Study & Evaluation Scheme

of

Diploma in Architectural Assistantship

[Applicable w.e.f. Academic Session 2011-12 till revised]

TEERTHANKER MAHAVEER UNIVERSITY

N.H.-24, Delhi Road, Moradabad, Uttar Pradesh-244001

Website: www.tmu.ac.in

TEERTHANKER MAHAVEER UNIVERSITY

(Established under Govt. of U. P. Act No. 30, 2008)

Delhi Road, Moradabad (U.P.)

Study & Evaluation Scheme of Diploma in Architecture

SUMMARY

Programme : Diploma in Architecture Assistantship

Duration : 3 Years

Medium : English

Minimum Required Attendance : 75%

Credits

Maximum Credits : 176

Minimum Credits required for the degree : 173

Assessment :

Internal	External	Total
50	50	100

Internal Evaluation (Theory Papers) :

Class Test I	Class Test II	Class Test III	Assignment (s)	Other Activity (including attendance)	Grand Total
Best two out of the three					
7.5 Marks	7.5 Marks	7.5 Marks	30 Marks	5 Marks	50 Marks

Duration of Examination :

External	Internal
3 hrs.	1 ½ hrs

To qualify the course a student is required to secure a minimum of 45% marks in aggregate including the year-end examination and teachers' continuous evaluation.(i.e. both internal and external).
A candidate who secures less than 45% of marks in a course shall be deemed to have failed in that course. The student should have secured at least 50% marks in aggregate to clear the year. In case a student has secured more than 45% in each course, but less than 50% overall in a year, he/she shall re-appear in courses where the marks are less than 50% to achieve the required aggregate percentage of 50% in the year.

Study & Evaluation Scheme
Of
Polytechnic (Architecture Assistantship)
I Semester

S. No.	*Course Code*	*Subject*	*Periods*			*Credit*	*Evaluation Scheme*			*Total*
							Internal	*External*	*Viva Voce*	
			L	**T**	**S/P**					
1	DIP108	Foundation English-I	2	-	2	3	50	50	-	100
2	DAA-AS101	Applied Mathematics	2	1	-	2	50	50	-	100
3	DAA-AS102	Applied Science	2	1	-	2	50	50	-	100
4	DAA-101	Graphics Presentation- I	1	-	4	5	50	50	-	100
5	DAA-102	Building Material- I	3	-	-	3	50	50	-	100
6	DAA-103	Sketching, Lettering & Printing	1	-	3	4	50	50	-	100
7	DAA151	General workshop Practice	2	-	8	6	50	-	50	100
8	DGP101	Discipline & General Proficiency	-	-	-	1	100	-	-	100
TOTAL			**13**	**2**	**17**	**26**	**450**	**300**	**50**	**800**

II Semester

S. No.	*Course Code*	*Subject*	*Periods*			*Credit*	*Evaluation Scheme*			*Total*
							Internal	*External*	*Viva Voce*	
			L	**T**	**S/P**					
1	DIP201	Foundation English II	2	-	2	3	50	50	-	100
2	DAA-201	Graphics Presentation- II	1	-	4	5	50	50	-	100
3	DAA-202	Building Material- II	3	-	-	3	50	50	-	100
4	DAA-203	Theory of Design	1	-	3	4	50	50	-	100
5	DAA-204	Architectural Design–I	1	-	5	6	50	100	50	200
6	DAA-205	Building Construction –I	1	-	2	3	50	50	50	150
7	DGP201	Discipline & General Proficiency	-	-	-	1	100			100
TOTAL			**9**	**-**	**16**	**25**	**400**	**350**	**100**	**850**

Question Paper Structure

1. *The question paper shall consist of eight questions. Out of which first question shall be of short answer type (not exceeding 50 words) and will be compulsory. Question No. 1 shall contain 7 parts representing all units of the syllabus and students shall have to answer any five.*
2. *Out of the remaining seven questions, a student shall be required to attempt any four questions. There will be minimum one and maximum two questions from each unit of the syllabus. The weightage of Question No. 2 to 8 shall be 10 marks each.*

III Semester

S. No.	Course Code	Subject	Periods			Credit	Evaluation Scheme			Total
							Internal	External	Viva Voce	
			L	T	S/P					
1	DIP301	English Communication	2	-	2	3	50	50	-	100
2	DAA-301	History Of Architecture- I	2	1	-	2	50	50	-	100
3	DAA-302	Working Drawing- I	1	-	3	6	50	-	50	100
4	DAA-303	Architectural Design –II	1	-	5	6	50	100	50	200
5	DAA-304	Building Construction –II	1	-	5	6	50	50	50	150
6	DAA-305	Computer Graphics- I	1	-	3	4	50	-	50	100
7	DAA-306	Building Services	2	1	-	2	50	50	-	100
8	DAA-307	Surveying	1	-	2	2	50	-	50	100
9	DGP301	Discipline & General Proficiency	-	-	-	1	100	-	-	100
TOTAL			**11**	**2**	**20**	**32**	**500**	**300**	**250**	**1050**

IV Semester

S. No.	Course Code	Subject	Periods			Credit	Evaluation Scheme			Total
							Internal	External	Viva Voce	
			L	T	S/P					
1	DIP401	Technical Communication	2	-	2	3	50	50	-	100
2	DAA-401	History Of Architecture- II	2	1	-	2	50	50	-	100
3	DAA-402	Building Byelaws & Working Drawing- II	1	-	3	6	50	-	50	100
4	DAA-403	Architectural Design –III	1	-	5	6	50	100	50	200
5	DAA-404	Building Construction –III	1	-	5	6	50	50	50	150
6	DAA-405	Computer Graphics- II	1	-	3	4	50	-	50	100
7	DAA-406	Climatology Environment & Ecology	2	1	-	2	50	50	-	100
8	DAA-407	Theory of Structures	2	1	-	2	50	50		100
9	DGP401	Discipline & General Proficiency	-	-	-	1	100	-	-	100
TOTAL			**12**	**3**	**18**	**32**	**500**	**350**	**200**	**1050**

Question Paper Structure

1. Architectural Design –II (DAA-303) & Architectural Design–III (DAA-403)

The question paper shall consist of **one major question** of design.

Rest other subject question papers are based on the following pattern:

2. *The question paper shall consist of eight questions. Out of which first question shall be of short answer type (not exceeding 50 words) and will be compulsory. Question No. 1 shall contain 7 parts representing all units of the syllabus and students shall have to answer any five.*
3. *Out of the remaining seven questions, a student shall be required to attempt any four questions. There will be minimum one and maximum two questions from each unit of the syllabus. The weightage of Question No. 2 to 8 shall be 10 marks each.*

V Semester

S. No.	Course Code	Subject	Periods			Credit	Evaluation Scheme			Total
			L	T	S/P		Internal	External	Viva Voce	
1	DIP501	Communication Technique	2	-	2	3	50	50	-	100
2	DAA-501	Elective – I	2	1	-	2	50	-	50	100
3	DAA-502	Working Drawing- III	1	-	3	6	50	-	50	100
4	DAA-503	Architectural Design –IV	1	-	7	8	50	100	50	200
5	DAA-504	Building Construction –IV	1	-	5	6	50	50	50	150
6	DAA-505	Computer Graphics- III	1	-	3	4	50	-	50	100
7	DAA-506	Structure Design -I	2	-	-	2	50	50	-	100
8	DGP501	Discipline & General Proficiency	-	-	-	1	100	-	-	100
TOTAL			**10**	**1**	**20**	**32**	**450**	**250**	**250**	**950**

VI Semester

S. No.	Course Code	Subject	Periods			Credit	Evaluation Scheme			Total
			L	T	S/P		Internal	External	Viva Voce	
1	DIP601	Corporate Communication	2	-	2	3	50	50	-	100
2	DAA-601	Elective – II	2	1	-	2	50	-	50	100
3	DAA-602	Estimating & Specification Writing	2	2	-	3	50	100	-	150
4	DAA-603	Major Project	1	-	11	12	100	-	100	200
5	DAA-604	Architectural Professional Practice	2	1	-	2	50	50	-	100
6	DAA-605	Computer Graphics- IV	1	-	3	4	50	-	50	100
7	DAA-606	Structure Design -II	2	-	-	2	50	50	-	100
8	DGP601	Discipline & General Proficiency	-	-	-	1	100	-	-	100
TOTAL			**12**	**4**	**16**	**29**	**490**	**260**	**200**	**950**

Question Paper Structure

1. Architectural Design –IV (DAA-503)

The question paper shall consist of **one major question** of design.

Rest other subject question papers are based on the following pattern:

2. *The question paper shall consist of eight questions. Out of which first question shall be of short answer type (not exceeding 50 words) and will be compulsory. Question No. 1 shall contain 7 parts representing all units of the syllabus and students shall have to answer any five.*
3. *Out of the remaining seven questions, a student shall be required to attempt any four questions. There will be minimum one and maximum two questions from each unit of the syllabus. The weightage of Question No. 2 to 8 shall be 10 marks each.*

Polytechnic (Architecture Assistantship)
First Semester
Foundation English I

Course Code: DIP108	L	T	P	C
	2	0	2	3

Course Content:

Unit I

Functional Grammar: Parts of speech – Noun, Pronoun, Adverb, Verb, Adjective, Preposition, Conjunction, Interjection.

