

West Bengal State Council of Technical &
Vocational Education and Skill
Development
(Technical Education Division)



Syllabus
of

Diploma in Architecture [ARCH]

Part-III (5th Semester)

Revised 2022

Committee for Model Curriculum of full time Diploma Course in Architecture

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Curriculum structure for part-III (3rd Year) of the Full-time Diploma Courses in Engineering & Technology

West Bengal State Council of Technical & Vocational Education and Skill Development (Technical Education Division)									
Teaching Scheme for Diploma in Engineering Courses: Branch-Architecture(5 th Semester)									
Sl No	Category	Code No	Course Title	Credits	periods			Contact hours per week	Marks
					L	T U	PR		
THEORY SUBJECTS									
1	Programme core course	ARPC301	Design Of Structure	2	2	0	0	2	100
2	Programme core course	ARPC303	Estimating, costing, specification & valuation-I	2	2	0	0	2	100
3	Programme core course	ARPC305	Contemporary architecture-I	2	2	0	0	2	100
4	Programme core course	ARPC307	Architectural Professional Practice	2	2	0	0	2	100
5	Programme core course	ARPC309	Architectural Design–III	1	0	1	0	1	100
6	Programme elective	ARPE301	Programme Elective-II	2	2	0	0	2	100
SESSIONAL SUBJECTS									
7	Programme core course	ARPC311	Architectural Design–III	2	0	0	4	4	100
8	Programme core course	ARPC313	Working Drawing-III	3	0	1	4	5	100
9	Programme elective	ARPE303	Programme Elective-III	2	0	1	2	3	100
10	Major Project	ARPR301	Architectural Project	1	0	0	4	4	100
11	Internship-II	SI301		1	-	-	-	-	100
			Total Credit	20				27	1100
L: Lecturer		TU-Tutorial			PR-Practical				

EVALUATION SCHEME:

A. For Theory Courses:

- (i) The weight age of internal assessment is 40% and for End Semester Examination is 60%
- (ii) The student has to obtain at least 40% marks individually both in internal assessment and endsemester examination to pass for the subject

Examination Scheme: Theoretical subject (Full Marks=100)

Sl No	Internal assessment		End Semester Exam	
	Type	Marks	Question Type	Marks
1	Mid Semester Tests (Two best out of three)	10x2=20	(a) MCQ type questions carrying 1 mark, Question to be set=15 and question to be answered=10 (b) Fill-in the blanks type questions carrying 1 mark. To be set=15 and to be answered=10 (c) Short answer type questions carrying 1 mark. To be set 15 and to be answered=6	1x30=30
2	Quizzes, viva-voce, Assignments	10	Subjective type Question carrying 2 marks. Question to be set=10 and Question to be answered=6	2x6=12
3	Class Attendance*	10	Subjective type Question carrying 6 marks. Question to be set=9(3 each for 3 modules) and Question to be answered=3	6x3=18
	Total	40		60

Note: While setting the question papers it has to be ensured that there will be a mix-up of questions in the category route, application, understanding and analysis in equal proportion.

(b) For Sessional Courses:-

- (i) The weight age of internal assessment is 60% and for End Semester Exam is 40%.
- (ii) The student has to obtain at least 40% marks individually both in internal assessment and endsemester exams to pass for each subject.

Marks Distribution: Full Marks =100

Sl No	Internal assessment		End Semester Exam	
	Type	Marks	Question Type	Marks
1	Continuous Evaluation	50	Assignments on the day of exam(by External Evaluator)and class work submission	20
2	Class Attendance	10	Viva-voce (by External Evaluator)	20
	Total	60		40

Allotment of attendance marks as follow:

Class Attendance (in %)	Marks to be awarded for class attendance
80% and above	10.0
75% to below 80%	8.0
70% to below 75%	6.0
65% to below 70%	4.0
60% to below 65%	2.0

Note: The internal assessment is based on the student's performance in mid semester tests (two best out of three), quizzes, assignments, class performance, attendance, viva-voce in practical, lab record etc.

Mapping of Marks to Grades

Each course (Theory/Practical) is to be assigned 100 marks, irrespective of the number of credits, and the mapping of marks to grades may be done as per the following table:

Range of marks	Assigned Grade
90 to 100	AA/A+
80 to below 90	AB/A
70 to below 80	BB/B+
60 to below 70	BC/B
50 to below 60	CC/C+
45 to below 50	CD/C
40 to below 45	DD/D
<40	FF/F(Fail due to less marks)
-	F ^R (fail due to shortage of attendance and therefore, to repeat the course)

THEORY SUBJECTS

Course Code	:	ARPC 301
Course Title	:	DESIGN OF STRUCTURE
Number of Classes	:	2 (Lecture: 2, Tutorial: 0, Practical: 0)
Number of Credit	:	2
Prerequisites	:	Knowledge on Theory of Structure
Course offered in	:	Fifth Semester
Course duration	:	17 weeks
Course Category	:	PC

MODULAR DIVISION OF THE SYLLABUS

Module	Topic	Lecture
1	INTRODUCTION TO REINFORCED CEMENT CONCRETE	2
2	DESIGN OF RCC BEAMS BY WORKING STRESS METHOD	12
3	DESIGN OF RCC COLUMNS BY WORKING STRESS METHOD	4
4	DESIGN OF RCC SLABS BY WORKING STRESS METHOD	4
5	DESIGN OF FOUNDATIONS BY WORKING STRESS METHOD	4
6	DESIGN OF TWO FLIGHT STAIRCASES	4
CONTACT PERIODS:30		INTERNAL ASSESSMENTS:4
TOTAL PERIODS:34		

SEMESTER EXAMINATION SCHEME

MODULE	OBJECTIVE QUESTIONS				SUBJECTIVE QUESTIONS							
	PART A				PART B				PART C			
	TO BE SEEN	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS	TO BE SEEN	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS	TO BE SEEN	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS
1	3	Any THIRTY	1	1x30=30	1	Any SIX	2	2x6=12	1	Any THREE	6	6x3=18
2	12				1				2			
3	10				2				1			
4	10				2				1			
5	5				2				2			
6	5				2				2			

MARKS ALLOTMENT

SL.NO	INTERNAL ASSESSMENT		SEMESTER EXAM	
	TYPE	MARKS	QUESTION TYPE	MARKS
1	Mid Semester Tests	20	Part A	1x30=30
2	Quizzes, Viva-voce, Assignments	10	Part B	2X6=12
3	Class Attendance	10	Part C	6X3=18

Total Marks: 100

DETAIL COURSE CONTENT

MODULE NO.	TOPIC	CONTENTS	CONTACT PERIODS
1	Introduction to Reinforced Cement Concrete	1.1 AGGREGATE – fineness modulus 1.2 PROPERTIES OF CONCRETE: Grade of concrete, consistency of concrete 1.3 Permissible stresses 1.3 REQUIREMENT OF GOOD CONCRETE	2
2	Design of RCC Beams by Working Stress Method	2.1 BASIC ASSUMPTIONS OF WORKING STRESS METHOD 2.2 DESIGN PARAMETERS: Effective depth – neutral axis – cover – moment of resistance – under-balanced sections – over-balanced sections – critical sections – span to depth ratio 2.3 SAFETY & SERVICEABILITY OF WORKING STRESS METHOD- Limit State of collapse- Limit State of serviceability 2.4 CHARACTERISTIC AND DESIGN VALUES AND PARTIAL SAFETY FACTORS 2.5 DESIGN OF SINGLY REINFORCED RECTANGULAR SECTIONS BY WORKING STRESS METHOD with uniformly distributed load, shear and bond — Numerical solutions of simple problems — Typical reinforcement details	12
3	Design of RCC Columns by Working Stress Method	3.1 DIFFERENCE BETWEEN LONG AND SHORT COLUMNS 3.2 DESIGN OF AXIALLY LOADED SQUARE COLUMNS BY WORKING STRESS METHOD — Numerical solutions of simple problems — Typical reinforcement details	4
4	Design of RCC Slabs by Working Stress Method	4.1 DESIGN OF ONE-WAY SLAB – simply supported on either ends and cantilever — Numerical solutions of simple problems — Typical reinforcement details 4.2 DESIGN OF TWO-WAY SLAB, with and without corners held down — Numerical solutions of simple problems — Typical reinforcement details	4
5	Design of Foundations by Working Stress Method	5.1 INTRODUCTION & SKETCHES OF VARIOUS TYPES OF FOOTINGS AND GENERAL RULES FOR DESIGN 5.2 DESIGN OF AN ISOLATED RCC SQUARE FOOTING FOR AN AXIALLY LOADED SHORT COLUMN RESTING DIRECTLY ON BEARING SOIL FOR UNIFORM THICKNESS OF THE FOOTING SLAB – Calculation for depth from bending moment and punching shear consideration, Rankine’s depth of foundation — Numerical solutions of simple problems — Typical reinforcement details	4
6	Design of Two Flight Staircases	6.1 TECHNICAL TERMS USED IN CONNECTION WITH STAIRCASES & TYPICAL REINFORCEMENT DETAILS	4

