

ANNA UNIVERSITY, CHENNAI

AFFILIATED INSTITUTIONS

B.ARCH.

REGULATIONS – 2017

CHOICE BASED CREDIT SYSTEM

I & II SEMESTERS CURRICULA AND SYLLABI



SEMESTER I

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P/S	C
THEORY								
1.	AR8101	History of Architecture and Culture I	HS	3	3	0	0	3
2.	MA8101	Mathematics	BS	4	2	2	0	3
THEORY CUM STUDIO								
3.	AR8111	Architectural Drawing I	ES	5	1	0	4	3
4.	HS8111	Communication English	PAEC	4	2	0	2	3
STUDIO								
5.	AR8112	Art Studio	HS	6	0	0	6	3
6.	AR8113	Basic Design	PC	12	0	0	12	6
TOTAL				34	8	2	24	21

SEMESTER II

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P/S	C
THEORY								
1.	AR8201	Theory of Architecture	PC	3	3	0	0	3
2.	AR8202	Mechanics of Structures I	ES	4	2	2	0	3
THEORY CUM STUDIO								
3.	AR8211	Architectural Drawing II	ES	5	1	0	4	3
4.	AR8212	Building Materials and Construction I	PC	5	1	0	4	3
STUDIO								
5.	AR8213	Model Making and Architectural Delineation	PC	6	0	0	6	3
6.	AR8214	Architectural Design I	PC	12	0	0	12	6
TOTAL				35	7	2	26	21

OBJECTIVES:

- To inform about the development of architecture in the Ancient Western World and the cultural and contextual determinants that produced that architecture.
- To understand architecture as evolving within specific cultural contexts including aspects of politics, society, religion and climate.
- To gain knowledge of the development of architectural form with reference to Technology, Style and Character in the prehistoric world, Ancient Egypt, West Asia, Greece , Rome, Medieval times and Renaissance period.

UNIT I WISDOM OF THE ANCIENTS THRO RIVER VALLEY CIVILIZATION 07

Response to culture and context in building shelter in the Neolithic period- R. Nile and the architecture of Egypt with relevant examples – Urban form in the Indus Valley and the Tigris and Euphrates basin and relevant examples of architecture.

UNIT II CLASSICAL WORLD 10

Landscape and culture of Greece –Greek character – Greek polis and democracy – Domestic architecture– Evolution of the Greek temple and the building of the Acropolis –Public architecture: Theatre and Agora- optical illusions in architecture- City Planning.
Roman history: Republic and Empire –Religion, culture, lifestyle - Roman character – Roman urban planning –architecture as imperial propaganda: forums and basilicas – structural forms: materials and techniques of construction spanning large spaces with relevant examples - domestic architecture.

UNIT III EARLY CHRISTIANITY AND CHRISTIAN KINGDOMS 10

Birth and spread of Christianity – transformation of the Roman Empire – early Christian worship and burial. Church planning – Basilica concept and Centralized plan concept with relevant examples in the West and in the Byzantine.
The Carolingian Renaissance – Feudalism and rural manorial life – Papacy – Monasticism – Craft and merchant guilds. Medieval domestic architecture – Romanesque churches with relevant examples in Europe – Development of vaulting.

UNIT IV THE AGE OF CHURCH BUILDING 08

Development of Gothic architecture Church plan, structural developments in France and England with using relevant examples of church architecture in Europe – wooden roofed churches.

UNIT V IDEA OF RE-BIRTH AND RENAISSANCE IN EUROPE 10

Idea of rebirth and revival – Humanism –Development of thought – Reformation- the Renaissance patron – Urbanism Renaissance architecture: Brunelleschi and rationally ordered space – ideal form and the centrally planned church using relevant examples– palace and villa architecture with relevant examples – Mannerist architecture- The Renaissance in transition – works of Michelangelo; Sir Christopher Wren, Andrea Palladio, Inigo Jones- Baroque and palace building in France.

TOTAL: 45 PERIODS

OUTCOMES:

- An understanding about the spatial and stylistic qualities associated with architecture.
- An Understanding of architecture as an outcome of various social, political and economic upheavals, and as a response to the cultural and context.