Articles- Use of a, an, the, Subject, Predicate. **(8 Hours)**

Practical (Oral): Making the student use correct grammatical rules in sentences. **(2 Hours)**

Unit II

Vocabulary: Word formation, prefix, suffix, synonyms, antonyms, homophones. **(8 Hours)**

Practical (Oral): Make the students read newspaper cuttings and note down words (meanings of which are not known to them). Making efforts to increase their vocabulary. **(2 Hours)**

Unit III

Structure of sentences: Definition of sentence? Kinds of sentences: Simple, Compound, Complex. How sentences are formed? Sentence pattern: Assertive, Affirmative, Negative etc. **(8 Hours)**

Practical (Oral): To make students use different sentences while speaking on any topic. **(2 Hours)**

Unit IV

Comprehension Skills: Role of listening, Reading a passage for comprehension, How to answer questions given from the passage read, How to improve comprehension skills? **(8 Hours)**

Practical (Oral): Making the students practice comprehension in the practical classes. **(2 Hours)**

Recommended Books:

1. Wren & Martin: High School English Grammar & Composition – S. Chand & Co., New Delhi.
2. Lewis Norman : Word Power Made Easy- W.R. Goyal Publisher & Distributors, New Delhi.
3. Better Your English- A Workbook for 1st year Students- Macmillan India, New Delhi.

NOTE:

This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students' interest in language learning.

*** Latest editions of all the suggested books are recommended.**

APPLIED MATHEMATICS

Course Code: DAA-AS101

L	T	P	C
2	1	0	2

DETAILED CONTENTS

Unit I

Algebra

1.1 Complex Number: Complex number, representation, modulus and amplitude. De-movier's theorem, its application in solving algebraic equation.

1.2 Geometrical progression, its nth term and sum of n terms and to infinity. Application of Arithmetic progression and Geometrical progression to Engineering problem

1.3 Partial fractions (linear factors, repeated linear factors).

Unit II

Trigonometry

2.1 Concept of angles, measurement of angles in degrees, grades and redians and their conversions.

2.2 T-Rations of Allied angles (without proof), Sum, difference formulae and their applications (without proof). Product formulae (Transformation of product to sum, difference and vice versa). T-Rations of multiple angles, sub-multiple angles (2A, 3A, A/2).

Unit III

1.1 Graphs of sin x, Cos x, Tan x and e^x.

Unit IV

Differential Calculus

4.1 Definition of function; Concept of limits.

Four standard limits $\lim_{x \to a} \frac{x^n - a^n}{x-a}$,

$\lim_{x \to 0} \frac{\sin x}{x}$, $\lim_{x \to 0} \frac{a^x - 1}{x}$, $\lim_{x \to 0} (1+x)^{1/x}$

Unit V

Differential Calculus

5.1 Differentiation by definition of x^n, sin x, tan x, e^x, $\log_a x$.

5.2 Differentiation of sum, product and quotient of functions. Differentiation of function.

APPLIED SCIENCE

Course Code: DAA-AS102

L	T	P	C
2	1	0	2

PART B: PHYSICS **(25 MARKS)**

Unit I

1. Unit of measurement in SI system. Dimensions and use of dimensional analysis.
2. - Force and motion – Newton's laws.
- Conservation of momentum; work and energy.
- Forms of energy and conservation of energy; stress, strain, elastic module.
3. Spring mass system. Vibration of bodies; amplitude, frequency and energy of vibrations; free and forced vibrations, resonance, vibration of structural members.

Unit II

4. Expansion of solids, thermal stresses; specific heat and heat capacity laws of thermodynamics; Humidity and its control Isothermal and Adiabatic process.
5. Acoustics of building and simple calculation of reverberation times; principles of acoustic molding, course of sound.
6. Light as waves, solar energy, solar cells and green house effects; Laws of refraction and reflection.

Unit III

7. Electromagnetic waves, infrared and ultraviolet rays, Emission and absorption.
8. Electrical nature of matter; molecular forces – cohesive and adhesive forces types of matter, solid liquid and gas.

PART B: APPLIED CHEMISTRY **(25 MARKS)**

Unit I

1. **ATOMIC STRUCTURE:** Basic concept of atomic structure, Matter wave concept, Schrödinger wave equation, Quantum number, Heisenberg's Uncertainty Principle, Shapes of orbital's.
2. **CHEMICAL BONDING:** Overview of basic concept, Hydrogen bonding, Valence bond theory, Hybridization, VSEPR theory, Molecular orbital theory, Co-ordination bond.

Unit II

3. Properties and uses of copper, aluminum iron and steel. Corrosion: Meaning of corrosion, prevention of corrosion by various methods.
4. Plastics: Review of saturated and unsaturated hydrocarbons (Methane, ethane, Ethylene, Acetylene and Vinyl chloride etc) Condensation and polymerization. Thermosetting and thermo plastics. Cold setting and hot setting. However, emphasis should be given to name of common varieties of plastics and their uses. Adhesives and epoxy resins.

Unit III

5. **LUBRICANTS:** Definition, classification, necessity and various kinds of lubricants. Function and mechanism of action of lubricants and examples. Properties of lubricants.
6. **GLASS AND CERAMICS:** Concept of glass and its constituents, Classification and uses of different glass, Elementary idea of manufacturing process of glass. Introduction to ceramics materials, it's constituent. Industrial application of glass and ceramic.

RECOMMENDED BOOKS

1. *Elementary Engineering Mathematics by BS Grewal, Khanna Publishers, New Delhi.*
2. *Engineering Mathematics Vol. I & II by SS Kohli, IPH, Jalandhar.*
3. *Applied Mathematics by Dr. RD Sharma.*
4. *Applied Mathematics, Val. I & II by SS Sabhawal & Sunita Jain, Eagle Parkashan, Jalandhar.*
5. *Comprehensive Mathematics, Vol. I & II by Laxmi Publications.*
6. *Engineering Mathematics by Dass Gupta.*
7. *Engineering Mathematics by C Dass Chawla, Asian Publication, New Delhi.*
8. *Comprehensive Mathematics, Val. I & II by Laxmi Publications.*
9. *Engineering Mathematics, Vol. I, II & III by V Sundaram et al, Vikas Publishing House (P) Ltd., New Delhi.*

GRAPHICS PRESENTATION- I

Course Code: DAA-101	**L**	**T**	**P**	**C**
	1	**0**	**4**	**5**

DETAILED CONTENTS

Unit I

Introduction:

Importance of Engineering Drawing, Definition of Plane Geometry, Solid Geometry, List of Drawing Instruments, Uses, Layout of Drawing Sheets, Line, Lettering, Dimensioning.

Unit II

Plane Geometry:

Geometrical Construction:-

- Geometrical Terms, Bisecting a Line, Arc and Angle, Dividing a straight line-circumference, Construction of pentagon, Hexagon, Octagon etc.

Scales:-

- Representative fraction, Types of Scales, Plane Scale and Diagonal Scale, Conic Section

Unit III

Solid Geometry

Northo Graphics Projections

Projection of point, Line and Planes

Unit IV

Projection of Solids

Section of Solids

Development of Surfaces

Unit V

Isometric Projections and views

Terminology-Isometric Scale-I, Box method, Co-Ordinate or offset method, Four Centre method, Isometric projection of Arcs, Simple problems of isometric view such as cube, box, interior of rooms

Suggested Books:

Bhatt, N. D.,	***Engineering Drawing***
Ching, Francis D. K,	***Design Drawing.***
Ching, Francis D. K.,	***Architectural Graphics.***
Gill, Robert W.,	***Rendering with Pen & Ink.***
Omura, George,	***Understanding Autocad***
Omura, George,	***Autocad Command Reference***

BUILDING MATERIAL- I

Course Code: DAA-102	L	T	P	C
	3	0	0	3

DETAILED CONTENTS

Unit I

Building Stones:

Utility of stones, Classification of rocks, Selection of stones for different building works, Characteristics of good building stones, testing of stones, Water absorption test, Compressive strength test, Durability test, Natural bed of stones, Common building stones.

Unit II

Bricks:

Classification of bricks, Properties and uses of First Class, Second Class, and Third Class and over burnt Bricks, Characteristics of good brick, Size and weight of a standard brick, Composition of brick earth, Test for burnt clay bricks, Compressive strength test, water absorption test and Efflorescence Test, Fire bricks, its properties, uses and availability.

Unit III

Lime, Cement & Mortar:

Uses of lime, classification of lime, setting action of fat lime and hydraulic lime, Field testing of lime Visual examination, Storing of lime, artificial hydraulic lime.

Uses of cement, Composition of Portland cement, Setting and hardening of cement, Types of cement, their properties and uses Ordinary Portland Cement (OPC), Rapid Hardening Cement High Alumina Cement, White Cement, Colored Cement, Pozzolana Portland, Cement Sulphate ,Resisting Cement Storage of Cement .

Function of mortar, Preparation of cement mortar, lime mortar, lime cement mortar and their uses, Proportion of mortar for different building works, Different types of sand, Bulking of Sand (6 Hrs).

Unit IV

Concrete:

Mixing, placing and uses of lime concrete and cement concrete, aggregate and its grading.

Placing of concrete, Compaction of concrete, curing of concrete, reinforced cement concrete (RCC), Necessity of providing reinforcement, Properties of RCC.

Unit V

Timber:

Characteristics and uses of common Indian timbers i.e. Sal, Deodar, Kail, Chir, Teak etc.

