-Hill Publishing Company Ltd., 2008
13. Charleson, Andrew, Structure as architecture: Sourcebook for architects and structural engineers, London, Taylor & Francis, 2015
14. Bali, N. P., Textbook of Engineering Mathematics, New Delhi, Laxmi Publications Pvt. Ltd., 2011
15. Ramamrutham, S., Theory of Structures, Delhi, Dhanpat Rai & Sons, 2013
16. Kumar, Ashok, Theory of Structures, New Delhi, Laxmi Publications Pvt. Ltd., 2004
17. Parikh, Janak, Understanding Concept of Structural Analysis and Design, Anand, Charotar Publishing House
18. Levy, Mathtys, Why Buildings Fall Down: How Structures Fail, New York, W. W. Norton and Co., 2002
19. Schodek, Daniel L. Structures. Englewood Cliffs, NJ: Prentice-Hall, 1980. Print.
20. Millais, Malcolm. Building Structures: From Concepts to Design. London: Spon, 2005. Print.
21. Corkill, P. A., H. L. Puderbaugh, and H. K. Sawyers. Structure and Architectural Design. Iowa City: Semoll, 1974. Print.
22. Ambrose, James E. Building Structures. New York: Wiley, 1988. Print.
23. Deplazes, and Söffker. Constructing Architecture: Materials, Processes, Structures. Basel: Birkhäuser Verlag, 2013. Print.
24. Hunt, Tony. Tony Hunt's Structures Notebook. Oxford: Architectural, 2003. Print.
25. Mainstone, R. J. Structure in Architecture: History, Design, and Innovation. Aldershot, Hampshire: Ashgate, 1999. Print.
26. Sandaker, Bjørn Normann, and Arne Petter. Eggen. The Structural Basis of Architecture. New York: Whitney Library of Design, 1992. Print.
27. Sarkisian, Mark P. Designing Tall Buildings: Structure as Architecture. New York: Routledge, 2012. Print.
28. Seward, Derek. Understanding Structures: Analysis, Materials, Design. Basingstoke: Palgrave Macmillan, 2003. Print.
29. Cowan, Henry J. Architectural Structures: An Introduction to Structural Mechanics. New York: Elsevier, 1976. Print.

30. Gordon, J. E. *The New Science of Strong Materials, Or, Why You Don't Fall through the Floor.* Princeton, NJ: Princeton UP, 1984. Print.
 31. Miret, Eduardo Torroja, J. J. Polivka, and Milos Polivka. *Philosophy of Structures: English Version by J.J. Polivka and Milos Polivka.* Berkeley, CA: U of California, 1962. Print.
 32. Salvadori, Mario, and Robert A. Heller. *Structure in Architecture: The Building of Buildings.* Englewood Cliffs, NJ: Prentice-Hall, 1975. Print.
 33. Salvadori, Mario, Saralinda Hooker, and Christopher Ragus. *Why Buildings Stand Up: The Strength of Architecture.* New York: Norton, 1980. Print.
 34. Morgan, William, Daniel Williams, and Frank Durka. *Structural Mechanics: A Revision of Structural Mechanics.* Harlow: Longman, 1996. Print.
 35. Rosenthal, Hans Werner., and Hans Werner. *Rosenthal. Structural Decisions: The Basic Principles of Structural Theory, Their Application to the Design of Buildings and Their Influence on Structural Form.* London: Chapman & Hall, 1962. Print.
 36. Watson, Donald, *Time-saver Standards for Building Materials and Systems: Design Criteria and Selection Data.* New Delhi, Tata McGraw Hill Education Private Limited, 2009
 37. IS 456:2000, Indian Standard, Plain and Reinforced Concrete – Code of Practice, Bureau of Indian Standards.
 38. SP – 16, Design Aids for Reinforced Concrete to IS 456
 39. National Building Code of India, 1983
 40. IS 1905, Code of Practice for Structural Safety of Buildings.
A.K.Jain and Punmia. *Strength of Materials*
MORGAN, *Elements of Structures*
Ramamrutham, S. *Theory of Structures*, 17th Ed. Danpat Rai Pub. Co. Ltd., New Delhi, 2005.
Reddy, C.S. *Basic Structural Analysis*, 18th Ed. Tata McGraw Hill Pub.Co.Ltd., New Delhi, 1991.
SALVADORI, *Structures in Architecture*
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ARCH 408: COMPUTER APPLICATION III

