

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



Syllabus
of

Diploma in Architecture [ARCH]

Part-III (6th Semester)

2023

Committee for Model Curriculum of full time Diploma Course in Architecture

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West Bengal State Council of Technical & Vocational Education and Skill Development (Technical Education Division)									
Teaching Scheme for Diploma in Engineering Courses: Branch- Architecture (6 th Semester)									
Sl no	Category	Code No	Course Title	Credits	periods			Contact hours per week	Marks
					L	TU	PR		
THEORY SUBJECTS									
1	Programme core course	HS302	Entrepreneurship and startups	3	2	1	0	3	100
2	Programme core course	ARPC302	Estimating, Costing, Specification & Valuation -II	2	2	0	0	2	100
3	Programme core course	ARPC304	Contemporary Architecture-II	2	2	0	0	2	100
4	Programme core course	ARPC306	Architectural Design-IV	1	0	1	0	1	100
5	Open elective	AROE302	Open Elective-I	3	3	0	0	3	100
6	Open elective	AROE304	Open Elective-II	3	3	0	0	3	100
SESSIONAL SUBJECTS									
7	Programme core course	ARPC308	Architectural Design-IV	2	0	0	4	4	100
8	Programme core course	ARPC310	Working Drawing-IV	3	0	1	4	5	100
9	Programme elective	ARPE302	Programme Elective-IV	2	0	1	2	3	100
10	Major Project	ARPR302	Architectural Project	3	0	1	4	5	100
11	Seminar	ARSE302	Architectural Seminar	1	0	1	0	1	100
Total				25	12	6	14	32	1100

LIST OF PROGRAMME ELECTIVE (PE) COURSES OF DIPLOMA IN ARCHITECTURE, WBSCT & VE and SD (IV semester-VI semester)

Course Code	Course Title	Hours Per Week			Semester	Credit
		L	TU	PR		
Programme Elective-I (Any one to be selected)						
ARPE 202	Surveying (Sessional)	0	1	2	IV	2
	Alternate Building Technology (Sessional)	0	1	2	IV	2
Programme Elective-II (Any one to be selected)						
ARPE 301	Building Maintenance & Repairing (Theory)	2	0	0	V	2
	Steel Architecture (Theory)	2	0	0	V	2
Programme Elective-III (Any one to be selected)						
ARPE 303	Interior Design (Sessional)	0	1	2	V	2
	Furniture Design (Sessional)	0	1	2	V	2
Programme Elective-IV (Any one to be selected)						
ARPE 302	Landscape Architecture (Sessional)	0	1	2	VI	2
	Architectural Conservation (Sessional)	0	1	2	VI	2

**LIST OF OPEN ELECTIVE (OE) COURSES OF DIPLOMA IN ARCHITECTURE
(VI Semester)**

Course Code	Course Title	Hours Per Week			Semester	Credit
		L	TU	PR		
AROE 302	Open Elective-I (Compulsory for all branches)					
	Engineering Economics & Project Management (Theory)	3	0	0	VI	3
Open Elective-II (Any one to be selected)						
AROE 304	Disaster Management (Theory)	3	0	0	VI	3
	Sustainable Architecture (Theory)	3	0	0	VI	3

**DETAIL SYLLABUS OF 6th SEMESTER ARCHITECTURE
(THEORY SUBJECTS)**

Course Title	Entrepreneurship and Start-ups
Course Code	HS 302
Number of Credits	3
Pre Requisites	None
Total Contact Hours	3(L: 2; T: 1)/week = 45 hrs
Course Category	HS

Course Learning Objectives

1. To raise awareness, knowledge and understanding of enterprise/ entrepreneurship.
2. To motivate and inspire students toward an entrepreneurial career.
3. To understand venture creation process and to develop generic entrepreneurial competences.
4. To introduce students to the basic steps required for planning, starting and running a business.
5. To familiarise students with the different exit strategies available to entrepreneurs.

Course Outcomes:

After completing the course students will able to:

CO 1	Identify qualities of entrepreneurs, develop awareness about entrepreneurial skill and mindset and express knowledge about the suitable forms of ownership for small business
CO 2	Comprehend the basics of Business idea, Business plan, Feasibility Study report, Project Report and Project Proposal
CO 3	Understand the concept of start-up business and recognise its challenges within legal framework and compliance issues related to business.
CO 4	Make a Growth Plan and pitch it to all stakeholders and compare the various sources of funds available for start-up businesses

Detailed Course Content

Unit	Name of the Topic	Hours
1.	<p>ENTREPRENEURSHIP – INTRODUCTION AND PROCESS</p> <ul style="list-style-type: none"> • Concept, Competencies, Functions and Risks of entrepreneurship • Entrepreneurial Values & Attitudes and Skills • Mindset of an employee/manager and an entrepreneur • Types of Ownership for Small Businesses <ul style="list-style-type: none"> ○ Sole proprietorship ○ Partnerships ○ Joint Stock company- public limited and private limited companies • Difference between entrepreneur and Intrapreneur 	10
2.	<p>PREPARATION FOR ENTREPRENEURIAL VENTURES</p> <ul style="list-style-type: none"> • Business Idea- Concept, Characteristics of a Promising Business Idea, Uniqueness of the product or service and its competitive advantage over peers. • Feasibility Study – Concept – Locational, Economic, Technical and Environmental Feasibility. Structure and Contents of a standard Feasibility Study Report • Business Plan – Concept, rationale for developing a Business Plan, Structure and Contents of a typical Business Plan • Project Report- Concept, its features and components • Basic components of Financial Statements- Revenue, Expenses (Revenue & capital exp), Gross Profit, Net Profit, Asset, Liability, Cash Flow, working capital, Inventory. Funding Methods-Equity or Debt. <p>Students are just expected to know about the features and key inclusions under, Business Plan and Project Report. <u>They may not be asked to prepare a Business Plan/ Project Report/ Project Feasibility Report in the End of Semester Examination.</u></p>	20
3.	<p>ESTABLISHING SMALL ENTERPRISES</p> <ul style="list-style-type: none"> • Legal Requirements and Compliances needed for establishing a New Unit- <ul style="list-style-type: none"> ○ NOC from Local body ○ Registration of business in DIC ○ Statutory license or clearance ○ Tax compliances 	03