Characteristics of hard wood and soft wood, Defects in timber, Characteristics of good timber, Different methods of seasoning of timber.

SKETCHING, LETTERING & PRINTING

Course Code: DAA-103	L	T	P	C
	1	0	3	4

RATIONALE

Free hand sketching, coloring and rendering, line sketching, shades and shadows, lettering and printing forms important components of Architecture discipline. This course aims at imparting desired skills in the above areas. Teachers are expected to lay considerable emphasis on practical work so that students attain desired skills in sketching, lettering and printing.

DETAILED CONTENTS

Unit I

Free Hand Sketching Exercises:

Free hand sketching of simple geometrical surface

Free hand drawing of three dimensional geometrical objects (Cube, Cone, Prism, Pyramid, Cylinder, Sphere)

Free hand sketching of simple buildings and landscaping

Free hand sketching of monuments, buildings and trees in different techniques and mediums (Pencil, pen ink, charcoal, colored-inks, colours and crayons)

Unit II

Colouring and Rendering Exercises:

Definition and perception of colour and colour materials

Hue values and intensity, value scale, intensity scale and colour circle

Study of colours; Emotional effects of colours, warm and cool colours, receding and advancing colours; affect of light on colours, colour harmonies and contrasts

Colour in nature, art and architecture

Shades and shadows, indication of surroundings, sky, clouds, trees, human figures in pencil, ink, colour and crayous

Unit III

Simple exercises on murals.

Mural design Exercises.

Unit IV

Lettering Practice:

Ratio between height and width of letters and numerals, capitals and small letters (7:4 and 5:40).

Roman lettering, Gothic and Italics.

Free hand lettering, Single line lettering, Broad pen lettering, Stylized lettering, Spacing, Lettering with the help of Stencils.

Tracing of a simple building drawing made In Pencil & Ink.

Unit V

Blue Prints

Preparations of Blue Prints of tracing drawings prepared for the purpose.

Folding of the Blue Print to a standard file size.

GENERAL WORKSHOP PRACTICE

Course Code: DAA-151	L	T	P	C
	2	0	8	6

DETAILED CONTENTS

Unit I

A. Carpentry Shop:

1. Introduction to carpentry tools, machines and their application.
2. Marking and sawing practice by using hand saw.
3. Planning practice by using hand tools and wood planer.
4. Chiseling practice by using hand tools.
5. Exercises in preparation of joints i.e. lap joint, mortise and Tennon joint, Dovetail and glued joint.
6. Exercises in development and preparation of simple models.

Unit II

B. Painting and Polishing Shop:

1. Exercises in preparation of surfaces before painting.
2. Exercises in application of primer coat.
3. Exercises in polishing wood items.
4. Exercises in painting wooden and steel items.

Unit III

C. Masonry:

1. Exercise on handling of bricks, cement, sand and aggregate.
2. Exercise on preparation of mortar.
3. Exercise on lying of bricks in various bonds.
4. Exercise on pointing and finishing.
5. Knowledge of various tools used by carpenter mason etc.

DISCIPLINE & GENERAL PROFICIENCY

Course Code: DGP101/201/301/401/501/601

L	T	P	C
0	0	0	1

Guidelines

There shall be continuous evaluation of the students on the following broad parameters:

1. Observance of dress code.
2. Participation in Conferences /Workshops / Seminars.
3. Attendance in guest lectures, talks by the invitees and special technical sessions organized from time to time.
4. Participation in community projects including NCC and NSS.
5. Exhibiting team spirit in different activities of the University and College organized from time to time.
6. Observance of rule &regulations in the College/University.
7. Behavior in hostel mess and hostel.
8. Performance and awards received in different events (sports/ co-curricular activities) organized at College / University and other level.
9. General behavior.

The above mentioned observation are an indicative list of parameters on which the students shall be continuously evaluated. The college may evaluate the student on the specific parameters by informing them through a notice displayed on the notice board before evaluation.

There shall be no external examination for this course; however the marks shall be included for calculation of Cumulative Performance Index (CPI).

Second Semester
Foundation English –II

Course code: DIP 201	L	T	P	C
	2	0	2	3

Course Content:

Unit I

Functional Grammar : Preposition, preposition of time & date, of travel & movement, other details of preposition ; Tense, Tense structure, Modals : use of can, could, may, might, should, should be, must, must be, has, have & had. **(8 hours)**

Practical (oral): Making the students use the above grammatical rules in different sentences of their own. **(2 hours)**

Unit II

Functional English: Writing Application – leave application, application for fee concession, change in subject, issuing character certificate, etc.; Letter writing: Types of Letters, Business Letters, Formatting of Letters. **(8 hours)**

Practical (oral): Making the students write different applications & Letters in the practical classes. **(2 hours)**

Unit III

Paragraph Writing: What is Paragraph Writing ? Structure of Paragraph, coherence and unity, Development of Paragraph, Writing a Paragraph. **(8 hours)**

Practical (oral): Making the students write Paragraph on any topic in the practical classes. **(2 hours)**

Unit IV

Precis Writing: What is Précis ? Techniques of Précis Writing , Writing a Précis. **(8 hours)**

Practical (oral) : Making the students Write Précis in the practical classes. **(2 hours)**

Recommended Books:

1. Wren & Martin : High School English Grammar & Composition, S.Chand & Co., New Delhi
2. Chaturvedi P.D. – Business Communication – Pearson Education, New Delhi
3. Raman Meenakshi & Sharma Sangeeta – Technical Communication- Principles & Practices O.U.P.N. Delhi.
4. Better Your English- A Workbook for 1st year Students- Macmillan India, New Delhi.

NOTE:

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*** Latest editions of all the suggested books are recommended.**

GRAPHICS PRESENTATION - II

Course Code: DAA-201	**L**	**T**	**P**	**C**
	1	**0**	**4**	**5**

DETAILED CONTENTS

Perspective Exercises on the following:

Unit I

Fundamentals, dimension and convergence, Reality and appearance.

Unit II

Basis of perspective, cone of vision, central visual ray, picture plane, line of sight through picture plane, spectator, Principal aids of perspective, vanishing points eye level.

Study of cube in perspective, Characteristics of perspective construction, determining vanishing points.

Two-point perspective, Two-point perspective of a simple building with and without overhead roof.

Two-point perspective of a simple house, dividing point method, perspective grid.

Unit III

Central perspective, frontal perspective, interior perspective, central perspective grid.

Perspective drawing using short cut methods and dividing arc methods.

Relationship between Station point (Spectator) picture plane and perspective; comparative study of perspective by changing position of station point from one side and in front of picture plane.

Unit IV

Shadows of plan, elevation and perspective, front lighting, side lighting, back-lighting, point-lighting from one light source, reflections in perspective.

Three point perspective, Bird's eye-view.

Unit V

Shades and shadows of rounded bodies, shadow in a circular opening, shades and shadows of sphere and hollow sphere.

Rendering of perspective in different mediums, ink, color, charcoal, crayons, Free hand perspective views.

Suggested Books:

Bhatt, N. D.,	***Engineering Drawing***
Ching, Francis D. K,	***Design Drawing.***
Ching, Francis D. K.,	***Architectural Graphics.***
Gill, Robert W.,	***Rendering with Pen & Ink.***
Omura, George,	***Understanding Autocad***
Omura, George,	***Autocad Command Reference***

BUILDING MATERIAL - II

Course Code: DAA-202

L	T	P	C
3	0	0	3

DETAILED CONTENTS

Unit I

Paints:

Water based paints, Dry distemper, Oil emulsion, Cement paints, Plastic emulsions, Oil paints, Varnishes, Enamel, and Lacquers, Stucco, Tar and Bitumen Paint, Their covering capacity, trade names, uses and availability.

Unit II

Wall Finishes & Floor Finishes:

Wall board homogeneous, laminated fibers, Polystyrene wall tiles, Plastic wall tiles, Wall papers, Cork sheets and tiles

Terrazzo Tiles, Glazed earthen and ceramic tiles, CC Tiles, Marble stone, Kota stone, Linoleum, Rubber Cast iron grid

Unit III

Ceiling & Roofing Materials:

Hession cloth, Gypsum plaster boards, Plain AC sheets, Plywood, Hard Board, Cellotex, Fibre Boards, Glass Roof tiles, Asbestos tiles, Thermofriz, Asbestos sheets, GI sheets.

Unit IV

Building Hardware:

Tower bolts, Hinger, Door Handles, Fan-light catches, Door springs, Latches, Floor door stopper, Fan light pivots, Mortice lock, Door closure, Ventilator chains, Wire gauze.

Unit V

Glass:

Sheet glass, Wired glass, Laminated safety glass, Plate glass, Insulating glass, Obscured glass, Coloured glass, Tinted glass, Heat absorbing glass, Glass blocks, Glazing putty.

Unit VI

Additives and Admixtures:-

Water repellants, Accelerators, Air entraining agents, Hardness, Workability increasing agents, Fly ash,

Adhesives:

Synthetic resins

Unit VII

Steel:

Mild Steel, Medium Tensile Steel, Hard drawn steel wire, Deformed steel properties and uses, Aluminum: Its properties and uses,

Suggested Books:

Duggal, S. K., ***Building Materials***
Ghosh, D. N., ***Materials of Construction***
Rangwala, S. C., ***Building Construction***

THEORY OF DESIGN

Course Code: DAA-203	L	T	P	C
	1	0	3	4

RATIONALE

Free hand sketching, coloring and rendering, line sketching, shades and shadows, lettering and printing forms important components of Architecture discipline. This course aims at imparting desired skills in the above areas. Teachers are expected to lay considerable emphasis on practical work so that students attain desired skills in sketching, lettering and printing.