COURSE OBJECTIVES

On satisfactory completion of the course, the students should be in a position to understand:

i) the different properties of reinforced cement concrete;

(ii) the basic assumptions regarding RCC design by Working Stress Method and will have an idea regarding the different relevant design parameters;

(iii) Working Stress Method of design and will have an idea regarding safety and serviceability, characteristic & design values, partial safety factors;

(iv) solve simple design problems of RCC beams, slabs, columns with foundations and staircases.

REFERENCE BOOKS

1. IS: 456 – 2000 / Bureau of Indian Standards

2. SP – 16 / Bureau of Indian Standards

3. Design of RCC Structures / S. Ramamurtham & R. Narayan / Dhanpat Rai Pub. Co. Pvt. Ltd.

4. RCC Design / Amarjit Agarwal / S. K. Kataria & Sons, Delhi

5. Treasure of RCC Design / Sushil Kumar / Standard Book House, Delhi

6. Concrete Structures / V. N. Vazirani & M. M. Rathwani / Khanna Publishers, Delhi

Course Code	:	ARPC 303
Course Title	:	ESTIMATION, COSTING, SPECIFICATION & VALUATION - I
Number of Classes	:	2(Lecture: 2, Tutorial:0,Practical: 0)
Number of Credit	:	2
Prerequisites	:	NIL
Course offered in	:	Fifth Semester
Course duration	:	17weeks
Course Category	:	PC

MODULAR DIVISION OF THE SYLLABUS

Module	Topic	Lecture
1	INTRODUCTION TO ESTIMATING	3
2	PRINCIPLES OF ESTIMATING	4
3	APPROXIMATE ESTIMATE	8
4	ESTIMATE OF BUILDINGS	15
CONTACT PERIODS: 30		INTERNAL ASSESSMENTS: 4
TOTAL PERIODS: 34		

SEMESTER EXAMINATION SCHEME

MODULE	OBJECTIVE QUESTIONS				SUBJECTIVE QUESTIONS							
	PART A				PART B				PART C			
	TO BE SEEN	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS	TO BE SEEN	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS	TO BE SEEN	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS
1	15	Any THIRTY	1	1x30=30	3	Any SIX	2	2x6=12	1	Any THREE	6	6x3=18
2	15				3				1			
3	10				2				3			
4	5				2				4			

MARKS ALLOTMENT

SL.NO	INTERNAL ASSESSMENT		SEMESTER EXAM	
	TYPE	MARKS	QUESTION TYPE	MARKS
1	Mid Semester Tests	20	Part A	1x30=30
2	Quizzes, Viva-voce, Assignments	10	Part B	2X6=12
3	Class Attendance	10	Part C	6X3=18
Total Marks: 100				

DETAIL COURSE CONTENT

MODULE NO.	TOPIC	CONTENTS	CONTACT PERIODS
1	Introduction to Estimating	1.1 DEFINITION OF ESTIMATING 1.2 PURPOSE OF ESTIMATING 1.3 INTRODUCTION TO IS: 1200 1.4 TYPES OF ESTIMATING - Detailed Estimate – Preliminary or Approximate or Rough Estimate – Quantity Estimate or Quantity Survey – Revised Estimate – Supplementary Estimate – Complete Estimate – Annual Maintenance or Repair Estimate 1.5 ABSTRACT OF ESTIMATE	3
2	Principles of Estimating	2.1 GENERAL ITEMS OF WORK 2.2 PRINCIPAL UNITS OF MEASUREMENT FOR VARIOUS ITEMS OF WORK 2.3 PRINCIPLE UNITS OF RATE FOR PAYMENT 2.4 MODE OF MEASUREMENT for the principle items of works & materials 2.5 INTRODUCTION TO METHODS OF ESTIMATING: Long and Short wall method – Centre Line method	4
3	Approximate Estimate	3.1 IMPORTANCE OF APPROXIMATE ESTIMATE— purpose of an approximate estimate 3.2 TYPES OF APPROXIMATE ESTIMATE 3.3 PLINTH AREA OR SQUARE-METRE METHOD — Estimated cost of a proposed building on plinth area basis — Numerical problems	8

4	Estimate of Buildings	4.1 DETAILED QUANTITY ESTIMATE – single storied 1BHK load bearing structure –one bedroom, living room, kitchen, water closet and bathroomwith front veranda (with different sections & heights of walls) [The necessary drawings are to be provided by the teacher concerned] 4.2 ABSTRACT OF ESTIMATE	15
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COURSE OBJECTIVES

On satisfactory completion of the course, the students should be in a position to understand:

- (i) Understand the purpose of estimating along with its different types;
- (ii) Understand the principles & different methods of estimating;
- (iii) Prepare approximate estimated cost of a proposed building on plinth area basis;
- (iv) Prepare detailed quantity estimate of load bearing 1BHK structure

REFERENCE BOOKS

1. Estimating, Costing, Specification and Valuation in Civil Engineering/ M. Chakraborti / M. Chakraborti, 21B, Bhabananda Road, Kolkata – 700026
2. Estimating & Costing in Civil Engineering Theory & Practice Including Specification & Valuation / B. N. Dutta / UBSPD

Course Code	:	ARPC 305
Course Title	:	CONTEMPORARY ARCHITECTURE-I
Number of Classes	:	2(Lecture: 2, Tutorial:0,Practical: 0)
Number of Credit	:	2
Prerequisites	:	Knowledge on Building Materials& Construction
Course offered in	:	Fifth Semester
Course duration	:	17weeks
Course Category	:	PC

MODULAR DIVISION OF THE SYLLABUS

Module	Topic	Lecture
1	IMPACT OF INDUSTRIAL REVOLUTION	2
2	REBELLION AGAINST THE MACHINE	4
3	FUNCTIONALISM	8
4	INTERNATIONAL STYLE	4
5	THE TRIUMPH OF MODERN ARCHITECTURE	4
6	REVISION BETWEEN THE WARS	4
7	MODERN ARCHITECTURE WITH A HUMAN FACE	4
CONTACT PERIODS: 30		INTERNAL ASSESSMENTS: 4
TOTAL PERIODS: 34		

SEMESTER EXAMINATION SCHEME

MODULE	OBJECTIVE QUESTIONS				SUBJECTIVE QUESTIONS							
	PART A				PART B				PART C			
	TO BE SEEN	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS	TO BE SEEN	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS	TO BE SEEN	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS
1	5	Any THIRTY	1	1x30=30	1	Any SIX	2	2x6=12	1	Any THREE	6	6x3=18
2	6		1		1							
3	10		3		2							
4	6		1		1							
5	6		2		1							
6	6		1		1							
7	6		1		1							

MARKS ALLOTMENT

SL.NO	INTERNAL ASSESSMENT		SEMESTER EXAM	
	TYPE	MARKS	QUESTION TYPE	MARKS
1	Mid Semester Tests	20	Part A	1x30=30
2	Quizzes, Viva-voce, Assignments	10	Part B	2X6=12
3	Class Attendance	10	Part C	6X3=18