4.	<p>START-UP VENTURES</p> <ul style="list-style-type: none"> • Concept & Features • Mobilisation of resources by start-ups: Financial, Human, Intellectual and Physical • Problems and challenges faced by start-ups. • Start-up Ventures in India – Contemporary Success Stories and Case Studies to be discussed in the class. <p>Case studies have been included in the syllabus to motivate and inspire students toward an entrepreneurial career from the success stories. <u>No questions are to be set from the case studies.</u></p>	04
5.	<p>FINANCING START-UP VENTURES IN INDIA</p> <ul style="list-style-type: none"> • Communication of Ideas to potential investors – Investor Pitch • Equity Funding, Debt funding – by Angel Investors, Venture Capital Funds, Bank loans to start-ups • Govt Initiatives including incubation centre to boost start-up ventures • MSME Registration for Start-ups –its benefits 	06
6.	<p>EXIT STRATEGIES FOR ENTREPRENEURS</p> <ul style="list-style-type: none"> • Merger and acquisition exit, Initial Public Offering (IPO), Liquidation, Bankruptcy – <u>Basic Concept only</u> 	02

Examination Scheme

❖ End Semester Examination: 60 marks

Suggested Question Paper Scheme for End Semester Examination

Group A: 20marks

Question Type	Number of questions to be set	Number of questions to be answered
MCQ, Fill in the blanks, True or False (Carrying 1 mark each)	25	20

Group B: 40marks

Question Type	Number of questions to be set	Number of questions to be answered
Subjective Type questions (Carrying 8 marks each)	10	5

❖ **Internal Assessment: 40 marks**

- Class test : 20 marks
- Assignment: 10 marks
- Class attendance: 10 marks

Suggested Learning Resources

Sl. No.	Title of Book	Author	Publication
1.	Entrepreneurship Development	Sangeeta Sharma	Prentice Hall of India Learning Private Ltd
2.	Entrepreneurship Development	S. Anil Kumar	New Age International
3.	Fundamentals of Entrepreneurship	Sangram Keshari Mohanty	Prentice Hall of India Learning Private Ltd
4.	Fundamentals of Entrepreneurship	Dr. G.K. Varshney	Sahitya Bhawan Publication
5.	Managing New Ventures: Concepts and Cases on Entrepreneurship	Anjan Raichaudhuri	Prentice Hall of India Learning Private Ltd
6.	How to Start a Business in India	Simon Daniel	Buoks, Chennai
7.	Entrepreneurship and Small Business Management	S.S. Khanka	S. Chand & Sons, New Delhi
8.	Entrepreneurship Development and Business Ethics	Abhik Kumar Mukherjee & Shaunak Roy	Oxford University Press
9.	Entrepreneurship Development and Business Ethics	Dr B Chandra & Dr B Biswas	Tee Dee Publications
10.	Entrepreneurship Development Small Business Entrepreneurship	Poornima Charantimath	Pearson Education India

Course Code	:	ARPC-302
Course Title	:	ESTIMATION, COSTING, SPECIFICATION & VALUATION - II
Number of Classes	:	2(Lecture: 2, Tutorial:0,Practical: 0)
Number of Credit	:	2
Prerequisites	:	NIL
Course offered in	:	Sixth Semester
Course duration	:	17weeks
Course Category	:	PC

Course Objectives:

On satisfactory completion of the course, a student will:—

- (i) understand the purposes and factors affecting rate analysis;
- (ii) be able to calculate the rate analysis for some common items of work;
- (iii) have knowledge regarding the general specifications of first & second classes of buildings and detailed specifications of some common items of work;
- (iv) understand the concepts of valuation, depreciation and other associated issues
- (v) Learn to calculate depreciation and valuation of a building by different methods.

MODULAR DIVISION OF THE SYLLABUS

Module	Topic	Lecture
1	ANALYSIS OF RATE	12
2	SPECIFICATION	08
3	VALUATION	10
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	15	Any THIRTY	1	1x30=30	3	Any SIX	2	2x6=12	2	Any THREE	6	6x3=18
2	15				3				2			
3	15				3				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
Module 1	ANALYSIS OF RATE	<p>DEFINITION — PURPOSE OF RATE ANALYSIS — FACTORS AFFECTING THE RATE PER UNIT OF AN ITEM: Materials – Labour – Equipments or Tools & Plants – Overhead or Establishment charges (including incidental) – Profit</p> <p>ANALYSIS OF RATE FOR: Earthwork – Brick Soling – Concrete Work – Shuttering & Staging – Damp Proof Course – Brick work – AAC block work-Lime Terracing on RCC roof – Plastering – Pointing – White Wash – Colour Wash</p>	12
Module 2	SPECIFICATION	<p>DEFINITION — PURPOSE OF SPECIFICATION — PRINCIPLES OF WRITING SPECIFICATION — TYPES OF SPECIFICATION: General specifications & Detailed specifications</p> <p>GENERAL SPECIFICATIONS of a First Class and Second Class Building</p> <p>DETAILED SPECIFICATIONS: Earthwork in Excavation – Earthwork in Filling – Brick Soling – Plain Cement Concrete – Reinforced Cement Concrete – Damp Proof Course – First Class Brickwork – Patent Stone Flooring – Terrazzo or Mosaic Flooring laid in situ – Cement Plaster Skirting – Glazed Tiles in Skirting and Dado – Woodwork for door and window frames – Woodwork for door and window shutters – Cement Plastering – Cement Pointing – Lime terracing – White washing – Colour washing – Distempering</p>	08
Module 3	VALUATION	<p>DEFINITIONS: Value, Cost, Price and Valuation — PURPOSE of Valuation — QUALIFICATIONS &FUNCTIONS OF A VALUER</p> <p>Difference between Value & Cost — SCRAP (or Junk or Demolition) VALUE & SALVAGE VALUE —ASSESSED VALUE — SPECULATIVE VALUE — SINKING FUND</p> <p>DEPRECIATION & OBSOLESCENCE — METHODS OF CALCULATING DEPRECIATION: Straight Line Method – Constant Percentage Method or Declining Balance Method – Sinking Fund Method</p> <p>METHODS OF VALUATION: Rental Method of Valuation – Land & Building Method of Valuation (or InitialCost based Valuation) – Direct Comparison Method of Valuation</p>	10

REFERENCE BOOK

1. ESTIMATING, COSTING, SPECIFICATION AND VALUATION IN CIVIL ENGINEERING /M.CHAKRABORTI /,21B, Bhabananda Road, Kolkata – 700 026
2. ESTIMATING & COSTING IN CIVIL ENGINEERING THEORY & PRACTICE INCLUDING SPECIFICATION & VALUATION / B. N. DUTTA / UBSPD
3. Schedule of Rates (Volume-I), Building Works, Public Works Department, Govt. of West Bengal

Course Code	:	ARPC -304
Course Title	:	Contemporary Architecture-II
Number of Classes	:	2(Lecture: 2, Tutorial:0,Practical: 0)
Number of Credit	:	2
Prerequisites	:	Knowledge on Contemporary Architecture-I
Course offered in	:	Sixth Semester
Course duration	:	17weeks
Course Category	:	PC

Course Objectives:

On satisfactory completion of the course, the students should be in a position to understand and explain the development of different philosophy and styles of world architecture in second half of the twentieth century with reference to contemporary architecture in independent India.