DETAILED CONTENTS

Unit I

Free Hand Sketching Exercises:

1.1 Free hand sketching of simple geometrical surface.
1.2 Free hand drawing of three dimensional geometrical objects (Cube, Cone, Prism, Pyramid, Cylinder, Sphere).
1.3 Free hand sketching of simple buildings and landscaping.
1.4 Free hand sketching of monuments, buildings and trees in different techniques and mediums (Pencil, pen ink, charcoal, colored-inks, colours and crayons).

Unit II

Colouring and Rendering Exercises:

2.1 Definition and perception of colour and colour materials.
2.2 Hue values and intensity, value scale, intensity scale and colour circle.
2.3 Study of colours; Emotional effects of colours, warm and cool colours, receding and advancing colours; affect of light on colours, colour harmonies and contrasts.
2.4 Colour in nature, art and architecture.
2.5 Shades and shadows, indication of surroundings, sky, clouds, trees, human figures in pencil, ink, colour and crayons.

Unit III

Preparation of Forms and Ability to Think in the Round:

3.1 Simple exercises on murals.
3.2 Mural design Exercises.

Unit IV

Lettering Practice:

4.1 Ratio between height and width of letters and numerals, capitals and small letters (7:4 and 5:40).
4.2 Roman lettering, Gothic and Italics.
4.3 Free hand lettering, Single line lettering, Broad pen lettering, Stylized lettering, Spacing, Lettering with the help of Stencils.
4.4 Tracing of a simple building drawing made In Pencil & Ink.
4.5 Preparations of Blue Prints of tracing drawings prepared for the purpose.
4.6 Folding of the Blue Print to a standard file size.

Unit V

Elements of Design

5.1 Balance, Texture, Pattern, Contrast, Rhythm and movement, Proportion, Scale, Emphasis, Colour, Circulation.

Suggested Books:

Asher, F. M., ***Art in India***
Cleaver, D. G., ***Art an Introduction***
Gill, R.W., ***Rendering with Pen & Ink***
Mumford, L., ***Art & Techniques***

ARCHITECTURAL DESIGN –I

Course Code: DAA-204	L	T	P	C
	1	0	5	6

DETAILED CONTENTS

Unit I

Composition of sheet

Problem of composition of lines (one exercise), Problem on composition of various geometrical figures (square, triangle, circle, rectangle, pentagon etc.) in different tone of texture (two exercises).

Unit II

Preparation of plan and elevation from the models of various forms (composition of prisms, cubes, cylinders etc.)

Unit III

Study of spaces required for different human activities.

Design studies in relation to furniture layout.

Living Area, Dining Area, Sleeping Area, Study Area.

Unit IV

Design studies of combination of above mentioned areas under fixed roofs:

Living, dining and kitchen.

Study, bedroom and toilet.

Unit V

Design of one room house on ground floor.

Circulation analysis, Presentation Drawing, Plan, Elevation, Section, Isometric View.

BUILDING CONSTRUCTION –I

Course Code: DAA-205	L	T	P	C
	1	0	2	3

Unit I

Brick Work and Stone Work Drawing Work

1.1 Different sizes and types of bricks, Wall thickness, T-junctions, cross junction and bonds, Brick jalies, Stone facings and claddings and classification of masonry.

Unit II

Openings in walls

2.1Classification of arches as per finish, shape and material, Classification of lintels of different materials, precast and cast-in-situ.

Unit III

Damp Proof Course: (DPC)

3.1 Sources of dampness and effects of dampness, Classification as per hardness or rigidity of material

3.2 Treatment of building components for effective damp proofing.

Unit IV

Foundations:

4.1 Different types of foundations with reference to advantage of one over the other.

4.2 Foundations of different types with reference to method of construction.

4.3 Foundations for special circumstance.

NOTE: *Field visits should be organized to clarify concepts.*

Suggested Books:

Barry, R., ***Building Construction of Buildings, Vol. I & II***

Duggal, S. K., ***Building Materials***

Ghosh, D. N., ***Materials of Construction***

Mackay, W. B., ***Building Construction – Vol. I & II***

Rangwala, S. C., ***Building Construction***

Third Semester
English Communication

Course Code: DIP 301	L	T	P	C
	2	0	2	3

Course Content:

Unit I

Functional Grammar: Active, Passive voice, Conditional Sentences, Syntax, Concord, Common Errors. **(8 hours)**

Practical (oral): To make students practice the above mentioned grammatical RULES in the practical classes. **(2 hours)**

Unit II

Communication: Meaning & Importance of Communication, Process of Communication, Language as a tool of Communication. **(8 hours)**

Practical (Oral): To make students speak on their understanding of Communication in English. **(2 hours)**

Unit III

Writing Skills: Reporting events, Writing newspaper reports, Bio-data making, Writing of C.V. & Resumes, Writing job application. **(8 hours)**

Practical (Oral): To make students practice writing on the above mentioned processes. **(2 hours)**

Unit IV

Listening Skills: The listening process, hearing & listening, types of listening, Barriers to listening. **(8 hours)**

Practical (oral): To make student develop the skills of listening & thus improve their speaking skills. **(2 hours)**

Recommended Books:

1. Raman Meenakshi & Sharma Sangeeta – Technical Communication – Principles & Practices, - ONP, N. Delhi
2. Wren & Martin : High School English Grammar & Composition- S.Chand & Co. N.Delhi

NOTE:

This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students' interest in language learning.

*** Latest editions of all the suggested books are recommended.**

HISTORY OF ARCHITECTURE- I

Course Code: DAA-301	L	T	P	C
	2	1	0	2

DETAILED CONTENTS

Unit I

Evolution of Civilization with special reference to:

Man and his needs with reference to shelter, Man and culture, Society and culture, Effects of changing environments - Geographical, Biological, Social groups, societies and civilizations, Culture and its development in the following fields - religion, societies, economic, political, intellectual, military Study Civilization, Causes of rise and fall of civilizations, planning development of Indus valley civilization.

Unit II

Buddhist Architecture in India:

Historical, economical, social and geographical background, Emphasis on sitting, concept plans, elevations and sections, materials and construction methods, Building types - chaitya-hall, stupa, stambh, torans and Viharas, Large scale drawings of details used in Buddhist Architecture.

Unit III

Temple Architecture in India:

1. Introduction to Temple Architecture in India: Development of Temple Architecture, evaluation development of temple Architecture.

Unit IV

Dravidian Style

- **a**. Emphasis on evolution period of temple Architecture sitting concept plans, elevations, sections, materials and construction method.
- **b.** Area of studies -
  - Pallava (AD-600to 900)
  - Chola (900 - 1150) A D.
  - Pandya (1100 - 1350) A D.
  - Vijaynagar (1350 - 1565).
  - Madurai (1600) A D.
- **c.** Development of Two order of temple Architecture in India special reference to papanath temple and virupleasha temple.
- **d.** Effect of the Building Techniques on the Buddhist architecture.

Indo Aryan Style or North Indian Style

- **a.** Emphasis on evolution, sitting layout concepts of plans, elevations and sections, materials and construction methods.
- **b.** Areas of study: Khajuraho, Orissa

Unit V

Architecture character in respect of orders development of church plan (Basilican) construction method and general architect (St. Peter).

Suggested Books:

Brown, Percy, ***Indian Architecture (Buddhist and Hindu Periods)***

Burns, E. M., Ralph, P.L., Learner, R. E. & Meacham, S.,***World Civilizations-Their History and their culture***

Fletcher, Banister Sir, ***History of Architecture***

Grover, Satish, ***Buddhist and Hindu Architecture in India***

Maheshwari, Sanjeev & Garg, Rajeev, ***Ancient Indian Architecture (From Blossom to Boom)***

WORKING DRAWING-I

Course Code: DAA-302	L	T	P	C
	1	0	3	6

DETAILED CONTENTS

Unit I

Preparation of working drawings for a simple single story residential building:
Showing working dimensions system

- Centre Line
- Three line
- Four line

Unit II

- Site plan
- Foundation plan with sectional details.

Unit III

- Ground floor plan
- Terrace floor plan
- Sections-cross and longitudinal
- Elevations - front and rear

Unit IV

- Door and window detail
- Entrance door design and details

Unit V

- Design and detailing of flooring

Note: *Relevant sheet should be made along with details in each topic.*

Suggested Books:

Master plans of relevant town/city.
National Building Code of India
The Uttar Pradesh (Regulations and Building operations) Act. 1958

ARCHITECTURAL DESIGN- II

Course Code: DAA-303	L	T	P	C
	1	0	5	6

DETAILED CONTENTS

Unit I

Study of spaces and layout of furniture of various activities in small structure comprising public utilities like

- Fuel Station
- Milk bar
- Florist Kiosk
- Guard Home

Unit II

Design of three bed room house (with access to terrace).

A. Study Report
   - Case study of existing building types.
   - Study of site.
   - Analysis of requirement and respective areas.
   - Circulation analysis.
B. Presentation Drawings
   - Plans.
   - Elevations.
   - Sections.
   - Perspective View.

Unit III

Time Problem: Furniture Layout and section that given mono functional space such as café, nursery, class room etc.

