

Teaching and Examination Scheme for B.Arch. (B.C.T.) (5 Year Course)

YEAR I

SEMESTER I

THEORY

S.No.	Code No.	Subjects	L	T/S	Exam. Hrs.	20% Mid Term Ass.	80% End Term Ass.	Total Marks
1.	1BC1	English	1	0	2	10	40	50
2.	1BC2	Mathematics	2	1	3	20	80	100
3.	1BC3	Construction Materials- I	2	1	3	20	80	100
4.	1BC4	Architectural Structures-I	2	1	3	20	80	100
		Sub Total	7	3		70	280	350

SESSIONAL

S.No.	Code No.	Subjects	L	T/S	60% Mid Term Ass.	40% End Term Ass.	Total Marks
5.	1BC5	Architectural Drawing- I	2	4	150	100	250
6.	1BC6	Arts & Graphics- I	1	3	60	40	100
7.	1BC7	Building Construction- I	1	3	60	40	100
8.	1BC8	Introduction to Computers-I	1	2	30	20	50
9.	1BC9	Workshop Practice (Photography, Carpentry & Model Making)	1	2	60	40	100
10.	1BC10	Discipline & Extra Curricular Activities	0	0	30	20	50
		Sub Total	6	14	390	260	650
		Grand Total	30 Periods/Week				1000

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YEAR I

SEMESTER II

THEORY

S.No.	Code No.	Subjects	L	T/S	Exam. Hrs.	20% Mid Term Ass.	80% End Term Ass.	Total Marks
1.	2BC1	Ecology & Environment	2	1	3	20	80	100
2.	2BC2	Construction Materials II	2	1	3	20	80	100
3.	2BC3	Architectural Structures-II	2	1	3	20	80	100
4.	2BC4	Introduction to Architecture	1	1	2	10	40	50
		Sub Total	7	4		70	280	350

SESSIONAL

S.No.	Code No.	Subjects	L	T/S	60% Mid Term Ass.	40% End Term Ass.	Total Marks
5.	2BC5	Architectural Drawing- II	2	4	150	100	250
6.	2BC6	Basic Design & Field Trip	1	3	60	40	100
7.	2BC7	Arts & Graphics- II	1	3	60	40	100
8.	2BC8	Building Construction II	1	3	60	40	100
9.	2BC9	Introduction to Computers- II	1	2	30	20	50
10.	2BC10	Discipline & Extra Curricular Activities	0	0	30	20	50
		Sub Total	6	15	390	260	650
		Grand Total	32 Periods/Week				1000

Teaching and Examination Scheme for B.Arch. (B.C.T.) (5 Year Course)

YEAR II

SEMESTER III

THEORY

S.No.	Code No.	Subject	L	T/S	Exam Hrs	20% Mid-Term Assessment	80% End-Term Exam	Total Marks
1	3BC1	History of Architecture-I	2	1	3	20	80	100
2	3BC2	Building Science-I (Climatology)	1	1	3	20	80	100
3	3BC3	Construction Materials-III	1	1	3	20	80	100
4	3BC4	Architectural Structures-III	1	1	2	10	40	50
Sub.Total			5	4		70	280	350

SESSIONAL

S.No.	Code No.	Subject	L	T/S	60% Mid-Term Assessment	40% End-Term Asses.	Total Marks
5	3BC5	Architectural Design-I (Including Measured Drawing camp)	0	9	150	100	250
6	3BC6	Theory of Design-I	1	1	60	40	100
7	3BC7	Arts & Graphics-III	1	2	30	20	50
8	3BC8	Building Construction-III	1	3	60	40	100
9	3BC9	Structure Lab-I	0	2	30	20	50
10	3BC10	Computer Application in Architecture-I	0	2	30	20	50
11	3BC11	Discipline & Extra Curricular Activities	0	0	30	20	50
Sub.Total			3	19	390	260	650
Grand Total				31 Periods/week			1000

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YEAR II

SEMESTER IV

THEORY

S.No.	Code No.	Subject	L	T/S	Exam Hrs	20% Mid-Term Assesment	80% End-Term Exam	Total Marks
1	4BC1	History of Architecture-II	2	1	3	20	80	100
2	4BC2	Surveying	1	1	3	20	80	100
3	4BC3	Construction Materials-IV	1	1	3	20	80	100
4	4BC4	Architectural Structures-IV	1	1	2	10	40	50
Sub. Total			5	4		70	280	350

SESSIONAL

S.No.	Code No.	Subject	L	T/S	60% Mid-Term Assesment	40% End-Term Asses.	Total Marks
5	4BC5	Architectural Design-II	0	9	150	100	250
6	4BC6	Theory of Design-II	1	1	60	40	100
7	4BC7	Arts & Graphics-IV	1	2	30	20	50
8	4BC8	Building Construction-IV	1	3	60	40	100
9	4BC9	Computer Application in Architecture-II	0	2	30	20	50
10	4BC10	Surveying Lab.	0	2	30	20	50
11	4BC11	Discipline & Extra Curricular Activities	0	0	30	20	50
Sub. Total			3	19	390	260	650
Grand Total				31 Periods/week			1000

THEORY

S.No.	Code No.	Subject	L	T/S	Exam Hrs	20% Mid-Term Assessment	80% End-Term Assess.	Total Marks
1	5BC1	History of Architecture-III	2	1	3	20	80	100
2	5BC2	Building Services-I (Water supply & sanitation)	1	1	3	20	80	100
3	5BC3	Construction Materials-V	1	1	3	20	80	100
4	5BC4	Architectural Structures-V	1	1	2	10	40	50
		Sub.Total	5	4		70	280	350

SESSIONAL

S.No.	Code No.	Subject	L	T/S	60% Mid-Term Assessment	40% End-Term Exam	Total Marks
5	5BC5	Architectural Design-III (Including Educational Tour)	0	9	150	100	250
6	5BC6	Quantity Surveying & specification	1	2	60	40	100
7	5BC7	Sociology	1	1	30	20	50
8	5BC8	Building Construction-V	1	3	60	40	100
9	5BC9	Computer Application in Architecture-III	0	2	30	20	50
10	5BC10 5BC10.1 5BC10.2	Elective – I History of Interior Design History of Rajasthan Art	1	1	30	20	50
11	5BC11	Discipline & Extra Curricular Activities	0	0	30	20	50
		Sub.Total	4	18	390	260	650
		Grand Total			31 periods/week		1000

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Year III

Semester VI

THEORY

S.No.	Code No.	Subject	L	T/S	Exam Hrs	20% Mid-Term Assessment	80% End-Term Exam	Total Marks
1	6BC1	History of Architecture-IV	2	1	3	20	80	100
2	6BC2	Building Services-II (Electrical Services)	1	1	3	20	80	100
3	6BC3	Construction Materials-VI	1	1	3	20	80	100
4	6BC4	Architectural Structures-VI	1	1	2	10	40	50
		Sub.Total	5	4		70	280	350

SESSIONALS

S.No.	Code No.	Subject	L	T/S	60% Mid-Term Assessment	40% End-Term Asses.	Total Marks
5	6BC5	Architectural Design-IV	0	9	150	100	250
6	6BC6	Working Drawings	0	3	60	40	100
7	6BC7	Building Economics	1	1	30	20	50
8	6BC8	Building Construction-VI	1	3	60	40	100
9	6BC9 6BC9.1 6BC9.2 6BC9.3	Elective-II Real Estate & Redevelopment Product Design Design for Disabled	1	1	30	20	50
10	6BC10	Computer Application in Architecture-IV	0	2	30	20	50
11	6BC11	Discipline & Extra Curricular Activities	0	0	30	20	50
Sub.Total			3	19	390	260	650
Grand Total				31 Hrs/week			1000

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YEAR IV

SEMESTER VII

THEORY

S.No.	Code No.	Subject	L	T/S	Exam Hrs	20% Mid-Term Assessment	80% End-Term Exam	Total Marks
1	7BC1	Contract Documents & Byelaws	2	1	3	20	80	100
2	7BC2	Building Services – III (Mechanical Services)	1	1	3	20	80	100
3	7BC3	Building Science – II (Acoustics & Illumination)	1	1	3	20	80	100
4	7BC4	Architectural Structures -VII	1	1	2	10	40	50
Sub.Total			5	4		70	280	350

SESSIONALS

S.No.	Code No.	Subject	L	T/S	60% Mid-Term Assessment	40% End-Term Asses.	Total Marks
5	7BC5	Architectural Design –V & Field Trip	0	9	120	80	200
6	7BC6	Landscape & Site Planning	1	3	60	40	100
7	7BC7	Advance Building Construction	1	3	60	40	100
8	7BC8	Construction Management Studio-I	0	3	60	40	100
9	7BC9 7BC9.1 7BC9.2	Elective – III High Rise Buildings Green Buildings	1	1	60	40	100
10	7BC10	Discipline & Extra Curricular Activities	0	0	30	20	50
Sub.Total			3	19	390	260	650
Grand Total			32 Periods / Week				1000

YEAR IV

SEMESTER VIII

S.No.	Code No.	Subject	Duration
	8BC1	Practical Training	140 days
1		Monthly work report from architect's office	
2		Critical appraisal of built projects	
3		Field documentation of architectural details	
4		Site supervision & Finished Projects	
5		Training report	

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YEAR V

SEMESTER IX

THEORY

S.No.	Code No.	Subject	L	T/S	Exam Hrs	20% Mid-Term Assessment	80% End-Term Exam	Total Marks
1	9BC1	Professional Practice & Management	2	1	3	20	80	100
2	9BC2	Introduction to Settlement Planning	1	1	2	10	40	50
3	9BC3	Construction Technology for Housing	2	1	3	20	80	100
Sub.Total			5	3	-	50	200	250

SESSIONALS

S.No.	Code No.	Subject	L	T/S	60% Mid-Term Assessment	40% End-Term Asses.	Total Marks
4	9BC4	Architectural Design – VI & Field Trip	0	10	150	100	250
5	9BC5	Construction Management Studio-II	1	3	60	40	100
6	9BC6	Practical Training Presentation	0	2	150	100	250
7	9BC7	Dissertation	0	5	150	100	250
8	9BC8 9BC8.1 9BC8.2	Elective IV New Materials Steel Structure	1	2	60	40	100
9	9BC9	Discipline & Extra Curricular Activities	0	0	30	20	50
Sub.Total			2	22	600	400	1000
Grand Total			32 Periods/Week				1250

YEAR V

SEMESTER X

SESSIONALS

S.No.	Code No.	Subject	L	T/S	60% Mid-Term Assessment	40% End-Term Asses.	Total Marks
1	10BC1	Thesis Project	0	12	300	200	500
2	10BC2	Elective-V (Advance Study related to Thesis Project)	0	3	60	40	100
3	10BC3 10BC3.1 10BC3.2	Elective VI Conservation Techniques Advanced Construction Technology	2	3	60	40	100
4	10BC4	Discipline & Extra Curricular Activities	0	0	30	20	50
Sub.Total			2	18	450	300	750
Grand Total			20 Periods/Week				750

SYLLABUS FOR B.ARCH. (B.C.T.) (5 YEAR COURSE)

YEAR I

SEMESTER I

1L **1BC1.ENGLISH** **EX. HRS.: 2**
M.M.: 50

OBJECTIVE: Improvement of Comprehension, Expression and usage of the language. Stress to be laid on Coherence of Expression and Structuring of Contents in Speech and Writing Work.