MODULAR DIVISION OF THE SYLLABUS

SEMESTER EXAMINATION SCHEME

GROU P	MODUL E	TOPIC	CONTACT PERIODS
A	1	SCULPTURAL ARCHITECTURE	2
	2	BRUTALISM	2
	3	STRUCTURAL INNOVATIONS	4
	4	POST MODERNISM	2
	5	DECONSTRUCTIONISM	2
	6	NEOMODERNISM	2
B	7	MODERN ARCHITECTURE & INDIA	6
	8	MAINSTREAM INDIAN ARCHITECTURE	6
	9	ALTERNATIVES FOR A DEVELOPING INDIA	4

CONTACT PERIODS: 30

INTERNAL ASSESSMENT: 4

TOTAL PERIODS: 34

SEMESTER EXAMINATION SCHEME

GROUP	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	
A	30	Any THIRTY	1	1x30=30	6	Any SIX	2	2x6=12	4	Any THREE	6	6x3=18	
B	15				3				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

MOD ULE NO.	TOPIC	CONTENTS	CONTACT PERIODS
GROUP – A MODERNISM – MOVEMENTS & COUNTERMOVEMENTS 14 PERIODS			
1	SCULPTURAL ARCHITECTURE	Exploit of constructional resources beyond traditional geometry – Monolithic structures without or with very few right angles – Study of the NOTRE DAME DU HAUT, RONCHAMP, FRANCE (1954) by CORBUSIER	2
2	BRUTALISM	Concrete exposed at its roughest – characterized by emphasis on exposed building materials and structural supports – massive monolithic forms with geometric lines – Study of the Boston City Hall, Boston, Massachusetts (1968) by <u>Gerhard Kallmann</u> and <u>Michael McKinnell</u>	2
3	STRUCTURAL INNOVATIONS	<p>3.1 THIN-SHELL STRUCTURE: Lightweight constructions using typically curved shell elements - Concrete shell structure - Cast as a monolithic dome or vault – Allows wide span without interior columns or exterior buttresses - Study of the TWA TERMINAL, JOHN F. KENNEDY AIRPORT, NEW YORK (1962) by EERO SAARINEN</p> <p>3.2 SUSPENDED STRUCTURE: Catenary-shaped roof - a cable system strung between outer-wall concrete columns angled away from the center - no supports or visual obstructions inside the structure - Study of the DULLES INTERNATIONAL AIRPORT, WASHINGTON DC (1962) by EERO SAARINEN</p>	4

4	POST MODERNISM	Pioneer ROBERT VENTURI – THEME: LESS IS BORE – Attacks modernist orthodoxy and elitism of modernist tradition – Urges architecture to come in terms with popular culture – Term formally defined by CHARLES JENKS referring to a style arising in the early 1970s – Hybrid, doubly-coded, half-modern and half-conventional – Study of the PORTLAND MUNICIPAL OFFICES, OREGON (1982) by MICHAEL GRAVES – Prominent works of the following eight post-modernist architects (name only): Robert Venturi, Charles Jenks, Mario Botta, Renzo Piano, Richard Rogers.	2
5	DECONSTRUCTIONISM	Influenced by the writings of philosopher JACQUES DERRIDAS – THEME: FORM FOLLOWS FANTASY coined by BERNHARD TSCHUMI – Apparent fragmentation of building forms – Rejection of the right-angle and curve in favour of the sharp acute angle – General reversal or at least questioning of all principles of design and construction conventionally believed to be axiomatic – Prominent works of the following five deconstructionist architects: Peter Eisenman, Zaha Hadid, Frank O. Gehry – Study of the following work: VITRA FIRE STATION, GERMANY (1993) by ZAHA HADID.	2
6	NEOMODERNISM	A dominant form of architecture in 20 th and 21 st century - A reaction to the complexity of postmodern architecture and eclecticism, seeking greater simplicity - Study of the following work : BEETHAM TOWER, MANCHESTER (2006) by IAN SIMPSON & RACHEL HAUGH OF SIMPSON HAUGH & PARTNERS	2
GROUP - B CONTEMPORARY INDIAN ARCHITECTURE			16 PERIODS
7	MODERN ARCHITECTURE & INDIA	Independent India's Prime Minister Nehru's allegiance to the Western industrial model – Invitation to European & American masters – Study of the (i) CAPITOL COMPLEX BUILDINGS, CHANDIGARH by LE CORBUSIER: THE ASSEMBLY (1960), THE HIGH COURT (1956) & THE SECRETARIAT (1956); and, (ii) INDIAN INSTITUTE OF MANAGEMENT, AHMEDABAD (1974) by LOUIS I KAHN.	6
8	MAINSTREAM INDIAN ARCHITECTURE	Coming out of the influence of colonial and foreign masters – Assimilation of modernism and late 20 th century global architectural trends with the living craft traditions and ritualistic link with heritage – Study of the (i) SANGATH, ARCHITECT'S OWN OFFICE, AHMEDABAD (1980) by BALKRISHNA DOSHI, (ii) ASIAD VILLAGE, NEW DELHI (1982) by RAJ REWAL, and, (iii) KANCHENJUNGA APARTMENTS, BOMBAY (1983) by CHARLES CORREA – Prominent architectural works of the following fifteen Indian architects: Habib Rahman, Achyut P. Kanvinde, Laurie Baker, C. P. Kukreja, Charles Correa, Joseph Allen Stein, B. V. Doshi, Hasmukh C. Patel, Raj Rewal, Romi Khosla, Anant D. Raje, Uttam C. Jain, Dulal Mukherjee, Prabir Mitra, and, Hafiz Contractor	6
9	ALTERNATIVES FOR A DEVELOPING INDIA	Design and planning as active agents of change in developing nation: 9.1 APPROPRIATE TECHNOLOGY: Alternate building materials & structures – Passive control of built environment – Vernacular building technology & aesthetics – Study of the Centre for Developing Studies, Trivandrum (1975) by Laurie Baker. 9.2 HUMAN SETTLEMENT PROGRAMMES: 'Site-and-Services' scheme – Study of the Aranya Township, Indore (1988) by Balkrishna Doshi – Vastu-Shilpa Foundation, Ahmedabad.	4

