

ANNEXURE I

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

1012: DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP SYLLABUS

N-SCHEME

(To be implemented for the students admitted from the year 2020-21 onwards)

CURRICULUM OUTLINE

SIXTH SEMESTER

Col. No	Subject Code	SUBJECT	HOURS PER WEEK				
			Theory Hours	Drawing	Tutorial	Practical hours	Total Hours
1	4012610	Structural Design	6	-	-	-	6
2	4012620	Professional Practice and Management	5	-	-	-	5
3		<u>Elective Theory-II</u>	5	-	-	-	5
	4012631	i) Landscape Architecture					
	4012632	ii) Town Planning					
	4012633	iii) Sustainable Architecture					
4	4012640	Computer Application in Architecture – III	-	-	-	6	6
5		<u>Elective Practical-II</u>	-	-	-	4	4
	4012651	i) Structural Detailing and Drawing					
	4012652	ii) Landscape and Detailing					
	4012653	iii) Building Services Practical					
6	4012660	Project Work and Internship	-	-	-	6	6
	Extra/ Co-curricular activities	Physical Education	-	-	-	-	2
		Library	-	-	-	-	1
TOTAL			16	-	-	16	35

ANNEXURE II

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

1012: DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP SYLLABUS

N-SCHEME

(To be implemented for the students admitted from the year 2020-21 onwards)

SCHEME OF THE EXAMINATION

SIXTH SEMESTER

Subject Code	Subject Name	Examination Marks			Minimum for pass	Duration of Exam Hours
		Internal assessment Marks	Board Exam. Marks (Converted to 75)	Total Mark		
4012610	Structural Design	25	100	100	40	3
4012620	Professional Practice and Management	25	100	100	40	3
4012631	<u>Elective Theory-II</u> i) Landscape Architecture	25	100	100	40	3
4012632	ii) Town Planning					
4012633	iii) Sustainable Architecture					
4012640	Computer Application in Architecture – III	25	100	100	50	3
4012651	<u>Elective Practical-II</u> i) Structural Detailing and Drawing	25	100	100	50	3
4012652	ii) Landscape and detailing					
4012653	iii) Building services practical					
4012660	Project Work and Internship	25	100	100	50	3
TOTAL		175	600	600		

STATE BOARD OF TECHNICAL EDUCATION & TRAINING-TAMILNADU
DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP SYLLABUS
N-SCHEME

(To be implemented for the students admitted from the year 2020-2021 onwards)

Course Name : 1012: DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP

Subject Code : 4012610

Semester : VI Semester

Subject Title : STRUCTURAL DESIGN

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per Semester: 16 Weeks

Subject	Instructions		Examination			Duration
	Hours / Week	Hours / Semester	Marks			
			Internal Assessment	Board Examination	Total	
STRUCTURAL DESIGN	6	96	25	100*	100	3

*Examination will be conducted for 100 marks and it will be reduced to 75 marks.

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Topics and Allocation of Hours

UNIT	Topics	Hrs.
I	INTRODUCTION TO LIMIT STATE METHOD DESIGN OF BEAMS FOR FLEXURE BY L.S.M	18
II	DESIGN OF SLABS BY L.S.M	18
III	DESIGN OF BEAMS FOR SHEAR BY L.S.M DESIGN OF STAIRCASES	17
IV	DESIGN OF COLUMNS & FOOTINGS BY L.S.M	18
V	STEEL STRUCTURES	18
TEST & MODEL EXAMINATION		7
TOTAL		96

RATIONALE:

Diploma holders in Architectural Assistantship find employment with private Architects & Civil Engineers and also some percentage of them start their own enterprises. Therefore, the profession demands the development of basic knowledge and skills of Structural Engineering. This subject covers the analysis and design of reinforced concrete structural elements like slab, beam, column, column footing, staircase, etc. Also the students gain knowledge about the design of steel beam, tension and compression members.

OBJECTIVES:

At the completion of the study, the students will be able to

- know about the materials used in R.C.C.
- study about Limit State Design.
- design the R.C.C. structural elements like beam, slab, column, footing, etc.,
- design the Steel structural elements like simple beam and simple column.

DETAILED SYLLABUS

4012610 – STRUCTURAL DESIGN

Contents: Theory

Unit	Name of the Topic	Hours
I	PART – A: REINFORCED CONCRETE STRUCTURES	
	1.1 GENERAL	4
	Reinforced Cement Concrete – Concept of Composite material – Purpose of providing reinforcement – materials used in R.C.C and their requirements – different grades of cement and steel – Characteristic strength and grades of concrete – types of loads on structures as per (IS: 875).	7
	1.2 INTRODUCTION TO LIMIT STATE METHOD	
	Concept – different limit states- Characteristic strength and design strength of materials – Characteristic loads and design loads - partial safety factors for loads and material strength - Limit state of collapse in flexure – assumptions – stress strain curves for concrete and steel – Stress block – limiting values of neutral axis for different grades of steel	