CONTENTS:

- 1) Direct And Reported Speech, Active And Passive,
- 2) Tenses,
- 3) Prepositions,
- 4) Conditional Sentences,
- 5) Précis Writing, Business And Professional Letter Writing.

Lectures To Be Followed By Practice Session In Class.

Reference Books:

- (1) Grammar & Composition for Communication by Sagar Mal & Alpana Gupta – Orient Blackswan (P) Limited, New Delhi - 2009
- (2) English for Engineers by Nanny Tripathi – Jaipur Publishing House, Jaipur - 2003
- (3) English Grammar & Composition by Martin

2L + 1T **1BC2. MATHEMATICS** **EX. HRS.: 3**
M.M.: 100

CONTENTS:

1. **Statistics:**Mathematical Expression, Moments and M.G.F., Probability – simple problems; Binomial, Poisson and normal distributions – simple applications. Correlation and regression, coefficient of correlation, lines of regression – simple applications.
2. **Differential Equations:** First order and first degree – variables separable, homogeneous form, reducible to homogeneous form, linear differential equation, reducible to Linear form, exact equations, second order ODE with constant coefficients.
3. **Matrices:**Rank of a matrix, solution of linear simultaneous equation, inverse of matrix by elementary transformations, Eigen values, Eigen vectors, Cayley Hamilton Theorem (without proof).
4. **Linear Programming:** Standard, Augmented, Duality, Algorithms, Unknown Integers, Dynamic programming, Simplex Algorithm, Shadow Price, LP Example, Job Shop Problem
5. **Coordinate Geometry of Three Dimensions:** Sphere, Cylinder, Cone, Equation of Sphere, Tangent, Plane, Line, Cylinder, Equation of Cylinder, Right Circular Cylinder ,Cone, Equation of Cone, Right Circular Cone.

Reference Books:

- (1) Higher Engineering Mathematics by Dr. B.S.Grewal – Khanna Publishers, Delhi - 2005
- (2) Engineering Mathematics-1 by Dr. K.C.Jain, Dr. M.C.Rawat – College Book Depot Jaipur - 2002
- (3) Engineering Mathematics by Y.N.Gaur & C.L.Koul – Jaipur Publishing House Jaipur - 2003

2L+ 1T **1BC3. CONSTRUCTION MATERIALS- I** **EX. HRS.: 3**
M.M.: 100

OBJECTIVE: The understanding and application of basic building materials.

CONTENTS: In the context of materials like Stone, Brick and Timber, study of

- 1) The Nature of Materials,
- 2) The Manufacturing Process,
- 3) Structural, Visual and Textural Properties,
- 4) Identification and Selection,
- 5) Their Application in buildings.

EXERCISES: Identification and study of relevant I.S. Codes. Seminars and preparation of reports. Visits to manufacturing units are Desirable. Field studies should preferably form an integral part of tutorial work.

- Reference Books;**
- (1) Building Construction, S.C.Rangwala – Charota Publishing House Pvt. Ltd. Anand (Gujrat) 2009
 - (2) Building Construction, Sushil Kumar – M/s. Standard Publishers & Distributors, Delhi - 2003
 - (3) The Construction of Buildings by R.Barry – Affiliated East West Press Pvt. Ltd. New Delhi - 1999
 - (4) Building Construction, J.C.Macay – Orient Wasman Mumbai - 2005
 - (5) Building Construction, B.C. Punmia – Laxmi Publication Pvt. Ltd., New Delhi - 2006

2L+ 1T

1BC4. ARCHITECTURAL STRUCTURES I

EX. HRS.: 3

M.M. 100

- Contents:**
1. Concept of Force, Graphical Presentation of Force, Coplanar and Non Coplanar Forces, Concurrent and Non Concurrent Forces, Composition and Resolution of Coplanar Forces by Graphical and Analytical Methods.
 2. Built up Steel Sections, Centre of Gravity and Moments of Inertia, Parallel Axes Theorems, Product of Inertia, Use of Steel Methods.
 3. Stress and Strain, Concept Units, Tensile, Compressive and Shear Stresses, Module of Elasticity and their Relationship, Linear and Lateral Strains, Poisson's Ratio, Stress Strain Curve, Elastic Limit, Yield Point, Breaking Stress, Factor of Safety, Safe Stress Values for Timber, Cast Iron, Mild Steel and for Steel in Tension Compression, Shear and bending as per IS-Codes
 4. Types of Loads- Dead, Live, Wind, Impact, Earthquake, Concentrated, Uniformly Distributed and Varying Loads
 5. Couple and its Moment, Conditions of Statical Equilibrium of Forces, Concept of Beams and Various Support Conditions, Determination of Support Reactions, both analytically and Graphically.

- Reference Books:**
- (1) Strength of Materials of Structure, B.C.Punmia – Laxmi Publications (P) Ltd., New Delhi – 2006
 - (2) Structure Mechanics & Theory of Structures, Arya
 - (3) Elementary Strength of Materials, U.C.Jindal
 - (4) Mechanics of Solids, D.K.Singh

2L + 4S

1BC5. ARCHITECTURAL DRAWING I

M.M.: 250

- OBJECTIVE:** To develop drawing skills as tools to thinking, visualization, and representation of design.
- CONTENTS:** Familiarization with Drawing Materials and Equipments. Free Hand Drawing of Lines, Curves, Objects, Human Figures and Vegetation. Lettering and Fonts. Principles of Plane Geometry, Scale, Orthographic Projections of a Point, Line, Planes and Solids. Section of solids, Intersection of solids.
- EXERCISES:** Studio assignments based on above topics.
- Reference Books:**
- (1) Engineering Drawing (Plain and Solid Geometry), N.D.Bhatt, V.M.Panchal – Charter Publishing House Pvt. Ltd.
 - (2) Architectural Drawing, Rendow Yee – John Willey & Sons, New York – 1997
 - (3) Engineering Drawing, P.S.Gill – S.K.Kataria & Sons, New Delhi – 2006

1L + 3S

1BC6. ARTS AND GRAPHICS I

M.M.: 100

- OBJECTIVE:** Development of Graphic Skills, Ability and Comprehension.
Establishing significance of Art.
- CONTENTS:** To Learn the Utility of Pencil as a powerful tool of Graphic Communication. To appreciate the role of different Colours in Presentation and Rendering Techniques.
- EXERCISES:** Pencil Sketching- Human Figures, Vegetation, Automobiles, Buildings, Still Life, Etc. Pen and Ink Sketching. Use of Water Colours, Poster Colours, Pencil Colours, Crayons, Oil Pastels, Etc. in Rendering Drawings and Sketches. Colour Wheel Study of Primary, Secondary and Tertiary Colours.

- Reference Books:**
- (1) Drawing for 3D Designs, Alan Pipes – Thaws & Hudson London - 1990
 - (2) Pastels Book, Russell Dale – North light books Cincinnati, OHW - 1990
 - (3) Graphic Illustration in Black and White by Jacqueline – Design Press, New York - 1991
 - (4) Architectural Rendering, Crowe Philip – Rofovision S.A. Switzerland - 1991
 - (5) Rendering with Pen & Ink, Robert W. Gill – Thames & Hudson London – 2008

1L + 3S

1BC7. BUILDING CONSTRUCTION I

M.M.: 100

OBJECTIVE: The Construction Studio Work should demonstrate the inter Dependence of the Building Materials and elements and their Understanding to form Complete Building Envelop.

CONTENTS: Details of Construction, Laying, Fixing of Stone and Brick. Study of Various Basic and Simple Elements of Buildings in the Aforesaid Materials- Foundations, Walls, Openings, Roofings, and Floorings, Their types along with their Principles of Construction and Architectural Details

EXERCISES: Preparation of drawings, Site reports and other exercises covering the above.

- Reference Books:**
- (1) A Text Book of Building Construction, S.P.Bindra, S.P.Arora – Dhanpat Rai Publication, New Delhi 2010
 - (2) A Text Book of Building Construction, Dr. B.C.Punmia – Laxmi Publication (P) Ltd. Delhi - 2006
 - (3) Building Construction and Material, Gurucharan Singh – M/s. Standard Publications Delhi - 2003
 - (4) Building Construction Vol. I, II, III, IV, W.B.Macay – Orient Longman, Mumbai - 2005
 - (5) The Construction of Building, R. Barry – Affiliated East West Press New Delhi – 1999

1L + 2T

1BC8. INTRODUCTION TO COMPUTERS I

M.M.: 50

OBJECTIVE: Develop awareness of computer and its environment.

CONTENTS: Computer as a tool for Architects.

Introduction to Computer and its Peripherals. Hardware Brief (Useful For Architects) Viz. CPU, Keyboard, Mouse, Printer, Plotter, Scanner, Digitizer, Etc. Introduction To Various Softwares Relevant To Architects Viz. Ms Word, Excel, Powerpoint, Introduction To Basic Internet Applications.

EXERCISES: Assignments related to various applications of these softwares.

- Reference Books:**
- (1) Google sketch up & Pro Bible, Kelly L. Murdok
 - (2) Photoshop Elements for Dummies, Obermties & Teb Podara
 - (3) Corel Draw for Dummies, Beke Mecclelland
 - (4) AutoCAD for Dummies – David Byrner

1L+ 2T

1BC9. WORKSHOP PRACTICE

M.M.: 100

(PHOTOGRAPHY, CARPENTRY, METAL & MODEL MAKING)

OBJECTIVE: To Develop Photographic Skills, to understand Simple Architectural Forms, Joinery and Construction Details through Field Exercises and Model Making.