REFERENCE BOOKS

1. A History of Architecture (Century Edition) / Sir Banister Fletcher / Butterworth Heinemann (Hb), CBS Publishers & Distributors (Pb)
2. The Story of Architecture FROM ANTIQUITY TO THE PRESENT / Jan Gympel / Könemann
3. Puzzle of Architecture / Robin Boyd / Melbourne Architectural Press
4. AFTER THE MASTERS Contemporary Indian Architecture / Vikram Bhatt & Peter Scriver / Mapin Publishing Pvt. Ltd., Ahmedabad
5. THE LANGUAGE OF POST-MODERN ARCHITECTURE / Charles Jenks / Academy Editions, London
6. ARCHITECTURE HIGHLIGHTS! / Adams Hubertus and Paul Jochen / DUMONT monte
7. Architecture of Today / Andreas Papadakis & James Steele / TERRAIL
8. 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
9. CRASH COURSE IN ARCHITECTURE / Eva Howarth / Caxton Editions
10. Contemporary Indian Architecture – Housing & Urban Development / M.N.Joglekar & S.K.Das / Galgotia Publishing Co. New Delhi

Course Code	:	ARPC306
Course Title	:	Architectural Design -IV
Number of Classes	:	1(L-0,T-1,P-0)
Number of Credit	:	1
Prerequisites	:	Knowledge of 5 th Semester ADD-III
Course offered in	:	6 th Semester
Course Duration	:	17 weeks
Course Category	:	PC
Full Marks	:	100

Note: A twelve-hour (six hour each day) end semester examination of 60 marks is to be held during end of 6th Semester on the syllabus of “Architectural Design – IV”. 15 minutes Tiffin breaks after 3 hours should be given in each day.

The Municipal Building Rules and the National Building Code of India are allowed during the examinations.

Course Objectives: - On successful completion of the course,

- (i) Understand the design guideline & aspects of a public building;
- (ii) Understand the definitions of different parts of a public building;
- (iii) Develop the architectural design of a high-rise public building in sketch-wise phases;
- (iv) Draw the developed architectural design.

Modular Division of Syllabus:

UNIT	TOPIC	Tutorial
1	INTRODUCTION	9
2	ARCHITECTURAL DESIGN PROCESS	6
	Total	15
CONTACT PERIODS:15 INTERNAL ASSESSMENT:2		TOTAL PERIODS:17

Examination Scheme:-

OBJECTIVE QUESTIONS				SUBJECTIVE QUESTIONS			
TO BE SET	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS	TO BE SET	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS
10	Any Ten	ONE	1 x 10 = 10	2	1	50	60

DETAIL COURSE CONTENT

UNIT 1: INTRODUCTION

I. CASESTUDY OF SIMILAR PROJECTS 3 periods

Brief introduction of different topics mentioned in sessional subject. Case study should be done on projects for better understanding of space & area requirements, circulation details, and design aspects of that project. Also Preparing study sheets on that case study for proper understanding of similar type projects.

II. STUDY OF DESIGN GUIDE LINE 2 periods

CLIMATIC FACTORS: Solar Radiation & Temperature, Clouds, Relative Humidity, Prevailing wind; ASPECTS OF DAYLIGHTING — Sun path Diagram — building orientation as per sun path diagram and prevailing wind. Effects of shade and shadow on building design — Location Site with surrounding & connectivity

III. STUDY OF DESIGN ASPECTS 2 periods

Preparing study sheets of design aspects (Site analysis, area calculation, design criteria) of a high-rise public building with respect to site given by faculty, Study of occupancy load.

IV. UNDERSTANDING PARTS OF A PUBLIC BUILDING 2 periods

Power Point presentation for different space planning details of following mentioned sessional topics.

UNIT II: ARCHITECTURAL DESIGN PROCEDURE 6 periods **ARCHITECTURAL DESIGN**

Design and drawing of any one of the following topics should be conducted as per the modular division of the syllabus throughout the entire 6th semester: (The design problem should not be same with the problem of the subject Architectural Project)

A 30 bedded Luxury Hotel/Resort/ a Community Market/ IT Office Building/ a 30 bedded health Institute (as per proper guideline) or any other topic of equivalent weight age.

The problem should be designed keeping in consideration all the provisions of bye-laws (KMC/ West Bengal by- laws).

Standards, Codes & Regulation (By- laws) study of theselected topic (KMC/ West Bengal by-laws).Literature study, Site study, Case study, Area programming and development of the design concept.

Course Code	:	AROE302 (OPEN ELECTIVE-I)
Course Title	:	Engineering Economics & Project Management
Number of Classes	:	3(L-3,T-0,P-0)
Number of Credit	:	3
Prerequisites	:	NIL
Course offered in	:	6 th Semester
Course Duration	:	17 weeks
Course Category	:	OE (Open Elective-I)
Full Marks	:	100
Open Elective-I is compulsory for all branches		

Course Objectives:

- To acquire knowledge of basic economics to facilitate the process of economic decision making.
- To acquire knowledge on basic financial management aspects.
- To develop the idea of project plan, from defining and confirming the project goals and objectives, identifying tasks and how goals will be achieved.
- To develop an understanding of key project management skills and strategies.

Group-A

Unit-I (INTRODUCTION, THEORY OF DEMAND & SUPPLY)

[9 hours]

Introduction to Engineering Economics, the relationship between Engineering and Economics

Resources, scarcity of resources, and efficient utilization of resources.

Opportunity cost, rationality costs, and benefits

Theory of Demand: the law of demand, different types of demand, determinants of demand, demand function, price elasticity of demand.

Theory of Supply: determinants of supply, supply function.

Market mechanism: Equilibrium, basic comparative static analysis (Numerical problems)

Unit-II (THEORY OF PRODUCTION & COSTS)

[10 hours]

: Concept of production (goods & services), Different factors of production (fixed and variable factors), Short-run Production function (Graphical illustration), and Long run production function (returns to scale).

: Theory of Cost: Short-run and long-run cost curves with graphical illustration, basic concept on total cost, fixed cost, variable cost, marginal cost, average cost

: Economic concept of profit, profit maximization (numerical problems)

UNIT-III (DIFFERENT TYPES OF MARKET AND ROLE OF GOVERNMENT)

[4 hours]

- : Perfect Competition: Features of Perfectly Competitive Market.
- : Imperfect Competition: Monopoly, Monopolistic Competition, and Oligopoly.
- : Role of government in Socialist, Capitalist and Mixed Economy structure with example.