Total Marks: 100

DETAIL COURSE CONTENT

MODULE NO.	TOPIC	CONTENTS	CONTACT PERIODS
1	Impact of Industrial Revolution	1.1 Great change in social and technological developments in the POST-INDUSTRIAL REVOLUTION ERA – Rapid urbanization in growing industrial areas- Requirements for new types of buildings – mass housing, offices and commercial buildings 1.2 Need for larger span and taller structure – Modern methods of production and modern transport 1.3 Availability of new building materials: Steel, Iron & Glass – Study of the Crystal Palace, London(1851) by Sir Joseph Paxton	2
2	Rebellion Against the Machine	2.1 ARTS & CRAFTS –Late 19th century English movement reviving handicrafts and reforming architecture by using traditional building crafts & local materials – Organic relationship of a building to its locality -Study of the Barn, Exmouth, Devon(1897) by E.S. Prior 2.2 ART NOUVEAU –Decorative movement in European architecture – Flowing & sinuous naturalistic ornament– Avoidance of historical architectural traits – Study of the Casa Batlló, Barcelona(1906) by Antonio Gaudi	4
3	Functionalism	3.1 DEVELOPMENTS IN AMERICA – Chicago School – Need for optimising the use of available floor space – Invention of the electric lift, telephone & tubular post – Beginning of the skyscrapers – Theme: Form Follows Function – Study of the Carson Pirie Scott, Chicago (1904) By Louis Henry Sullivan 3.2 PRAIRIE SCHOOL – Open plan – Functionalist in approach – Organic Style: local material & local characteristics –Stress of horizontals and low, long lines – Easy access between indoor & outdoor – Study of the Robie House, Chicago (1910) By Frank Lloyd Wright	8

		3.3 DEVELOPMENTS IN EUROPE – Bauhaus School – Open plan – Programmatic Functionalist approach leading to rational simplicity – Anti-ornament ethics – absolute plainness of solid blocks, exposed steel frames, walls of glass, rectilinear boxes with no visible roof – Study of the Bauhaus Buildings, Dessau, Germany (1926) By W. Gropius	
4	International Style	4.1 Term INTERNATIONAL STYLE coined by PHILIP CORTELYOU JOHNSON in 1932 – Global uniformity of architecture –Standardisation of building elements – Asymmetrical compositions – Cubic general shapes – Study of the Villa Savoy, Poissy, France (1931) By Le Corbusier (Charles Édouard Jeanneret) – Extension of the idea of simplicity into visual oneness leading to monolithic vision and minimalism – Theme: Less Is More coined by Ludwig Mies Van Der Rohe – Study of the Farnsworth House, Plano, Illinois (1945-51) By Mies Van Der Rohe	4
5	Triumph Of Modern Architecture	5.1 THEME: FUNCTION FOLLOWS FORM coined by Ludwig Mies Van Der Rohe – Form of a building is the most important aspect within which all functions are organised – Study of the Seagram Building, New York (1958) by Ludwig Mies Van Der Rohe – Innovative approach toward spatial organisation focused on communal living—Study of the Unité D’Habitation, Marseille, France (1952) by Le Corbusier	4
6	Revision Between the Wars	6.1 EXPRESSIONISM – Tired of plain surfaces and architectural forms – Closer to sculpture than architecture – Study of the Einstein Tower Observatory, Potsdam, Germany (1921) by Erich Mendelsohn. 6.2 ART DECO –Name derives from a Paris exhibition of decorative and industrial art in 1925 – Unfunctional modernism – Use of motifs from the past – Study of The Chrysler Building, New York (1929) by William Van Alen	4
7	Modern Architecture with a human face	7.1 UNISON OF ORGANIC ARCHITECTURE WITH INTERNATIONAL STYLE –Study of the Falling Waters, Bear Run, Pennsylvania (1939) by FI Wright 7.2 Distinction between ‘served’ and ‘servant’ spaces – Study of the AN Richards Medical Laboratories, Philadelphia (1961) by Louis I. Kahn	4

COURSE OBJECTIVES

On satisfactory completion of the course, the students should be in a position to understand:

- (i) Development of different philosophy and styles of world architecture since the Industrial Revolution to the middle of the twentieth century.

REFERENCE BOOKS

1. A History of Architecture / Sir Banister Fletcher / Butterworth Heinemann (Hb), CBS(Pb)
2. The Story of Architecture FROM ANTIQUITY TO THE PRESENT / Jan Gympel / Könemann
3. Puzzle of Architecture / Robin Boyd / Melbourne Architectural Press
4. Architecture Highlights! / Adams Hubertus and Paul Jochen / DUMONT monte
5. At The End of The Century: One Hundred Years of Architecture / Edited by Russel Ferguson / The Museum of Contemporary Art, Los Angeles, Harry N. Abrams Inc., Publishers
6. Crash Course in Architecture / Eva Howarth / Caxton Editions

Course Code	:	ARPC 307
Course Title	:	ARCHITECTURAL PROFESSIONAL PRACTICE
Number of Classes	:	2(Lecture: 2, Tutorial:0,Practical: 0)
Number of Credit	:	2
Prerequisites	:	NIL
Course offered in	:	Fifth Semester
Course duration	:	17weeks
Course Category	:	PC

MODULAR DIVISION OF THE SYLLABUS

Module	Topic	Lecture
1	ARCHITECTURE AS A PROFESSION	2
2	THE ARCHITECTS ACT	4
3	CODES & BYE- LAWS	5
4	THE WEST BENGAL MUNICIPAL BUILDING RULES	10
5	TENDERS& CONTRACTS	6
6	ARBITRATION	3
CONTACT PERIODS: 30		INTERNAL ASSESSMENTS: 4
TOTAL PERIODS: 34		

SEMESTER EXAMINATION SCHEME

MODULE	OBJECTIVE QUESTIONS				SUBJECTIVE QUESTIONS							
	PART A				PART B				PART C			
	TO BE SEEN	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS	TO BE SEEN	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS	TO BE SEEN	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS
1	3	Any THIRTY	1	1x30=30	1	Any SIX	2	2x6=12	1	Any THREE	6	6x3=18
2	7				2				1			
3	8				2				1			
4	10				2				2			
5	10				2				2			
6	7				1				2			

MARKS ALLOTMENT

SL.NO	INTERNAL ASSESSMENT		SEMESTER EXAM	
	TYPE	MARKS	QUESTION TYPE	MARKS
1	Mid Semester Tests	20	Part A	1x30=30
2	Quizzes, Viva-voce, Assignments	10	Part B	2X6=12
3	Class Attendance	10	Part C	6X3=18