COURSE	COURSE AREA	COURSE TYPOLOGY	NAME OF THE COURSE	TEACHING SCHEME					EVALUATION							TOTAL MARKS	EXAM DURATION (HRS)		
				L	T	S	CREDIT	TOTAL CLASS HRS	THEORY					STUDIO					
									MST 1 10%	MST 2 10%	A. MST 10%	SS 50% OR 30%	ESUE 40%	TOTAL	IA 10% OR 60%			EV 10% OR 40%	TOTAL
ARCH 408	SK	STUDIO	COMPUTER APPLICATION III			2	2	2							90	60	150	150	

L - THEORY; S- STUDIO , T -TUTORIAL; C - CREDIT-HRS: HOURS; MST - MIDTERM TEST , A.MST - AVERAGE OF MIDTERM , ESUE - END SEMESTER UNIVERSITY EXAMINATION: IA - INTERNAL ASSESSMENT PROGRESSIVE;SS- FOLIO FINAL Sessional (INTERNAL) , EV - EXTERNAL VIVA VOICE,RVV - INTERMEDIATE REVIEW

COURSE OVERVIEW:

To enhance the visualizing skills of the students by exposing them to the latest modelling software.

OBJECTIVES OF THE COURSE:

To familiarize the students with the concepts of 3D modelling. To enable them to experiment with forms, mapping, rendering and presentation techniques.

EXPECTED SKILLS / KNOWLEDGE TRANSFERRED:

understanding architecture in relation to the virtual world to help explain the design properly.

FOCUS: Computer-Based Skill

- The student will develop the understanding of the computer-generated model
- The student will develop the understanding of complex parametric designs through the software
- The student will develop the understanding of digital fabrication and create models using the 3d printer
- The student will learn Design Scripts

COURSE CONTENTS:

- Application of CAD Software In Design Development
- Parametric Designs
- Design Scripts –Python, Grasshopper, Rhino
- Digital Fabrication – 3d Printing

Documentation, Rendering

3D Modelling in Cad:

INTRODUCTION TO 3DS MAX:

- Rendering & Animation: TEXTURES AND TEXTURE MAPPING:
- Site Modelling: MODELLING TECHNIQUES:
- Building Modelling :
- Customization:
- Presentation: Rendering views, Creating walkthrough, Print layouts.
- Photo Editing and Desktop Publishing (application)

GUIDELINES

One Major And Minor tasks/ exercises are to be set from the entire syllabus

The topic of the project is to be displayed on Institute Notice Board fifteen days in advance OF commencement of the classes

NOTE :

Evaluation is to be done through viva voce by an external examiner appointed by the university at Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva - voice

RECOMMENDED BOOKS:

3DS MAX- Advanced 3D modelling and animation – C & M, CADD Centre
 3DS MAX 8 Bible – Kelly C.Murdock
 Photoshop CS Bible – Deke McClelland
 Adobe Photoshop 7.0 Classroom in a book – Adobe creative team
 Autodesk REVIT 9.1 Manual, Autodesk publications
 REVIT 9.1 Tutorials, Autodesk publications
 AUTODESK Publications
 3DS MAX 8 Bible – Kelly C.Murdock
 3DS MAX- Advanced 3D modelling and animation – C & M, CADD Centre
 Adobe Creative Team. Adobe Photoshop CS (Class Workbook).
 Adobe Photoshop 7.0 Classroom in a book – Adobe creative team
 Drobilas, Adele. Fundamental Photoshop: A Complete Introduction, Greenberg.HTML Black Book
 Photoshop CS Bible – Deke McClelland
 Sagman. Microsoft Office for Windows, India Addison Wesley, 1999.
 Woody, Leon Hard. Microsoft Office 2000, Prentice Hall of India, New Delhi.