Group-B

Unit-I (CONCEPT OF PROJECT) [4 hours]

- 1.1: Definition and classification of projects
- 1.2: Importance of Project Management.
- 1.3: Project life Cycle [Conceptualization→Planning→Execution→Termination]

Unit-II (FEASIBILITY ANALYSIS OF A PROJECT)

[10 hours]

- : Economic and Market analysis.
- : Financial analysis: Basic techniques in capital budgeting – Payback period method, Net Present Value method, Internal Rate of Return method.
- : Environmental Impact study – adverse impact of the project on the environment.
- : Project risk and uncertainty: Technical, economical, socio-political, and environmental risks.
- : Evaluation of the financial health of a project – Understanding the basic concept of Fixed & Working Capital, Debt & Equity, Shares, Debentures etc., and different financial ratios like Liquidity Ratios, Activity Ratios, Debt-equity ratio & Profitability Ratio (Basic concept only).

N.B: Knowledge of financial statements is not required; for the estimation of ratios the values of the relevant variables will be provided.

Unit-III (PROJECT ADMINISTRATION) [8 hours]

- : Gantt Chart – a system of bar charts for scheduling and reporting the progress of a project (basic concept).
- : Concept of Project Evaluation and Review Technique (PERT) and Critical Path method (CPM): basic concept and application with real-life examples.

Examination Scheme:

A. Semester Examination pattern of 60 marks:

1. Objective type Question (MCQ, Fill in the blanks, and Very Short question-1 mark each): At least five questions from each unit. [total marks:20]
2. Subjective questions: Eight questions to be answered taking at least three from each group. (Two questions should be given from each unit). [total marks: 40]

B. Assignment (10 Marks)

Guideline for Assignment (10 Marks)

Students should be instructed to prepare a report on a project (preferably the Major Project they prepare in 6th Semester), using a popular project management software in IT/Computer Laboratory, under the guidance of the Lecturer in Computer Science & Technology and Lecturer in Humanities.

C. Class Test: Two examinations 20 marks each. Take best of two.

D. Attendance: 10 Marks

Suggested reference books:

1. *Principles of Economics – Case and Fair, Pearson Education Publication*
2. *Principles of Economics – Mankiw, Cengage Learning*
3. *Project planning, analysis, selection, implementation and review – Prasanna Chandra – Tata McGraw Hill.*
4. *Project Management – Gopala krishnan – Mcmillan India Ltd*

Course Code	:	AROE304 (OPEN ELECTIVE-II)
Course Title	:	Disaster Management
Number of Classes	:	3(L-3,T-0,P-0)
Number of Credit	:	3
Prerequisites	:	NIL
Course offered in	:	6 th Semester
Course Duration	:	17 weeks
Course Category	:	OE (Open Elective-II)
Full Marks	:	100
Students can choose any one subject for Open Elective-II from the list		

Course Learning Objectives:

Following are the objectives of this course:

- To learn about various types of natural and man-made disasters.
- To know pre- and post-disaster management for some of the disasters.
- To know about various information and organisations in disaster management in India and Legal framework of disaster management.

To get exposed to technological tools and their role in disaster management

Module/ Group [as per directives from WBSCT&VE&SD in framing questions of end semester]	Distribution of unit
Module A/ Group A	Unit I and II
Module B/ Group B	Unit III and V
Module C/ Group C	Unit IV

Course Content:

Unit - I: Understanding Disaster

Understanding the Concepts and definitions of Disaster, Hazard, Vulnerability, Risk, Capacity – Disaster and Development, and disaster management.

Unit - II: Types, Trends, Causes, Consequences and Control of Disasters

Geological Disasters (earthquakes, landslides, tsunami, mining); Hydro-Meteorological Disasters (floods, cyclones, lightning, thunder-storms, hail storms, avalanches, droughts, cold and heat waves) Biological Disasters (epidemics, pest attacks, forest fire);

Technological Disasters (chemical, industrial, radiological, nuclear) and Manmade Disasters (building collapse, rural and urban fire, road and rail accidents, nuclear, radiological, chemicals and biological disasters, health disaster) Global Disaster Trends – Emerging Risks of Disasters – Climate Change and Urban Disasters.

Unit- III: Disaster Management Cycle and Framework

Disaster Management Cycle – Paradigm Shift in Disaster Management.

Pre-Disaster – Risk Assessment and Analysis, Risk Mapping, zonation and Microzonation, Prevention and Mitigation of Disasters, Early Warning System; Preparedness, Capacity Development; Awareness.

During Disaster – Evacuation – Disaster Communication – Search and Rescue – Emergency Operation Centre – Incident Command System – Relief and Rehabilitation –

Post-disaster – Damage and Needs Assessment, addressing Residual issues, Restoration of Critical Infrastructure – Early Recovery – Reconstruction and Redevelopment; IDNDR, Yokohama Strategy, Hyogo Framework of Action (HFA).

Unit- IV: Disaster Management in India and Legal framework of disaster management

Disaster Profile of India – Mega Disasters of India and Lessons Learnt.

Disaster Management Act 2005 – Institutional and Financial Mechanism

National Policy on Disaster Management, National Guidelines and Plans on Disaster Management; Role of Government (local, state and national), Non-Government and Inter Governmental Agencies

Refugee Camps and Settlements: Water Supply and Sanitation in Emergency: *Introduction-* Human rights, international humanitarian law and refugee conventions, water and sanitation, refugee camp planning.

Settlement planning- Environmental health risks in emergencies – needs and standards – public health approach to water supply and sanitation in emergencies – partners in the humanitarian response – working with disaster affected people – social diversity – local context Emergency settlements, site selection and planning – introduction – physical planning of emergency settlement – settlement location and physical layout: implications for water supply and sanitation.

Water supply – planning and implementation – water sources – treatment – pumping – tinkering – storage – distribution – collection and use – testing. Waste water – storm water – community involvement.

Waste Management- Phased response – organizational options – staffing needs – monitoring latrine programmers – technical options – options for problem sites- Health risk of solid waste from health centers – dead bodies disposal

Unit- V: Applications of Science and Technology for Disaster Management

Geo-informatics in Disaster Management (RS, GIS and GPS).

Disaster Communication System (Early Warning and Its Dissemination).