	<p>(Proof not necessary) – Moment of resistance of singly/ doubly reinforced rectangular sections – Problems.</p> <p>1.3 DESIGN OF BEAMS FOR FLEXURE BY L.S.M</p> <p>Effective span of cantilever, simply supported and continuous beams – breadth and depth requirements for beams – control of deflection – minimum depth requirement for stiffness –minimum concrete cover for durability and fire resistance – minimum and maximum reinforcement, spacing for main reinforcement and side face reinforcement as per IS 456-2000-design bending moments – Design of singly and doubly reinforced rectangular beams –cantilever, simply supported beams.</p>	7
II	<p>2.1 DESIGN OF ONE-WAY SLABS BY L.S.M</p> <p>Classification of slabs – Effective spans - Imposed loads on slabs (IS: 875) – strength and stiffness requirements –minimum and maximum permitted size, spacing and area of main and secondary reinforcement as per IS 456 -2000. Design of cantilever, simply supported slabs and sun shades by limit state method.</p> <p>2.2 DESIGN OF TWO-WAY SLABS BY L.S.M</p> <p>Introduction –Effective span –thickness of slab for strength and stiffness requirements - Middle and edge strips – B.M coefficients – design of B.M. – simply supported and restrained slabs – tension and torsion reinforcement requirement– Design of two-way slabs using B.M. coefficients. Simply supported two-way slabs only (Corners not held down only) – curtailment of reinforcement – check for stiffness.</p>	9
III	<p>3.1 DESIGN OF BEAMS FOR SHEAR BY L.S.M</p> <p>Limit state of collapse in shear – design shear strength of concrete – design strengths of vertical / inclined stirrups and bent up bars in shear – principle of shear design – critical sections for shear – nominal shear stress – design of vertical stirrups and bent up bars for rectangular beams using limit state method –simple problems.</p> <p>3.2 DESIGN OF STAIRCASES</p> <p>Types of stairs according to geometry and structural behavior – planning a staircase –problems in planning of open well and dog legged staircase-effective span of stairs – effective breadth of flight slab – distribution of loads on flights.</p>	10
		7

IV	PART A – R.C.C STRUCTURES	9
	<p>4.1 DESIGN OF COLUMNS BY L.S.M</p> <p>Limit state of collapse in compression – assumptions - limiting strength of short axially loaded compression members - effective length of compression members – slenderness limits for columns – classification of column - minimum eccentricity for column loads – longitudinal and transverse reinforcement as per I S 456-2000-Design of axially loaded short columns with lateral ties – square, Rectangular & circular columns. (With circular ties only)</p> <p>4.2 DESIGN OF COLUMN FOOTINGS</p> <p>Types of Footings – Footings with uniform thickness and sloped footings – minimum thickness – critical sections – minimum reinforcement – development length, anchorage value, cover, minimum edge thickness requirements as per IS 456-2000 – Design of isolated footing (Square and Rectangular only) with uniform thickness by Limit State method – For Examination,</p> <p>(i) Problems on Design of size of footing and area of steel only.</p> <p>(ii) For given sizes and other required details of the footing, check for punching shear and transverse shear only. (Any one problem)</p>	
V	PART B - STEEL STRUCTURES	6
	<p>5.1 DESIGN OF SIMPLE BEAMS BY LSM</p> <p>Classification of beams – lateral buckling of beams – assumptions – minimum thickness of elements – limiting deflection of beams – Design of laterally supported beams using single rolled steel sections (Built up sections not included).</p>	
	<p>5.2 DESIGN OF TENSION MEMBERS BY LSM</p> <p>General – Effective sectional area of Angles /T-sections connected by one leg / flange (welded connections only).</p> <p>Design of ties using single T-Sections and single Channels.</p>	
	<p>5.3 DESIGN OF COMPRESSION MEMBERS BY LSM</p> <p>Effective length of compression members – slenderness ratio – minimum thickness of elements – effective sectional area.</p> <p>Design of steel columns using single rolled steel sections without cover plates. (Lacing and battens, Built up sections not included).</p>	6

TEXT BOOKS

1. "Ramamrutham"-“Structural Engineering (RCC)”
2. "Vazirani and Ratwan"-“Structural Engineering (RCC)”
3. "M.F Sharief and V.V.S Murthy"-“Structural Engineering (RCC)”
4. "Guru charan Singh"-“R.C.C Structural Engineering”
5. "S.K. Duggal"- “Design of Steel Structures”, "Tata McGraw Hill, 2000".
6. "Ashok.K.Jain" "LSM Design"
7. "B.C.Punmia" –“R.C.C Design”

REFERENCES

1. "S.R.Karve and V.L.Shah", "Limit state Theory and Design of Reinforced Concrete", "Pune VidyaGriha Prakashan,1986."
2. "P C Varghese," "Limit state Design of Reinforced Concrete", "Prentice-Hall of India Pvt. Ltd", 1997".
3. "Dr. S. Ramachandra," –“Limit State Design of Concrete Structures”, "Scientific publishers, 2004."
4. "Park. R and Pauley. T, " "Reinforced Concrete Structures", "John Wiley & Sons, New York,1975."
5. "Mallick and Rangasamy," "Reinforced Cement Concrete" "Oxford-IBH,1982."
6. "I S 456-2000, I S 875-1974, I S 800 -1984"
7. "Explanatory hand book SP24, Design Aid SP 16, Detailing of Reinforcement SP 34"
8. "Dr. Ram Chandra," "Design of Steel Structures, Vol-I ", "Standard Book House, New Delhi, Tenth Edition, 1999".
9. "Ashok K.Jain" "*Limit state design of R.C.C structures*" "Nemchand brothers, Roorkee".
10. "Limit state Design of concrete structural elements, continuing Education module prepared by T.T.T.I Chennai and published by _I.ST.E continuing education cell," "university Visveswaraiah College of Engineering (UVCE)Campus, Palare Road, Bangalore – 560001".

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1012

DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP

III YEAR

N – SCHEME

www.binils.com
VI SEMESTER

**PROFESSIONAL
PRACTICE & PROJECT
MANAGEMENT**

IMPLEMENTED FROM 2020-2021

CURRICULUM DEVELOPMENT CENTRE

**DIRECTORATE OF TECHNICAL EDUCATION
CHENNAI-600 025, TAMIL NADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING-TAMILNADU
DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP SYLLABUS
N-SCHEME

(To be implemented for the students admitted from the year 2020-2021 onwards)

Course Name : 1012: DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP
Subject Code : 4012620
Semester : VI Semester
Subject Title : PROFESSIONAL PRACTICE & PROJECT MANAGEMENT

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per Semester: 16 Weeks

Subject	Instructions		Examination			Duration
	Hours / Week	Hours / Semester	Marks			
			Internal Assessment	Board Examination	Total	
PROFESSIONAL PRACTICE & PROJECT MANAGEMENT	5 Hours	80 Hours	25	100*	100	3 Hours

*Examination will be conducted for 100 marks and it will be reduced to 75 marks.