CONTENTS: To provide technical know how about Cameras, Its accessories and their applications including the following: Camera- Definition, History, Types and usage, Aperture, Shutter Speed, Types of Lenses and Accessories. Film Rolls, types And usages. Flash, types and usage. Film Processing Description and Method (Colour And B/W). Composition-Settings with respect to view finder, Weather, Place, Colour, Mood and purpose. Architectural-Exteriors and interiors with respect to Scale, Composition, Texture, Colour, Skyline, Light and Shade, Exploration and usage of various materials used in Building Construction and Model Making. Types of joints in wood and metals.

EXERCISES: Shooting Pictures of Landscape, Portraits, Interiors and Buildings. Developing and Printing of pictures In Laboratory, Making Scaled Models with different Materials, Workshop/ Assignments based on Construction Joints in wood and metals.

- Reference Books:**
- (1) Workshop Practice Manual by K.V. Reddy, K.L.Narayan – MacMillan India, Jaipur - 1991
 - (2) Theory of Moulding, O. Howard Walker
 - (3) Hillier V M & EG, Sculpture – Thomas Nelson and Sons Ltd. Trinidad

SYLLABUS FOR B.ARCH. (B.C.T.) (5 YEAR COURSE)

YEAR I

SEMESTER II

2L + 1T **2BC1. ECOLOGY & ENVIRONMENT** **EX. HRS.: 3**
M.M.: 100

OBJECTIVE: The understanding and Application of basic Ecology and Ecological Systems into the Built Environment.

- CONTENTS:**
- 1) Fundamentals of Ecosystem, Our Earth's Environment,
 - 2) Resource and Environment, Management of Environment,
 - 3) Environmental Legislation, Environmental Quality and Indicators,
 - 4) Environmental Planning and Design Guidelines,
 - 5) Human Impact on Environment, Environmental pollution.

EXERCISES: Study of relevant Ecosystems, Botanical & Zoological Specimens at both Micro & Macro Levels, Effects of Pollution and prevention and Control of both Natural & Manmade Hazards.

- Reference Books:**
- (1) The Environment – Principles & Applications, Charis Park
 - (2) Dictionary of Ecology and Environment, P.H.Collin
 - (3) Ecology, M. Begon etal
 - (4) Theoretical Ecology, R.May & A.McLean

2L + 1T **2BC 2. CONSTRUCTION MATERIALS II** **EX. HRS.: 3**
M.M.: 100

OBJECTIVE: The understanding and application of Basic Building Materials.

- CONTENTS:** In the context of materials like Mud, Lime and Cement, study of
- 1) The Nature of Materials,
 - 2) The Manufacturing Process,
 - 3) Structural, Visual and Textural Properties,
 - 4) Identification and Selection,
 - 5) Their Application in Buildings.

EXERCISES: Identification and study of relevant I.S. Codes. Seminars and preparation of reports. Visits to manufacturing units are desirable. Field studies should preferably form an Integral Part of tutorial work.

- Reference Books:**
- (1) Building Materials, S.C.Rangwala – Chartar Publishing House, Anand (Gujarat) - 2007
 - (2) Building Construction Vol. I, W.B.Mckay – Orient Longman Mumbai - 2005
 - (3) Building Construction, Sushil Kumar – Standard Publisher & Distributors, Delhi - 2003
 - (4) The Construction of Building Construction, R. Berry – Affiliated East West Press New Delhi – 2005

2L + 1L **2BC3. ARCHITECTURAL STRUCTURES II** **EX. HRS.: 3**
M.M. 100

- Contents:**
1. Shear Force and Bending Moment Diagrams in case of simply supported beams, Cantilevers and Beams with overhangs due to concentrated loads and distributed loads.
 2. Theory of Simple Bending, $M/I = F/Y = E/R$ Equation And Its Derivation, Section Modulus, Distribution of Normal Stress due to Bending.
 3. Composite Beams, Shear Stress distribution in rectangular, Circular, T and I sections.
 4. Prejointed Plane Frames, Determination of Forces in the Members By Method of Joints, Method of Sections and graphical methods.
 5. Lifting Machines: Mechanical Advantage, Velocity Ratio and Efficiency, Law of Machine, Pulleys and Pulley Blocks.

- Reference Books:**
- (1) Strength of Materials & Mechanics of Structure, B.C.Punmia – Standard Book House Delhi - 2005
 - (2) Structure Mechanics & Theory of Structure, Arya
 - (3) Elementary Strength of Materials, U.C.Jindal
 - (4) Mechanics of Solids, D.K.Singh

1L + 1S

2BC4. INTRODUCTION TO ARCHITECTURE

EX. HRS.: 2

M.M.: 50

OBJECTIVE: To orient the student to study of Architecture as a profession and Design Discipline.

CONTENTS:

- 1) Role of An Architect in an Architectural Project and in Society through History;
- 2) Disciplines and skills to be Learnt by an Architect;
- 3) Factors influencing Architecture of a Place, Climate, Materials, Socio Cultural, Technological, Etc.;
- 4) Introduction to old and New Architectural Works;
- 5) Understanding the Terms such as Vernacular, Traditional, Classical, Modern, Post Modern and Neo Modern Renaissance, European, Oriental.

EXERCISES: Presentation of observation at the respective native places of students. During Educational Trips/ Site Visits. Visits to Buildings of Architectural Significance.

Reference Books:

- (1) Strength of Materials & Mechanics of Structure, B.C.Punmia – Standard Book House Delhi – 2005
- (2) Structure Mechanics & Theory of Structure, Arya
- (3) Elementary Strength of Materials, U.C.Jindal
- (4) Mechanics of Solids, D.K.Singh

2L + 4S

2BC5. ARCHITECTURAL DRAWING II

M.M.: 250

OBJECTIVE: To develop drawing skills as tools to thinking, visualization, and representation of Design.

CONTENTS: Development of surfaces of solids, Isometric, axonometric of solids. Sciography of Simple Geometric Forms Leading to Sciography of Architectural Forms. Perspective-One Point, Two Point and three Points. Exercises from simple Geometrical Forms leading to perspective of Building Forms. Plotting of Sciography on Perspective Drawings. Graphical Presentation and Rendering in Pen And Ink of Architectural Drawings and Materials.

EXERCISES: Studio assignments based on above topics.

Reference Books:

- (1) Engineering Drawing, N.D.Bhatt – Charter Publishing House, Anand (Gujarat) - 2010
- (2) Rendering with Pen & Ink, Robert W. Gill – Thams & Hudson London - 2007
- (3) Engineering Drawing, P.S.Gill – S.K.Katari's & Sons, New Delhi - 2006

1L+3S

2BC6. BASIC DESIGN AND FIELD TRIP

M.M.: 100

OBJECTIVE: To familiarize students with Theoretical basis and Design process through Observation' Comparison, analysis with the help of Prototypes, Model and Drawings.

CONTENTS: Design in everyday Life, Basic Art Form, Elements of Design, Space, Form Line, Texture, Colour, Etc. Principles of Design, Scale, Balance, Proportion, Rhythm, Harmony, Etc. Objectives of Design, Beauty, Order, Efficiency and Economy. Forms and shapes in everyday life. Scale in Architecture. Study of Anthropometrics. Introduction to Design Methodologies.

EXERCISES: Exercise in 2 and 3 dimensional composition to Achieve Harmony, Balance, Contrast, Rhythm, Etc. Geometrical Analysis of forms and Patterns in Architecture, Objects of everyday use and other forms. Study of Anthropometrics and its application in Design Exercises. Simple Imaginative problems for Example Pedestal, Basic Shelter, Street Furniture, Memorials, Etc.

Reference Books:

- (1) Architecture – Form, Space & Order, Francis D.K. Ching
- (2) The Principles of architecture, Michael Foster
- (3) Words & Buildings A vocabulary of Modern Architecture, Adrian Forty
- (4) A visual dictionary of Architecture, Francis D.K. Ching
- (5) Principles of Form & Design, Welcius Wong

1L + 3S

2BC7. ARTS AND GRAPHICS II

M.M.: 100

OBJECTIVE: Development of Graphic Skills, Ability and Comprehension. Establishing significance of Art.

CONTENTS: 3 D Compositions in different Mediums. Introduction to History of Art, Artistic Tradition and Theories.

EXERCISES: 2 D Compositions in various Colour Mediums, Textures. 3 D Compositions in Plaster of Paris, Clay, Paper, Cardboard, Etc.

Reference Books:

- (1) Drawing Basic, Jackly St. Auby
- (2) Drawing a creative process – The source book of Artists, D.K.Ching – John Willey & Sons Inc., New York - 1990
- (3) Visual Imagination, Bruce D. Kurtz – Sons Inc. New York – 1990

- OBJECTIVE:** The Construction Studio work should demonstrate the inter dependence of the Building Materials and Elements and their understanding to form Complete Building Envelop.
- CONTENTS:** Details of Joinery in Timber and study of various basic elements like foundation, walls, roofs/floors and openings along with their principles of construction and Architectural details. Introduction to Construction, Machinery and Equipments. Site Visits should form an Integral Part of the Studio Work.
- EXERCISES:** Preparation of drawings, Site reports and other exercises covering the above.
- Reference Books:**
- (1) Building Construction, Sushil Kumar – M/s. Standard Publisher Distributor, New Delhi
 - (2) Civil Engg. Drawing, J.S.Loyal – Satya Prakashan New Delhi – 2010
 - (3) A Text book of building construction, S.P.Arora, S.P.Bindra – Dhanpat Rai Publications, New Delhi – 2010
 - (4) Building Construction, S.C. Rangwala – Charter Publishing House, Anand (Gujarat) – 2007
 - (5) Building Construction, W.B.Mackay – Orient Longman Mumbai – 2005

- OBJECTIVE:** Develop Awareness of Computer And Its Environment.
- CONTENTS:** Computer as a tool for Architects. Introduction to various softwares relevant to Architects Viz. AutoCAD, 3DS Max, Coreldraw, Adobe Photoshop, Pagemaker, Etc. Advanced Internet Applications.
- EXERCISES:** Assignments related to various applications of these softwares.
- Reference Books:**
- (1) Google Sketchup and Sketchup Pro7 (Bible), Kelly L. Murdock
 - (2) Autocad 2010 and Autocad Lt 2010 Bible, Ellen Finkelstein

SYLLABUS FOR B.ARCH. (B.C.T.) (5 YEAR COURSE)