BUILDING CONSTRUCTION- II

Course Code: DAA-304	L	T	P	C
	1	0	5	6

DETAILED CONTENTS

Unit I
Doors and Windows
Definitions, functions, sizes, location and classification, Joints.

Unit II
Flooring
Constituents and types of floorings for ground and upper floors, Timber floors-Sketches of Double triple joint, Steel joist and RCC floors, Floor finishes.

Unit III
Staircases and Ramps:
Definition and types of staircases as per nomenclature, Staircases of different materials, Relation between different components, Definitions, purpose, slopes, types of ramps.

Unit IV
Roof and Roof Coverings
Pitch roof and terms related to roof, Types of timber roofs, Single lean roof, Double collar roof, King post and queen post trusses.

DRAWING SHEET ON ABOVE UNITS

- Different types of doors showing joints and fixtures paneled fully glazed flush door.
- Different types of wooden windows SHASH Window Casement with wire mesh.
- Stone slab and cast-in- situ floorings.
- Details of floor finishing.
- A dog legged wooden staircase.
- RCC staircase cast at site and also precast.
- Details of fixing and layout of AC, GI sheets, slates, tiles and locally available materials.
- King post and queen post trusses along with their constructional details.

Suggested Books:

Barry, R., ***Building Construction of Buildings, Vol. I & II***
Duggal, S. K., ***Building Materials***
Ghosh, D. N., ***Materials of Construction***
Mackay, W. B., ***Building Construction – Vol. I & II***
Rangwala, S. C.,***Building Construction***

COMPUTER GRAPHICS-I

Course Code: DAA-305	L	T	P	C
	1	0	3	4

DETAILED CONTENTS

Unit -I

- Information Technology – its concept and scope.
- Computers for information storage, information seeking, information processing and information transmission.

Unit -II

Elements of computer system, computer hardware and software; data –numeric data, alpha numeric data; contents of a program, processing.

Unit –III

- Computer organization, block diagram of a computer, CPU, memory.
- Input devices; keyboard, Scanner, mouse etc; output devices; VDU and Printer, Plotter.

Unit -IV

Electrical requirements, inter-connections between units, connectors and cables.

Unit –V

Secondary storage; magnetic disks – tracks and sectors, optical disk (CD, CDRW and DVD Memory), primary and secondary memory: RAM, ROM, PROM etc., Capacity; device controllers, serial port, parallel port, system bus.

Unit -VI

- Installation concept and precautions to be observed while installing the system and software.
- Introduction about Operating Systems such as Windows, Windows NT etc.

Unit -VII

- About the internet – server types, connectivity (TCP/IP, shell); applications of internet like: e-mail and browsing.
- Various Browsers like WWW (World wide web).

LIST OF PRACTICALS

- Given a PC, name its various components and list their functions.
- Identification of various parts of a computer and peripherals.
- Practice in installing a computer system by giving connection and loading the system software and application software.
- Installation of DOS and simple exercises on TYPE, REN, DEL, CD, MD, COPY, TREE, BACKUP commands.
- Exercises on entering text and data (Typing Practice).
- Installation of Windows 98 or 2000 or NT or XP.
- MS-Word.
- MS- Excel.
- MS Power point.
- Internet and its Applications.

BUILDING SERVICES

Course Code: DAA-306

L	T	P	C
2	1	0	2

DETAILED CONTENTS

Unit I: Sanitation:

1. Glossary of drainage terms, Surface drainage.
2. Systems of drainage
   - Combined and separate systems.
   - Open drains in small towns.
   - Shape of street drains.
3. Size of sewers for different systems, Storm overflow, Self cleaning velocities, Domestic drains, flushing of drains and sewers, Standard type of drains, RC drain sewers, Earthenware pipes, cement concrete pipes, asbestos cement pipes, cast iron pipes and test of pipes.

Unit II

Manholes:

Spacing of manholes, Sizes of manholes, Manhole covers, Ventilation of sewers.

House Drainage:

Trap type, materials and functions, Inspection chambers, Ventilation of house drains, Intercepting traps, gully traps, grease traps, Anti-syphonage or vent pipes, One and two pipe systems, Sinks, baths, water closets, flushing cisterns, urinals, lavatory basins, Sizes of pipes and taps for house drainage, Testing drainage pipes for leakage, smoke list, water test, CI pipes for soil disposal and rain water drainage, Wrought iron, steel and brass pipes.

Unit III

Plumbing and Internal Fixtures:

Joints for various types of pipes, Sanitary fitting standards for public conveniences, Septic tanks and seepage pits, soak pits, showing drainage system in the Building Drawing.

Domestic Water Supply:

Consumption or demand of water for domestic purposes, Leakage and wastage of water and its preventive measures, Different methods of water distribution, boosting water, gravity and pressure distribution by storage tanks, Service connection from mains, House-service design, Steel, wrought iron, galvanized lead, copper, cement concrete and asbestos pipes, PVC pipes, DPR, Showing water supply system in Drawing.

Unit IV

Electrical Layouts and Fittings for Buildings:

Light and fans, Candle power, Human, Food Candle, Reflection factor, Mercury lamps, Electric lamps, Tubular fluorescent lamps, Fluorescent mercury lamps, Thumb rule of calculating of illumination level, Various systems of wiring and their suitability, Maximum interval between poles, distribution boards, Precautions to avoid electrical accidents, Fire caused by electricity and fire fighting provisions, Drawing of electrical layout plans, Showing Electrical layout in Drawings.

Unit V

Introduction to Air-conditioning and Ventilation

Elementary principles of air conditioning and layouts for domestic buildings, Air charges and temperatures, Earthing of building, Ventilation principles, General principles of ducting and distribution, Package units, window units, air cooling and exhaust fans.

Drawing of Sanitary fitting and electrical, water Supply with showing fixture.

Suggested Books:

Koenigsberger, O.H.,	M***anual of tropical Housing and Building***.
	National Building Code
Raina, K.B, & Bhattacharya, S.K.,	***Electrical Design-Estimating & Costing.***
Rajpoot, R.K.,	***Engineering Materials***
Rangwala, S.C.,	***Building Construction.***

SURVEYING

Course Code: DAA-307	L	T	P	C
	1	0	2	2

DETAILED CONTENTS

Unit I

Surveying:

Definition, objects and its types.

Unit II

Compass Surveying:

Prismatic compass, Surveyor's compass, Bearings of lines, angle, measurements, magnetic and true bearings, local attraction, its detection and elimination, methods of plotting compass survey traverse; their merits and demerits; adjustment of choosing errors by graphical methods. Finding true north by Sun' shadow, errors in compass survey and how to avoid it advantages and disadvantages of compass survey.

Unit III

Plane Tabling:

- Equipment and accessories
- Setting of a plane table at a station point
- Methods of plane-tabling - traversing, intersections, radiation and resections and situations where each one is used.
- Finding the station point by two-point method
- Three point problem and its solutions by:
  i) Triangle of Error method.
  ii) Tracing Paper.
  iii) Graphical method.
- Advantages and disadvantages of plane tabling.

Unit IV

Leveling:

- Definition of leveling and terms used in leveling.
- Types of leveling.
- Parts of a dumpy level.
- Temporary adjustment of a dumpy level and setting up a level.
- Types of leveling staff.
- Reducing levels by rise and fall method.
- Reducing levels by height of collimation method.

Unit V

Contouring:

- Explanation of terms in contouring.
- Characteristics of contours.
- Uses of contours.
- Methods of contouring and their plotting.
- Interpolation of contours.

Suggested Books:

Basak, N. N., Surveying & Levelling
Duggal, Surveying
Punmia, B. C., Surveying & Levelling

Fourth Semester
Technical Communication

Course Code: DIP 401

	L	T	P	C
	2	0	2	3

Course Content:

Unit I

Pre-requisites of Technical Written Communication: One Word Substitution, Spelling process, words often confused and misused, Technical terms. **(8 hours)**

Practical (oral):

To make students practice the above mentioned topics & take care of the technical terms & also use those in different sentences. **(2 hours)**

Unit II

Technical Communication: Nature, origin & development, salient features, significance, Difference between Technical Communication & General Writing. **(8 hours)**

Practical (oral): To make students speak on the development of Technical Communication. **(2 hours)**

Unit III

Forms of Technical Communication: What is a Report ? Characterstics of Report, steps to be followed for Report writing, Structure of Report, Importance of Report Writing. **(8 hours)**

Practical (oral): To make students practice how to write a report and then speak on the subject matter of the report. **(2 hours)**

Unit IV

Technical Proposal: What is Proposal ? Significance of proposal, format of proposal, characteristics' of a good proposal. **(8 hours)**

Practical (oral): To make students practice writing a proposal. **(2 hours)**

Recommended Books:

1. Raman Meenakshi & Sharma Sangeeta – Technical Communication – Principles & Practices, - ONP, N. Delhi
2. Mohan K. & Sharma R – Business Correspondence & Report Writing – TMH N.Delhi.

NOTE:

This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students' interest in language learning.

*** Latest editions of all the suggested books are recommended.**

HISTORY OF ARCHITECTURE-II

Course Code: DAA-401	L	T	P	C
	2	1	0	2

DETAILED CONTENTS

Unit I

Islamic Architecture in India:

Imperial Style, Slave Dynasty, Khilji Dynasty, Tuglak Dynasty, Building Types to be studied Historical, economical, social, political and geographical background, effect of local elements on invading forces with special reference to building activity.