Total Marks: 100

DETAIL COURSE CONTENT

MODULE NO.	TOPIC	CONTENTS	CONTACT PERIODS
1	Architecture as a Profession	1.1 INTRODUCTION — Role of Architects	2
2	The Architects Act, 1972	2.1 PRELIMINARY – Short title, Extent and Commencement- Definitions 2.2 CONSTITUTION OF COUNCIL OF ARCHITECTURE – Body Formation 2.3 RECOGNITIONS OF QUALIFICATIONS granted by authorities in India (The Schedule) 2.4 ARCHITECTS (PROFESSIONAL CONDUCT) REGULATION, 1989 2.5 ARCHITECTS (PROFESSIONAL CONDUCT) REGULATION, 2020	4
3	Codes & Bye-Laws	3.1 Difference between act and rules 3.2 Principal of building rules. 3.3 Things to be considered during designing a building by an architect. 3.4 Fire guideline rules of building. 3.5 introduction of CODES AND BYLAWS 3.6 Introduction to codes followed by THE NATIONAL BUILDING CODE OF INDIA 3.7 Introduction to bye-laws followed by THE KOLKATA MUNICIPAL CORPORATION BUILDING RULES and THE NEW-TOWN-KOLKATA DEVELOPMENT AUTHORITY ACT AND RULES	5
4	The West Bengal Municipal Building Rules	4.1 DEFINITIONS 4.2 Key (Location) Plan – Site Plan – Building Plans – Sizes of Drawing Sheets – Colouring Notations for Plans – Dimensions 4.3 ENGAGEMENT OF TECHNICAL PERSONNEL – Association of Engineers with Architect – Licensed Building Surveyor – Duties and Responsibilities of Architect and Licensed Building Surveyor 4.4 OPEN SPACES 4.5 AREA AND HEIGHT LIMITATIONS 4.6 PARKING, LOADING AND UNLOADING SPACE [excluding Mercantile (retail), Industrial or Storage or Hazardous or Mercantile (wholesale)] 4.7 PROVISIONS FOR MORE THAN ONE BUILDING IN PLOT 4.8 REQUIREMENTS OF PART OF BUILDINGS 4.9 FIRE PROTECTION AND EXIT REQUIREMENTS 4.10 BUILDING AND PLUMBING SERVICES	10
5	Contracts & Tenders	5.1 CONTRACTS: Definition & Types – Definitions - Role of Contractors in construction arena 5.2 TENDER: Definition & Types - Definitions 5.3 TENDER DOCUMENTS & TENDER NOTICE 5.4 EARNEST MONEY & SECURITY DEPOSIT - Definitions	6
6	Arbitration	6.1 ARBITRATION & ARBITRATOR - Definitions 6.2 DIFFERENT KINDS OF ARBITRATION ACCORDING TO ARBITRATION ACT, 1940 6.3 PROCEDURE OF SETTLEMENT OF DISPUTE BY ARBITRATION	3

COURSE OBJECTIVES

On satisfactory completion of the course, the students should be in a position to understand:

- (i) role of architects, contractors and other consultants in the profession;
- (ii) provisions of The Architects Act 1972, the constitution of The Council of Architecture, the qualifications recognized by the Council of Architecture for enrolment in its registrar and the Architects (Professional Conduct) Regulation, 1989;
- (iii) the terms 'codes' & 'by-laws' followed by The National Building Code of India, The Kolkata Municipal Corporation Building Rules and The New-Town-Kolkata Development Authority Act and Rules;
- (iv) latest amended provisions of The West Bengal Municipal Building Rules relevant to the design & drawing of architectural projects;
- (v) concepts of Tenders, Contracts and Arbitration and their essential characteristics.

REFERENCE BOOKS

1. Publications of Council of Architecture-Architects (Professional conduct) Regulations; 1989
2. Madhav Deobhakta, Architectural Practice in India
3. Architects Act; 1972
4. Roshan Namavati, Professional Practice

Course Code	:	ARPC 309
Course Title	:	ARCHITECTURAL DESIGN-III
Number of Classes	:	1(Lecture: 0, Tutorial: 1, Practical: 0)
Number of Credit	:	1
Prerequisites	:	Knowledge on Architectural Design – II of fourth semester
Course offered in	:	Fifth Semester
Course duration	:	17weeks
Course Category	:	PC
Note: A six-hour end semester examination of 60 marks is to be held at the end of fifth semester on the syllabus of Architectural Design– III. A fifteen minutes recess is to be provided after three hours of the exam. The codes of Municipal Building Rules and the National Building Code of India are to be allowed in the examination hall.		

MODULAR DIVISION OF THE SYLLABUS

Module	Topic	Lecture
1	INTRODUCTION TO ARCHITECTURAL DESIGN	9
2	ARCHITECTURAL DESIGN PROCESS	6
CONTACT PERIODS: 15	INTERNAL ASSESSMENTS: 2	TOTAL PERIODS: 17

SEMESTER EXAMINATION SCHEME

MODULE	OBJECTIVE QUESTIONS				SUBJECTIVE QUESTIONS				FULL MARKS
	PART A				PART B				
	TO BE SEEN	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS	TO BE SEEN	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS	10 + 50
1	10	Any TEN	1	1x10= 10	1	Any ONE	50	1x50= 50	60
2	10				1				

MARKS ALLOTMENT

SL.NO	INTERNAL ASSESSMENT		SEMESTER EXAM	
	TYPE	MARKS	QUESTION TYPE	MARKS
1	Mid Semester Tests	20	Part A	1x10=10
2	Quizzes, Viva-voce, Assignments	10	Part B	1 X 50 = 50
3	Class Attendance	10		

Total Marks: 100

DETAIL COURSE CONTENT

MODULE NO.	TOPIC	CONTENTS	CONTACT PERIODS
1	Introduction to Architectural Design	1.1 INTRODUCTION TO PUBLIC BUILDINGS – Brief introduction of the following topics: <i>Higher Secondary School, District Library, Youth Hostel (40 accommodation), Motel (40 rooms with combination of single and double accommodation), Rural Health Centre (as per NRHM guidelines) or any other topic of similar relevance</i> – case study to be done on projects relevant to the respective design studio sessional assignment	9
2	Architectural Design Process	2.1 PRIMARY CASE STUDY –study of a Public Building for grouping of users and functions (visitors and regular users), their spatial relationships, architectural features, etc.(exercise to be done by physical mode 2.2 SECONDARY CASE STUDY – Site and Building Level Study – study sheets on Location of Site, Landform, Orientation and Climate, Movement and Circulation, Spaces and Forms, Character and Style, etc. – architectural features and design aspects, effects of Colours, and Materials, Sciography of buildings, Structure System, Building Services, or unique construction techniques, etc. (if any) – relevant to the respective design studio sessional (exercise to done from internet/ books/ magazines) 2.3 LITERATURE STUDY – study of Standards, furniture dimensions and circulation details based on anthropometry – study of Codes and Bye-Laws on building and site design – National Building Code of India, Municipal Bye-Laws, etc. – study of Area Programming, design criteria, occupancy load, etc. – as per site provided by faculty for the respective design studio sessional	6

COURSE OBJECTIVES

On satisfactory completion of the course, the students should be in a position to understand:

- (i) design guidelines for public buildings;
- (ii) Definitions of different parts for public buildings;
- (iii) Design for multiple groups of users considering site, climate, services, bye-laws;
- (iv) design process and design solution for public buildings.

REFERENCE BOOKS

1. SP 7(1): National Building Code of India 2005 Group 1 – Part III Development Control Rules and General Building Requirements / Bureau of Indian Standards
2. The Kolkata Municipal Corporation Building Rules, 2009
3. Time Savers Standards for Building Types/ Architecture Series/ McGraw Hill International Editions
4. Time Savers Standards for Architectural Design Data/ Architecture Series/ McGraw Hill International Editions
5. Architects' Data/ Ernst and Peter Neufert/ Blackwell Publishers

Course Code	:	ARPE 301 (Programme Elective-II)
Course Title	:	BUILDING MAINTENANCE & REPAIRING
Number of Classes	:	2(Lecture: 2, Tutorial:0,Practical: 0)
Number of Credit	:	2
Prerequisites	:	Knowledge on Building Materials& Construction
Course offered in	:	Fifth Semester
Course duration	:	17weeks
Course Category	:	PE

MODULAR DIVISION OF THE SYLLABUS

Module	Topic	Lecture
1	OPERATION, MAINTENANCE & REPAIR OF BUILDINGS	3
2	FOUNDATION	2
3	MASONRY WALLS	5
4	FLOORS & ROOFS	5
5	R.C.C. & STEEL STRUCTURES	10
6	TIMBER WORKS	2
7	DILAPIDATION OF BUILDINGS	3
CONTACT PERIODS: 30		INTERNAL ASSESSMENTS: 4
TOTAL PERIODS: 34		