Topics and Allocation of Hours

UNIT	Topics	Hrs.
I	ARCHITECT AND HIS SERVICES	14
II	RULES AND REGULATIONS OF THE ARCHITECTURE	14
III	TENDER AND CONTRACT	15
IV	PROJECT MANAGEMENT	16
V	ELEMENTARY ACCOUNTANCY	14
TEST & MODEL EXAMINATION		7
TOTAL		80

RATIONALE:

The knowledge of this subject is required for all engineer/technicians who wish to choose industry/field as their career. This course is designed to develop understanding of various functions of management, role of workers and architect's services, CPM, PERT, Banking accounts etc, which are essential attributes for a successful technician.

OBJECTIVES:

At the completion of the study, the students will be able

- To know about the role of Architects in the planning and execution of a project.
- To know about how to start the construction work through tender and contract.
- To understand the various types of Architectural services.
- To know how to scheduling in construction field by using CPM, PERT network techniques.
- To gain knowledge about the banking accounts.

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DETAILED SYLLABUS

4012620- PROFESSIONAL PRACTICE & PROJECT MANAGEMENT

Contents: Theory

Unit	Name of the Topic	Hours
I	<p>ARCHITECT AND HIS SERVICES</p> <p>Definition of an architect – Role of an architect in the planning and execution of projects – Schedule of fees for various type of projects – Normal services, additional services and special services–Various stages for the fees collection – Calculation of architect’s fees for various types of buildings.</p>	14
II	<p>RULES AND REGULATIONS OF THE ARCHITECTURE PROFESSION</p> <p>Professional Code of conduct – Architect’s Act 1972 – Architectural design competition – Apartment and Flats act – Easement rights in the context of buildings – The role of council of architecture, India – The role of Indian institute of architects – Builders and Promoters – Arbitration.</p>	14
III	<p>TENDER and CONTRACT</p> <p>Invitation of tender – Condition of tender – Types of tender – Tender documents – Scrutiny and acceptance of tender – Work order. Various forms of contracts – Agreements – Conditions of contract – Legal aspects Completion period – Maintenance period – Advantages and disadvantages of various types of contracts – M-book –M-book entry – Check measurements Preparation of bills – Payments – Penal actions and penalties for defaults and delays.</p>	15
IV	<p>PROJECT MANAGEMENT:</p> <p>Introduction to Project Management – Advantages of Project Management, need and scope of Project management – Construction schedules – Bar charts, Mile stone charts – Event, Activity, Duration, Float, Slack, Range, Variance – CPM and PERT networks – Advantages of Network – Comparison of CPM and PERT – Numbering and forming the network – Tracing the critical path for simple problems.</p>	16

V	ELEMENTARY ACCOUNTANCY: Classification of Banks – Various types of bank accounts – Various forms of deposits – FD, RD, Bond, Chit and Shares –Withdrawal – Demand Draft – Mail transfer – Cheque, crossing of cheques, payment through cheque – Transaction through ATM – Credit Card and Debit Cards – Introduction to e- Banking – Maintenance of accounts – Receipts and Vouchers – Formalities related to avail a housing loan from a Govt. authorized bank–Building insurance scheme.	14
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TEXT BOOKS

1. “Roshan Namavathy” “ Professional Practice”
2. “Ar.Vasants.Apte”-“Architectural practice and procedure”
3. “K.G.Krishnamurthy & S.V.Ravindra”-“ Professional Practice”
4. “R.Panneerselvam & P. Senthil Kumar” “Project Management”

REFERENCES:

1. “Punmia” “CPM and PERT network analysis”
2. “Indian Institute of Architect’s Manual on Professional Practice”
3. “CPWD manual on Tender and Contract documents”
4. “T.S.Reddy”- “Principles of Accountancy”
5. “C.B.Guptha”-“Introduction to Accountancy”
6. “N.Vinayagam, M.Radhaswamy&S.V.Vasudevan”-“A Text book of Banking (Law, Practice, Theory)”
7. “M.Rahdaswamy&S.V.Vasudevan” “Insurance- Principle and Practice”
8. “Christopher.J.Willis & Allan Ashworth”-“ Practice & Procedure for the Quantity Surveyor (ninth edition)”
9. “C.H.Gopinatha Rao” –“Arbitration Act in Building Contracts Scope for Engineers & Architects”
10. “ C.H.Gopinatha Rao”- “Manual on Building Contracts”

WEBSITE

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1012

DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP

III YEAR

N – SCHEME

www.binils.com
VI SEMESTER

LANDSCAPE ARCHITECTURE
(ELECTIVE THEORY-II)

IMPLEMENTED FROM 2020-2021

CURRICULUM DEVELOPMENT CENTRE

DIRECTORATE OF TECHNICAL EDUCATION
CHENNAI-600 025, TAMIL NADU

STATE BOARD OF TECHNICAL EDUCATION & TRAINING-TAMILNADU
DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP SYLLABUS
N-SCHEME

(To be implemented for the students admitted from the year 2020-2021 onwards)

Course Name : 1012: DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP
Subject Code : 4012631
Semester : VI Semester
Subject Title : LANDSCAPE ARCHITECTURE

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per Semester: 16Weeks

Subject	Instructions		Examination			Duration
	Hours / Week	Hours / Semester	Marks			
			Internal Assessment	Board Examination	Total	
LANDSCAPE ARCHITECTURE	5 Hours	80 Hours	25	100*	100	3 Hours

*Examination will be conducted for 100 marks and it will be reduced to 75 marks.

Topics and Allocation of Hours

UNIT	Topics	Hrs.
I	INTRODUCTION TO LANDSCAPE ARCHITECTURE	15
II	SITE SURVEY AND ANALYSIS	14
III	SOFT LANDSCAPE	14
IV	HARD LANDSCAPE	15
V	INDOOR LANDSCAPE	15
TEST & MODEL EXAMINATION		7
TOTAL		80

RATIONALE:

Architectural building locate in specific locations require that these relate with the surroundings consequently it is imperative that the setting of the building be dealt if great detail. This course would help the students in creating suitable surrounding in different contexts. This course would deal into study of landscape feature relate to the built up mass.