Unit II

Provincial Architecture: Areas of study - Gujrat, Bijapur, Malwa, Mandu.

Unit III

- Mughal Architecture: Rule of Humayun, Akbar, Jahangir, Shahjahan.
- Building types: Important tombs, mosques, palaces, gardens.

Unit IV

Renaissance in Europe:

Influence of new construction. The factors-social, economic, political and scientific that brought about Renaissance.

- Its influence on architecture.

Unit V

Various modern movements in architecture caused by the works of pioneers The Bahaus, Le Corbusier, F.L. Wright, Meas Vande Rohe, Walter Gropius.

Modern Architecture in India covering the works of following Architects: Charles Correa, B.V. Doshi, Raj-Rewal, AD Raje, VC Jain.

Suggested Books:

Brown, Percy,	***Indian Architecture (Buddhist and Hindu Periods)***
Burns, E. M., Ralph, P.L., Learner, R. E. & Meacham, S.,	***World Civilizations-Their History and their culture***
Fletcher, Banister Sir,	***History of Architecture***
Grover, Satish,	***Buddhist and Hindu Architecture in India***
Maheshwari, Sanjeev & Garg, Rajeev,	***Ancient Indian Architecture (From Blossom to Boom)***

BUILDING BYE LAWS AND WORKING DRAWING-II

Course Code: DAA-402	**L**	**T**	**P**	**C**
	1	**0**	**3**	**6**

DETAILED CONTENTS

Unit I

Building Bye Laws:

1. Study of Building bye laws (IS-1256 provision and definitions).

2. Necessity of framing bye laws for urban development. Principles involved in framing bye laws.

- Study of local bye laws and local zoning plans as applied to buildings their effect on design of building Architect's act 1972 and land ceiling act (main Provision only) Preparation of one set of municipal plan up to submission stage.
  Knowledge about all corporation forms.
- Study of Revenue Paper
- Town planning development and its zoning.

3. Study of bye laws of any town.

4. Forms being used for submission of drawing in Municipal Committee and town planning.

Unit II

Preparing Municipal Drawings:-

1. Calculating plot area and covered area permissible in each floor, preparing plans of different floors on the respective scale

2. Preparing elevations on scale
Front elevation, Rear elevation, Side elevation if plot is three sides open.

3. Preparing sections on scale
Section through staircase and mezzanine if any, Section through kitchen, toilet and basement if any

4. Preparing site plans on scale

- Site plan showing covered area, open area, service lane, front road. Main features of adjoining buildings 6 meters both ways, layout of sanitary pipes, rain water pipes.
- Part layout plans owing surroundings plot in question WRT North

5. Preparing Details: Foundation detail, Section of RCC Column if any, Schedule of doors and windows
Area chart

Unit III

Submission and Sanctioning of drawing

1. Preparing the Drawing for submitting for approval, coloring it, along with revenue record such as Nakal, Jamabandi.

2. Address of plot, as per sale deed

- Signature and address of applicant.
- Name and address and registration number of architect with signature.
- Name and address of plumber.
- Scales on which drawing is prepared and north point.
- Detail specification and its importance on drawing sheet.

Suggested Books:

Master plans of relevant town/city.
National Building Code of India
The Uttar Pradesh (Regulations and Building operations) Act. 1958

ARCHITECTURAL DESIGN-III

Course Code: DAA-403	L	T	P	C
	1	0	5	6

DETAILED CONTENTS

Unit I

Study report on Vernacular Architecture:

Local case study

- Social background
- Living pattern
- Planning and design study
- Building materials
- Construction methods
- Relevance to present time
- Report along with seminar

Unit II

1. Design of building involving two or more floors, split levels etc. The buildings can be like Nursing Home/School/ Public library, Cultural centre
2. Study report
   - Case study of existing building types, Study of site Analysis of requirement and respective areas Circulation Analysis
3. Presentation Drawings
   - Plans
   - Elevations
   - Sections
   - Perspective View

BUILDING CONSTRUCTION-III

Course Code: DAA-404	L	T	P	C
	1	0	5	6

DETAILED CONTENTS

Unit I

Steel Doors and Windows

Using standard rolled Sections, Using rolled sections as frames and wooden shutters, Rolling and collapsible shutter, Hanging details of different types, Fly proof shutters, Window and doors using pre-stressed sheets, Angle section, T, section of window/Door design.

Unit II

Steel roofs

1. Line diagram of steel roofs for various spans, Constructional details of steel roofs.
2. Roof covering: AC, GI sheets

Unit III

Finishing:

Plastering and pointing, Stone cladding and tile lining, Gravel and wash marble finish, Paneling and fibrous board finishes.

Unit IV

Form Work and Steel Work:-

Definitions of form work, shuttering and centering, Form work for different structural members, Bending of bars, formation of hooks and cranks, Welded and riveted connections.

Unit V

DRAWING SHEET

- Different types of doors using different Sections.
- A sheet showing rolling and collapsible shutter.
- A sheet showing different hanging details of windows using different rolled steel section.
- Drawing and construction detail of AC and Sheet.
- Stone cladding (with marble and any other).
- Details of shuttering of columns, beams, slabs and Arches.

Suggested Books:

Barry, R., ***Building Construction of Buildings, Vol. I, II & IV***
Chudley, R., ***Construction Technology Vol. III***
Duggal, S. K, ***Building Materials***
Ghosh, D. N., ***Materials of Construction***
Mackay, W. B., ***Building Construction – Vol. I & II***
Rangwala, S. C., ***Building Construction***

COMPUTER GRAPHICS – II

Course Code: DAA-405	L	T	P	C
	1	0	3	4

DETAILED CONTENTS

Unit I
Introduction to 2-D CAD
Graphics, Starting AutoCAD, inside the drawing editor, Commands in the menus (Tool bars), Accessing Commands, Entity selection, Entering coordinates, Folders for organizing drawings and files.
Exercise: Creating folders and sub folders.

Unit II
Creating and Saving a new Drawing
Commands and options to create new drawings, Units, Limits, Snap, Grid, Ortho, Layer, Application of layers, Open a new, existing drawing, Save, save as, quit, close, exit.
Exercise: Setting up a new drawing with units, limits etc.

Unit III
Drawing Commands
Commands and options to create new drawings, Units, Limits, Snap, Grid, Ortho, Layer, Application of layers, Open a new, existing drawing, Save, save as, quit, close, exit
Exercise: Setting up a new drawing with units, limits etc.

Unit IV
Viewing an Existing Drawing
Zoom, Pan, Redraw and Regen all, Regen Auto, View.
Exercise: Viewing, zooming of existing drawing.

Unit V
Modifying an Existing Drawing
Undo Redo/Oops, Rim, Move, Offset, Rotate, Array, Stretch, Divide, Champher, Erase, Break, Copy, multiple copy, Mirror (Mirror test), Change (change properties), Extend, Explode, Blip mode, Scale, Fillet.
Exercise:
a) Modifying composition.
b) Making plan, elevation and section of simple building.
Making & Inserting Blocks
Blocks, Insert block, Base, Using library for blocks, W-block, X-ref, Explode.
Exercise: - Inserting furniture, fixtures, trees etc. in the plans, sections and Elevations.

CLIMATOLOGY, ENVIRONMENT AND ECOLOGY

Course Code: DAA-406	**L**	**T**	**P**	**C**
	2	**1**	**0**	**2**

DETAILED CONTENTS

Unit I
Earth & Global Climate:
Introduction to Climatology, Form of earth & structure of earth, Movement of earth around Sun, Elements of climate (wind, temperature, humidity), Different climatic zone.

Unit II
Relationship of climate & comfort:
Effect of climate on man & shelter, Macro-Microclimate effects, Relation of climate elements to comfort, Concept of comfort zone and Bio-climatic chart, Criteria of site selection

Unit III
Building Protection devices & system:
- Orientation of building, Sun Charts(Sun Path diagram), Sun Protection Devices(horizontal & Vertical Louvers), Wind Protection Devices.
- Introduction to use of Solar Energy in Construction

- Objective of solar passive design
- Passive Solar Heating System (direct gain, indirect & isolated gain)

Unit IV
Environment and Ecology:
1.Basic elements and principles of ecology, Conservation of energy, land forms and vegetation, Sources of air and noise pollution and its effects and control, Basic knowledge of landscaping.
2. Basic components of landscape/ecology
- Earth
- Water
- Stone

Suggested Books:

Chand, Ishwar, ***The Climatic Data – Handbook***
Koenigsberger, O.H., ***Manual of Tropical Housing and Building***
Krishnan, Arvind, ***Climate Responsive Architecture***

THEORY OF STRUCTURES

Course Code: DAA-407	L	T	P	C
	2	1	0	2

DETAILED CONTENTS

Unit I

Resultant of force system and equilibrium:

Force-Definition, SI units, types, system of forces, graphical representation, Resultant of concurrent forces, law of parallelogram, triangle law of forces, polygonal law of forces, resolution and addition of forces.

Moment of force - Statement of various theorems, resultant of non concurrent forces - parallel and non parallel forces. Problems on resultant of forces systems.

Equilibrium - Concept of equilibrium, equilibrium of two and more forces, conditions of equilibrium, graphical conditions of equilibrium, body constraints type of reaction provided by each constrain, free body diagram, problems on equilibrium.