SEMESTER EXAMINATION SCHEME

MODUL E	OBJECTIVE QUESTIONS				SUBJECTIVE QUESTIONS											
	PART A				PART B				PART C							
	TO BE SE T	TO BE ANSWER ED	MARKS PER QUESTIO N	TOTAL MARK S	TO BE SE T	TO BE ANSWER ED	MARKS PER QUESTIO N	TOTA L MARK S	TO BE SE T	TO BE ANSWER ED	MARKS PER QUESTIO N	TOTA L MARK S				
1	5	Any THIRTY	1	1x30=30	1	Any SIX	2	2x6=12	1	Any THREE	6	6x3=18				
2	5				1				1							
3	7				2				1							
4	8				2				1							
5	10				2				2							
6	5				1				1							
7	5				1				2							
MARKS ALLOTMENT																
SL.NO	INTERNAL ASSESSMENT				SEMESTER EXAM											
	TYPE				MARKS				QUESTION TYPE				MARKS			
1	Mid Semester Tests				20				Part A				1x30=30			
2	Quizzes, Viva-voce, Assignments				10				Part B				2X6=12			
3	Class Attendance				10				Part C				6X3=18			
Total Marks: 100																

DETAIL COURSE CONTENT

MODULE NO.	TOPIC	CONTENTS	CONTACT PERIODS
1	Operation, Maintenance & Repair of Buildings	1.1 OPERATION, MAINTENANCE AND REPAIRS OF BUILDINGS 1.2 MAINTENANCE 1.3 DISTRESS OF STRUCTURES – Causes of distress – Defect – Decay 1.4 DAMAGE – Detection of damage 1.5 REMOVAL OF DAMAGE – Repairs of structures 1.6 CLASSIFICATION OF MAINTENANCE OF WORKS 1.7 ANNUAL BUDGETARY PROVISION 1.8 DETERMINATION OF APPROXIMATE AGE OF A BUILDING	3
2	Foundation	2.1 SETTLEMENT OF FOUNDATION – Causes 2.2 REPAIRS TO FOUNDATION	2
3	Masonry Walls	3.1 REMEDIES OF DAMP WALL – Permanent remedies -Temporary remedies 3.2 CONDENSATION – Causes – effects - Remedial and preventive measures 3.3 EFFLORESCENCE – Causes – Effects – Eradication of efflorescence 3.4 CRACKS IN WALLS – Causes of development of cracks – Structural cracks and surface cracks 3.5 INVESTIGATION OF CRACK – Remedial and preventive measures 3.6 PRECAUTION WHILE CARRYING REPAIRS OF LOAD BEARING WALLS 3.7 DEFECTS IN PLASTERING AND REPAIR WORKS 3.8 EFFECT OF AGE, WEATHER, ENVIRONMENT AND TEMPERATURE VARIATION ON MASONRY STRUCTURE	5
4	Floors & Roofs	4.1 RCC ROOFS WITH LIME TERRACING LEAKING – Remedial measures 4.2 WATER PROOFING COMPOUNDS – Water proofing white wash – Water proofing solutions – Sylvester process of water proofing the surface 4.3 FILLING CRACKS IN TERRACED ROOF – Repairing hair cracks 4.4 DESTROYING THE VEGETATION WITH ROOTS IN MASONRY	5
5	R.C.C. & Steel Structure	5.1 FACTORS AFFECTING DURABILITY OF CONCRETE – Remedial measures 5.2 MAINTENANCE AND REHABILITATION – Repair of concrete structures – Physical examination of common defects and damages – Inspection of the cracks 5.3 REPAIRS IN CONVENTIONAL METHOD – Structural repairs and strengthening – Repairs to structures by new development: Chemicals – Other new developments 5.4 CAUSES OF FAILURE OF RCC FRAMED STRUCTURES 5.5 DECAY OF DIFFERENT PARTS OF STAIRS 5.6 PRELIMINARY TO MAINTENANCE OF STEEL STRUCTURES: Maintenance procedure – Protective surface coating	10
6	Timber Work	6.1 Protection of timber works 6.2 Repairs to wooden shutters	2
7	Dilapidation Of Buildings	7.1 Dilapidated Building – Building unsafe for habitation – Causes of dilapidation of buildings – Rehabilitation of dilapidated building 7.2 Factors influencing the degree of dilapidation of buildings 7.3 When a building is to be considered for demolition	3

COURSE OBJECTIVES

On satisfactory completion of the course, the students should be in a position to understand:

- (i) the Causes of Damage of a building, Maintenance procedure and calculation of budget;
- (ii) the methods of repairing different parts of a building, viz. foundation, masonry walls, RCC & steel structures and timber works;
- (iii) causes of dilapidation of buildings and when a building is to be considered for demolition.

REFERENCE BOOKS

1. Maintenance and repairs of Buildings / P.K. Guha/ New central book agency(p)Ltd., 8/1 Chintamani Das Lane , Kolkata-700009
2. Building Repair and Maintenance management/ P.S. Gahlot./ CBS publication
3. Maintenance Repair & Rehabilitation & Minor works of Building/ P.C. Varghese/ PHI Publication

Course Code	:	ARPE 301 (Programme Elective-II)
Course Title	:	STEEL ARCHITECTURE
Number of Classes	:	2 (Lecture: 2, Tutorial: 0, Practical: 0)
Number of Credit	:	2
Prerequisites	:	NIL
Course offered in	:	Fifth Semester
Course duration	:	17 weeks
Course Category	:	PE

MODULAR DIVISION OF THE SYLLABUS

Module	Topic	Lecture
1	INTRODUCTION TO STEEL	2
2	HISTORY OF METAL IN CONSTRUCTION	6
3	STEEL AS A STRUCTURAL ELEMENT	10
4	STEEL AS A SUSTAINABLE MATERIAL	8
5	PROTECTION OF STEEL	4
CONTACT PERIODS: 30		INTERNAL ASSESSMENTS: 4
TOTAL PERIODS: 34		

SEMESTER EXAMINATION SCHEME

MODUL E	OBJECTIVE QUESTIONS				SUBJECTIVE QUESTIONS							
	PART A				PART B				PART C			
	TO BE SE T	TO BE ANSWER ED	MARKS PER QUESTIO N	TOTAL MARK S	TO BE SE T	TO BE ANSWER ED	MARKS PER QUESTIO N	TOTA L MARK S	TO BE SE T	TO BE ANSWER ED	MARKS PER QUESTIO N	TOTA L MARK S
1	5	Any THIRTY	1	1x30=30	2	Any SIX	2	2x6=12	1	Any THREE	6	6x3=18
2	10				2				1			
3	10				2				3			
4	10				2				2			
5	10				2				2			

MARKS ALLOTMENT

SL.NO	INTERNAL ASSESSMENT		SEMESTER EXAM	
	TYPE	MARKS	QUESTION TYPE	MARKS
1	Mid Semester Tests	20	Part A	1x30=30
2	Quizzes, Viva-voce, Assignments	10	Part B	2X6=12
3	Class Attendance	10	Part C	6X3=18

Total Marks: 100

DETAIL COURSE CONTENT

MODULE NO.	TOPIC	CONTENTS	CONTACT PERIODS
1	Introduction to Steel	1.1 STUDY OF MATERIALITY OF STEEL – structural properties of steel, advantages of steel in construction	2
2	History of Metal in Construction	2.1 VARIOUS INDUSTRY-MANUFACTURE STEEL - hollow structural sections, hot rolled steel shapes, various hollow structural sections 2.2 UNDERSTANDING OF VARIOUS TYPOLOGIES OF HIGH-TECH MOVEMENT – extruded, grid/bay, arched / curved structures, tensile	6
3	Steel as a Structural Element	3.1 COMPARISON OF DIAGRID STRUCTURES WITH STANDARD-FRAME STRUCTURES 3.2 STUDY OF EVOLUTION OF AESS (architecturally exposed structural steel) through high-tech movement, its connection types (bolted, welded and cast connections), member types (tubular and standard sections) 3.3 VARIOUS STEEL FRAME DESIGNS – basic connection strategies, basic understanding of steel truss systems and braced systems	10
4	Steel as a Sustainable Material	4.1 INTRODUCTION TO STEEL AS A SUSTAINABLE MATERIAL - recycled, reuse, adaptive reuse of steel and glazing systems, support systems for glazing 4.2 STUDY OF TECHNICAL ASPECTS OF COMBINING STEEL WITH GLASS – various steel and glass envelope systems (curtain wall system, wind braced support systems, spider steel connections with structural glass, simple and complex cable systems, handling curves and lattice shell construction)	8
5	Protection of Steel	5.1 PROTECTION OF STEEL FROM CORROSION AND FIRE – various finishes and coating systems of steel 5.2 BRIEF STUDY CORROSION PROTECTION AND FIRE PROTECTION SYSTEMS	4

COURSE OBJECTIVES

On satisfactory completion of the course, the students should be in a position to understand:

- (i) The application of steel as structural material and its use in buildings of simple and complex nature;
- (ii) advanced applications of steel in buildings.