YEAR II

SEMESTER III

2L + 1T	3BC1. History of Architecture – I M.M. 100	Ex. Hrs. 3
Objective:	To develop understanding of social cultural, material and structural attributes, that shaped and architecture in different periods, also to study how interaction and communication with different cultures influenced and reshaped architecture of India.	
Contents:	Architecture of : 1) Indus valley, 2) Buddhist era, 3) Hindu empires, 4) Islamic rule, 5) Mughal era in terms of design parameters such as cross cultural theories relating to art and architecture construction methods etc.	
Exercises:	Analytical and illustrative exercises related to above topics such as papers seminars etc.	
Reference Books:	(1) Indian Architecture (Hindu and Buddhist), Percy Brown – D.B.Taraporvala Sons & Co., Mumbai-1997 (2) Indian Architecture (Islamic Period), Percy Brown - D.B.Taraporvala Sons & Co., Mumbai-1997 (3) The Great Ages of World Architecture, G.R.Hiraskar – Dhanpat Rai & Sons Delhi - 2005 (4) Islamic Architecture in India, Satish Grover – CBS Publisers & Distributors New Delhi – 2002-03 (5) Buddhist and Hindu Architecture, Satish Grover – Taschen London 1998	

1L + 1T	3BC2. Building Science– I (Climatology) M.M. 100	Ex. Hrs. 3
Objective:	Understanding of inter relation of built environment with material environment also issues of climatic balance in traditional and contemporary built environments.	
Contents:	1) Elements of climate : Solar radiation, terrestrial radiation, temperature, humidity, wind, cloud, precipitation etc. Factors affecting climate of macro and micro-level. Measurement and quantification. 2) Effect of climate on man : body heat balances, thermal indices, thermal comfort, solar chart, psychometric chart and its application. 3) Analysis of climate data, climatological site analysis and its application in site planning and design evolution. 4) Effect of climate on building envelope : heat flow, heat transfer, heat storage and time lag of various building materials and elements. Day lighting, air movement and ventilation 5) Passive means of thermal control Solar movement and sun shading devices.	
Exercises:	Analytical and illustrative exercises, related to above topics.	
Reference Books:	(1) Manual of Tropical Housing and Building, Koenigsberger – Orient Longman N. Delhi - 2003 (2) Energy Efficient Building in India, Mili Majumdar – Tata Energy Research Institute Delhi - 2002 (3) The Climatic Data Hand Book, Ishwar Chand. P.K.Bhargava – Tata Mcgraw Hills Pulications, New Delhi - 2004 (4) Environmental Science in Building, Randall McMullan – Palgrave Hounlays Hampshire, NewYork - 2002 (5) Climate Responsive Architecture, Arvind Krishnan – Tata McGra Hills Publishing Company, New Delhi - 2004	

3BC3. Construction Materials - III
M.M. 100

1L + 1T

Ex. Hrs. 3

Objective: To introduce and familiar student with/to composite and multiple application of materials.

Contents: **Study** of physical, chemical, visual and textural properties of materials their application and use in building and building components as applied in buildings:

1) Cement products: Mortars, concrete and R.C.C. preparation, application techniques, tests concreting under special conditions, special varieties of concretes,

2) Plastics,

3) Polymers,

4) Glass and

5) Wood and its derivatives, plys and boards.

Exercise: The course may be conducted as core lectures, case studies, site visits and market surveys. Interaction with field personal and demonstration sessions.

Assignments will include.

Site visit report, seminars and reports of survey and case studies. Emphasis should be on application techniques.

Reference Books:(1) Engineering Material, S.C. Rangwala – Chartar Publishing House, Anand (Gujarat) - 2007

(2) Building Materials, Gurucharan Singh – M/s. Standard Publication Distributors Delhi - 2007

(3) Build Construction, W.B.Mackey – Orient Longman, Mumbai – 2005

3BC4. Architectural Structures– III
M.M. 50

1L + 1T

Ex. Hrs. 2

- Contents:**
1. **Relations** between load, shear force, bending moment, slope and deflection; slopes and deflections in determinate beams using double integration method, moment area method and the conjugate beam method.
 2. **The long and short columns or struts;** slenderness ratio; buckling load; various end- conditions; equivalent length of a strut; strut with eccentric load; with initial curvature, limitations of Euler's theory; Rankine- Gordon formula.
 3. **Soil and soil mass constituents;** water content, specific gravity, voids ratio, porosity, degree of saturation, air voids and air content; unit weights, density index etc., inter-relationships of the above.
 4. **Determination** of water content, specific gravity; particle size distribution sieve and sedimentation analysis; consistency limits; voids ratio and density index; classification of soil for general engineering purposes; particle size textural, H.R.B and Unified and I.S. classification systems.
 5. **Bearing capacity of soils;** shallow foundation; Terzaghi's and Meyerhoff's formula for bearing capacity; plate loading test, standard penetration test.

Reference Books: (1) Strength of Materials & Mechanics of Structure (VOL. II), B.C.Punmia – Standard Book House, Delhi – 2005

(2) Structural Mechanics & Analysis, V.S.Prasad

(3) Basic Structural Analysis, C.S.Reddy

3BC5. Architectural Design– I (Including Measured Drawing Camp)

9 Studios

M.M. 250

Objective: Analysis of activities and spaces in a given predominant function. Its representation in graphic form. Design exercise evolving out of single functions such as ticket counters/reception offices, security offices, Kiosks, booths, Information cells etc. Multiple function such as primary health centers, convenient shopping etc.

Contents: At least one design problem to concentrate on comprehensive graphic representation to form a prelude to measure drawing.

Measure drawing camp to include study of a building/group of buildings/settlements of architectural importance, involving detailed drawings, constructional details, material used giving due importance to the given context.

Reference Books: (1) The Thames and Hudson Manual of Rendering with Pen & Ink

(2) Bio Architecture an imprint of elsevier, Javiour Senosiain

(3) Architecture Design, M. Pratap Rao

(4) Time Saver standards for Building Types, H.De. Chiara

(5) Newferts Architects Data, New Fert

3BC6. Theory of Design– I**1L + 1T****M.M. 100****Objective:** To Introduce the elements; principles and objectives in orientation to Architectural Design.**Contents:** Formulation of design concepts through elements and principles of Architectural design.

Study of space usage and its implications.

Architectural scale as manifestation of functional requirements.

Appreciating Architecture through important building examples.

Space as architectural raw material.

Classification of spaces

Inter dependence of Form, Structure, Function and space.

Relationship of Plan, Section and Elevation.

Structure and Form

Architectural Programming

Reference Books: (1) Form, Space and Architecture, Francis D.K.Ching

(2) Interior Design, Francis D.K.Ching

3BC7. Arts & Graphics– III**1L + 2S****M.M. 50****Objective:** Emphasis is to be laid on graphic skills/presentation techniques/model making etc.

Indoors and outdoors sketching in pencil/crayons/color/charcoal/ink of objects/buildings/automobiles/vegetation/human figures etc.

Sculpture/mural exercises in clay/POP/ceramics/metal/junk & scrap materials etc.

Study of 3D forms and spaces with basic principles of design like repetition, symmetry, rotation and rhythm.

Study of various color scales.

Reference Books: (1) Introduction to Painting with Acrylics, Alfred Daniels – Quantum Publishing Co. Ltd., London - 2002

(2) Introduction to Painting with Water Colours, Sarah Buckley – Eagle Editions Ltd., Royston - 2002

(3) Introduction to Painting Landscapes, Ted Gould – Eagle Editions Ltd., Royston - 2002

(4) Drawing for 3D Designs, Alan Pipes – Thames & Hudson London, 1990

(5) Pastels Book, Russe Dale – North light books Cincinnati Ohio - 1990

3BC8. Building Construction - III**1L + 3S****M.M. 100****Objectives:** Emphasis should be laid on understanding of constructions in R.C.C. in different parts of building through basic building elements.**Contents:** **Foundation :** R.C.C. footings, isolated, with their connections with superstructure along with Damp proof course.**Structure :** Simple R.C.C. frame with beams and columns.**Roof :** Flat R.C.C. roof with water proofing details study of different R.C.C. roof forms and its connection with structure.**Flooring :** R.C.C. flooring, mosaic flooring & cement tile flooring, interlocking paving blocks in ground and upper floors.**Staircases :** Staircases in R.C.C. with different types.**Reference Books:** (1) A Text Book of Building Construction, S.P.Bindra, S.P.Arora – Dhanpat Rai Publications, New Delhi - 2010

(2) A Text Book of Building Construction, Dr. B.C.Punmia – M/s. Laxmi Publication (P) Ltd. Delhi - 2006

(3) Fundamentals of Building Construction, Prof. T.D.Ahuja, G.S.Bedi – Dhanpat Rai Publications, New Delhi - 2010

(4) Building Construction Vol. I, II, III, J.K.Mckay – Orient Longman, Mumbai – 2005

(5) Building Construction Illustrated, Francis D.K.Ching – John Willey & Sons Inc., New York.