ARCH 409 THEORY OF DESIGN – II

COURSE	COURSE AREA	COURSE TYPOLOGY	NAME OF THE COURSE	TEACHING SCHEME					EVALUATION							TOTAL MARKS	EXAM DURATION (HRS)			
				L	T	S	CREDIT	TOTAL CLASS HRS	THEORY					STUDIO						
									MST 1 10%	MST 2 10%	A. MST 10%	SS 50% OR 30%	ESUE 40%	TOT AL	IA 10% OR 60%			EV 10% OR 40%	TOTAL	
ARCH 409	AR	THEORY	THEORY OF DESIGN II			2	2	2								30	40	70	100	

L - THEORY; S- STUDIO , T -TUTORIAL; C - CREDIT-HRS: HOURS; MST - MIDTERM TEST , A.MST - AVERAGE OF MIDTERM , ESUE - END SEMESTER UNIVERSITY EXAMINATION: IA - INTERNAL ASSESSMENT PROGRESSIVE;SS- FOLIO FINAL Sessional (INTERNAL) , EV - EXTERNAL VIVA VOICE,RVW - INTERMEDIATE REVIEW

COURSE OVERVIEW:

The course is designed to study the contemporary developments in Architecture and its impact on built form, structure, construction methods etc.

Introducing the students to various Design philosophies of colonial, post independent and contemporary architecture in the Indian context.

OBJECTIVES OF THE COURSE:

To provide the student with an in-depth knowledge of modern design philosophies in the evolution of innovative architectural forms and designs.

To orient the students to various developments in the field of architecture for a greater understanding of trends in contemporary architecture.

COURSE CONTENTS:

Detailed study & analysis of architectural design fundamentals through significant examples in the light of the following for the periods mentioned in the modules – Genesis of seed ideas & concepts; Timeline; Socio-political background, key people involved; Climatic & geographic influence; General settlement pattern; Cities & its civic places; Construction technology & material; Design principles; Typology; Evolution; Spatial organization; Form & Detailing. The examples to represent the following historical styles are suggestive & students are encouraged to explore additional examples for a comprehensive understanding of the respective styles.

Architecture in colonial India:

Modernism: Development of Rationalism & Functionalism; Bauhaus; Principles of Modernism; International style; Schools of thought; Ideas & Works of Great Masters:

Post Independent India:

Language & works of first generation architects of Independent India

Post-Nehruvian modernist architecture: Modernism, utilitarian modernism and neo-modernism,

Brutalism. Countering the stigma of colonialism, the neovernacular,

Contemporary trends in the architecture of India after Independence.

Post-Modern Era: Reaction to Modernism;

Contemporary Architecture: Current trends & theories in Architecture- Hi-Tech, Deconstructivism,

New Expressionism, Blobitecture, Green Architecture, Bionic Architecture; Design

Philosophies & works of contemporary architects; Case studies from across the world;

Contemporary architecture in India.

Design Theories and works of contemporary architects -

Reference Books:

Bahga, S.S: Post Independent Architecture.

Bernard Tschumi, Architecture and Disjunction

Bhatt, Vikram and Scriver, Peter. Contemporary Indian Architecture After the Masters. Mapin Pub. Pvt. Ltd., Ahmedabad, 1990.

Bruno Zevi , Architecture as Space

Charles Jencks , The Language of Post Modern Architecture

Curtis, J.R. William. Modern Architecture since 1900. Prentice-Hall, Inc., New Jersey, 2002.

Frampton, K Tad Ando- buildings, Projects Writings, New York Rizzoli, 1984.

Francis D. K. Ching , Architecture: Form, Space, & Order

Geoffrey Baker , Design Strategies in Architecture

Jencks, Charles.The Language of Post-Modern Architecture, 4 th Ed. Academy Editions, London, 1984.

Miki Desai, Architecture and independence, Oxford University Press, 2000.