OBJECTIVES:

At the completion of the study, the students will be able to

- Describe introduction to landscape architecture.
- Understand site survey and analysis.
- Gain knowledge of soft landscape.
- Understand hard landscape.
- Understand indoor landscape.

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DETAILED SYLLABUS

4012631- LANDSCAPE ARCHITECTURE

Contents: Theory

UNIT	TOPICS	Hrs.
I	INTRODUCTION TO LANDSCAPE ARCHITECTURE History of Landscape Architecture: Salient features of Italian garden, Japanese Garden, English garden & Mughal Garden with one example each. Components of Landscape: Climate, Light, Water, Soil, Plant Ecology.	15
II	SITE SURVEY AND ANALYSIS Location & Type of Site Boundaries: Local Climate, Topography, Geology & Soils, Water & Drainage, Access & Circulation, Surrounding Land use, Existing vegetation, Existing buildings/Structures/Historic features, Services, Views from within and views from outside.	14
III	SOFT LANDSCAPE Types of Plants: Trees, Shrubs & Hedges, Climbers & Wall shrubs, Ground covers, Herbaceous plants & Shrubs, Grasses. Plant Selection Criteria: Form, Texture, Colour, Scent, Sound	14
IV	HARD LANDSCAPE Site Furniture: Seating, Shelter, Convenience elements, Information, Lighting, Traffic control & Protection, Utilities, Seasonal elements & Special features. Recreational & Athletic Facilities: Basic dimensions of Court games, Track & Field and Swimming pools Fountains & Pools: Purpose of water display, Types of water effects, Operating systems Outdoor Lighting: General design principles, Lamp characteristics, Light Distribution, Categories of light fixtures, Landscape lighting effects.	15
V	INDOOR LANDSCAPE Physical requirements of Plants: Light, Temperature, Humidity & Air quality, Water, Planting medium, Space, Weight and Maintenance. Characters of Interior Plants: Size, Growth Habit, Texture, Colour. List of commonly used indoor plants and their characters. Advantages and Disadvantages of Terrace Gardening. Sustainable landscape design – Introduction – Need – Overview - Case study	15

TEXT BOOK:

- 1 "Time-Saver Standards for Landscape Architecture":

REFERENCE BOOKS

1. "Harris & Dines Landscape Design Guide, Volume1,"
2. "Soft Landscape: Adrian Lisney & Ken Fieldhouse".

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DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP

III YEAR

N – SCHEME

www.binils.com
VI SEMESTER

TOWN PLANNING
(ELECTIVE THEORY-II)

IMPLEMENTED FROM 2020-2021

CURRICULUM DEVELOPMENT CENTRE

DIRECTORATE OF TECHNICAL EDUCATION
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STATE BOARD OF TECHNICAL EDUCATION & TRAINING-TAMILNADU
DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP SYLLABUS
N-SCHEME

(To be implemented for the students admitted from the year 2020-2021 onwards)

Course Name : 1012: DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP
Subject Code : 4012632
Semester : VI Semester
Subject Title : TOWN PLANNING

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per Semester: 16 Weeks

Subject	Instructions		Examination			Duration
	Hours / Week	Hours / Semester	Marks			
			Internal Assessment	Board Examination	Total	
TOWN PLANNING	5 Hours	80 Hours	25	100*	100	3 Hours

*Examination will be conducted for 100 marks and it will be reduced to 75 marks.

TOPICS & ALLOCATION OF HOURS

UNIT	Topics	Hrs.
I	TOWN PLANNING PRINCIPLES, SURVEYS AND ZONING	14
II	HOUSING and SLUMS	15
III	PUBLIC BUILDINGS, PARKS AND PLAY GROUNDS, MASTER PLAN	14
IV	URBAN ROADS, TRAFFIC MANAGEMENT	15
V	BUILDING BYE-LAWS, MISCELLANEOUS TOPICS	15
TEST & MODEL EXAMINATION		7
TOTAL		80

RATIONALE:

Some percentage of students find employment in the State Department of town and country planning Housing Board and Urban Development authorities. Student are expected to prepare master plan and layout of housing schemes, road, parking, etc.. Therefore the course in Town Planning equip the student with appropriate knowledge to perform above said functions. While teaching this subject teachers should show some of the typical master plan and layout plan to bring conceptual clarity in the mind of students.

OBJECTIVES:

At the completion of the study, the students will be able to

- Understand the principle of Town planning and surveys.
- Study the requirements of housing and slums.
- Study the requirement of public buildings, parks and playgrounds.
- Preparation of Master plan and Re-planning of existing Towns.
- Knows about Building bye laws and other miscellaneous topics.

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DETAILED SYLLABUS
4012632 - TOWN PLANNING

Contents: Theory

Unit	Name of the Topic	Hours
I	<p>1.1 TOWN PLANNING PRINCIPLES</p> <p>General - evolution of planning-objects of town planning - Economic justification for town planning - principles of Town planning - Necessity of town planning - origin of towns - growth of towns - stages in town development - personality of town - Distribution of land uses - Forms of planning - site for an ideal Town - Requirements of new Towns - Planning of the modern Town - Powers required to enforce T.P. schemes - cost of Town planning - present position of Town Planning in India.</p> <p>1.2 SURVEYS</p> <p>General – Necessity - collection of Data - Types of surveys - Uses of surveys.</p> <p>1.3 ZONING</p> <p>Meaning of the term - Uses of land – objects -principles of Zoning – Advantages of Zoning - Importance of Zoning - Aspects of Zoning - Transition Zone - Economy of Zoning - Zoning powers - Maps for Zoning.</p>	<p>7</p> <p>3</p> <p>4</p>
II	<p>2.1 HOUSING</p> <p>General - Importance of housing - Demand for houses - Building site - Requirements of residential buildings - Classification of residential buildings - Design of residential areas - Rural Housing - Agencies for housing- Investment in housing - HUDCO – CIDCO - Housing problem in India.</p> <p>2.2 SLUMS</p> <p>General - Causes of slums - Characteristics of slums - Effects of slums- Slum clearance - Works of improvement -Open plot scheme - Slum clearance and rehousing - Prevention of slum formation - Resources for slum clearance programmes -The Indian slum.</p>	<p>8</p> <p>7</p>
III	<p>3.1 PUBLIC BUILDINGS</p> <p>General - Location of Public Buildings – Classification of public Buildings - Principles of design in public buildings - Town centre - Grouping of public buildings - Civic aesthetics.</p>	<p>4</p>

