

**FIRST YEAR CURRICULUM STRUCTURE
(ARCHITECTURE)**

Committee for Model Curriculum of Diploma Course in Architecture

MRS.MUNMUN CHAKRAVARTY, Lecturer in Dept. of Architecture, North Calcutta Polytechnic, Govt. of West Bengal, Kolkata-700002	CONVENER
AR. DEBABRATA GHOSH, Principal Architect & planner, DECOARCH, FE-90, Salt Lake, Kolkata-700106	EXPERT
AR. SAIBAL KAR, KERR& ASSOCIATE, 10651A,S.N. Banerjee Road, 2 nd floor, Kolkata-700014	EXPERT
DR SANJIB NAG, Professor & former Head, Department of Architecture, Jadavpur University, Kolkata	EXPERT
MR AMITAVA ROY, Associate Professor, Department of Architecture, Town & Regional Planning, IEST, Sibpur, Howrah-711103	EXPERT
MR SAIBAL THAKURATA, Chief Town Planner, Town & country Planning Branch, Urban Development & Municipal Affair Department, Govt. of West Bengal, “NAGARAYAN” DF-8, Sector-I, Bidhannagar, Kolkata-700064	EXPERT
MRS. RITA ROY SARKAR, Junior Lecturer in Dept. of Architecture, North Calcutta Polytechnic, Govt. of West Bengal, Klokata-700002	MEMBER
MR. ABHISEK CHATTERJEE, Lecturer in Dept. of Architecture, Women’s Polytechnic, Chandernagore, Govt. of West Bengal.	MEMBER
MR. JAVED AKRAM, Lecturer in Dept. of Architecture, S.N. Bose Govt. Polytechnic, Ratua, malda, West Bengal.	MEMBER
MR. ANIRUDDHA MUTSUDDI, Lecturer in Dept. of Architecture, Govt.Polytechnic, Siliguri, West Bengal.	MEMBER
MS. ANKITA BAKSI, Lecturer in Dept. of Architecture, Women’s Polytechnic, Kolkata, Govt. of West Bengal.	MEMBER

WBSCTVESD Curriculum for full time Diploma in Architecture 2020

SEMESTER -I								
Sl. No	Category of course	Code No	Course Title				Total Contact hrs/week	Credits
				L	T	P		
1	Basic Science	BS101	Mathematics-I	2	1	0	3	3
2	Basic Science	BS103	Applied Physics-I	2	1	0	3	3
3	Basic Science	BS105	Applied Chemistry	2	1	0	3	3
4	Humanities & Social Science	HS101	Communication Skills in English	2	0	0	2	2
5	Engineering Science	ES101	Architectural Drawing-I	0	0	3	3	1.5
6	Engineering Science	ES103	Architectural Workshop Practice	0	0	3	3	1.5
7	Basic Science	BS107	Applied Physics-I Lab	0	0	2	2	1
8	Basic Science	BS109	Applied Chemistry Lab	0	0	2	2	1
9	Humanities & Social Science	HS103	Sports and Yoga	0	0	2	2	1
10	Humanities & Social Science	HS105	Communication Skills in English Lab	0	0	2	2	1
Total								18

Course Code	:	BS101
Course Title	:	Mathematics
Number of Credits	:	3 (L:2,T:1,P:0)
Prerequisites	:	NIL
Course Category	:	BS

Course Objectives:

This course is designed to give a comprehensive coverage at an introductory level to the subject of Trigonometry, Differential Calculus and Basic elements of algebra.

The detail course content is same as of all other engineering programme of Diploma Courses in Engineering and Technology.

Course Code	:	BS103
Course Title	:	Applied Physics –I
Number of Credits	:	3 (L: 2, T: 1, P: 0)
Prerequisites	:	High School Level Physics
Course Category	:	BS

Course Objectives:

Applied Physics includes the study of a large number of diverse topics all related to materials/things that exist in the world around us. It aims to give an understanding of this world both by observation and by prediction of the way in which such objects behave. Concrete use of physical principles and analysis in various fields of engineering and technology are given prominence in the course content. The course will help the diploma engineers to apply the basic concepts and principles to solve broad based engineering problems and to understand different technology based applications.