2T/S

3BC9. Structure Lab - I

M.M. 50

- Objective:** To understanding the properties of concrete construction through laboratory testing and site visit.
- Contents:** Performing laboratory testing of concrete and studying execution of the structural elements at the site in building construction.
- Exercise:** Preparation of report. Visit to site to study concrete constructions.
- Reference Books:**
- (1) Engineering Materials, Material Science, S.C.Rangwala – M/s.Chartar Publishing House, Anand (Gujarat) – 2007
 - (2) Building Construction and Material, Gurucharan Singh – M/s. Standard Publications & Distributors, Delhi - 2007
 - (3) Engineering Materials, S.C. & K.S.Rangwala – M/s.Chartar Publishing House, Anand (Gujarat) – 2007

2 T

3BC10. Computer Application in Architecture - I

M.M. 50

- Objective:** To apprise the students of the existing Presentation related softwares like word processors, drawing tools and photo editors etc.
- Contents:** Application of Word processors. Available contents and tools in the latest versions of popular softwares like MS Word, Lotus, Pagemaker etc. Special emphasis on drawing tools in the softwares. Introduction to various presentation linked softwares like MS Power point, Corel Draw and Photoshop and their usage. Usage and understanding of Peripheral Hardware like Printers and Scanner.
- Exercises:** Drafting letters, reports on MS Word, Drawing basic geometrical objects and coloring them. Making simple presentation and animations in MS Power Point. Scanning images and modifying them in Photoshop and transferring in different allied softwares.
- Reference Books:**
- (1) Mastering Autodesk Revit building by Autodesk – M/s. Chartar Publishing House, Anand (Gujarat) – 2007
 - (2) Mastering Revit Architecture by Paul F. Aubin's
 - (3) Revit Architecture 2010 by Eric Wing

SYLLABUS FOR B.ARCH. (B.C.T.) (5 YEAR COURSE)

YEAR II

SEMESTER IV

2L + 1T	4BC1. History of Architecture – II M.M. 100	Ex. Hrs. 3
Objective:	To develop understanding of architecture as society's primary response to simple needs and problems related to shelter an complete problems related to natural and man made environment both in qualitative and quantities terms, also to understand evolution of Architectural styles' as response to prevalent socio-cultural, technological and intellectual complexities of societies.	
Contents:	Study of evolution of design concepts, philosophy construction techniques, materials and structural solutions with the help of selected examples, with reference to social, cultural, geographical political and intellectual climate of the place and period, as styles of Architecture like: <ol style="list-style-type: none"> 1) Egyptian, 2) West Asiatic, 3) Greek, Roman, 4) Early Christian, Romanesque, 5) Byzantine and Gothic. 	
Assignments:	Analytical and illustrative exercises, as tests, seminars or papers.	
Reference Books:	<ol style="list-style-type: none"> (1) Traditions in Architecture, Dora Crouch – Oxford University Press, N. York – 2001 (2) History of Architecture, Bamister Fletcher – SBS Publishers & Distributors, Delhi – 1997 (3) History of Architecture, Spiro Kostof – Oxford University Press, N. York - 1995 (4) History of western architecture, David Watkin – Lawrance King Publishing London – 2005 (5) High Gothic, Guthor Binding – Taschen London – 1999 	

1L + 1T	4BC2. Surveying M.M. 100	Ex. Hrs. 3
	<ol style="list-style-type: none"> 1) Introduction : Principles and classification of survey, Basic measurements in surveying, Basic methods of surveying, Different types of transverse. 2) Chain survey : Introduction, Instruments, Types of chains and tapes, their uses and construction details. 3) Compass survey : Introduction, Different type of compass, Meridians, Bearings, Dip, Declination, Local attraction, Adjustment of angles, Loose needle and fast needle method, Compass transverse. 4) Theodolite survey : Introduction, Basic definitions, Construction details, Temporary adjustment, Measurement of vertical and horizontal angle, Area computations by planimeter. 5) Plane Table surveying : Elements of plane table survey, Plane table transverse. 6) Leveling : Basic definitions, Types of leveling, sources of errors, Computations & Permanent adjustment of levels, 7) Contouring: Contouring and Earth work calculation. 8) Setting out work for buildings : Introduction, Controls for setting out, horizontal control, vertical control, setting out in vertical direction, Positioning of structure, Setting out of foundation trenches. 	
Reference Books:	<ol style="list-style-type: none"> (1) Surveying, Arora (2) Surveying & Levelling, S.C.Rangwala – Chartar Publishing House, Anand (Gujarat) - 2005 (3) Surveying, Dr. B.C.Punmia – Laxmi Publication (P) Ltd., New Delhi – 2002 (4) Surveying for Construction 4th Edition, William Irvine – McGraw Hills Book Co.,New Delhi – 1995 (5) Site Surveing & Levelling, John Clancy – Arnold London – 1991 	

1L + 1T	4BC3. Construction Materials - IV M.M. 100	Ex. Hrs. 3
Objective:	To introduce and familiar student with application of metal and alloys.	
Contents:	of physical, chemical, visual and textural properties of metals and alloys; <ol style="list-style-type: none"> 1) Application of metals and alloys in buildings, structural and non-structural applications; 2) Metals like iron, aluminium, copper and 3) Alloys like steel, brass, and are to be studied; 4) Protective finishes on metals; 5) Study of metal applications in hardwares. 	
Reference Books:	<ol style="list-style-type: none"> (1) Engineering Material, S.C. & K.S.Rangwala, Chartar Publishing House, Anand - 2005 (2) Construction Materials their nature & behaviour, J.M.Illston & P.L.J. Momone–Spn Press London – 2001 (3) Building Const. & Material, Gurucharan Singh – Standard book House, Delhi – 2003 (4) Building Construction, W.B.Mckay-li & III – Orient Longman, New Delhi – 2005 	

4BC4. Architectural Structures - IV
M.M. 50

1L + 1T

Ex. Hrs. 2

- Contents:**
1. Materials for cement concrete; cement-properties of the various types of cements. ISS tests, storage; Aggregate properties of fine and coarse aggregates, natural and artificial aggregates. ISS tests, grading of aggregates, fineness modulus impurities; brief introduction to admixtures.
 2. Concrete Mixing – ordinary and controlled mixes design of mix-trial and error minimum void ratio, fineness modulus method; tests for workability of fresh concrete; effect of water/cement ratio on strength; properties of hardened concrete; strength tests on hardened concrete
 3. Necessity of reinforcement; characteristics of reinforcing material; elastic theory for reinforced concrete design; assumptions made.
 4. Requirements of good structures, safety, stability, economy, Design concept of factor of safety and limit state; failure modes of a structure, permissible stresses and permissible deflections, loads system, critical combination of loads, earthquake forces, wind loads on tall building.
 5. Mild steel and high tensile steel; working stresses, factors of safety; live loads on various types of floor and roofs; introduction and use of Design codes. IS 875, IS456 and IS 800.
- Reference Books:** (1) Design of RCC Structures (Limit State), Dayaratnam
(2) Design of R.C.C. Structures (Limit State), Dr. A.K.Jain
(3) IS Codes – Bureau of Indian Standards, New Delhi

4BC5. Architectural Design - II

9 Studios

M.M. 250

- Objective:** Introduction to basic design methodologies including emphasis on case studies, time activities studies, anthropometrics and their presentation as a prelude to design solution. Due emphasis is to be given on concurrent subjects like Climatology, construction techniques etc. Incorporation of building materials in design solution to be emphasized.
- Design exercise may include buildings with multiple use such as clubs, clinics, motels, secondary schools, community center.
- Reference Books:** (1) Time Saver Standard
(2) Newfirts Standards, Architect's Data By Newfert Ernst
(3) Architectural Standards, Chiranjeet Shah

4BC6. Theory of Design - II

1L + 1T

M.M. 100

- Objective:** To appreciate the guiding principles in the words and philosophies of Master Architects.
- Contents:**
- Study of time, life, works and philosophies of Louis Sullivan, Frank Lloyd Wright, Walter Gropius, and Mies Vander – Rohe, L e Corbusier.
 - Introductory note on the Chicago school and ultimately more stress should be given on development of concepts of their individual work as entity in itself.
 - Louis Sullivan : Guaranty Building, Wainwright building, Auditorium building etc.
 - Walter Groplus : Bauhaus, Fagus Shoe Last Factory etc.
 - Meis Vander Rohe : Farnsworth Houses, Lake Share Apartment, Seagram Building etc.
 - Frank Lloyd Wright : Prairie Houses organic Architecture etc.
 - Le Corbusier : Early and later works as well as specific study of Chandigarh.
- Reference Books:** (1) Architecture – Form, Space & Order, D.K.Ching – Van Nostrand Reinhold, New York
(2) Words & Buildings A vocabulary of Modern Architecture, Adrian Forty
(3) History of Architecture, Bahnister Fletcher
(4) Space, Time & Architecture, Sigfried Giedion
(5) World – Architecture 1900-2000 Vol. 8, Kenneth Frompton

4BC7. Arts & Graphics - IV

1L + 2 S

M.M. 50

- Objective:** Emphasis is to be laid on various presentation techniques and renderings of drawings.
- Perspectives of building and Interior views.
- Rendering in different mediums like pencil, ink, water colors etc.
- Study of light and shade with reference to objects, buildings etc.
- Making collages, murals, sculptures at a bigger scale leading to a art project, using different materials like metals, clay, plaster of paris, wood, paper ceramics, glass etc.
- History of art, artists & their works, various movements and schools of thought like cubism, fauvism, impressionism etc.
- Reference Books:** (1) Visual imagination, Bruce D. Kurtz
(2) Interior Design, Arts of 20th Century, John F. Pille
(3) Drawing Basics, Jackly St. Auby
(4) Arts of 20th century

4BC8. Building Construction - IV**1L + 3 S****M.M. 100****Objective:** Emphasis is to be laid on understanding of construction in steel in different parts of buildings.

Foundation : Grillage foundation, Structure : Steel columns and beams structure, Structural floor & steel trusses structures, with riveted and welded joints. Roof Covering in G.I., Asbestos and Fiber sheets etc. Flooring : Industrial flooring. Staircase : Metal staircase.

Reference Books: (1) Building Construction (Vol. 1-4), W.B.Mackay – Orient Longman Mumbai – 2005
 (2) The Const. of Building (Vol. 1-5), R.Barry – Affiliated East West Press New Delhi – 2005
 (3) Bldg. Const. Illustrated, D.K.Ching – John Willey & Sons Inc., New York – 2006
 (4) Building Construction, Sushil Kumar – John Willey & Sons Inc. New York - 2006
 (5) Building Construction Illustrated, Francis D.K.Ching - John Willey & Sons Inc. New York - 2006

4BC9. Computer Application in Architecture - II**2 T****M.M. 50****Objective:** Introduction of drafting software and management of Data in related software.

Contents: 2D drafting in any popular architectural software e.g. ACAD (latest version). Management of Data Processing Software e.g. MS Excel, Tools related to Bar Charts, Pie Charts and Tables to be introduced. Simple calculation functions like addition, average and sorting to be learnt.

Exercises: Drafting simple geometrical object in 2 dimension. Creation of double line Plans of simple building types. Creation of Data tables, Pie charts and Bar charts, Simple mathematical exercises using the same data.

Reference Books:(1) Archi CAD Help
 (2) Virtual tour for ArchiCAD
 (3) Professional Rendering with ArchiCAD
 (4) Virtual Tour for ArchiCAD

4BC10. Surveying Lab**2 T****M.M. 50****Objective:** Introduction to field applications of surveying techniques.

Contents: Chanin Survey, Compass survey, Theodolite survey, plane table surveying.

Exercises: Practical applications based on theory-chain survey, compall survey, plane table survey, plane table survey etc.