Unit II

Centre of Gravity:

Centre of gravity by geometrical consideration for rectangular, triangle, semicircle, Centre of gravity of regular solids, cubes, spheres, semi spheres, right circular cones, Centre of gravity by method of moments of area, mass or volume of regular figures, composite figures and regular figures with cut out holes.

Unit III

Moment of Inertia:

- Meaning of terms - second moment of area, radius of gyration of a section Theorem of parallel axis and perpendicular axis (statement only without proof).
- Second moment of regular figures - rectangle, triangle circle and annular sections (formulae only).

Unit IV

Shear force and Bending moment:

Definition and concepts of S.F and B.M, calculations of reactions, SF and BM diagrams for simply supported, overhanging, cantilever beams, subjected to concentrated or uniformly distributed loads on entire or partial span, Calculation of position and magnitude of maximum shear force and bending moment, point of contra flexure.

Unit V

Simple Stress and Strain:

Concept and definitions, units, types of stresses, axial stresses in bars, strains Hooks law, tensile test on mild steel, working stress and factor of safety, temperature stresses in composite bars, problems on above.

Theory of Simple Bending:

Bending stresses, neutral axis, Symmetrical and asymmetrical sections, Assumptions in theory of bending, Flexural formulae and their applications, Shear stresses in beams.

Suggested Books:

Bari, S. A., ***Elements of Structural Analysis***
Macdonald, A. J., ***Structure and Architecture***
Rajput, R. K., ***Strength of Materials***
Khurmi, R. S., ***Strength of Materials***

Fifth Semester
Communication Technique

Course Code: DIP 501	L	T	P	C
	2	0	2	3

Course Content:

Unit I
Oral Communication: Principles of effective Oral Communication, Vitals of Communication, Interpersonal Communication, persuasive Communication. **(8 hours)**
Practical (oral): Practice of oral Communication. **(2 hours)**

Unit II
Presentation Strategies: Purpose, Audience & Locale, Audio-visual aids, Body Language, Voice dynamics. **(8 hours)**
Practical (oral): Making students develop presentation skills. **(2 hours)**

Unit III
Speaking Skills: Improving voice & speech, Art of public speaking, Dealing with the Boss, Dealing with subordinates. **(8 hours)**
Practical (oral): Making the students speak on topic. **(2 hours)**

Unit IV
Group Discussion: Tips & Style. **(8 hours)**
Practical (Oral): To make students participate in G.D. **(2 hours)**

Recommended Books:

1. Raman Meenakshi & Sharma Sangeeta – Technical Communication – Principles & Practices, - ONP, N. Delhi.
2. Mitra Barun k. - Effective Technical Communication-O.U.P.N. Delhi.

NOTE:
This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students' interest in language learning.

*** Latest editions of all the suggested books are recommended.**

Elective-I

Course Code: DAA-501

L	T	P	C
2	1	0	2

Choice of Electives:
Student are expected to choose one elective from each stream-

A. Site Planning and landscaping
B. Interior Design
C. Architectural Graphics

The subjects would be offered depending upon the expertise available in the faculty from time to time and may even offer additional subjects which have not been listed.

(A) SITE PLANNING AND LAND SCAPING

Unit I

Functional Elements:
Parking for different building types, Outdoor functional space with respect to different building types, Use of landscape feature with respect to architectural functions, Layout an orientation of buildings.

Unit II

Aesthetic of Site Features:
Effect of built-up-mass on surroundings, Use of landscape elements, Lighting fixtures, Street furniture.

(B) INTERIOR DESIGN

Unit I

- Theory of interior design
- Importance of interior design in building and colour schemes.
- Psychology and application of colouring for and texture in Interiors.
- Material use for interim design

Unit II

- Introduction to Interior Design of:
  - Living room
  - Bed room
  - Dining room
  - Kitchen
- Practical exercise and site visits of small building such as library drawing studio display center shops residence and the like.

(C) ARCHITECTURAL GRAPHICS

Unit I

Rendering of Basic Drawing in Ink and Pencil Separately:
Drawing human figures vehicle and trees, Sciography rendering techniques, Site rendering techniques, Elevation rendering

Unit II

Drawing and Rendering of Views:

- Drawing practice of one point and two point perspective.
- Rendering of perspective in black and white and color.

WORKING DRAWING -III

Course Code: DAA-502	L	T	P	C
	1	0	3	6

DETAILED CONTENTS

Unit I

To prepare a working drawing of a design project.

- Site plan
- Foundation plan and details
- Ground floor plan
- Upper floor plans, one for each floor One each
- Terrace plan with rain water drainage details
- Sections, cross section through staircase and a section through kitchen
- Elevations - 4 on all sides

Unit II

Details:

1. Toilet (including plan elevation and section)
2. Kitchen (including plan elevation and section)
   - Flooring Details
   - Showing water supply, Electrical and sanitation disposal

Suggested Books:

Master plans of relevant town/city.
National Building Code of India
The Uttar Pradesh (Regulations and Building operations) Act. 1958

ARCHITECTURAL DESIGN –IV

Course Code: DAA-503	L	T	P	C
	1	0	7	8

DETAILED CONTENTS

Unit I

Study Report on Parking

- Sizes of Vehicles
- Turning radius
- Road Width
- Different practical layouts
- Working of parking areas

Unit II

Design Building involving more than 4 floor (Multistory concept building) The building can be Hotel/Motel/Hostel, Educational and public buildings.

Unit III

Design housing scheme for group of 50 houses with parking area.

BUILDING CONSTRUCTION-IV

Course Code: DAA-504	L	T	P	C
	1	0	5	6

DETAILED CONTENTS

Unit I

Doors and Windows

Using different aluminum sections, Anodizing of aluminum sections, Beadings in conjunction with aluminum section

Unit II

Interiors of Buildings:

False ceilings, Different counters as per usage, Paneling of wall, side boards and word robes, Design and Drawing Partition.

Unit III

Boundary walls and gates

- Drawing of boundary wall & gates.
- Drawing of Expansion Joints.

Unit IV

Drawing Sheet

- Aluminum door and window showing fixing, beading, hardware's etc.
- Sketch of sliding, folding, sliding and revolving doors.
- False ceiling details
- Paneling
- Drawing and detailing staircase

COMPUTER GRAPHICS-III

Course Code: DAA-505	L	T	P	C
	1	0	3	4

DETAILED CONTENTS

Unit I
Dimensioning

- Dimension type, style, units
- Dimension utilities and its variables
- Dimensioning of different drawing elements like line (horizontal, vertical, inclined), arc, circle (radius, diameter), continuous dimensioning etc.
- Editing dimension text and updating

Unit II
Adding Text

- D-text, text (adding new text and editing existing text)
- Text style – font types, height, width factor etc

Unit III
Plotting Drawings

- Plot command
- Selecting area for plotting
- Scale of plot, scale to fit
- Selecting plotting device
- Selecting paper size and type
- Selecting block and white or colored plots
- Selecting appropriate print speed, quality
- Print preview

STRUCTURAL DESIGN - I

Course Code: DAA-506	**L**	**T**	**P**	**C**
	2	**0**	**0**	**2**

DETAILED CONTENTS

RCC Structural Elements

Unit I

Reinforced concrete materials and properties, grades of concrete, working stresses

Unit II

Reinforcing materials

- Suitability of steel as a reinforcing material.
- Different types of reinforcing materials including cold twisted deformed bars.
- Loads as per IS-875

Unit III

Theory of RCC beams

- Assumptions in theory of simple bending in RCC beams.
- Flexural strength of reinforced concrete beams.
- Flexural members: Neutral axis, critical neutral axis, balanced, under reinforced, over reinforced sections, lever arms, resisting moment of sections.
- Shear in beams
  - Effects of shear stresses, permissible shear stresses.
  - Diagonal tensions measured as shear stress.
  - Vertical stirrups and inclined bars as reinforcement for shear and diagonal tension as per IS provision.
  - Length of embedment and anchorage.
  - Anchorage value of bends and hooks.

Unit IV

Singly reinforced beams

- Calculation of moment of resistance of a simply supported beam for a given data as load span and properties of materials used.
- Design of singly reinforced rectangular simply supported beam as per IS from the given data as load span and properties of material used with structural drawing.
- Design of cantilever beams and its drawings.

Unit V

Slabs

Design of one way simply supported slab with drawing, Design of two way slab with the help of IS: 456. Design coefficients (continuous) with drawings, Structural behavior and design of continuous beams/slab in one direction showing position of main reinforcement in the drawings using coefficients given in IS:456

Columns

Concept of long and short columns as per IS:456. Effective length of columns, Design of axially loaded long and short columns as per IS:456 provision, Drawing of reinforcement for a column.