Rob Krier , Architectural Composition

Robert Venturi , Complexity and Contradiction in Architecture by:

Robin Boyd , The Puzzle of Architecture

Sart Bahga et all, Modern Architecture In India, Galgotia Publishing Company, New Delhi.

Sigfried Giedion , Space Time and Architecture

Steen Eiler Rasmussen, Experiencing Architecture

Vikram Bhatt and Peter Scriver, Contemporary Indian Architecture: After the Masters, Mapin.

Vitruvius, The Ten Books on Architecture

ARCH 419: ELECTIVE - III

COURSE	COURSE AREA	COURSE TYPOLOGY	NAME OF THE COURSE	TEACHING SCHEME					EVALUATION							TOTAL MARKS	EXAM DURATION (HRS)			
				L	T	S	CREDIT	TOTAL CLASS HRS	THEORY					STUDIO						
									MST 1 10%	MST 2 10%	A. MST 10%	SS 50% OR 30%	ESUE 40%	TOT AL	IA 10% OR 60%			EV 10% OR 40%	TOTAL	
ARCH 419	SU	STUDIO	ELECTIVE- III (POOL I)			1	1	1								50		50	50	

L - THEORY, S- STUDIO , T -TUTORIAL; C - CREDIT-HRS: HOURS ; MST - MIDTERM TEST , A.MST - AVERAGE OF MIDTERM , ESUE - END SEMESTER UNIVERSITY EXAMINATION: IA - INTERNAL ASSESSMENT PROGRESSIVE;SS- FOLIO FINAL Sessional (INTERNAL) , EV - EXTERNAL VIVA VOICE,RVW - INTERMEDIATE REVIEW

COURSE OVERVIEW:

The following is a representative list of what may constitute Institute projects:

Seminars, Tutorials/ additional classes for any course, Guest Lectures, putting up Exhibitions, Workshops, participating in Architectural Competitions or conducting Site Visits or Study Tours. Provides knowledge on to support student being sensitive design; a paper presentation and a summer case study

OBJECTIVES OF THE COURSE:

overall nurturing of the student with issues in practice and field outside

EXPECTED SKILLS / KNOWLEDGE TRANSFERRED:

better grooming than just books and theories.

COURSE CONTENTS:

The creative electives provide an opportunity to express talents which are different from architecture but related to imagination, visualization & creation. They offer hands-on experience of unique ingenuity & workmanship. The essence of creative domain can be achieved by exploring different materials, techniques, processes; developing creative products; finishing & presenting the product for the concepts evolved. Outcome will be through portfolio & presentations.

As Per Pool Electives Choices Stage I even semester pool

GUIDELINES

One Major And Minor tasks/ excercises is to be set from the entire syllabus

The topic of the project is to be displayed on Institute Notice Board fifteen days in advance OF commencement of the classes

NOTE :

Evaluation is to be done through viva voce .Portfolios , after the university exam shall be retained at Institute level for the viva - voice

RECOMMENDED BOOKS:

French Ministry of education and culture, Architectural Heritage: Inventory and Documentation, Methods in Europe, Council of Europe, 1992 Proceedings, Guide to Recording Historic Buildings, Butterworth, 1990. ICOMOS
Meredith H. Sykes, Manual on Systems of Inventorying Immovable Cultural Property, UNESCO, 1984
Swallow, Peter, Measurement and Recording of Historic Buildings – Donhead, 1993
Watt, D & Swallow P, Surveying Historic Buildings, Donhead, 1996

ARCH 410: STUDY TOUR II

COURSE	COURSE AREA	COURSE TYPOLOGY	NAME OF THE COURSE	TEACHING SCHEME					EVALUATION							TOTAL MARKS	EXAM DURATION (HRS)			
				L	T	S	CREDIT	TOTAL CLASS HRS	THEORY					STUDIO						
									MST 1 10%	MST 2 10%	A. MST 10%	SS 50% OR 30%	ESUE 40%	TOTAL	IA 10% OR 60%			EV 10% OR 40%	TOTAL	
ARCH 410	SU	PROJECT	STUDY TOUR II				2									100		100	100	