	<p>3.2 PARKS AND PLAY GROUNDS</p> <p>General - Types of recreation - Location of urban green spaces - classification Of parks - park systems - park design - Finance of parks-parkways – playgrounds - space standards - Landscape architecture.</p> <p>3.3 MASTER PLAN</p> <p>General – Objects – Necessity - Data to be collected - Drawings to be prepared - Features of master plan - Planning standards - Report-stages of preparation - Method of Execution-conclusion.</p> <p>3.4 RE-PLANNING EXISTING TOWNS</p> <p>General - Objects of re-planning - Defects of existing towns - Data to be Collected - Urban renewal projects – Decentralization - Garden city - Surface drains - Refuse of Town.</p>	<p>3</p> <p>3</p> <p>4</p>
IV	<p>4.1 URBAN ROADS</p> <p>General – Objects - Requirements of good city road - Factors to be considered - Classification of urban roads - Types of street systems - Through and By - pass roads - Outer and inner ring roads – Expressways – Freeways – Precincts - Road aesthetics.</p> <p>4.2 TRAFFIC MANAGEMENT</p> <p>General –Object - Traffic survey - Traffic congestion - Traffic control - Road junction – Parking - Traffic capacity of road - Road traffic problems – Road accident - Traffic signal – Road sign – Road marking - Street lighting in a town –Traffic problem of existing towns – Peculiarities of traffic.</p>	<p>7</p> <p>8</p>
V	<p>5.1 BUILDING BYE-LAWS</p> <p>General - Objects of bye-laws - importance of bye-laws - Function of local authority - Responsibility of owner - Applicability of bye-laws - set-back - Light plane - Floor space index - Off-street parking - Fire protection - Minimum plot sizes - Some other terms - Principles underlying building bye -laws-Building bye-laws for residential area of a typical town planning scheme - Building bye-laws -Development control rules - General rules of Metropolitan Area - CMDA Rules.</p>	<p>8</p>

5. .2 MISCELLANEOUS TOPICS Airports – Location - size - Noise control - Parts of an airports - Betterment and compensation - city blocks – conurbations -Cul-de-sac streets - Focal point - Green belt - Public utility services - Rapid transit – Remote sensing application – urban planning using remote sensing – site suitability analysis Transportation planning..	7
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TEXT BOOKS

1. “K.S.Rangwala and P.S.Rangwala” “Town Planning”, “Charotar Publishing House,15thEdition,1999.”
2. “Time saver standards for site planning”, “Mc Graw Hill Book company”.
3. “John Rate life”, “An Introduction to town and country planning, London”.
4. “S.C Rangwala” “Town Planning”
5. “Abir Bandyopadhyay” “Town Planning”

REFERENCE BOOKS

1. “Michael Hord, R.” “Remote sensing methods and application, John Wiley and Sons, New York, 1986.”
2. “National Building Code of India- Part-III.”
3. “Municipal and Panchayat bye-laws, CMDA Rules and Corporation bye-laws.”
4. “KA. Ramegowda,” “Urban and regional planning, University of Mysore”.
5. “M/s Dvan”, “The urban pattern, city planning and design”.
6. “The art of home landscaping” – “Mc Graw Hill Book company”.
7. “Harvey M. Rubenstein”, “A Guide to site and Environmental planning, Newyork.”
8. “R.Srinivasa kumar””Transportation Engineering”(Railways, Airport, Docks & Harbours)
9. “Mike Slinn , Peter Guest & Paul Matthews”. “Traffic Engineering Design (Principles & Practice)”

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DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP

III YEAR

N – SCHEME

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VI SEMESTER

**SUSTAINABLE
ARCHITECTURE
(ELECTIVE THEORY-II)**

IMPLEMENTED FROM 2020-2021

CURRICULUM DEVELOPMENT CENTRE

**DIRECTORATE OF TECHNICAL EDUCATION
CHENNAI-600 025, TAMIL NADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING-TAMILNADU
DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP SYLLABUS
N-SCHEME

(To be implemented for the students admitted from the year 2020-2021 onwards)

Course Name : 1012: DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP
Subject Code : 4012633
Semester : VI Semester
Subject Title : SUSTAINABLE ARCHITECTURE

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per Semester: 16 Weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
SUSTAINABLE ARCHITECTURE	5 Hours	80Hours	25	100*	100	3 Hours

*Examination will be conducted for 100 marks and it will be reduced to 75 marks.

Topics and Allocation of Hours

UNIT	Topic	Hrs.
I	INTRODUCTION	14
II	DESIGN PRINCIPLES	14
III	SUSTAINABLE CONSTRUCTION	14
IV	SUSTAINABLE CONSTRUCTION	14
V	LIGHTING DESIGN AND NATURAL VENTILATION	17
TEST & MODEL EXAMINATION		7
TOTAL		80

RATIONALE:

Understanding of the basic principles of climatology and environment are very important for Diploma holders in Architectural Assistantship. The knowledge of this subject will be very useful in the design of buildings. Teachers are expected to impart instructions of the above course keeping in view the effect of above course in the design of buildings

OBJECTIVES:

At the completion of the study, the students will be able to

- know the various types of climates, element of climates, effect of wind on climate and lighting.
- study the orientation of buildings and materials with respect to climate.