REFERENCE BOOKS

1. Stainless Steel Surfaces: A Guide to Alloys, Finishes, Fabrication and Maintenance in Architecture and Art /
L. William Zahner / WILEY
2. Architecture and Construction in Steel / Edited By Alan Blanc, Michael McEvoy, Roger Plank /
Taylor & Francis
3. Architectural Design in Steel / Mark Lawson, Peter Trebilcock

Note:-Student can choose any one subject for programme elective-II

SESSIONAL SUBJECTS

Course Code	:	ARPC 311
Course Title	:	ARCHITECTURAL DESIGN-III
Number of Classes	:	4(Lecture: 0, Tutorial: 0, Practical: 4)
Number of Credit	:	2
Prerequisites	:	Knowledge on Architectural Design – II of fourth semester
Course offered in	:	Fifth Semester
Course duration	:	17weeks
Course Category	:	PC

MODULAR DIVISION OF THE SYLLABUS

Module	Topic	Periods
1	INTRODUCTION TO ARCHITECTURAL DESIGN	25
2	ARCHITECTURAL DESIGN, DRAWING AND PRESENTATION	35
CONTACT PERIODS: 60		INTERNAL ASSESSMENTS: 8
TOTAL PERIODS: 68		

SEMESTER EXAMINATION SCHEME

SL. NO.	INTERNAL ASSESSMENT (continuous throughout the semester)		EXTERNAL ASSESSMENT (by external evaluator)	
	TYPE	MARKS	TYPE	MARKS
1	Drawing Sheets	40	Drawing Sheets	20
2	Class Performance, Viva-voce	10	Assignments on the day of exam	10
3	Class Attendance	10	Viva-voce	10
	Total	60	Total	40
Total Marks				100

DETAIL COURSE CONTENT

COURSE CONTENT

Each student is required to prepare design of a Multi-Activity Public Facility – Higher Secondary School, District Library, Youth Hostel (40 accommodation), Motel (40 rooms with combination of single and double accommodation), Rural Health Centre (as per NRHM guidelines) or any other topic of similar relevance.

Note: The final drawings should be done entirely on drafting softwares (AutoCAD, REVIT, etc.). Submission of printed sheets with proper rendering.

MODULE NO.	TOPIC	CONTENTS	CONTACT PERIODS	SHEET SIZE AND QUANTITY
1	Introduction to Architectural Design	1.1 SITE STUDY – Location of Site, Orientation and Climate, Landform, Visibility, Movement and Circulation, etc. – relevant plans, sections, elevations or detail drawings, and analysis 1.2 SPATIAL ORGANIZATION – Zoning of activities in the site, Bubble-Diagram and space planning of functions	25	sheets, as required

2	Architectural Design, Drawing and Presentation	2.1 PLANNING AND DESIGN – The design should be presented through a set of architectural drawings in a suitable scale consisting of at least the following sheets: (a) Plans – Key Plan, Site Plan, Landscape Plan, Floor Plans, Roof Plan, Furniture Layouts; (b) Elevations – Front, Rear and one Side Elevation; (c) Sections – two Sectional Elevations through toilet(s), staircase(s), or other service zones (if any) (d) Physical Model or Perspective Views	35	sheets, as required

COURSE OBJECTIVES

On satisfactory completion of the course, the students should be in a position to understand:

- (i) The architectural design for public buildings as per building bylaws with drawings, sketches and models;
- (ii) the design process for public buildings and the presentation of architectural design.

REFERENCE BOOKS

1. SP 7(1): National Building Code of India 2005 Group 1 – Part III Development Control Rules and General Building Requirements / Bureau of Indian Standards
2. The Kolkata Municipal Corporation Building Rules, 2009
3. Time Savers Standards for Building Types/ Architecture Series/ McGraw Hill International Editions
4. Time Savers Standards for Architectural Design Data/ Architecture Series/ McGraw Hill International Editions
5. Architects' Data/ Ernst and Peter Neufert/ Blackwell Publishers

Course Code	:	ARPC 313
Course Title	:	WORKING DRAWING– III
Number of Classes	:	5 (Lecture: 0, Tutorial: 1, Practical: 4)
Number of Credit	:	3
Prerequisites	:	NIL
Course offered in	:	Fifth Semester
Course duration	:	17 weeks
Course Category	:	PC

MODULAR DIVISION OF THE SYLLABUS

Module	Topic	Periods
1	APPROVAL DRAWING	12
2	GROUND FLOOR PLAN	12
3	TYPICAL FLOOR PLAN	12
4	ROOF PLAN	6
5	ELEVATIONS	15
6	SECTIONAL ELEVATIONS	18
CONTACT PERIODS: 75		
INTERNAL ASSESSMENTS: 10		
TOTAL PERIODS: 85		

SEMESTER EXAMINATION SCHEME

SL. NO.	INTERNAL ASSESSMENT (continuous throughout the semester)		EXTERNAL ASSESSMENT (by external evaluator)	
	TYPE	MAR KS	TYPE	MAR KS
1	Drawing Sheets	40	Drawing Sheets	20
2	Class Performance, Viva-voce	10	Assignments on the day of exam	10
3	Class Attendance	10	Viva-voce	10
	Total	60	Total	40
Total Marks				100

DETAIL COURSE CONTENT

COURSE CONTENT				
Each student is required to prepare a set of working drawings in 1:50 scale, unless otherwise mentioned, of a simple framed structure. The architectural design may be one designed by the student in the subject Architectural Design – II of fourth semester, or may be one supplied by the teacher-in-charge.				
Module	Topic	Tutorial Periods	Sessional Periods	Sheet size, No. of Sheets(A0/A1)
1	APPROVAL DRAWING FOR KMC Prepare a set of approval drawing of the building designed by the students in 4 th semester in the subject AD-II, structural drawing and area statement.	2	10	2 nos.
2a)	WORKING DRAWING GROUND FLOOR PLAN – showing dimensions of all rooms / spaces, thickness of walls, inner & outer plaster line, door / window markings & their positions, widths of flight, landing, tread, stairwell (if any), number of treads, drop line in toilet, kitchen & veranda	2	10	1 no.
2b)	TYPICAL FLOOR PLAN – showing dimensions of all rooms / spaces, thickness of walls, inner & outer plaster line, door / window markings & their positions, widths of flight, landing, tread, stairwell (if any), number of treads, drop line in toilet, kitchen & veranda	2	10	1 no.
2c)	ROOF PLAN – showing <i>ghundi</i> , slope & ridge line, rainwater pipe, anti-siphonage pipe, soil pipe, vent pipe, over head tank, ring main, thickness of parapet wall, and sectional plan of staircase with all relevant information	2	4	1 no.
2d)	ELEVATIONS – Front, Rear & two Side Elevations – showing ground level, plinth level, sill level, lintel level, floor level, roof level, staircase roof level, their height &	3	12	3 nos.

	total height, height of parapet wall, roof projection (if any) and specification of any elevation features			
2e)	SECTIONAL ELEVATIONS – two sectional elevations – showing staircase, kitchen, toilet, veranda, showing main entrance to staircase, exit from staircase to roof, flights of steps in section and elevation, ground level, plinth level, floor level, roof level, sill & lintel level, roof/roof parapet height, loft height	4	14	2 nos.