L - THEORY; S- STUDIO , T -TUTORIAL; C - CREDIT-HRS: HOURS; MST - MIDTERM TEST , A.MST - AVERAGE OF MIDTERM , ESUE - END SEMESTER UNIVERSITY EXAMINATION: IA - INTERNAL ASSESSMENT PROGRESSIVE;SS- FOLIO FINAL Sessional (INTERNAL) , EV - EXTERNAL VIVA VOICE,RVV - INTERMEDIATE REVIEW

COURSE OVERVIEW:

Provides knowledge on the traditional art form, innovations in and influences on architecture and thinking process in design;

OBJECTIVES OF THE COURSE:

To analyze various art forms, and understand the techniques involved in creative thinking. paper presentation and a summer case study

EXPECTED SKILLS / KNOWLEDGE TRANSFERRED:

different skills for creative thinking, understanding various art forms, appreciate art and architecture.

- Students will get exposure & awareness of various built environment at different geographical places of architectural relevance across the state, region, country & world.
- Students will get the understanding of “synthesis of learning from various courses” by observing, registering & photo documenting of above-stated places.
- Program outcome will be extremely valuable in creating a knowledge base on architecture field not only in India but of nearby countries as well.
- Production of classified images, sketches, notes on first-hand experiences.of many a monument, institution, settlement in India, which become a basis for future research.

COURSE CONTENTS:

- Student and faculty members stay at the selected place for 8 to ten days.
 - Students will get comprehensive awareness of that place.
 - Students will sketch, write notes,& photo/video document that place.
 - Students will also document the social, cultural, environmental aspects of that place
 - Students came back at the institute and make the final edited document and report within remaining days.
- Evaluation: Stages: Proposal and on final submission of the paper.
Students contribute to the topic/area is of critical importance.
Note: :
- The STUDY TOUR (SBP) at the Institute of Architecture is a unique contribution to Architectural education. Initially called measure drawings, it is intended to take the students out into the field to get the first-hand experience of traditionally built environments. This subject recognizes the value of the traditional architecture as well as the importance of field experiences and travel in the learning of architecture. The students are encouraged to learn about not only the architectural form also related components of architectural relevance.
 - detailed out as per academic calendar
 - a paper presentation on any subject of interest in the core or elective subjects.
 - The Student needs to identify an area for research and in consultation with a guide make a proposal first. On approval, this is to be developed through the summer and culminate as a research paper. Requirements (from students): Proposal, reviews, final presentation and paper.
 - a summer case study where the student has to select a built building by one of the architects and have a live document the building and analyze the building and a word of the concept according to the architect.

OR

EDUCATIONAL TOUR- I (during semester break)

A study of Indian architecture both traditional and contemporary to be done during the educational tour and a precise report to be submitted. b) Thorough measured drawing of architecture/ architectural elements/ pieces to be done owing to a particular style, period, influence, spatial appraisal, social or cultural importance etc. at least within seven days at a particular location of interest should be submitted by each student.

OR

WORK AT ARCHITECTS OFFICE - I (during semester break)

GUIDELINES

Problem is to be set from the entire syllabus

The topic of the project is to be displayed on Institute Notice Board fifteen days in advance OF commencement of the classes

NOTE: Evaluation is to be done through viva voce by an external examiner appointed by the university at Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva - voice

Evaluation: Stages: Proposal and on final submission of the paper /DOCUMENTATION of places visited Students contribute to the topic/area is of critical importance.

- detailed out as per academic calendar
- a paper presentation on any subject of interest in the core or elective subjects.
- The Student needs to identify an area for research and in consultation with a guide make a proposal first. On approval, this is to be developed through the summer and culminate as a research paper. Requirements (from students): Proposal, reviews, final presentation and paper.
- a summer case study where the student has to select a built building by one of the architects and have a live document the building and analyze the building and a word of the concept according to the architect.