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DETAILED SYLLABUS

4012633 - SUSTAINABLE ARCHITECTURE

Contents: Theory

Unit	Name of the Topic	Hours
I	INTRODUCTION Architecture and the survival of the planet- Assessing patterns of consumption and their alternatives- Profit and politics- Natural building movement – new context for codes and regulations	14
II	DESIGN PRINCIPLES Macro-Principle 1: Conserving energy; Principle 2: Working with Climate; Principle 3: minimizing new resources; Principle 4: respect for users; Principle 5: respect for site; Principle 6: holism- Illustrated with examples	14
III	SUSTAINABLE CONSTRUCTION Design issues relating to sustainable development including site and ecology, community and culture, health, materials, energy, and water- Domestic and Community buildings using self help techniques of construction; adaptation, repair and management	14
IV	SYSTEMS MATERIALS AND APPLICATIONS Adobe- Cob- Rammed Earth- Modular contained earth- light clay- Straw bale- bamboo- earthen finishes, etc.- their sustainability; adaptability to climate; engineering considerations, and construction methods; Waste as a resource	14
V	LIGHTING DESIGN AND NATURAL VENTILATION 5.1 Visual response, visual acuity, glare & visual comfort-side lighting concepts, top lighting concepts-controls daylight design-electrical light sources and luminaries-task requirements, point-by-point method, lumen method, qualitative calculation and supplementary artificial lighting. 5.2 Natural ventilation & energy efficiency-wind-its character & significance-wind pressure & wind pressure coefficient-function of ventilation-way of natural ventilation-single side ventilation, cross side ventilation, stack effect and reverse stack effect-effect of building form and orientation, fenestration design of buildings to enhance air movement and ventilation.	17

TEXT BOOKS

1. "Plan"- "Sustainable Architecture (Contemporary Architecture in Detail)"
2. "TERI"- "Sustainable Building - Design Manual: Volume Two: sustainable building design practices"
3. "Rosa Urbano Gutiérrez, Laura de la Plaza Hidalgo". "Elements of Sustainable Architecture"

REFERENCE BOOKS

1. "Arvind Krishnan et al,"- 'Climate Responsive Architecture A Design Handbook for Energy Efficient Buildings', "Tata McGraw Hill Publishing Company Limited, New Delhi, 2001".
2. 'Manual on Solar Passive Architecture', "IIT Mumbai and Mines, New Delhi, 1999."
3. "Ken Yeang", "Eco-design: A Manual for Ecological Design", "Wiley Academy, 2006."
4. "Givoni. B", "Passive and Low Energy Cooling of Buildings", "Van Nostrand Reinhold, New York, 1994."
5. "Majumdar M", "Energy-efficient Building in India", "TERI Press, 2009."
6. "David Bergman" "Sustainable Design: A Critical Guide (Architecture Briefs)"
7. "Michael auer ,Peter Mösle ,& Michael Schwarz"- "Green Building: Guidebook for Sustainable Architecture"

WEBSITES

<https://nptel.ac.in>

<https://ndl.iitkgp.ac.in>

<http://www.envinst.conu.edu/~envinst/research/built.html>www.terin.org<http://www.pge.com/pec/archives/w98passi.html><http://solstice.crest.org/efficiency/index.shtml>

www.pge.com/pec/archives/w98passi.html<http://solstice.crest.org/efficiency/index.shtml>



1012

DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP

III YEAR

N – SCHEME

www.binils.com
VI SEMESTER

**COMPUTER APPLICATION
IN ARCHITECTURE - III**

IMPLEMENTED FROM 2020-2021

CURRICULUM DEVELOPMENT CENTRE

**DIRECTORATE OF TECHNICAL EDUCATION
CHENNAI-600 025, TAMIL NADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING-TAMILNADU
DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP SYLLABUS
N-SCHEME

(To be implemented for the students admitted from the year 2020-2021 onwards)

Course Name : 1012: DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP
Subject Code : 4012640
Semester : VI Semester
Subject Title : COMPUTER APPLICATION IN ARCHITECTURE - III

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per Semester: 16 Weeks

Subject	Instructions		Examination			
	Hours/ Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
COMPUTER APPLICATION IN ARCHITECTURE-III	6 Hours	96 Hours	25	100*	100	3 Hours

*Examination will be conducted for 100 marks and it will be reduced to 75 marks.

Topics and Allocation of Hours

UNIT	Topics	Hrs.
I	BASIC TOOLS AND INTERFACE	19
II	PRODUCE MODEL	19
III	FURNITURE AND BUILDINGS	19
IV	RENDERING MODELS	19
V	V-RAY RENDERING MODELS	20
TOTAL		96

RATIONALE:

In the present times an architectural assistant should be capable of drafting drawings on the computer as most of the architects lay greater stress on computerized drawings for their ease of drafting, editing, managing and presentation. At the end of the course the students should be able to make 3-D architectural drawings for presentation and construction purposes. The student should get familiar with the latest CAD software.

GUIDELINES:

- All the exercises given in the syllabus should be completed and given for the end semester practical examination.
- The external examiners are requested to ensure that a single exercise question should not be given to more than four students while admitting a batch of 30 students during Board Practical Examinations.

OBJECTIVES:

At the completion of the study, the students will be able to

- Understanding of Google SketchUp and introduce to modeling terminology and concepts.
- Learn how to begin a new project in Google SketchUp and introduce tools and concepts necessary to design and draw.
- Grasp and appreciation for viewing and presenting models in 3D to clients and design team members.
- Gain knowledge of the benefits and uses of 3D modeling and how they are applicable to design business.
- Rendering for the given design with help of V-Ray.