Land Use Planning and Development Regulations, Disaster Safe Designs and Constructions, Structural and Non Structural Mitigation of Disasters

S & T Institutions for Disaster Management in India

Course outcomes:

After completing this course, student will be:

- Acquainted with basic information on various types of disasters
- Knowing the precautions and awareness regarding various disasters
- Decide first action to be taken under various disasters
- Familiarized with organization in India which are dealing with disasters and Legal framework of disaster management
- Able to select IT tools to help in disaster management

References:

1. Publications of National Disaster Management Authority (NDMA) on Various Templates and Guidelines for Disaster Management
2. Bhandani, R. K., An overview on natural & man-made disasters and their reduction, CSIR, New Delhi
3. Srivastava, H. N., and Gupta G. D., Management of Natural Disasters in developing countries, Daya Publishers, Delhi
4. Alexander, David, Natural Disasters, Kluwer Academic London
5. Ghosh, G. K., Disaster Management, A P H Publishing Corporation
6. Murthy, D. B. N., Disaster Management: Text & Case Studies, Deep & Deep Pvt. Ltd.
7. Singh Jagbir, Disaster Management-Future Challenges and Opportunities, IK International Publishing House Pvt. Ltd.
8. Gupta, Harsh K., Disaster Management, Universities Press (India) Pvt. Ltd.
9. Harvey, P.A., Baghri, S. and Reed, R.A. (2002) **Emergency Sanitation: Assessment and programme design**, WEDC, Loughborough University, UK.

Course outcomes:

After completing this course, student will be:

- Acquainted with basic information on various types of disasters
- Knowing the precautions and awareness regarding various disasters
- Decide first action to be taken under various disasters
- Familiarized with organization in India which are dealing with disasters and Legal framework of disaster management
- Able to select IT tools to help in disaster management

Course Code	:	AROE304 (OPEN ELECTIVE-II)
Course Title	:	Sustainable Architecture
Number of Classes	:	3(L-3,T-0,P-0)
Number of Credit	:	3
Prerequisites	:	NIL
Course offered in	:	6 th Semester
Course Duration	:	17 weeks
Course Category	:	OE
Full Marks	:	100
Students can choose any one subject for Open Elective-II from the list		

Course Objectives

On satisfactory completion of the course, a student will be able to: —

- (i) develop energy conscious architectural design, strategies and built form
- (ii) understand futuristic vision of urban habitat

MODULAR DIVISION OF THE SYLLABUS

Module	Topic	Lecture
1	INTRODUCTION TO CONCEPTS OF SUSTAINABILITY	08
2	SUSTAINABLE ARCHITECTURE TECHNIQUES	16
3	GREEN BUILDINGS	15
4	GREEN BUILDING COUNCIL & RATING SYSTEMS	06
CONTACT PERIODS: 45		INTERNAL ASSESSMENTS: 4
TOTAL PERIODS: 51		

SEMESTER EXAMINATION SCHEME

MOD ULE	OBJECTIVE QUESTIONS				SUBJECTIVE QUESTIONS											
	PART A				PART B				PART C							
	TO BE SET	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	10	AnyTHIRTY	1	1x30=30	3	Any SIX	2	2x6=12	1	Any THREE	6	6x3=18				
2	15				2				1							
3	10				3				2							
4	10				1				2							
MARKS ALLOTMENT																
SL.NO	INTERNAL ASSESSMENT				SEMESTER EXAM											
	TYPE				MARKS				QUESTION TYPE				MARKS			
1	Mid Semester Tests				20				Part 1				1x30=30			
2	Quizzes, Viva-voce, Assignments				10				Part 2				2X6=12			
3	Class Attendance				10				Part 3				6X3=18			
Total Marks: 100																

DETAIL COURSE CONTENT

MODULE NO.	TOPIC	CONTENTS	CONTACT PERIODS
Module1	INTRODUCTION TO CONCEPTS OF SUSTAINABILITY	DEFINITION OF SUSTAINABILITY AND SUSTAINABLE ARCHITECTURE — THE NEED FOR SUSTAINABLE ARCHITECTURE: environmental, economic, and health and community THE PRINCIPLES OF SUSTAINABLE ARCHITECTURE: energy efficiency, waste management and environment friendly building materials and practices	08
Module2	SUSTAINABLE ARCHITECTURE TECHNIQUES	ELEMENTS OF SUSTAINABLE DESIGN: SITE PLANNING – building orientation and day lighting, BUILDING FORM – wind effects and ventilation, stack ventilation, wind tower, earth air tunnel, active and passive heating and cooling techniques, courtyard planning BUILDING ENVELOPE – double external wall skins, rat trap brick bonding, Trombe walls LANDSCAPING – green awnings, green roofs, grass paver tiles RENEWABLE ENERGY – solar panels, wind turbines, grey water recycling, rainwater harvesting, sustainable materials – bamboo, straw, wool brick, sustainable concrete, glazed windows (DEFINITIONS, USES AND EXAMPLES)	16
Module3	GREEN BUILDINGS	DEFINITION OF GREEN BUILDINGS – BENEFITS OF GREEN BUILDINGS – Environmental, Economic and Social (efficiency of structural design, energy, water, materials, and waste reduction) GREEN BUILDINGS IN INDIA – Shorabji Godrej Building Hyderabad, ITC Green Center Gurgaon, Infinity Benchmark Salt Lake Kolkata, Suzlon One Earth Pune, Biodiversity Conservation India Ltd Bangalore	15
Module 4	GREEN BUILDING COUNCIL & RATING SYSTEMS	INTERNATIONAL GREEN BUILDING RATING SYSTEM – LEED GREEN BUILDING RATING SYSTEMS IN INDIA – IGBC, GRIHA, ECBC (SCOPE AND SALIENT FEATURES)	06

REFERENCE BOOKS

1. Green from the Ground Up/ David Johnston and Scott Gibson
2. Green Building Illustrated/ Francis D.K. Ching and Ian M. Shapiro
3. Green Building Guidance : The Ultimate Guide for IGBC Accredited Professional Examination/ Karthik Karuppu
4. Natural Design, Organic Architecture: Lessons for Building Green/ Frank Lloyd Wright

SYLLABUS OF 6th SEMESTER ARCHITECTURE (SESSIONAL SUBJECTS)

Course Code	:	ARPC308
Course Title	:	Architectural Design -IV
Number of Classes	:	4(L-0,T-0,P-4)
Number of Credit	:	2
Prerequisites	:	Knowledge of 5 th Semester ADD-III
Course offered in	:	6 th Semester
Course Duration	:	17 weeks
Course Category	:	PC
Full Marks	:	100
CONTACT PERIODS: 60		INTERNAL ASSESSMENTS: 8
TOTAL PERIODS: 68		

Course Objectives: - On successful completion of the course,

- 1) To understand architectural design of a high rise public building following necessary building bylaws.
- 2) To understand presentation of architectural design.