Reference Books: (1) Surveying,Arora
 (2) Surveying & Levelling, S.C. Rangwala
 (3) Surveying, Dr. B.C. Punmia
 (4) Surveying for Construction 4th Edition, William Irvine
 (5) Site Surveing & Levlling, John Clancy

5BC1. History of Architecture – III
M.M. 100

2L + 1T

Ex. Hrs. 3

Objective: To study the styles, form and method of construction of the Renaissance period and Modern Architecture.

Contents: 1) British – Colonial Architecture, Indo – Gothic Architecture, Indo – Renaissance Architecture and the design and Architecture of New Delhi by Sir Edwin Lutyens.
2) Modern Architecture and its development during Industrial revolution and its influence thereby. 3) The great international exhibitions,
4) Various Movements, thoughts and philosophies pertinent to these movements.....
5) Neoclassicism, Art Nouveau, Expressionism, Bahaus, Cubism, Futurism, Organic Architecture, Chicago school etc.

Exercises: Analytical and illustrative exercises of above topics in the form of papers and seminars.

Reference Books: (1) History of Architecture, Sir Banister Fletcher – SBS Publisher & Distributor, Delhi - 1987
(2) Egypt Architecture, Henri Sterlin
(3) History of Western Architecture, David Walker – Laurance King Publishing London – 2005
(4) The Roman Ampire, Henri Sterlin – Tuscan London

5BC2. Building Services – I
(Water Supply & Sanitation)
M.M. 100

1L + 1T

Ex. Hrs. 3

Objective: To study water supply and sanitation in building design.

Contents: 1) **Requirements** of water supply to different types of building; Sources of water, modes and methods of conveyance of water, fixtures and appliances.
2) **Distribution** of water, methods of distribution, different distribution systems, and their principles of layout, Design of water distribution system in a campus, and in a building, overhead and underground water storage tanks.
3) **Refuse**, different forms of refuse, garbage, sludge, toilet waste and storm water collection and disposal system. Requirements for various building types.
4) **General principles of drainage**, manholes, grease chambers, etc. Traps, ventilation of drains and sewers. Principles of design of drainage lines, drainage layouts for building premises. Longitudinal sections of drains. Drainage in non municipal area – soak wells septic tanks, water closets, flushing valves, flushing tanks, basins and its accessories, rain water, drainage pipes, spouts, sizing of rain water pipes, disposal system of rain water at ground level, storm water drainage.
5) **Introduction** to Indian Bureau of Standards.

Exercises: Preparation of reports, visit to construction site and documentation. Market survey to study water supply and drainage products.

Reference Books: (1) Water Supply & Sanitary Engg., S.C.Ranwala – Chartar Publishing House, Anand (Gujarat)
(2) Water Supply & Engg., Santosh Kumar Garg
(3) Water Supply & Sanitation, Charanjeet Shah – Galgotia Publishing Co., New Delhi – 2002

5BC3. Construction Materials – V
M.M. 100

1L + 1T

Ex. Hrs. 3

Objective: Understanding properties and use of protective finishes.

Contents: 1) Decorative and protective wall finishes, floor finishes; wooden flooring, wooden staircase, wooden paneling, glazed tile finish, ceramic tile finish;
2) Damp proof materials,
3) Thermal insulation,
4) Sound insulation,
5) Fire proof finish.

Exercise: Study of I.S. Codes. Seminars and preparation of reports. Visit to construction site.

Reference Books : (1) Building Construction, S.C.Rangwala – Chartar Publishing House, Anand (Gujarat) – 2009
(2) Construction Material, S.C.Rangwala – Chartar Publishing House, Anand (Gujarat) – 2009
(3) Barry's Building construction Part-1,2,3,4,5, Barry – Affiliated East West Press, Delhi – 2005
(4) Building construction, J.C.Macay – Orient Longman Mumbai – 2005
(5) Building Construction, B.C.Punmia – Laxmi Publications (P) Ltd., New Delhi – 2006

5BC4. Architectural Structures – V**1L + 1T****M.M. 50****Ex. Hrs. 2**

Objective: Design of R.C.C. construction. (The teaching program should lay relatively greater emphasis on the conceptual understanding rather than design calculations.)

Contents:

- 1) Design of spread footing, combined footing, simple raft foundation
- 2) R.C.C. Design – T beams, L beams, Columns and Isolated column footing
- 3) R.C.C. wall, retaining wall
- 4) Design of one way and two way slabs
- 5) Design of RCC cantilevers

Reference Books:

- (1) Design of RCC Structures (Limit State), Dayarathnam, Oxford & IBH Publishing Co. P. Ltd., New Delhi – 2004
- (2) Design of R.C.C. Structures (Limit State), Dr. A.K.Jain
- (3) IS Codes – Bureau of Indian Standard, New Delhi

5BC5. Architectural Design – III (Including Educational Tour)**9 T/S****M.M. 250**

Objective: To understand multiuse institutional and public building at community level.

Contents: Design of an Institution or public building at the community scale of infill scale. Understanding essential character of an Institution or Public building. Influence of culture, land, climate, technology and finance on the building design. Part detail of the project to understand design resolution.

Projects: Community Hall, Neighborhood school, Bank building, Religious Institution, Shopping Plaza.

Reference Books:

- (1) Time Saver Standards
- (2) Newfert's Architect's Data
- (3) Architecture – Form, Space & Order, Francis D.K.Ching

5BC6. Quantity Surveying & Specification**1L + 2 T/S****M.M. 100**

Objective: Basic understanding of preparing estimates and tender document for design of building.

Contents: Introduction to procedure of estimating, data require for framing an estimate, type of estimates. Approximate and detailed estimate, Abstract of Estimates, bills of quantities, Contingencies. Taking off quantities for principal building works, electrical works. Analysis of Rate for Principal civil works, item rate considering current market rate for building materials and labor wages as well as P.W.D. scheduled of rates. Composition of rate – percentage – distribution for materials, labor, tools plant and Contractor's Profit.

Preparation of tender document, notice inviting tender and advising the client regarding selection of contractor. Mode of measurement. Signification of specification in building construction. General and detailed specification for all kind of principal building works and building materials.

Exercises: Preparing estimate and tender document for a building. Studying tender document of Government projects and private projects.

Reference Books:

- (1) Estimating, Costing and Valuation, S.C.Rangwala – Chartar Publishing House, Anand (Gujarat) - 2005
- (2) Estimating & Costing engineering Theory and Practice, B.N.Dutta – UBS Publishers, New Delhi
- (3) Handbook of method of measurement of Bldg. Work, Bureau of Indian Standards – Distributor Pvt. Ltd. New Delhi – 2005

5BC7. Sociology**1L + 1 T/S****M.M. 50**

Objective: To develop a sociological base for Architecture.

Contents: Man, environment and society. Rural society, traditional patterns and trends of change. The concept of social stratification, urbanization and modernization. Concept of social structure, cultural and social institutions, relation between social structure and special structure, Social aspects of housing and problems of slums. Social theories of Gandhi and Nehru and Contemporary India. Community development and panchayati Raj.

Exercises: Seminars and preparing paper.

Reference Books:

- (1) Sociology – Primary Principles, C.N.Shankar Rao
- (2) An introduction to Sociology, Vidya Bhushan and Sachdeva
- (3) Introduction to Sociology Part I&II, C..Shankar Rao
- (4) Sociology – A systematic introduction, Harry M Johnson

5BC8. Building Construction - V**1L + 3 T/S****M.M. 100****Objective:** To study construction of different protective finishes in building design.**Contents:** Wall finishes, Floor finishes, Terrace water proofing, Basement damp proof construction, Cavity wall construction, Wood Paneling, Stone paneling, False Ceiling, partitions and sliding folding doors in wood.**Exercises:** Preparing Construction drawings bases on above topics. Preparing report of a building selected from site and presentation.**Reference Books:** (1) Architectural Graphic Standards, Ramsay Sleeper – John Willey & Sons, New Jersey - 2007
(2) Building Construction, W.B.Mackay – Orient Longman Mumbai - 2005
(3) Hand Book son Building Construction Practices, Bureau of Indian Standards, New Delhi - 2004**5BC9. Computer Application in Architecture - III****2 T/S****M.M. 50****Objective:** Developing Computer application skills for building drawings and presentations.**Contents:** Drawing plan, section, elevation of a building in AutoCAD. Drawing Construction drawing and details. Architectural rendering and coloring in AutoCAD. Plotting of drawing.**Exercises:** Preparing drawings bases on above topics for selected building.**Reference Books:** Autodesk Official Training Course ware**5BC10. Elective - I****1L + 1 T/S****M.M. 50****Objective:** To Development sensitivity to other related dimension of Architecture.**Contents:** 1. History of Interior Design
2. History of Rajasthan Art.**Reference Books:** (1) An introduction to Art, Craft, Technique, Science & Profession of Interior Design, Ahmed A Kasu
(2) Interior Design, John F. Pile
(3) Laura Ashley Windows, Elizabeth Wilhide
(4) Interior Design Principles and Practice, M. Pratap Rao
(5) The Fundamentals of Interior Architecture, John Coles & Naomi House