COURSE OBJECTIVES

On satisfactory completion of the course, the students should be in a position to understand:

- (i) the design intent of the architect;
- (ii) develop and convert the design intent into a set of good for construction drawings;
- (iii) be able to read working drawings;
- (iv) communicate with consultants and construction team.

REFERENCE BOOKS

1. Francis D. K. Ching, Architectural Graphics 76
2. Charles George Ramsey, Architectural Graphics Standard
3. Dennis J. Hall, Architectural Graphics Standard for Residential Construction
4. Travis Kelly Wilson, Drafting & Design: Basics for Interior Design

Course Code	:	ARPE303 (Programme Elective-III)
Course Title	:	INTERIOR DESIGN
Number of Classes	:	3(Lecture: 0, Tutorial: 1, Practical: 2)
Number of Credit	:	2
Prerequisites	:	NIL
Course offered in	:	Fifth Semester
Course duration	:	17 weeks
Course Category	:	PE

MODULAR DIVISION OF THE SYLLABUS

Module	Topic	Periods
1	INTRODUCTION	1
2	ANTHROPOMETRIC DATA STUDY CONSIDERING ERGONOMICS	2
3	FACTORS AFFECTING INTERIOR DESIGN	1
4	INTERIOR SPACE DESIGN	3
5	COLOUR & HUMAN PERCEPTION	2
6	ARTIFICIAL LIGHTING BASIC LIGHT SOURCES	2
7	DRYWALL PARTITION	2
8	OTHER INTERIOR ACCESSORIES	2
9	DESIGN OF INTERIOR SPACE	8
10	SECTIONAL ELEVATIONS	8
11	REFLECTED CEILING PLAN	8
12	DETAILING	6
CONTACT PERIODS: 45		INTERNAL ASSESSMENTS: 6
TOTAL PERIODS: 51		

SEMESTER EXAMINATION SCHEME

SL. NO.	INTERNAL ASSESSMENT (continuous throughout the semester)		EXTERNAL ASSESSMENT (by external evaluator)	
	TYPE	MARKS	TYPE	MARKS
1	Drawing Sheets	40	Drawing Sheets	20
2	Class Performance, Viva-voce	10	Assignments on the day of exam	10
3	Class Attendance	10	Viva-voce	10
	Total	60	Total	40
Total Marks				100

Course Objectives:

On successful completion of the course, a student will be in a position to prepare design schemes of interior of residential or commercial or business spaces.

Course Content:

Each student is required to prepare design of an interior space of a commercial / a business space (within 40 sqm to 50 sqm. area) as example restaurant dining area, director's office, workstation of an architectural office, display area of a garments shop, jewellery shop etc. The sessional work should consist of the following scheme of sheets.

Module	Topic	Class Type	Contact Periods	Sheet size and quantity
1	INTRODUCTION- DEFINITION of Interior Design- ROLE of interior design in architecture- DIFFERENCE of interior design with interior decoration	Theory	1	-
2	ANTHROPOMETRIC DATA STUDY CONSIDERING ERGONOMICS - Definition of ANTHROPOMETRY & ERGONOMICS – Movement and Circulation spaces – Furniture sizes	Theory	2	-
3	FACTORS AFFECTING INTERIOR DESIGN- Location, needs and preferences — Availability of materials — Financial limit and maintenance	Theory	1	-
4	INTERIOR SPACE DESIGN Analysis of activity, selection of furniture and layout considering circulation of the following spaces:— (i) RESIDENTIAL SPACE: Living room – Dining space – Bed room – Kitchen – Toilet (ii) COMMERCIAL SPACE: Eatery (restaurant, snack bar, cafeteria, coffee shop, speciality restaurant) – Showroom of a jewellery – Boutique - Garments' shop – Leather goods' shop (iii) OFFICE SPACE: General office – Reception – Executive's chamber – Conference room with service facility	Theory	3	-
5	COLOUR & HUMAN PERCEPTION: Effects of colour on human perception	Theory	2	-

6	ARTIFICIAL LIGHTING BASIC LIGHT SOURCES: Incandescent & Fluorescent (definitions, properties & suitability of uses) - TYPES: General, Task and Accent (definitions, properties & suitability of uses)- MODES: Up Lighting, Down Lighting & Wall Washing (definitions, properties & suitability of uses)- ARCHITECTURAL LIGHTING: Cove Lighting – Soffit Lighting – Valance Lighting.	Theory	2	–
7	DRY WALL PARTITION: Gypsum board – Cement board-Solid wall panel (construction details and suitability of usage) - Benefits of Drywall Partition	Theory	2	–
8	OTHER INTERIOR ACCESSORIES:- Interior plants :-Relevance of bonsai, cactus and other indoor plants used in interior design-Categories of house plants-Factors to be considered for arrangement of interior plants. Window treatment :-Roller blinds-Venetian Blinds-Vertical Blinds-Curtain finishes & applications.	Theory	2	--
9	Design of interior spaces showing furniture layout in plan (both movable & built-in) in 1 : 25 scale	Sessional	8	A2 sheets as required
10	Four sectional elevations showing furniture, fixtures & colour scheme in 1 : 25 scale	Sessional	8	A2 sheets as required
11	Reflected ceiling plan including electrical layout, mechanical ventilation and fire fighting system in 1:25 scale.	Sessional	8	A2 sheets as required
12	Detail design of skirting, dado, door, window treatment, wall paneling, false ceiling etc. in suitable scale.	Sessional	6	1 no. A2 sheet

Learning Outcomes:

On satisfactory completion of the course, the students will be able to apply their knowledge on following interior designing field;

- (i) Interior space planning;
- (ii) Ceiling plan with electrical layout
- (iii) Mechanical ventilation and fire fighting system
- (iv) Details of various interior design components

References:

1. TIME-SAVER STANDARDS FOR Interior Design and Space Planning / Chiara & Panero / McGraw-Hill
2. INTERIOR DESIGNER'S PORTABLE HANDBOOK / J.P. Guthrie / McGraw-Hill
3. ARCHITECTURAL GRAPHIC STANDARDS / Ramsey & Sleeper / John Wiley & Sons, New York
4. INTERIOR DESIGN ILLUSTRATED / F.D.K. Ching / Wiley
5. The Complete Home Design Book / Grey, Ardley, Hall, Katz, Garenta & Weiss / Dorling Kindersley
6. COLOR for INTERIOR ARCHITECTURE / M.C. Miller / John Wiley & Sons, New York
7. The Lighting Pattern Book for Homes / Lighting Research Center / McGraw-Hill
8. OUTDOOR LIGHTING PATTERN BOOK / Lighting Research Center / McGraw-Hill
9. Lighting Design Sourcebook 600 Solutions for Residential and Commercial Spaces / R. Whitehead / Rockport
10. INTERIOR DESIGN Principles and Practice / M.P. Rao / Standard Publishers Distributors
11. Color in Interior Design / John Pile / McGraw-Hill
12. Window Treatments / Heather Luke / Merehurst, London

Course Code	:	ARPE303 (Programme Elective-III)
Course Title	:	FURNITURE DESIGN
Number of Classes	:	3(Lecture: 0, Tutorial: 1, Practical: 2)
Number of Credit	:	2
Prerequisites	:	NIL
Course offered in	:	Fifth Semester
Course duration	:	17weeks
Course Category	:	PE

MODULAR DIVISION OF THE SYLLABUS

Module	Topic	Periods
1	HISTORY OF STYLES IN FURNITURE DESIGN	3
2	PARTITION WALLS	3
3	VARNISHING	3
4	STEPS TO DESIGN MODULAR KITCHEN	6
5	DETAIL DRAWING OF MODULAR KITCHEN	20
6	DETAIL DRAWING OF WOODEN JOINERY	4
7	DESIGN OF MODERN FURNITURE	6
CONTACT PERIODS: 45		INTERNAL ASSESSMENTS: 6
TOTAL PERIODS: 51		

SEMESTER EXAMINATION SCHEME

SL. NO.	INTERNAL ASSESSMENT (continuous throughout the semester)		EXTERNAL ASSESSMENT (by external evaluator)	
	TYPE	MARKS	TYPE	MARKS
1	Drawing Sheets	40	Drawing Sheets	20
2	Class Performance, Viva-voce	10	Assignments on the day of exam	10
3	Class Attendance	10	Viva-voce	10
	Total	60	Total	40
Total Marks				100

Course Objectives:

On successful completion of the course, a student will have a comprehensive idea regarding the furniture design of both historical and modern periods.