TEXTBOOKS:

1. Sir Banister Fletcher, A History of Architecture, CBS Publications (Indian Edition), 20th Edition 2002.
2. Spiro Kostof – A History of Architecture – Setting and Rituals, Oxford University Press, London, 1986.
3. Francis D.K. Ching et al; A global history of Architecture; John Wiley’s sons, 2nd edition 2010.

REFERENCES:

1. Leland M Roth; Understanding Architecture: Its elements, history and meaning; Westview press, 3rd revised edition; 2014.
2. S. Lloyd and H.W. Muller, Ancient Architecture: History of World Architecture – Series, Phaidon Press, London, 2004.
3. Gosta, E. Samdstrom, Man the Builder, McGraw Hill Book Company, New York, 1970.
4. Bussagh; Marco; Understanding Architecture; I.B.Tauris & co. Ltd; 2005.

MA8101**MATHEMATICS**

L	T	P/S	C
2	2	0	3

OBJECTIVES:

- Identifying practical problems to obtain solutions involving trigonometric and exponential functions.
- Studying the properties of lines and planes in space, along with sphere and providing a tool too.
- Understand 3D material.
- Understand functions of more than one variable, along with differentiation under integral sign.
- Solving differential equation of certain type.
- Analyzing data collection and interpretation of results using statistical tools.

UNIT I TRIGONOMETRY AND MENSURATION 12

Trigonometric (sine, cosine and tan functions) and exponential functions, De-Moiver’s theorem. Area of plane figures, computation of volume of solid figures.

UNIT II THREE DIMENSIONAL ANALYTICAL GEOMETRY 12

Direction cosines and ratio’s – Angle between two lines – Equations of a plane – Equations of a straight line – Coplanar lines – Shortest distance between skew lines – Sphere – Tangent plane – Plane section of a sphere.

UNIT III INTEGRATION AND FUNCTIONS OF TWO VARIABLES 12

Integration of rational, trigonometric and irrational functions, properties of definite integrals, Reductions formulae for trigonometric functions, Taylor’s Theorem - Maxima and Minima (Simple Problems).

UNIT IV ORDINARY DIFFERENTIAL EQUATIONS 12

Linear equations of second order with constant coefficients – Simultaneous first order linear equations with constant coefficients – Homogeneous equation of Euler type – Equations reducible to homogeneous form.

UNIT V BASIC STATISTICS AND PROBABILITY**12**

The arithmetic mean, median, mode, standard deviation and variance - Regression and correlation - Elementary probability - Laws of addition and multiplication of probabilities - Conditional probability – Independent events.

TOTAL: 60 PERIODS**OUTCOMES:**

- The aim of the course is to develop the skills of the students in architecture. The students will be trained on the basis of the topics of Mathematics necessary for effective understanding of architecture subjects. At the end of the course, the students would have an understanding of the appropriate role of the mathematical concepts learnt.

TEXTBOOKS:

1. Grewal B.S., “Higher Engineering Mathematics”, Khanna Publishers, New Delhi, 41st Edition, 2011.

REFERENCES:

1. Bali N., Goyal M. and Watkins C., “Advanced Engineering Mathematics”, Firewall Media (An imprint of Lakshmi Publications Pvt., Ltd.), New Delhi, 7th Edition, 2009.
2. Ramana B.V., “Higher Engineering Mathematics”, Tata McGraw Hill Co. Ltd., New Delhi, 11th Reprint, 2010.
3. Greenberg M.D., “Advanced Engineering Mathematics”, Pearson Education, New Delhi, 2nd Edition, 5th Reprint, 2009.
4. Gupta S.C and Kapoor V.K., “Fundamentals of Mathematical Statistics”, Sultan Chand & Sons, New Delhi, 9th Edition, 1996.

AR8111**ARCHITECTURAL DRAWING I**

L	T	P/S	C
1	0	4	3

OBJECTIVES:

- To understand drawing as a medium to visualize and communicate design ideas.
- To understand the concepts of Architectural Drawing with the introduction of drafting fundamentals.
- To understand the language of Architectural representations through Architectural Drawing systems.
- To introduce the basics of measured drawing.