6BC1. History of Architecture – IV		
2L + 1T	M.M. 100	Ex. Hrs. 3
Objective:	Understanding the works and philosophy of Contemporary Architecture.	
Contents:	1) Modern Architecture : Walter Gropius, Mies Van Der Rohe, Le Corbusier..... 2) Post – Modern Architecture : Michael Graves, Frank Gehry, James Sterling, Peter Eisenman, Ricardo Bofill 3) Deconstruction Architecture : Bernard Shumi, Zaha Hadid, Daniel Libskind. 4) Post Independence Architecture in India : Le-Corbusier, Louis Kahn, Kanvinde, B.V. Doshi, Stien, Charles Correa, Uttam Jain, Raj Rewal, A.D. Raje. 5) Post Modernism in India.	
Exercises:	Analytical and Illustrative exercises of above topics in the form of papers and seminars.	
Reference Books:	(1) Building across time – An introduction to world architecture, Marian, Michael Larence (2) History of Architecture – Stone Henge to Skyscrapers, Dora P. Crouch (3) Architecture Today, James Steel (4) Space, Time & Architecture, Sigfried Giedion (5) World – Architecture 1900-2000 Vol. 8, Keeneth Frompton	
6BC2. Building Services – II		
(Electrical Services)		
1L + 1T	M.M. 100	Ex. Hrs. 3
Objective:	To Study electrical services in building design.	
Contents:	1) Electrical distribution systems in buildings, 2) Mains and sub distribution , switches and controls, 3) layout system for lighting, fans, telephones. 4) Service systems: Lifts, pumps, air-conditioning system, computer systems, etc. 5) Earthing and lightning protection in building.	
Exercises:	Preparation of reports, visit to construction site and documentation. Market survey to study electrical products.	
Reference Books:	(1) Electrical Wiring, Estimation, S.L.Uppal – Khanna Publishers New Delhi – 2005 (2) Electrical illustration, Estimation & costing, J.B.Gupta – S.K.Kataria & Sons Delhi - 2005 (3) House Wiring Hand Book, International Copper Promotion Council (India), Powai (4) Guide for Electrical Layout in Residential Building, IS4648–1968, Bureau of Indian Standards, Delhi	
6BC3. Construction Materials - VI		
1L + 1T	M.M. 100	Ex. Hrs. 3
Objective:	Understanding advanced construction technology.	
Contents:	1) Ferrocement , 2) Precast construction , 3) prestressed construction , 4) structural steel roofing and steel construction , 5) Low cost building materials.	
Exercise :	Study of IS codes seminars and preparation of reports, visit to construction site.	
Reference Books:	(1) Handbook on Building Construction Practices, Bureau of Indian Standards, New Delhi (2) Practical Handbook on Building Construction, M.K.Gupta (3) Hand Book on Conc. Reinforcement & Detailing, Bureau of Indian Standards, New Delhi (4) Building Construction, J.C.Mackay – Orient Longman Mumbai – 2005 (5) The Construction of Building, R. Barry – Affiliated East & West Press, New Delhi – 2004	
6BC4. Architectural Structures – VI		
1L + 1T	M.M. 50	Ex. Hrs. 2
Objective:	Design of Steel Structure.	
Contents:	1. Introduction to Design of steel structures 2. Foundation-Grillage foundation 3. Steel Design-Columns and beams under ordinary loading condition 4. Steel stresses 5. Plate and gantry girders	
Reference Books:	(1) Design of Steel Structure (Vol.I), Prof. R. Chandra – Standard Publisher & Distributors, Delhi – 2005 (2) Design of Steel Structure, Negi – Tata McGraw Hills Publishing Co. Ltd., New Delhi – 2004 (3) Design of Steel Structure, S.K.Duggal - Tata McGraw Hills Publishing Co. Ltd., New Delhi – 2004	

6BC5. Architectural Design – IV

9L T/S

M.M. 250

Objective: Understanding correlation between function, structure, material, construction and services.

Contents: Design of a building to understand the relation between function and structure. The idea of form follows function and vice versa. The structural system as a design element. This design concept is to be constructed with the understanding of materials and construction techniques and various services needed for the functions of the building.

Project: Design of multistory apartment building or commercial building or public building.

Reference Books: (1) Town Planning, Abir Bandopadhyay
 (2) Urban Housing Forms, Architectural Press
 (3) Architecture – Form, Space & Order, Francis D.K.Ching
 (4) Forms En Formations, Christian Darles

6BC6. Working Drawings

3 T/S

M.M. 100

Objective: Architectural detailing and execution drawings.

Contents: Preparing Construction drawings – plan, section, elevations, details, electrical, plumbing, finishes, flooring etc. Drawings for the municipal approval. Preliminary estimates.

Project: Multistory apartment building or commercial building in urban context.

Reference Books: (1) Residential Const. Prob. Solver, Brat John
 (2) Working Drawing Handbook, Keith Styles – Architectural Press Oxford - 1998
 (3) Building with large clay blocks, Theodor Hugues, Klaus Greilich, Christine Peter
 (4) Arch. Drawing and light construction, Edward J. Muller, James G. Gaussett Philip A. Grav – Prenticev Hall, New Jersey - 1999

6BC7. Building Economics

1L + 1T/S

M.M. 50

Objective: To develop a Economic base for Architecture.

Contents: General economic concepts, demand and supply consumption, production distribution and its relevance to economics, Money, banking and bank credits, cost and cost indices. Inflation and inflationary pressures. Mixed economy, Economics of private and public housing development, financing of projects, economic feasibility report etc. with special reference to India. Relationship of world economy, national economy, regional economy to a project.

Exercises: Seminars and preparing paper.

Reference Books: (1) Money, Banking, M.L.Seth
 (2) Advanced Eco., H.L.Ahige
 (3) Money & Banking, J.K.Tandon

6BC8. Building Construction - VI

1L + 3 T/S

M.M. 100

Objective: To study construction of north light and aluminum sections.

Contents: Sky light, north light, curtain wall, structural glazing, mental cladding, section windows, aluminum windows and pre-cast construction.

Exercises: Preparing construction drawings based on above topics. Preparing report of a building selected from site and presentation.

Reference Books: (1) Architectural Aluminium Extrusions, Jindal Aluminium Ltd., Bangalore
 (2) Metal Doors, Windows & Ventilator (Steel & Al.), Bureau of Indian Standard, New Delhi
 (3) Specification for Al. Doors, Windows & Ventilators, Bureau of Indian Standard, New Delhi
 (4) Guide Book on steel doors & windows for domestic use, INSDAG, Kolkata
 (5) The Construction of Building, R. Barry – Affiliated East West Press, New Delhi

6BC9. Elective - II

1L + 1 T/S

M.M. 50

Objective: To develop understanding of other related dimensions of Architecture.

Contents: 1. Real Estate & Redevelopment
 2. Product Design
 3. Design for Disabled.

Reference Books: (1) Universal Design Handbook, Wolfgang, Preiser
 (2) Building for a lifetime, Wylde, Robbins
 (3) Accessible Home Design, Steven Winner
 (4) The ABC's of Real Estate Industry, Ken Mc Elloy

6BC10. Computer Application in Arch - IV

2 T/S

M.M. 50

Objective: Three dimensional explorations and presentations

Contents: Making drawings in 3 – D studio and rendering, digitizing maps. Creative explorations on computers.

Exercises: Preparing drawings based on above topics for selected building

Reference Books: (1) REVIT Help
(2) 3D Studio Max
(3) AutoCAD

7BC1. Contract Documents & Byelaws		
M.M. 100		
2L + 1T		Ex. Hrs. 3
Objective:	Architectural practice and building regulations.	
Contents:	<ol style="list-style-type: none"> 1) Nature of building contracts; types; Condition of contract; obligations and responsibilities of clients, contractors and architects. 2) Tenders – calling, scrutiny and recommendations, open and selective tender systems; two stage tender scrutiny process, Pre-tender qualifications and registrations of contractors. 3) Deposits, labor laws and obligations : disputes and settlement of disputes. 4) Building bylaws : ground coverage, FSI calculations, building height regulations, building use regulation, NA – NOC, BU certificate. 5) Buildings services approvals and completion certificate procedure. 	
Reference Books:	<ol style="list-style-type: none"> (1) Professional Practice & Management, K.V.Kuppu (2) An introduction to Practical Aspect of J., K.A.N.Talpasi (3) Contract-I & Specific Relief Act, Dr. S.S.Singh & A.K.Srivastava (4) National Building Code – Bureau of Indian Standards, New Delhi – 2005 	

7BC2. Building Services-III		
(Mechanical Services)		
M.M. 100		
1L + 1T		Ex. Hrs. 3
Objective:	Understanding mechanical services for building design.	
Contents:	<ol style="list-style-type: none"> 1) Basic principles of refrigeration, refrigeration cycle and system components. 2) Air cooling and air conditioning, planning and design considerations, psychometric chart and it's use. 3) Lifts, grouping of lifts, return time, design of lift banks for carrying capacity and travel time, installation requirements, escalators. 4) Fire extinguishing systems, warning systems, fire resistant doors, planning of buildings for fire escapes, 5) Solar water heating systems. 	
Exercises:	Preparation of reports, visit to construction site and documentation. Market survey to study mechanical products.	
Reference Books:	<ol style="list-style-type: none"> (1) Principles of Air conditioning on Refrigeration, S.L.Gupte (2) National Building Codes, Bureau of Indian Standards – 2005 (3) NBC Part-VIII – Building Services, Bureau of Indian Standards – 2005 (4) NBC Section-II – Electrical Services, Bureau of Indian Standards – 2005 	

7BC3. Building Science-II		
(Acoustics & Illumination)		
M.M. 100		
1L + 1T		Ex. Hrs. 3
Objective:	Understanding Acoustics and Illumination in building designs.	
Contents:	<ol style="list-style-type: none"> 1) Basic Terminology and definitions. Physics of sound. Behaviour of sound in an enclosed space. Criteria for acoustic environment-location of building, geometry and shape, echo, reverberation time, sound absorption coefficient, noise rating curves. 2) Predictions of acoustical conditions and approach to designing enclosure for predetermined acoustical responses, corrective of existing deficient enclosures. Introduction to sound reinforcing system-amplification and distribution. Selection of acoustic materials, construction details and fixing. 3) Noise – physiological and psychological effects, transmission loss, flanking of sound, structure borne sound and noise from different mechanical equipments. Noise control techniques and their applications. 4) Introduction to illumination. Laws of illumination. 5) Design for lighting, classification of lighting system – direct, diffused, indirect etc. Artificial light sources, types and their use limitations. Use of artificial lighting as an element in architectural scheme particularly exhibitions, theatres, offices and stores etc., lighting for road traffic, decorative and flood lighting. 	
Exercises:	Medium size acoustical design supplemented with drawing and calculations. Qualitative and quantitative aspects of lighting supported by actual exercises.	
Reference Books:	<ol style="list-style-type: none"> (1) Principles of Air conditioning on Refrigeration, S.L.Gupte (2) National Building Codes, Bureau of Indian Standards – 2005 (3) NBC Part-VIII – Building Services, Bureau of Indian Standards – 2005 (4) NBC Section-II – Electrical Services, Bureau of Indian Standards – 2005 	

7BC4. Architectural Structures - VII**1L + 1T****M.M. 50****Ex. Hrs. 2**

- Objective:** Conceptual study of Advance Frame construction structures with reference to high rise buildings and surface structure.
- Contents:**
- 1) Definition of determinate and indeterminate structures, redundant frames, static and kinematic indeterminacy of beam only. Cylindrical, parabolic and flat arches, advantages and limitations.
 - 2) Beams and columns and various types of supporting systems cantilever and propped cantilever. Continuous and fixed beams and their behavior under load. Slope deflection and Knell's method for analysis of continuous beams and simple portal frames.
 - 3) Simple framed structures and trusses-advantages and limitations. Conceptualizing and understanding of surface structures – shells, domes and folded plates.
 - 4) Pile and raft foundations
 - 5) **Pre-stressing** – Method and losses in pre-stressing, comparison of RCC and pre-stressing. Pre-stressing systems.
- Reference Books:**
- (1) Structural Mechanics & Analysis, V.S.Prasad
 - (2) Strength of Material & Mechanics of Structure (Vol. II), B.C.Punmia – M/s. Lax Publications, New Delhi - 2010
 - (3) Basic Structural Analysis, C.S.Reddy