Teaching Approach: *Same as of all other engineering programme of Diploma Courses in Engineering and Technology.*

The detail course content: *Same as of all other engineering programme of Diploma Courses in Engineering and Technology.*

Course Code	:	BS105
Course Title	:	Applied Chemistry
Number of Credits	:	3 (L: 2, T: 1, P: 0)
Prerequisites	:	High School Level Physics
Course Category	:	BS

Course Objectives:

There are numerous number materials are used in fabricating and manufacturing devices for the comfort of life. The selection, characterization and suitability assessment of natural raw materials essentially requires principles and concepts of Applied Chemistry for technicians. On successful completion of this course content will enable technicians to understand, ascertain and analyse and properties of natural raw materials require for producing economical and eco-friendly finished products.

WBSCTVESD Curriculum for full time Diploma in Architecture 2020

- ❖ Solve various engineering problems applying the basic knowledge of atomic structure and chemical bonding.
- ❖ Use relevant water treatment method to solve domestic and industrial problems.
- ❖ Solve the engineering problems using knowledge of engineering materials and properties.
- ❖ Use relevant fuel and lubricants for domestic and industrial applications
- ❖ Solve the engineering problems using concept of Electrochemistry and corrosion.

The detail course content is same as of all other engineering programme of Diploma Courses in Engineering and Technology.

Course Code	:	HS101
Course Title	:	Communication Skills in English
Number of Credits	:	2 (L: 2, T: 0, P: 0)
Prerequisites	:	NIL
Course Category	:	HS

Course Objectives:

The course intends to:

- Impart the basic theory and practice of communication.
- Make students aware about the importance of soft skills as essential Life skills for both personal development and professional excellence.
- Train students for improving their reading, writing, listening and speaking skills.
- Clear the learners' misconceptions and misunderstandings of English grammar.
- Give students the skills and the confidence required to speak English fluently.

The detail course content is same as of all other engineering programme of Diploma Courses in Engineering and Technology.

Course Code	:	ES101
Course Title	:	Architectural Drawing-I
Number of Credits	:	1.5 (L: 0, T: 0, P: 3)
Prerequisites	:	NIL
Course Category	:	ES

Course Objectives:

- ❖ To understand the language of Architectural Drawing which is used to express ideas, convey instructions while carrying out professional jobs.
- ❖ To develop drafting and sketching skills, to know the applications of drawing equipments, and get familiarize with Indian Standards related to Architectural drawings.
- ❖ To develop skills to visualize actual object or a part of it, on the basis of drawings.
- ❖ To develop skills to translate ideas into sketches and to draw and read various engineering curves, projections and dimensioning styles.

Course Content:-

Unit – I: (Basic elements of Drawing)

Drawing Instruments and supporting materials: Method to use them with applications. Convention of lines and their applications.

Lettering: Practice in lettering, lettering used in architectural drawings including different fonts.

Representative Fractions – Reduced, enlarged and full size scales; Engineering Scales such as plain and diagonal scale.

Dimensioning techniques as per SP-46:2003 – Types and applications of chain, parallel and co-ordinate dimensioning. Geometrical constructions.

Unit – II :-(Introduction to curves)

To draw an ellipse by (a) Directrix and focus method (c) Concentric circles method

To draw a parabola by (a) Directrix and focus method (b) Rectangle method

To draw a hyperbola by (a) Directrix and focus method (b) Passing through given points with reference to asymptotes

Unit – III (Orthographic projections)

Introduction of projections-Orthographic, perspective, isometric, axonometric and oblique: concept and applications. (No question to be asked in examination).

Introduction to orthographic projection- First angle and Third angle method, their symbols. Orthographic projection of points, lines, planes, solids. (Use First Angle Projection method only)

Unit – IV (Isometric Projections)

Introduction to isometric projections- Isometric scale and Natural scale. Isometric view and isometric projection. Illustrative problems related to objects containing lines, circles and arcs shape only. Conversion of orthographic views into isometric view/projection.