UNIT I GEOMETRICAL DRAWING: INTRODUCTION TO DRAFTING**10**

Introduction to fundamentals of drawing/ drafting: Construction of lines, line value, line types, lettering, dimensioning, representation, format for presentation, use of scales etc. Construction of lines and angles, construction of triangles, circles, tangents, curves and conic sections.

UNIT II PLANE GEOMETRY AND SOLID GEOMETRY**20**

Construction and development of planar surface – square, rectangle, polygon etc. Introduction of multi- view projection – projection of points, lines and planes. Multi- view projection of solids – cube, prism, pyramids, cones, cylinders etc. Sections of solids, true shape of solids.

UNIT III ARCHITECTURAL DRAWING SYSTEMS 10

Communicating Architectural Design Ideas from Concept to Construction - Case studies of Architect's Sketches translated as Drawing systems – Types of Projection systems and Pictorial systems – Types of Pictorial systems such as Multi view, Para line and Perspective drawings.

UNIT IV MULTIVIEW AND PARALINE DRAWINGS 15

Principles of Orthographic views – Reading multi view drawings - Representing materials in Architectural Design and Construction drawings – Drafting of Building Components in Plans – Elevations – Sections through Case studies of Architects' drawings – Construction of Para line drawings – Isometric and Axonometric.

UNIT V MEASURED DRAWING 20

Introduction to fundamentals of measured drawing, format for presentation methods - Techniques of measuring buildings and their details –Measured drawing of simple objects like furniture, ornamentation, measured drawing of building components like column, door, window, cornice, etc. isometric projections of simple construction details of the building components.

TOTAL: 75 PERIODS

OUTCOMES:

- Understanding on the concepts of architectural drawing as well as representation skills is imparted.
- Understanding on the building representation in 2D and 3D among students in addition to preparation of measured drawing.

TEXTBOOKS:

1. I.H.Moris, Geometrical Drawing for Art Students; Universities Press 2012.
2. Francis D. K. Ching, "Architectural Graphics", John Wiley and Sons, 2009.

REFERENCES:

1. Francis D.K.Ching with Steven P.Juroszek, "Design Drawing" John Wiley & Sons, Inc. Second edition, reprint 2012.
2. Fraser Reekie, Reekie's, "Architectural Drawing", Edward Arnold, 1995.
3. Scidler & Korte; Hand drawings for Designers - Communications ideas through area graphics; Four child books NY; 2012.

HS8111	COMMUNICATION ENGLISH	L	T	P/S	C
		2	0	2	3

OBJECTIVES: The English Language Course for students of architecture would,

- Enhance their communication skills in English by developing their listening, speaking, reading and writing skills.
- Develop their speaking skills with specific reference to prospective/actual clients, suppliers, business partners and colleagues.
- Enhance their reading particularly, rules and regulations, catalogues, architecture journals and textbooks.
- Develop their writing skills especially writing emails, proposals and reports.

- UNIT I INTRODUCTION 10**
Listening- short talks, interviews and discussions from various media Speaking-negotiating meaning, convincing people- describing places- Reading- texts on architecture-Writing-process descriptions -Vocabulary Development-Abbreviations and Acronyms. Grammar-Suitable tenses to write descriptions and describe.
- UNIT II SPEAKING, READING AND WRITING 10**
Listening –listen to talks for specific information- Speaking- Speaking- preparing a presentation using the computer, participating in small group discussion- Reading- lengthy articles related to architecture and construction Writing- writing formal emails , vocabulary-appropriate words to describe topics in architecture, Grammar- suitable grammar for writing a report.
- UNIT III DESCRIPTIVE PRESENTATION 10**
Listening- Descriptions of place, conversations and answering questions, Speaking- making a power point presentation on a given topic, Reading- architecture manuals, Writing- writing a report, writing essays-descriptive essays, Vocabulary- adjectives of comparison, Grammar- collocations.
- UNIT IV ANALYTICAL PRESENTATION 15**
Listening- TED talks, Speaking- participating in group discussions, Reading- reading and interpreting visual information, Writing- writing analytical essays and argumentative, Vocabulary- suitable words to be used in analytical and argumentative essays, Grammar- subject-verb agreement.
- UNIT V PROJECT PROPOSAL PRESENTATION 15**
Listening- ink talks and longer talks, Speaking- talking about one's project proposal, Reading- reading essays on construction, buildings, different schools of architecture, Writing-writing proposals, Vocabulary- related vocabulary, Grammar- Cohesive devices.