7BC5. Architectural Design-V & Field Trip**9 T/S****M.M. 200**

- Objective:** Understanding building in urban context.
- Contents:** To understand the issue of building and context, building bylaws, urban design. The design of building will look into aspects of commercial feasibility and building program. Architectural dimension with issues of services.
- Project:** Designing a urban insert – commercial building, institutional building with a auditorium, public building.
- Reference Books:**
- (1) Small Pods, Famy Tagavi, 2001
 - (2) Tropical Resorts, Tank I look Beng'95
 - (3) Housing Architectural Details, Joglekar'91
 - (4) The Architecture of Parking, Tamus & Hudson
 - (5) New Restaurant Design, Betham Ryder'07

7BC6. Landscape & Site Planning**1L + 3T/S****M.M. 100**

- Objective:** Understanding theory and design of landscape and site plan.
- Contents:** Introduction to landscape architecture. Elements of landscape design and their relation to built environment. Plant characteristics – The structure, color, form and foliage of various trees and shrubs and climbers and ground covers. Study and identification of Indian plants and trees etc. Plant propagation. Study of landscape in historical perspective – Indian, Persian, Mughal, Japanese, Chinese etc. Landscape designing – site analysis and development. Designing and presentation of landscape schemes for building projects, gardens/parks, historical monuments and places of tourist interest etc. Contemporary attitudes to landscape design. Design of road layouts, parking and campus planning.
- Exercise:** Design of landscape for building projects and public spaces.
- Reference Books:**
- (1) Landscape Construction & Detailing, Alan Blanc
 - (2) The Landscape of Man, Geoffery and Susan Jellicoe
 - (3) Designing the New Landscape, Sutherland Lyall
 - (4) Redesigning City Squares and Plazas, Francisco Ajensio Cerver
 - (5) Trees of Chandigarh, Chatter Singh – B.R.Publishing Corp. Delhi - 1998

7BC7. Advance Building Construction**1L + 3T/S****M.M. 100**

- Objective:** Study of advance construction systems in architecture.
- Contents:** Advanced Foundations – Pile and raft foundations. Advanced methods of multistory building construction – Lift slab construction, slipform construction etc. Space frames, unconventional buildings like TV towers etc. Geodesic domes – principles and construction. Disaster resistant construction system.
- Exercises:** Preparing Construction drawings based on above topics. Preparing report of a building selected from site and presentation.
- Reference Books:**
- (1) Building Construction and Material, Gurucharan Singh – Standard Book House, Delhi - 2010
 - (2) R. Barry's Advanced Construction of Buildings, Stephen Emmittand, Christopher George – Black Well Publishing Oxford – 2006
 - (3) The Construction of Building, Vol-1, IV, R. Barry – Affiliated East West Press, New Delhi - 2004
 - (4) Foundation Design and Construction, M.J.Tomilson – Educational Low Priced Books Scheme with Longman London - 1995
 - (5) Building Construction Illustrated, Francis D.K.Ching – VAN Nostrand Reinhold, New York – 2010

7BC8.Construction Management Studio-I

3T/S

M.M. 100

Contents: Designing a Day & Time schedule of execution of a project within specific period. The staged process including cost & availability at stages, small buildings residence to be taken.

Case studies of similar buildings erected with different techniques and materials of construction comparison in life, cost & degree of ease or vulnerability.

Design a scheme with a chosen technique of construction with all construction details.

Citing and documenting design and details of any building built on latest evolved technical construction.

- Reference Books:**
- (1) Construction Management Machinery & Accounts, B.L.Gupta, Amit Gupta
 - (2) PERT & CPM, Dr. B.C.Punmia & K.K.Khandelwal-Laxmi Publication, New Delhi-2009
 - (3) Construction Planning & Management, Dr. U.K.Shrivastava
 - (4) Design and Construction Building in Value, Rick Best & Gerard De Valence
 - (5) Construction Method and Management, S.W.Nunnally

7BC9. Elective III

L1 + 1T/S

M.M. 100

Objective : To study other related dimensions of Building Construction Technology.

- 7BC9.1. High rise Buildings
- 7BC9.2. Green Buildings

Reference Books: Not Application.

8BC1. Practical Training

140 days

Objective: To expose student to Architectural practice and construction and execution.

Contents: Student shall work for a period of 140 days in an office of Architect approved by the department. He shall be submitting monthly work report, critical appraisal of built projects, field documentation of architectural details and site supervision & Finished projects.

9BC1. Professional Practice & Management

2L + 1T/S

M.M. 100

Ex. Hrs. 3

Objective: Understanding architectural practice.

Contents:

- 1) **The architect and his office**, relationship with clients, consultants, contractors, legal responsibilities of architects, code of professional practice, fees
- 2) **Architectural Competitions And Architects Registration Act 1972.**
- 3) Tender and tendering procedures, principle of contract and agreements. Control of constructional operations. Arbitration and its proceedings and awards.
- 4) Introduction to principles of business management, project programming and monitoring PERT and CPM network and their analysis.
- 5) Human relation and personnel management. Brief idea about accounting and book keeping, business correspondence, information storage and retrieval systems.

Exercises: Preparing a report of a study of an Architects office.

Reference Books: (1) Pert and CPM, Dr. P.N.Modi, Rajan Modi, Sanjeev – Standard Book House, Delhi - 1997
 (2) Construction Planning & Ag., Dr. H.K.Srivastava
 (3) Hand Book of Professional Documents, Council of Architecture, New Delhi - 2007

9BC2. Introduction to Settlement Planning

1L + 1T/S

M.M. 50

Ex.Hrs.2

Objective: To understand architecture & building construction technology integrated part of settlement.

Contents:

- 1) Definition, planning as an architectural expression and form of developing a human settlement. Theories of city planning, new towns and cities.
- 2) History of city planning. Concepts of urban space, survey, techniques, zoning and land use,
- 3) Neighborhood concepts, central business district, site planning, urban and rural housing,
- 4) Urban transportation,
- 5) Urban renewal and redevelopment, Present day planning in India.

Exercise: Paper presentation. Site visit to various areas of the city.

Reference Books: (1) The City Reader, Richard T. Legate Federic Start
 (2) Town & Square, Paul Zocker
 (3) Chandigarh, Ravi Kala-Oxford University Press,New Delhi-2002
 (4) Ancient Cities & Sacred Skies, J.Mckin Malville & Lalit Gural
 (5) The City in History, Wis Mumford

9BC3. Construction Technology for Housing

1L + 1T/S

M.M. 100

Ex.Hrs. 3

Objective: To understand various construction technology for Housing Projects w.r.t. Sustainability, affordability in Modern Context.

Contents:

- 1) To understand the construction technology Materials & Methods
- 2) Explore the evolved over the period of time.
- 3) Regional various on Materials Methods,
- 4) Process of construction and cost.
- 5) Sustainability and affordability to be the focus area.

Exercise: Prepare the Reports & Compare the materials, methods & processes.

Reference Books: (1) ITPI Reader volume on Housing, Thomas K. Pullose
 (2) Housing & Urbanisation by Charles Correa
 (3) Population and Housing Problems in India Vol. I & II, S.D.Maurya

9BC4. Architecture Design – VI & Field Trip

10 T/S

M.M. 250

Objective: Resolution of project to integrate complexity of urban dimensions and architectural language.

Contents: Design of complex and large scale projects in urban context. Design must establish linkages with urban structure, urban continuity, structure, landscaping, people and vehicular movements system design, economics, architectural aesthetics and details.

Project: Railway Station, Inter State Bus Terminus, Airport or Sports Stadium.

Reference Books: Not applicable

9BC5. Construction Management studio-II

1L + 3 T/S

M.M. 100

Objective: To study different techniques of construction technology & project management.

Contents: Designing a day & time of execution of a project within specific period. The staged process including cost & availability at stages (High rise buildings to be taken). Case studies of similar building erected in different technique and materials of construction, comparison in life, cost & degree of ease or vulnerability.

Designs a scheme with a chosen. Technique of construction with all remedial measures.

Citing & documenting design & details of any building built on latest enhanced technical construction.

Reference Books: (1) Project Management CPM & GERT & Lenear Programming, J.C.Pant
(2) Project Planning Control, Dr. B.C.Punmia

9BC6. Practical Training Presentation

2 T/S

M.M. 250

Objective: To expose student to Architectural practice and construction technology methods, materials and execution.

Contents: Student shall work for a period of 140 days in an office of Architect or Builder approved by the department. He shall be submitting monthly work report, critical appraisal of built projects, field documentation of architectural details and site supervision of built projects.

Reference Books: Not applicable

9BC7. Dissertation

5 T/S

M.M. 250

Objective: Research Study.

This is an exercise done to develop the activity to carry out the background studies and research by using the research methodologies subject to be chosen by the student should have at least partly some relevance to the Building Construction Technology.

Reference Books: Not applicable

9BC8. Elective-IV

1L + 2T/S

M.M. 100

Objective: To understand other related dimensions of project management.

9BC8.1 New Materials
9BC8.2 Steel Structure

Reference Books: Not applicable

10BC1. Thesis Project

12 T/S

M.M. 500

Objective: Individual design project approved by department.

Contents: large scale project having complexity of urban and architectural resolutions. Culmination of all the skills acquired of architecture. Individual understanding of architectural theory, philosophy and architectural style. Student shall engage in study, documentation, analysis and design process of the project. The theoretical part to be put together in the form of a report and the design solution to be presented in hard/soft copy with a model.

Project: Selected by student and approved by department.

Reference Books: Not applicable

**10BC2. Elective -V
(Advance Study related to Thesis Project)**

3T/S

M.M. 100

Objective: To study in detail subject area of the thesis topic.

Content: The student will undertake study guided by thesis guide in subject area of the topic selected for the thesis project.

Reference Books: Not applicable

10BC3. Elective -VI

2L + 3 T/S

M.M. 100

Objective : To understand other related dimensions of Building Construction Technology.

10BC3.1. Conservation Techniques
10BC3.2. Advanced Construction Technology

Reference Books: Not applicable