Sl No	Practical Exercises	Unit No	Hours	No of sheets
1	1.1 To draw horizontal, Vertical, 30 degree, 45 degree, 60 and 75 degrees lines using Tee and Set squares, studying different types of lines and their applications, understanding dimensioning styles. (Solve in exercise books).	I	3hrs	ONE
2	1.2 To write alphabets and numerical in architectural style.(Solve in exercise books).	I	3 hrs	

WBSCTVESD Curriculum for full time Diploma in Architecture 2020

3	1.3 To draw regular geometric constructions using various scale (reducing scale, full scale, enlarging scale). Understanding plain scale and diagonal scale..	I	6 hrs	
4	2.1 To draw an ellipse by (a) Directrix and focus method (b) Concentric circles method.	II	3hrs.	ONE
5	2.2 To draw a parabola by (a) Directrix and focus method (b) Rectangle method.	II	3 hrs	
6	2.3 To draw a hyperbola by (a) Directrix and focus method (b) Passing through given points with reference to asymptotes.	II	3 hrs	
7	3.1 Introduction to orthographic projections and problems on orthographic projections of points.	III	3hrs	TWO
8	3.2 Problems on orthographic projections (using first angle method of projection) of Lines inclined to one reference plane only and limited to both ends in one quadrant.	III	3 hrs	
9	3.3 Problems on orthographic projections (using first angle method of projection) of simple planes of circle, square, rectangle, rhombus, pentagon and hexagon, surface inclined to one reference plane and perpendicular to the other.	III	3 hrs	
10	3.4 Problems on orthographic projection (using first angle method of projection) of simple solids of cube, prism, pyramid, cylinder, cone, and axis inclined to one reference plane and perpendicular to the other.	III	6 hrs	
11	4.1 Introduction to Isometric projection and to draw two problems on Isometric view of simple objects using natural scale.	IV	6 hrs	ONE
12	4.2 To draw two problems on Isometric projection of simple objects using isometric scale.	IV	3 hrs	

SUGGESTED LEARNING RESOURCES

1. Bureau of Indian Standards. *Engineering Drawing Practice for Schools and Colleges*

WBSCTVESD Curriculum for full time Diploma in Architecture 2020

IS: Sp-46. BIS. Government of India, Third Reprint, October 1998; ISBN: 81-7061-091-2.

2. Bhatt, N. D. *Engineering Drawing*. Charotar Publishing House, Anand, Gujrat 2010; ISBN: 978-93- 80358-17-8.

3. Jain & Gautam, *Engineering Graphics & Design*, Khanna Publishing House, New Delhi (ISBN: 978- 93-86173-478)

4. Jolhe, D. A. *Engineering Drawing*. Tata McGraw Hill Edu. New Delhi, 2010; ISBN: 978-0-07- 064837-1

5. Dhawan, R. K. *Engineering Drawing*. S. Chand and Company, New Delhi; ISBN: 81-219-1431-0.

6. Shah, P. J. *Engineering Drawing*. S. Chand and Company, New Delhi, 2008, ISBN:81-219-2964-4.

Course Outcomes

Following outcomes will be achieved:

- 1) Select and construct appropriate drawing scales, use drawing equipment's, and understand Indian Standards of engineering drawing.
- 2) Draw views of given object and components.
- 3) Sketch orthographic projections into isometric projections and vice versa.

Course Code	:	ES103
Course Title	:	Architectural Workshop practice
Number of Credits	:	1.5 (L: 0, T: 0, P: 3)
Prerequisites	:	NIL
Course Category	:	ES

Course Objectives:

- ❖ To understand, identify, select and use various marking, measuring, and holding, striking and cutting tools and equipment's
- ❖ To understand and interpret job drawings, produce jobs, and inspect the job for specified dimensions.
- ❖ To understand the various types of wiring systems and acquire skills in house wiring.
- ❖ To understand, operate, and control different machines and equipment's adopting safety practices.
- ❖ To understand how to prepare mortar and use it in construction of different types of brick bonding and pointing. Students will have knowledge on different type tools used by carpenter and masons.