TOTAL: 60 PERIODS

OUTCOMES:

- Speak convincingly, express their opinions clearly, initiate a discussion, negotiate, and argue using appropriate communicative strategies.
- Read different genres of texts, infer implied meanings and critically analyze and evaluate them for ideas as well as for method of presentation.
- Listen/view and comprehend different spoken excerpts critically and infer unspoken and implied meanings.
- Write effectively and persuasively and produce different types of writing such as narration, description, exposition and argument as well as creative, critical, analytical and evaluative writing.

TEXTBOOKS:

1. English for Architects and civil Engineers - Sharon Hendenreich Springer, 2014 ISBN 978-3-658-030-63- (e-book).
2. www.cambridgescholars.com
3. www.robertdwatkins.com/Englishworkbook.pdf
4. arkenglish.

REFERENCES:

1. Chris Mounsey: **Essays and Dissertation** (Oxford University Press) February 2005.
2. Sidney Greenbaum: **The Oxford English Grammar** (Oxford University Press) March 2005.
3. Krishna Mohan and Meera Banerji: **Developing Communication Skills** (Mac Millan india Ltd)[2000].
4. Krishna Mohan and Meenakshi Raman: **Effective English Communication** (Tata Mc-Graw Hill)[2000].

OBJECTIVES:

- To develop presentation skills, visual expression and representation, imaginative thinking and creativity through a hands on working with various mediums and materials.
- To familiarize the students with the various mediums and techniques of art through which artistic expression can be achieved
- To involve students in a series of exercises which will look at graphic and abstract representations of art
- To sensitize students to the grammar of visual perception by involving them in a series of free hand exercises to understand form, proportion, scale, figure ground etc.,

UNIT I BASICS OF DRAWING 15

Introduction to Drawing through various period of History - Seeing (Observation / Proposition / Scale / Texture through study of still life and natural objects), Visualizing (Memory Drawing / Exploratory Drawing), Expressing (Qualities of Lines / Drawing tools and Quality of Expressions – Pen, Pencil, Charcoal, Marker) – Abstraction and communication (Sketching and Free hand perspective Drawing)

UNIT II DRAWING FROM OBSERVATION 15

The processes of seeing, Imagining and Representing - Observations on Line and Shape - Observation on Tone and Texture - Observations on Form and Structure - Observations on Space and Depth - Sketching Exercises related to the contents specified above.

UNIT III GRAPHIC DESIGN 15

Introduction to history of Graphic Design – Visual perception theory (Gestalts) – Principle of Compositions – Colour Theory – Type Design and Typography (Layouts / Format / Calligraphy) – Environmental Graphics (Signage / Logo / enhancing the built environment) – Exercises in environmental graphic design, color and composition

UNIT IV PAINTING 15

Introduction to Art / Artists' / Movements and Styles before and after industrial revolution and its implication on design and architecture – Mediums, Techniques and Tools (Water colours / Posters / Acrylic / Inks / Brushes / Knives / Mixed Media) - Exercises using various techniques and mediums

UNIT V CULTURE - CRAFT - TECHNOLOGY 30

Understanding Culture and Craft – Understanding Craft and Technology – Material exploration (Wood / Metal / Clay / Printing) - to be Explored as Workshop Modules - Print Making / Wood Carving / Clay Sculpting / Casting / Sheet Metal etc.,

TOTAL: 90 PERIODS**OUTCOMES**

- The students are exposed to various mediums, techniques and tools.
- The students gain mastery in sketching, visualizing and expression through manual drawing.
- Sensitized to culture, craft and context.
- Skill Development in Handling Materials and in Making Products.