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

ARCHITECTURAL DESIGN DRAWINGS & PRESENTATION

60

The design should be presented through a set of architectural drawings in a suitable scale consisting of at least the following sheets: —

- (a) Key Plan
- (b) Site Analysis , Zoning & Bubble Diagram
- (c) site layout showing means of access, approach to the designed building, open parking spaces (if any), planting and landscaping;
- (d) plans showing furniture layout, parking spaces (if any), planting and landscaping (wherever applicable);
- (e) Road side elevation , Rear side elevation, one side elevation
- (f) Minimum two sectional elevations cutting at least the toilet(s), stairs and any other service area (if any).
- (g) Block Model / 3-D view

The final drawings should be done entirely on drafting Software (AutoCAD or any similar software) & submission of sheets should be **Print out with proper rendering by a portfolio.**

Course Code	:	ARPC310
Course Title	:	Working Drawing -IV
Number of Classes	:	5(L-0,T-1,P-4)
Number of Credit	:	3
Prerequisites	:	Knowledge of 5 th Semester WD-III
Course offered in	:	6 th Semester
Course Duration	:	17 weeks
Course Category	:	PC
Full Marks	:	100
CONTACT PERIODS: 75		INTERNAL ASSESSMENTS: 10
TOTAL PERIODS: 85		

Course Objectives: - On successful completion of the course a student will be able to: —
Draft Working drawing of a building with foundation, structural detail, Kitchen & toilet detail, water supply and sewerage layout and electrical layout.

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

MODULAR DIVISION OF THE SYLLABUS

SHEET NO.	TOPIC	CONTACT PERIODS
1	FOUNDATION	15
2&3	STRUCTURAL DETAILS	15
4	KITCHEN & TOILET DETAILS	15
5	WATER SUPPLY & SEWERAGE	15
6	ELECTRICAL LAYOUT	15
Total contact period - 75 hours		

DETAIL COURSE CONTENTS

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 in Second Semester, or may be supplied by teacher-in-charge.

Topic	Content	Contact hour	Sheet size and quantity
FOUNDATION DETAILS	Showing plot line, columns and tie-beam with center-line dimension, column & wall footing, plinth beam, column, beam and footing marking, one diagonal dimension of corner columns.	15	ONE A2/A1 As required
STRUCTURAL DETAILS	Reinforcement details of – (i) column footing, (ii) column, (iii) tie-beam, (iv) floor beam (from support to support) (transverse & cross section), (v) slab; (vi) lintel with chhajja, (vii) loft slab, (viii) staircase flight with landing [all in 1:20 scale], and, (ix) slab reinforcement layout [in 1:100 scale]. Schedules are to be provided showing type, size, reinforcement, binder for – (i) column footing, (ii) tie-beam, (iii) column, (iv) floor beam, (v) slab.	15	TWO A2/A1 As required
KITCHEN & TOILET DETAIL	Only plan and section [in 1:25 scale] showing fixture positions and dimensions of fixture, counter, Waste Pipe, Soil Pipe, floor trap, water supply line & slope line	15	ONE A2/A1 As required
WATER SUPPLY & SEWERAGE LAYOUT	Ground floor plan [in 1:100 scale] showing plot line, water connection from main to semi underground reservoir, riser main, septic tank, Inspection Chamber, Gully Trap, Yard Gully – sectional plans & elevations of underground reservoir, septic tank & over head tank.	15	ONE A2/A1 As required
ELECTRICAL LAYOUT	Electrical layout of ground floor, typical floor & roof showing conduit positions of meter box, distribution box, switch board, light & fans, socket outlets with symbols in conjunction with furniture layout with single phase OR three phases wiring diagram [in 1:50 scale], and, legend of symbols.	15	ONE A2/A1 As required

Course Code	:	ARPE302 (Programme Elective-IV)
Course Title	:	Landscape Architecture
Number of Classes	:	3(L-0,T-1,P-2)
Number of Credit	:	2
Prerequisites	:	NIL
Course offered in	:	6 th Semester
Course Duration	:	17 weeks
Course Category	:	PE
Full Marks	:	100
CONTACT PERIODS: 45	INTERNAL ASSESSMENTS: 6	TOTAL PERIODS: 51
Students can choose any one subject for Programme Elective-IV from the list		

Course Objectives:

On successful completion of the course, a student will be in a position to prepare landscaping schemes for residential and commercial spaces. Also they will have brief idea of site planning in relation to landscaping and natural and manmade elements of landscaping

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 Content:

Students are required to prepare landscaping schemes for residential and commercial spaces. Credit is to be given to the landscaping scheme, and, not to the architectural design of the built space. Each student is to select his or her site in consultation with the teacher-in-charge, which may be designed by the student in the previous semesters or designed by any other architect collected from primary or secondary source.

DETAIL COURSE CONTENT

Module	Topic	Class Type	Contact Periods	Sheet size and quantity
1	INTRODUCTION- 1.1 Definition of Landscaping 1.2 Role of landscaping and landscape architect in architecture	Tutorial	1	-
2	SITE PLANNING – 2.1 Need, Definition and Scope for site planning 2.2 Relationship in between site planning and landscaping 2.3 Layout and maintenance of drainage 2.4 Layout and standards of road and pedestrian paths	Tutorial	4	-
3	NATURAL ELEMENTS OF LANDSCAPING – ROCK & LANDFORM — WATER — PLANTS: Different types of trees, shrubs, ground covers and climbers with their characteristics mentioning the basis of their selection for different purposes	Tutorial	4	-
4	MANMADE ELEMENTS OF LANDSCAPING – MATERIALS, CONSTRUCTION DETAILS AND MAINTENANCE of the following manmade elements of landscaping: 4.1 Outdoor Furniture – Outdoor Light Fixtures – Signage & Signboard – Sculpture – Fences 4.2 PAVING: Hard and soft – Layout for formal and informal paving – Different kinds of paving materials: soil, stabilized murrum, brick & stone 4.3 Artificial Rock – Artificial Waterfall	Tutorial	6	-
5	Preparation of landscaping scheme for a residential space which has a recreational space attached to it in the form of a park and / or a playground. Drawings are to be presented in suitable scale providing information regarding the natural and / or manmade elements used along with necessary details of construction wherever necessary.	Sessional	15	A2 sheets as required
6	Preparation of landscaping scheme for a commercial space which has a public space attached to it in the form of a plaza or a square. Drawings are to be presented in suitable scale providing information regarding the natural and / or manmade elements used along with necessary details of construction wherever necessary.	Sessional	15	A2 sheets as required

Learning Outcomes:

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

- (i) Landscaping schemes using natural and manmade elements;
- (ii) Maintenance of drainage
- (iii) Road and pedestrian paths layout

References:

1. TIME-SAVER STANDARDS FOR LANDSCAPE ARCHITECTURE / Dines & Harris / McGraw-Hill
2. LANDSCAPE ARCHITECT'S PORTABLE HANDBOOK / N. Dines / McGraw-Hill
3. Landscape Architecture / J. O. Simonds / Liffie, London
4. Designs of the Landscape / Preece / CBS
5. Landscape Detailing Vol. I / M. Little wood / CBS
6. Landscape Detailing Vol. II / M. Little wood / CBS
7. Landscape for Living / G. Eckbe / F. W. Dodge Corporation, N.Y.