Course Content:

Sl.No	Details Of Practical Content
1	<p>Carpentry: i) Demonstration of different wood working tools / machines. ii) Demonstration of different wood working processes, like planing, marking, chiselling, grooving, turning of wood etc. iii) One simple job involving any one joint like mortise and tenon dovetail, bridle, half lap etc.</p>
2	<p>Electrical House Wiring: Practice on simple lamp circuits (i) one lamp controlled by one switch by surface conduit wiring, (ii) Lamp circuits-connection of lamp and socket by separate switches, (iii) Connection of Fluorescent lamp/tube light, (iv) simple lamp circuits-install bedroom lighting. And (v) Simple lamp circuits- install stair case wiring.</p>
3	<p>Masonry: (general shop task)</p> <p>(i) Exercise on handling of bricks, cement, sand and aggregate</p> <p>a. Handling of brick- Identification of traditional brick and modular brick. Classification of brick (first class, second class, third class) and know how to handle it.</p> <p>b. Handling of cement- Identification of different types of cement (Portland cement and Special cement)</p> <p>c. Handling of sand and aggregates- Identification of fine sand and coarse sand. Identification of fine aggregates and coarse aggregates</p> <p>(ii) Knowledge of various tools used by mason -Purpose, specification, uses, care & maintenance of various tools and equipments used in masonry construction by segregating as cutting tools, measuring tools, supporting tools, holding tools etc. and knowledge on safety precautions in masonry construction.</p> <p>(iii) Exercise on preparation of mortar</p> <p>Preparation of Mortar- preparation of cement mortar with appropriate proportion of cement, sand and water.</p> <p>(iv) Exercise on laying of bricks in various bonds- Practice on different types of brick bonding for different thickness of wall (English bond, Flemish bond), Brick bond in T-Junction of wall.</p> <p>(v) Exercise on pointing and finishing-Practice on cement mortar plaster finish on brick wall and different types of pointing on exposed brick work.</p> <p>Note:- The carpentry and Electrical house wiring workshop will be conducted in the existing workshop set up of the respective college. In case of Masonry workshop if the respective college is having department of Civil Engineering, their resources like (lab equipments, materials and lab assistant) can be utilised along with a faculty of department of Architecture. In case the civil engineering department is not there in the respective college, the department of Architecture will have to procure equipments, materials and skilled manpower (mason and labour) for the required number of classes for smooth functioning of the workshop.</p>

WBSCTVESD Curriculum for full time Diploma in Architecture 2020

References:

1. S.K. Hajara Chaudhary, Workshop Technology, Media Promoters and Publishers, New Delhi, 2015
2. B.S. Raghuvanshi, Workshop Technology, Dhanpat Rai and sons, New Delhi 2014
3. K. Venkat Reddy, Workshop Practice Manual, BS Publications, Hyderabad 2014
4. Fundamentals of Building Construction by Allen Edward
5. Sushil Kumar, Building Construction, Standard Publishers Distributers, Delhi-110006

Course outcomes

At the end of the course, the student will be able to:

CO1	Acquire skills in basic engineering practice to identify, select and use various marking, measuring, and holding, striking and cutting tools & equipments.
CO2	Understand job drawing and complete jobs as per specifications in allotted time.
CO3	Inspect the job for the desired dimensions and shape.
CO4	Acquire skill on construction of brick masonry, mortar finish and pointing.

Course Code	:	BS107
Course Title	:	Applied Physics-I Labs
Number of Credits	:	1 (L: 0, T: 0, P: 2)
Prerequisites	:	NIL
Course Category	:	BS

Course Objectives

Study of Applied Physics aims to give an understanding of physical world by observations and predictions. Concrete use of physical principles and analysis in various fields of engineering and technology is very prominence. The course aims to supplement the factual knowledge gained in the lecture by first hand manipulation of apparatus. This will develop scientific temper and help to apply the basic concepts and principles in solving engineering and technology based problems. In addition, students get necessary confidence in handling equipment and thus learn various skills in measurement.

List of Practical's/Activities (To perform minimum 10 practicals).

The detail course content is same as of all other engineering programme of Diploma Courses in Engineering and Technology.