REQUIRED READINGS

1. Webb, Frank, "The Artist guide to Composition", David & Charles, U.K., 1994.
2. Ching Francis, "Drawing a Creative Process", Van Nostrand Reinhold, New York, 1990.
3. Alan Swann, "Graphic Design School", Harper Collins, 1991.
4. Envisioning Architecture – an analysis of drawing , Iain Fraser & Rod Henmi, 1991

REFERENCES

1. Moivahuntly, "The artist drawing book", David & Charles, U.K., 1994.
2. Arundell (Jan) Exploring sculpture, Mills and Boon, London/Charles, T. Brand Ford Company, U.S.A.
3. The art of drawing trees, heads, colours, mixing, drawing, landscape and painting, water colour oil colour, etc. – The Grumbacher Library Books, New York, 1996.
4. Caldwell peter, "Pen and Ink Sketching", B.T. Bats ford Ltd., London, 1995.

AR8113

BASIC DESIGN

L	T	P/S	C
0	0	12	6

OBJECTIVES:

- To understand the elements and principles of Basic Design as the building blocks of creative design through exercises that will develop originality, expression, skill and creative thinking.
- To involve students in a number of exercises to understand the grammar of Design and Visual composition.
- To enable the understanding of 3D Composition by involving students in a number of exercises which will help generation of a form from a two dimensional / abstract idea.
- To understand architecture as a craft, of making and of putting together.
- To sensitize students to materials both planar and plastics and Processes involved in working with them.
- To draw inspiration and clues from nature.
- To introduce Drawing as an analytical tool.
- To introduce students to History of Design and craft.

CONTENT:

Introduction to Spatial Design, Form and Structures through Basic Design – Elements of Design: Properties, qualities and characteristics of point, line, direction shape, form, colour and texture – Principles of Design: Scale, Proportion, Balance, Harmony, Rhythm and Contrast. – Concepts of Visual perception – Material and processes.

The course shall be conducted by giving a number of exercises in the form of Design studios, Seminars and Creative workshops that are aimed at teaching the following:

- Elements and Principles of Visual Composition and Pattern making.
- Exploring Colour theories and their application in a Visual composition.
- Study of texture and schemes of texture both applied and stimulated and their application.
- Material and Form / Structures – Nature based enquiry into form both Linear and Planar, fluid and plastic forms using simple material like Mount Board, metal foil, box boards, wire string, thermocol, clay, plaster of Paris etc.
- Study of Solids and voids to evolve sculptural forms and spaces using specific process oriented methods like casting, mouldings etc.,
- Analytical appraisal of an iconic Design like a rietvelt chair, Eames chair etc., for form, function, visual characteristics, ergonomics etc. /evolution of a craft.
- Analytical appraisal of building form in terms of visual character, form and function, play of light and shade, solids and voids, colors and texture.

TOTAL: 180 PERIODS

OUTCOMES:

- An understanding of the qualities of different elements as well as their composite fusions.
- An ability to engage and combine the elements of design in spontaneous as well as intentional ways in order to create desired qualities and effects.
- Development of required skills – observation / analysis / abstractions / interpretation / representations / expressions through models and drawings.
- Understanding by making.

TEXTBOOKS:

1. Owen Cappelman & Michael Jack Jordon, Foundations in Architecture: An Annotated Anthology of Beginning Design Project, Van Nostrand Reinhold New York, 1993.
2. Charles Wallschlaggerm & Cynthia Busic-Snyder, Basic Visual Concepts and Principles for Artists, Architects and Designers, McGraw Hill, New York 1992.

REFERENCES:

1. V.S.Pramar, Design fundamentals in Architecture, Somaiya Publications Pvt. Ltd., New Delhi, 1973.
2. Francis D. K. Ching - Architecture - Form Space and Order Van Nostrand Reinhold Co., (Canada), 1979.
3. Elda Fezei, Henry Moore, Hamlyn, London, New York, Sydney, Toronto, 1972.
4. C. Lawrence Bunchy - Acrylic for Sculpture and Design, 450, West 33rd Street, New York, N.Y. 10001, 1972.
5. Exner. V, Pressel. D, Basics Spatial Design, Birkhanser, 2009.