Course Content:

Each student is required to prepare a modular kitchen design and modern furniture design, drawing of different wood joint. The sessional work should consist of the following scheme of sheets.

Module	Topic	Class Type	Contact Periods	Sheet size and quantity
1	HISTORY OF STYLES IN FURNITURE DESIGN of American , English and French Period	Theory	3	–
2	PARTITION WALLS - CONSTRUCTION DETAILS AND SUITABILITY OF USAGE of timber & timber products, glass (sheet & block), metal sheets and gypsum board as partition walls.	Theory	3	–
3	VARNISHING - Types of varnish: Oil based & Spirit based (definition and constituents)- French Polish: lacquer, stain (definition and constituents) Varnishing techniques for old and new wood surfaces	Theory	3	–
4	STEPS TO DESIGN MODULAR KITCHEN : Layout planning- Choosing kitchen appliances- Storage optimization – Material selection – Colour combination – Under cabinet lighting – Integrating kitchen accessories with modular kitchen design	Theory	6	–
5	Detailed drawing (plan and two sectional elevations) of a modular kitchen within 8 to 12 sqm area in 1: 10 scale.	Sessional	20	A2 sheets as required
6	Detailed drawing of wood joints in 1:2 scale – Butt joint, dado, rabbet, lap joint, dove tail, mortise and tendon, tongue a groove.	Sessional	4	1 no. A2 sheet
7	Design of any two types of modern furniture (Arm chair/ Lounge chair/ Central table/ Side table/ TV cabinet/ Bed) using contemporary materials like tubular steel, plywood, moulded plastic, moulded fibre glass etc. Detailed drawings are to be done in 1:10 scale.	Sessional	6	1 no. A2 sheet

Learning Outcomes:

On satisfactory completion of the course, the students will be able to apply their knowledge on furniture designing for both modern furniture and furniture based on historical styles.

References:

1. TIME-SAVER STANDARDS FOR Interior Design and Space Planning / Chiara & Panero / McGraw-Hill
2. ARCHITECTURAL GRAPHIC STANDARDS / Ramsey & Sleeper / John Wiley & Sons, New York
3. HISTORY OF INTERIOR DESIGN & FURNITURE: From Ancient Egypt to Nineteenth Century Europe / R. Blackmore / Wiley
4. The Complete Home Design Book / Grey, Ardley, Hall, Katz, Garenta & Weiss / Dorling Kindersley
5. INTERIOR DESIGN Principles and Practice / M.P. Rao / Standard Publishers Distributors

Note:-Student can choose any one subject for programme elective-III

Course Code	:	ARPR301
Course Title	:	Architectural Project
Number of Classes per week	:	4(L-0,T-0,P-4)
Number of Credit	:	1
Prerequisites	:	Knowledge of 4 th Semester ADD-II
Course offered in	:	5 th Semester
Course Duration	:	17 weeks
Course Category	:	Major Project
Total Marks	:	100

OBJECTIVE-

Project Work is intended to provide opportunity for students to develop understanding of the interrelationship between different courses learnt in the entire diploma programme and to apply the knowledge gained from internships at the end of 5th semester in a way that enables them to develop & demonstrate higher order skills. The basic objective of a project class would be to ignite the potential of students' creative ability by enabling them to develop something which has social relevance, aging, it should provide a taste of real life problem that a diploma-holder may encounter as a professional. It will be appreciated if the polytechnics develop interaction with local industry and local developmental agencies viz. different panchayet bodies, the municipalities etc. for choosing topics of projects and / or for case study. The course further includes preparation of a Project Report which, among other things, consists of technical description of the project. The Report should be submitted in two copies, one to be retained in the library of the institute. The Report needs to be prepared in computer using Word, CADD & 3D software wherever necessary.

GENERAL GUIDELINE

Project Work is conceived as a group work through which the spirit of team building is expected to be developed. Students will be required to carry out their Project Works in groups under supervision of a lecturer of their core discipline who will work as a Project Guide. It is expected that most of the lecturers of the core discipline will act as project guide and each should supervise the work of at least two groups. Number of students per group will vary with the number of lecturers acting as Project Guide and student strength of that particular class.

THE ARCHITECTURAL PROJECT

Each group, under the guidance of a project guide, will select one topic and precaution should be taken so that it does not become repetition of those undertaken under the subjects Architectural Design– III & IV. While selection of the topic, care should be taken to see that its scale remains well within the scope of the particular group of students. The choice of medium & mode of presentation, the scale of drawing (s), and, the number of sheets are to be decided by the students under the guidance of the project guide.

SEMESTER EXAMINATION SCHEME

SL. NO.	INTERNAL ASSESSMENT (continuous throughout the semester)		EXTERNAL ASSESSMENT (by external evaluator)	
	TYPE	MARKS	TYPE	MARKS
1	Study sheets &PPT presentation	40	Study sheets &PPT presentation	20
2	Class Performance, Viva-voce	10	Assignments on the day of exam	10
3	Class Attendance	10	Viva-voce	10
	Total	60	Total	40
Total Marks				100

MODULAR DIVISION OF THE SYLLABUS

COURSE	MODULE	TOPIC	CONTACT PERIODS
ARCHITECTURAL PROJECT WORK (GROUP – A) Fifth Semester Course Duration: 15 Weeks 4 Sessional contact periods per week Total Contact Periods:60	1	Introduction of the subject “Architectural Project Work” and group formation	2
	2	Topic selection and finalization	4
	3	Study (from Standards & Reference Books) Design concepts	6
	4	Case Study (from Primary & Secondary Sources)	6
	5	Literature study	4
	6	Site Analysis , Zoning	6
	7	Identification of space and area requirement	6
	8	Flow Chart, Bubble Diagram & concept drawing	6
	9	Priliminary Design FInaliazations	20
Total Period			60

Course Code	:	SI301
Course Title	:	INTERNSHIP – II
Number of Classes	:	NIL
Number of Credit	:	1
Prerequisites	:	NIL
Course offered in	:	At the end of Fourth Semester
Course duration	:	4weeks
Course Category	:	SI
Total Marks	:	100

DETAIL COURSE CONTENT

<p>COURSE CONTENT</p> <p>Assessment of 100 marks will be done internally.</p> <p>After the end of fourth semester, each student is required to engage in professional training in an architectural office/ government architecture department as a fulltime trainee for at least a period of one month, as a part of Internship-II.</p> <p>After the completion of professional training, each student should prepare a comprehensive report with a set of drawings, indicating what he/she has observed and learnt in the training period. The training report should be signed by the Industrial supervisor/ Internship Faculty Mentor/ TPO/HOD.</p>
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The Internship report will be evaluated on the basis of following criteria

SI No	Criteria for evaluation of Internship Report
1	Originality
2	Adequacy and purposeful write-up
3	Organization, format, drawing, sketches, style, language
4	Practical applications, relationship with basic theory
5	Concepts taught in the course outcome
6	Practical applications, relationships with basic theory and concept taught in the course
7	Attendance record, daily diary, quality of the Internship Report

Seminars must be arranged for the students based on his/her training report, before an internal committee constituted by the concerned department of the institute. The evaluation will be based on the following criteria.

Sl No	Criteria for evaluation of Internship Seminar
1	Quality of content presented
2	Proper planning for presentation
3	Effectiveness of presentation
4	Depth of knowledge and skill
5	Viva voce

COURSE OBJECTIVES

On satisfactory completion of the course, the students should be in a position to understand:

- (i) A real-time exposure of how architectural projects are carried out;
- (ii) Office management and team-work to enhance the employability of the student.