Learning Outcome: *same as of all other engineering programme of Diploma Courses in Engineering and Technology.*

SUGGESTED STUDENT ACTIVITIES & STRATEGIES: *same as of all other engineering programme of Diploma Courses in Engineering and Technology.*

References: *same as of all other engineering programme of Diploma Courses in Engineering and Technology.*

Course Code	:	BS109
Course Title	:	Applied Chemistry Labs
Number of Credits	:	1 (L: 0, T: 0, P: 2)
Prerequisites	:	NIL
Course Category	:	BS

Course Objectives:

There are numerous number of materials used in fabricating and manufacturing devices for the comfort of life. The selection, characterization and suitability assessment of natural raw materials essentially requires principles and concepts of Applied Chemistry for technicians. The course aims to supplement the factual knowledge gained in the lectures by first hand manipulation of processes and apparatus. This will develop scientific temper and help to apply the basic concepts and principles in solving engineering problems.

LIST OF PRACTICALS: *Same as of all other engineering programme of Diploma Courses in Engineering and Technology.*

Instrumental analysis: *Same as of all other engineering programme of Diploma Courses in Engineering and Technology.*

Teachers should use the following strategies to achieve the various outcomes of the course: *Same as of all other engineering programme of Diploma Courses in Engineering and Technology.*

Learning Outcomes: *Same as of all other engineering programme of Diploma Courses in Engineering and Technology.*

Reference Books: *Same as of all other engineering programme of Diploma Courses in Engineering and Technology.*

WBSCTVESD Curriculum for full time Diploma in Architecture 2020

Course Code	:	HS103
Course Title	:	Sports and Yoga
Number of Credits	:	1 (L: 0, T: 0, P: 2)
Prerequisites	:	NIL
Course Category	:	HS

Course Objectives:

- ❖ To make the students understand the importance of sound health and fitness principles as they relate to better health.
- ❖ To expose the students to a variety of physical and yogic activities aimed at stimulating their continued inquiry about Yoga, physical education, health and fitness.
- ❖ To create a safe, progressive, methodical and efficient activity based plan to enhance improvement and minimize risk of injury.
- ❖ To develop among students an appreciation of physical activity as a lifetime pursuit and a means to better health.

Course Content: *Same as of all other engineering programme of Diploma Courses in Engineering and Technology.*

References: *Same as of all other engineering programme of Diploma Courses in Engineering and Technology.*

Course Outcomes: *Same as of all other engineering programme of Diploma Courses in Engineering and Technology.*

Course Code	:	HS105
Course Title	:	Communication Skills in English - Lab
Number of Credits	:	1 (L: 0, T: 0, P: 2)
Prerequisites	:	NIL
Course Category	:	HS

Course Objectives:

The course intends to:

- Impart the basic theory and practice of communication.
- Make students aware about the importance of soft skills as essential Life skills for both personal development and professional excellence.
- Train students for improving their reading, writing, listening and speaking skills.
- Clear the learners' misconceptions and misunderstandings of English grammar.
- Give students the skills and the confidence required to speak English fluently.

WBSCTVESD Curriculum for full time Diploma in Architecture 2020

Course Content: Same as of all other engineering programme of Diploma Courses in Engineering and Technology.

Recommended Readings: Same as of all other engineering programme of Diploma Courses in Engineering and Technology.

Learning Outcome: Same as of all other engineering programme of Diploma Courses in Engineering and Technology.

Semester I (Architecture)					
Sl.No	Category of Courses	Code No	Course Title	Credits	Marks
1	Basic Science	BS101	Mathematics-I	3	100
2	Basic Science	BS103	Applied Physics-I	3	100
3	Basic Science	BS105	Applied Chemistry	3	100
4	Humanities & Social Science	HS101	Communication Skills in English	2	100
5	Engineering Science	ES101	Architectural Drawing-I	1.5	100
6	Engineering Science	ES103	Architectural Workshop Practice	1.5	100
7	Basic Science	BS107	Applied Physics-I Lab	1	100
8	Basic Science	BS109	Applied Chemistry Lab	1	100
9	Humanities & Social Science	HS103	Sports and Yoga	1	100
10	Humanities & Social Science	HS105	Communication Skills in English Lab	1	100
Total				18	1000