DETAILED SYLLABUS

4012640 – COMPUTER APPLICATION IN ARCHITECTURE-III

Contents: Practical

UNIT	NAME OF THE TOPIC	HOURS
I	<p>BASIC TOOLS AND INTERFACE</p> <p>Selecting a Template in Sketch Up. Exploring the Sketch up Interface. Title Bar, Menu Bar, Getting Started Toolbar. Drawing Area. Status Bar. Window Resizes Handle- Learning How to Use Sketch Up Tools. Viewing the Sketch up Quick Reference Card.</p>	19
II	<p>PRODUCE MODELS</p> <p>1. Creating your first 3D model in sketch up. Saving and reopening a model. Backing up a sketch up file or restoring an auto- save file.</p> <p>2. Drawing lines, shapes, and 3D object. Introducing drawing basics and concepts. Drawing basics shapers. Selecting geometry. Pushing and pulling shapes into 3D. Drawing arcs. Drawing free hand shapes. Dividing, splitting, and exploding lines and faces. Offsetting a line from existing geometry. Measuring angles and distances to model precisely. Modeling complex 3D shapes with the solid tools. Adding text, labels, and dimensions to a model.</p> <p>3. Viewing a model- Choosing a style- Applying colors, photos, materials, and textures.</p> <p>Graded exercises: Basics shapes, freehand shapes, 3D shapes with the solid tools.</p>	19
III	<p>FURNITURE AND BUILDINGS</p> <p>Graded exercises:</p> <p>1. Basic furniture.</p> <p>A) Rectangular table.</p> <p>B) Three-Seater Sofa.</p> <p>C) Dining table with chairs.</p> <p>D) Cabinet with doors and drawers.</p> <p>2. Importing and exporting models from CAD.</p>	19

IV	RENDERING MODELS 1. Materials editor, transparent materials to glass. 2. Practice of rendering by experimenting and exploring. 3. Render & Print.	19
V	V-RAY RENDERING MODELS 1. Toolbars & interface 2. Materials 3. Objects 4. Environment 5. Lighting 6. Output	20

EXERCISES:

1. Study of various menus of sketch-up package.
2. Setting units & selection of toolbars.
3. Create a five different geometrical 3D forms & apply with different colours, materials & textures.
4. Create a three-seater sofa & apply material with proper dimension.
5. Create a rectangular table & apply material with proper dimension.
6. Create a dining table with chairs & apply material with proper dimension.
7. Create a cot with side table & apply material with proper dimension.
8. Create a wardrobe & apply material with proper dimension.
9. Create a false ceiling design for an size of 14'x10' bedroom (minimum 2 options) & apply material with proper dimension.
10. Create a kitchen cabinets & apply material with proper dimension.
11. Import a file from CAD and create a 3D exterior model apply suitable material and render it.
12. Create a master bedroom interior with all details, apply suitable material and render it.
13. Render the bedroom interior by using V-ray settings.
14. Render the kitchen by using V-ray setting as day time render.
15. Render the kitchen by using V-ray setting as night time render.

BOARD EXAMINATION

ALLOCATION OF MARKS

3D model	- 40marks
Material application	- 20 marks
Render	- 25marks
Dimensioning	- 10marks
Viva-voce	- 5marks

REFERENCES :

1. "SKETCHUP References manual"
2. "Aidan Chopra,Laura Town Chris Pichereau"- " Introduction to Google SketchUp"

WEBSITES:

<https://help.sketchup.com/en/sketchup/getting-started-self-paced-tutorials>.

https://web.iit.edu/sites/web/files/departments/academic-affairs/academic-resource-center/pdfs/Google_SketchUp.pdf

<http://www.thesketchupessentials.com/sketchup-tutorial-beginners-part-1-basic-functions>.

LIST OF EQUIPMENTS (for a batch of 30 students)

Computer – 30 Nos

SOFTWARE USED:

GOOGLE SKETCHUP.

**4012640—COMPUTER APPLICATION IN ARCHITECTURE- III
MODEL QUESTION PAPER**

Duration:3 Hours

Maximum marks:100

ALLOCATION OF MARKS:

3d model	-	40 marks
Material application	-	20 marks
Render	-	25 marks
Dimensioning	-	10 marks
Viva-voce	-	5 marks

- 1.Design and Draw the kitchen cabinets & apply material with proper dimension & render the final view.

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1012

DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP

III YEAR

N – SCHEME

www.binils.com
VI SEMESTER

**STRUCTURAL DETAILING
AND DRAWING**
(ELECTIVE PRACTICAL – II)

IMPLEMENTED FROM 2020-2021

CURRICULUM DEVELOPMENT CENTRE

**DIRECTORATE OF TECHNICAL EDUCATION
CHENNAI-600 025, TAMIL NADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING-TAMILNADU
DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP SYLLABUS
N-SCHEME

(To be implemented for the students admitted from the year 2020-2021 onwards)

Course Name : 1012: DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP

Subject Code : 4012651

Semester : VI Semester

Subject Title : STRUCTURAL DETAILING AND DRAWING

TEACHING AND SCHEME OF EXAMINATION:

No. of weeks per Semester: 16 Weeks

Subject	Instructions		Examination			
	Hours /Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
STRUCTURAL DETAILING AND DRAWING	4 Hours	64Hours	25	100*	100	3 Hours

*Examination will be conducted for 100 marks and it will be reduced to 75 marks.

Topics and Allocation of Hours

UNIT	Topics	Hrs.
I	SLABS	14
II	BEAMS	17
III	COLUMN AND FOOTING	17
IV	STEEL MEMBERS	16
TOTAL		64

RATIONALE:

This is a detailing subject which covers broad elements of Structural Engineering. Study of this subject enables the student to know the position and placement of reinforcement for the RCC structural elements; connection of Steel structural elements.

OBJECTIVES:

At the completion of the study, the students will be able to

- know the disposition of reinforcement in R.C.C Structural elements.
- know the connection details of the Steel members.
- workout the Bar bending Schedule for R.C.C members.