Course Code	:	ARPE302 (Programme Elective-IV)
Course Title	:	Architectural Conservation
Number of Classes	:	3(L-0,T-1,P-2)
Number of Credit	:	2
Prerequisites	:	NIL
Course offered in	:	6 th Semester
Course Duration	:	17 weeks
Course Category	:	PE
Full Marks	:	100
CONTACT PERIODS: 45	INTERNAL ASSESSMENTS: 6	TOTAL PERIODS: 51
Students can choose any one subject for Programme Elective-IV from the list		

Course Objectives:

- To highlight the theory and practice of conservation.
- To sensitize the students with the issues pertaining the conservation of cultural property.
- To familiarize with their problems and the approaches in conservation.
- To focus on limitations of maintenance, repair and restoration.

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

Module	Topic	Class Type	Contact Periods	Sheet
1	<p>1.1 To study the Definition, History, theory of conservation, Philosophy of conservation, Values & Ethics, Cultural heritage, Conservation methods, Classifications.</p> <p>1.2 To study the conservation principle defined in the Venice Charter and Burra Charter.</p> <p>1.3 Conservation in India (Acts, Central and state government policies)</p> <p>1.4 Structure and Material Conservation (behaviour of historic materials and structures, weathering, ageing, problems with masonry, foundation, repair methods, traditional and modern methods, seismic retrofit and disabled access/ services additions to historic buildings, 127 moisture & pollution problems, etc</p>	Tutorial	10	–
2	<p>STUDY & ANALYSIS –</p> <p>2.1 Students have to study a historic building appropriate for conservation in context of the various conservation values.</p> <p>2.2 Study the architectural style and survey to prepare a floor plan layout & elevations, inspect its structural and physical condition and suggest the possible method of restoration, management of historic sites.</p>	Sessional	35	<p>Drawing sheets (A2) – 2nos.</p> <p>Study and analysis sheets (A3) – 6 to 8 nos</p>

Learning Outcomes:

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

1. Develop sensitivity towards heritage and its conservation.
2. Understand the materials and techniques to be used for conservation under various conditions.

References:

1. Architectural Conservation - Principles and Practice / Aylin Orbasli / Wiley
2. History of Architectural Conservation (CONSERVATION AND MUSEOLOGY) / Jukka Jokilehto
3. Living Buildings / Donald Insall
4. Design from Heritage: Strategies for Conservation and Conversion / Marieke Kuipers and Wessel de Jonge
5. Equity in Heritage Conservation: Case of Ahmedabad India / Jigna Desai
6. The Conservation Movement: A History of Architectural Preservation: Antiquity to Modernity / Miles Glendinning
7. Building Limes in Conservation / Brocklebank

Course Code	:	ARPR302
Course Title	:	Architectural Project work
Number of Classes per week	:	5(L-0,T-1,P-4)
Number of Credit	:	3
Prerequisites	:	Continuation of 5 th semester Architectural project
Course offered in	:	6 th Semester
Course Duration	:	17 weeks
Course Category	:	PC
Total Marks	:	100
CONTACT PERIODS: 75	INTERNAL ASSESSMENTS: 10	TOTAL PERIODS: 85
The Project work of 6th semester is the continuation of the project work of 5th semester.		

Course 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.

SEMESTER EXAMINATION SCHEME

SL. NO.	INTERNAL ASSESSMENT (continuous throughout the semester)		EXTERNAL ASSESSMENT (by external evaluator)	
	TYPE	MARKS	TYPE	MARKS
1	Drawing Sheets, Report & Model/3D view	40	Drawing Sheets & Model/3D view	20
2	Class Performance, Viva-voce	10	Report	10
3	Class Attendance	10	Viva-voce	10
	Total	60	Total	40
Total Marks				100
The External Examiner should be Preferably from the Industry or from any Academic Institution other than Polytechnic.				

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 in each semester. 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. The project work of 6th semester is the continuation of the project work of 5th semester. The final presentation drawings, Project report, model /3D view will be submitted at the end of 6th semester.

MODULAR DIVISION OF THE SYLLABUS

COURSE	MODULE	TOPIC	CONTACT PERIODS
GROUP-A (FIFTH SEMESTER)			
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	Literature study	8
	4	Study (from Standards & Reference Books) Design concepts	
	5	Case Study (from Primary & Secondary Sources)	4
	6	Site Analysis ,Zoning	
	7	Identification of space and area requirement	2
	8	Flow Chart, Bubble Diagram & concept drawing	8
	9	Preliminary Design Finalizations	32
TOTAL-60			
GROUP-B (SIXTH SEMESTER)			
ARCHITECTURAL PROJECT WORK (GROUP – B) Sixth Semester Course Duration: 15 Weeks 5 Sessional contact periods Per Week Total Contact Periods: 75	10	Finalization of Design plans with other details	15
	11	Finalization of elevations sections & other details given as per necessary.	15
	12	Review of Design in the form of Seminar	5
	13	Preparation of Final Presentation Drawings	10
	14	Drawing a View and / or making a Model	5
	15	Project Report Preparation	15
	16	Preparation of Preliminary Estimation of the project	5
	16	Final Presentation	5
TOTAL-75			

Course Code	:	ARSE302
Course Title	:	Architectural Seminar
Number of Classes per week	:	1(L-0,T-1,P-0)
Number of Credit	:	1
Prerequisites	:	NIL
Course offered in	:	6 th Semester
Course Duration	:	17 weeks
Course Category	:	SE
Total Marks	:	100

Course Objective:-

Seminar on Project Work is intended to provide opportunity for students to present their work in front of a technical gathering with the help of different oral, aural and visual communication aids which they learnt through different courses in 3rd to 6th Semester of the diploma course. In the Seminar, students are expected to present **any related topic on architecture preferably the topics related to the elective subjects they have learnt from 4th semester to 6th semester (mode of presentation either PPT or hard copy or both).** They will also learn to defend the same while answering questions arising out of their presentation.

SEMESTER EXAMINATION SCHEME

SL. NO.	INTERNAL ASSESSMENT (continuous throughout the semester)		EXTERNAL ASSESSMENT (by external evaluator)	
	TYPE	MARKS	TYPE	MARKS
1	Drawing Sheets/PPT	40	Drawing Sheets/PPT	20
2	Presentation & Viva-voce	10	Presentation	10
3	Class Attendance	10	Viva-voce	10
	Total	60	Total	40
Total Marks				100