Suggested Books:

Jain, A. K,	***Reinforced Concrete Design (Limit State)***
Krishna Raju, N.,	***Advanced Reinforced Concrete Design***
Ramamurtham, S.,	***Design of Reinforced Concrete Structures***
	SP: 16, Design aids to reinforced concrete to IS-456-2000
	SP: 34 (S & T), Hand Books on Concrete Reinforcement and Detailing

Sixth Semester
Corporate Communication

Course Code: DIP 601	**L**	**T**	**P**	**C**
	2	**0**	**2**	**3**

Course Content:

Unit I
Corporate Behaviour: Corporate expectation, office etiquettes, Telephonic Conversation & etiquette. **(8 hours)**
Practical (oral): To make the students aware of Corporate life & culture & also to teach them about telephone courtesy etc. **(2 hours)**

Unit II
Communication: Press Communication, Press note, e-mail, Inviting tenders, Writing advertisements, Writing notices. **(8 hours)**
Practical (oral): To make students develop the understanding of media importance. **(2 hours)**

Unit III
Interview Skills: Concept & Process, Preparing for the Interview, Types of Interview. **(8 hours)**
Practical (oral): Mock Interview Practice. **(2 hours)**

Unit IV
Modern Technology & Communication: Globalization impact, Role of Information Technology, Tele-Communication, Internet, Tele- Conferencing and Video-Conferencing. **(8 hours)**
Practical (oral): To make students speak on I.T./Internet/Tele & Video Conferencing. **(2 hours)**

Recommended Books:

1. Chhabra T.N. – Business Communication Sun India Pub. N.Delhi.
2. Raman Meenakshi & Sharma Sangeeta – Technical Communication – Principles & Practices, - ONP, N. Delhi.

NOTE:

This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students' interest in language learning.

*** Latest editions of all the suggested books are recommended.**

ELECTIVE-II

Course Code: DAA-601	L	T	P	C
	2	1	0	2

Choice of Electives:
Student are expected to choose one elective from each stream-

A. Earthquake resistant building construction
B. Housing
C. Town Planning

The subjects would be offered depending upon the expertise available in the faculty from time to time and may even offer additional subjects which have not been listed.

(A) EARTHQUAKE RESISTANT BUILDING CONSTRUCTION

Unit I

Elements of Engineering Seismology

General features of tectonic of seismic regions. Causes of earthquakes, Seismic waves, earthquake size (magnitude and intensity), Epicenter, Seismograph, Classification of earthquakes, Seismic zoning map of India, Static and Dynamic Loading, Fundamental period.

Unit II

Seismic Behavior of Traditionally-Built Constructions of India, Performance of building during earthquakes and Mode of failure (Out-of-plane failure, in-plane failure, Diaphragm failure, Connection failure, Non-structural components failure).

Unit III

Special construction method, tips and precautions to be observed while, planning, designing and construction of earthquake resistant building.

Unit IV

Introduction to IS: 4326, IS: 13828, IS: 1893(Part 1), 154326 and IS: 13920 (latest edition).

Unit V

Seismic Provision of Strengthening and Retrofitting Measures for Traditionally- Built Constructions, Brick and RCC Structures.

Provision of reinforcement detailing in masonry and RCC constructions.

Disaster Management: Disaster rescue, psychology of rescue, rescue workers, rescue plan, rescue by steps, rescue equipment, safety in rescue operations, debris clearance and causality management.

(B) HOUSING

Unit I

Introduction to housing

Unit II

Historical Factors:

Pre colonialism, Impact of colonialism, Contemporary processes

Unit III

Housing Strategies

Demographic factors, Socio-cultural factors, Socio economic factors.

Unit IV

Planning:

Slum clearance, Neighborhood units.

Unit V

Type of Housings:

EWS type, LIG type, MIG type, Duplex and pent houses, Site and Service Scheme, Plotted Development Schemes. Linear cluster (Row housing), Chowk cluster, Open court Cluster, Site organization, Housing standard (with reference to building code), Housing finance

(C) TOWN PLANNING

Unit –I

Introduction to town planning

Objects of town planning, Importance of town planning, Principle of town planning.

Unit –II

Origin and growth of old India cities

Mohanjodaro and Harappa, Taxila and Nalanda

Unit –III

Planning Process

Site selection; Site planning, Town and Villages, Ancient Form of Village Planning.

Unit –IV

The city of Delhi origin and growth from ancient to modern

Unit –V

The process of urbanization

Urban and rural definition, Migration

City development plan:-

- Master plan regional plan in relation to Chandigarh.
- Neighborhood unit housing group.

Unit VII

Urban traffic roads regional roads local street footpath cycle path junction

Unit VIII

Zoning -use zoning height zoning density zone density net and gross.

ESTIMATING AND SPECIFICATION WRITING

Course Code: DAA-602	L	T	P	C
	2	2	0	3

DETAILED CONTENTS

Unit I
Introduction to estimating - Types of estimates

Unit II
Different methods of taking out quantities - centre line, in-to-in, out-to-out

Unit III
Various Performa used in estimates - measurement form, abstract of cost and material statement form.

Unit IV
Units of measurement and units of payment of different items of work including building services

Unit V
Preparation of a rough cost estimate, detailed estimates complete with detailed reports, specifications, abstract of cost and material and statement for a small residential building with a flat roof.

Unit VI
Calculation of quantities of materials and analysis of rates for: Plain cement concrete of different proportions, Brick and stone masonry in cement and lime mortar, plastering and pointing with cement mortar in different proportions; white washing, Thumb rule methods of calculating steel in RCC.

Unit VII
Specifications writing: Principles of specifications writing; writing broad specifications of items with special reference to two storied building.

Unit VIII
Exercises involving choosing of relevant specifications

Unit IX
Accounts: Explanation of ordinary terms used in book keeping, cash book, work order, measurement book, petty cash and imprest, classification of stores, receipts and meaning of rate analysis

LIST OF BOOKS
1. Estimating, Costing and Accounts by DD Kohli and RC Kohli(S Chand and Co)
2. Estimating and Costing by BN Dutta

Suggested Books:
Dutta, B. N., ***Estimating and Costing in Civil Engineering***
CPWD Specifications

MAJOR PROJECT

Course Code: DAA-603	L	T	P	C
	1	0	0	6

DETAILED CONTENTS

RATIONALE

Major Project Work aims at developing innovative skills in the students whereby they apply in totality the knowledge and skills gained through the course work in the solution of particular problem or by undertaking a project. The individual students have different aptitudes and strengths. Project work, therefore, should match the strengths of students. For this purpose, students should be asked to identify the type of project work, they would like to execute. It is also essential that the faculty of the respective department may have a brainstorming to identify suitable project assignments for their students.

The project assignments may consist of:

1. Plans
2. Elevations
3. Sections
4. Perspective views
5. Models

Important Notes

- These criteria must be followed by the internal and external examiner and they should see the daily, weekly and monthly reports while awarding marks as per the above criteria.
- The criteria for evaluation of the students have been worked out for 100 maximum marks. The internal and external examiners will evaluate students separately and give marks as per the study and evaluation scheme of examination.
- The external examiner, preferably, a person from industry/organization, who has been associated with the project-oriented professional training of the students, should evaluate the student's performance as per the above criteria.
- It is also proposed that two students or two projects which are rated best be given merit certificate at the time of annual day of the institute. It would be better if specific nearby industries are approached for instituting such awards.

ARCHITECTURAL PROFESSIONAL PRACTICE

Course Code: DAA-604	L	T	P	C
	2	1	0	2

DETAILED CONTENTS

Unit I
Tenders and Quotations
Tenders, essential characteristics of a tender notice, types of tender, tender documents, simple exercises on preparation of tender document, comparative statements (technical and cost comparisons), work order, supply order, Inspection.

Unit II
Contract
General Principles of contract, Types of contract and their advantages and disadvantages and suitability, Architect duties and liabilities under the contract, Contractors duties and liabilities, Employer's duties sand liabilities.

Unit III
Architect and his work
- Structure of an architect's office
- Office and management
- Architects duties to his employees under labour welfare provision

Unit IV
Code, competition fees
Architectural competitions, professional conduct, conditions of engagement and Scale of professional fees and charges

Unit V
Architect act, 1972
CPM and PERT
- Introduction to CPM & PERT
- Development of CPM networks Pertaining to simple engineering works

REFERENCE BOOKS
1. Professional practice by Roshan Namavati
2. Tender Documents by Labour Law

Suggested Books:
C.O.A., ***Handbook of Professional Documents***
I.I.A., ***Handbook on Professional Practice***
Namavati, R.H.., ***Professional Practice***
Namvati, R.H., ***Theory and Practice of Valuation***
Symes, Martin, ***Architects and their Practices***

COMPUTER GRAPHICS –IV

Course Code: DAA-605	L	T	P	C
	1	0	3	4

DETAILED CONTENTS

Unit I

Fundamental of 3-D Drafting

- Basic Features
- Coordinate system
- 3-D entities and surfaces

Exercises-1: Converting simple geometric shapes into 3-D Objects

Unit II

Making an existing 2-D plan drawing compatible to 3-D drafting

- Commands and modifications to 2-D drawings
- B. Poly, rectangle, elevation, extrude – requirements and applications
- 3-D of exterior of blocks – preparation, modification of 2-D drawing
- 3-D of interiors of block – preparation, modification of 2-D drawings

Unit III

3-D Modeling

- Wire frame, surface and 3-D solid modeling
- Viewing 3-D models
- Rendering, shading and hide commands
- Material representation
- Importing and exporting library

STRUCTURE DESIGN –II

Course Code: DAA-606	L	T	P	C
	2	0	0	2

DETAILED CONTENTS

Unit I

Steel Structural Elements

1. Structural steel and steel sections, study of steel tables and reading of data for steel sections.

2. Structural connections

- Riveted connections, types of rivets, forces in rivets, types of riveted joints with sketches.
- Welded connections, types of welds, forces in welds, types of welded connections with sketches.

Unit II

Beams –

Design of beams with single RS section as per IS:800 and handbook for span and loads, Design of tension and axially loaded compression members, Design of usually loaded compression members.