DETAILED SYLLABUS

4012651-STRUCTURAL DETAILING AND DRAWING

Contents: Practical

Unit	Name of the Topic	Hours
I	SLABS: Detailing of 1. One way slab 2. Two-way slab	14
II	BEAMS: Detailing of the following Beams 1. Singly reinforced Beam 2. Doubly reinforced Beam 3. Lintel cum sunshade	17
III	COLUMN AND FOOTING: Detailing of Columns and Foundations – Square and Rectangular footings with Column.	17
IV	STEEL MEMBERS: Detailing of 1. Beam to Beam connection 2. Beam to Column connection (Framed and Seated connections) 3. Roof Truss	16

LIST OF EXERCISES:

PART A

1. Detailing of a simply supported one way Slab.
2. Detailing of a Two-way Slab with corners held down.
3. Detailing of a Two-way Slab with corners not held down
4. Detailing of Lintel Beam with Sunshade.
5. Detailing of a Singly Reinforced Rectangular Beam. (Cantilever)
6. Detailing of a Singly Reinforced Rectangular Beam. (Partially fixed)
7. Detailing of a Singly Reinforced Rectangular Beam. (Fixed)
8. Detailing of a Doubly Reinforced Rectangular Beam. (Partially fixed)
9. Detailing of a Singly Reinforced Rectangular Beam. (Fixed)
10. Detailing of a Square sloped Footing with Column.
11. Detailing of a Rectangular Footing with Column

PART B

12. Detailing of a Steel Beam to Beam connection. (Welded connection only)
13. Detailing of a Steel Beam to Column connection. (Framed and seated Connections – Welded connection only)
14. Detailing of a Roof Truss, with welded joint details.

Note: Prepare bar bending schedule for all the RCC works (Exercise 1 to 11)

BOARD EXAMINATION

ALLOCATION OF MARKS

EVALUATION

Detailing of a RCC Structure (Units I-III) – 65 MARKS

Detailing of a Steel Structure (Unit IV) – 30 MARKS

Viva – Voce – 5 MARKS

REFERENCES

1. “Krishna Raju”-“Structural Design & Drawing: 3rd Edition”
2. “Krishnamurthy D”-“Structural Design And Drawing Vol. II: Concrete Structures (Elementary Structural Design:Concrete Structure)”
4. “Wagh Sajjan , Chaudhari V.A , Rathod Ramesh” “Structural Design and Drawing III”
5. “Dr. R. P. Rathaliya”-“Elementary Structural Design [R.C.C.]”
6. “Tangri M.K.Garg”-“Structural Drawing (RCC & Steel)”

WEBSITE

<https://nptel.ac.in>

<https://ndl.iitkgp.ac.in>

LIST OF EQUIPMENTS/FURNITURES (for a batch of 30 students)

Drafting Table with stool – 30 Nos

Pin-up board - 1No

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**4012651- STRUCTURAL DETAILING AND DRAWING
MODEL QUESTION PAPER**

Duration: 3 Hours

Maximum marks: 100

NOTE : Answer all Questions.

PART – A (65 Marks)

I) The following are the details of a singly reinforced partially fixed beam:

Clear span : 6000mm
Width of supports : 300mm
Size of beam : 300 x 600 mm
Clear cover to reinforcement : 25 mm

Reinforcement Details:

Tension reinforcement : 5 Nos. of 20mm dia Fe 415 steel

Hanger bars : 2 nos. 10 mm dia Fe 415steel
(Approximately 20% of main bars)

Stirrups : 8 mm dia 2 legged Fe 415 steel @ 340mm c/c

Negative reinforcement: 2 nos. of 20mm dia at support to a distance of
0.10 l (or) L_d whichever is greater.

Use standard anchorage and curtailment practices wherever necessary.
Assume any other data required.

Draw to a suitable scale:

1. The longitudinal section of the beam (25 marks)
2. The cross section of the beam at support (10 marks)
3. The cross section of the beam at mid span (10 marks)
4. Prepare the bar bending schedule for the beam. (20 marks)

PART – B (30 Marks)

II) The following are the details of beam-to-beam connections.

Size of main beam : ISMB 400 @ 616 N/m
Size of cross beam : ISMB 300 @ 442 N/m
Size of cleat Angles : 2 Nos. of ISA 90x90x8mm
Assume any other data required suitably.

Draw to a suitable scale the following:

Beam to beam connection – Top of main and cross beam at different level.

- 1) Elevation with main beam in section (15 marks)
- 2) Elevation with cross beam in section (15 marks)

PART – C

VIVA-VOCE - 5 MARKS

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1012

DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP

III YEAR

N – SCHEME

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VI SEMESTER

LANDSCAPE AND DETAILING
(ELECTIVE PRACTICAL-II)

IMPLEMENTED FROM 2020-2021

CURRICULUM DEVELOPMENT CENTRE

DIRECTORATE OF TECHNICAL EDUCATION
CHENNAI-600 025, TAMIL NADU

STATE BOARD OF TECHNICAL EDUCATION & TRAINING-TAMILNADU
DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP SYLLABUS
N-SCHEME

(To be implemented for the students admitted from the year 2020-2021 onwards)

Course Name : 1012: DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP

Subject Code : 4012652

Semester : VI Semester

Subject Title : LANDSCAPE AND DETAILING

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per Semester: 16 Weeks

Subject	Instructions		Examination			
	Hours /Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
LANDSCAPE AND DETAILING	4Hours	64Hours	25	100*	100	3 Hours

*Examination will be conducted for 100 marks and it will be reduced to 75 marks.

Topics and Allocation of Hours

UNIT	Topics	Hrs.
I	INTRODUCTION TO LANDSCAPE DRAWINGS	10
II	INTRODUCTION TO LANDSCAPE DRAWINGS	20
III	DETAIL DRAWINGS	34
TOTAL		64

RATIONALE:

Architectural building locate in specific locations require that these relate with the surroundings consequently it is imperative that the setting of the building be dealt if great detail. This course would help the students in creating suitable surrounding in different contexts. This course would deal into study of landscape feature relate to the built up mass.

OBJECTIVES:

At the completion of the study, the students will be able to

- To Describe introduction to landscape architecture.
- To Understand site survey and analysis.
- To gain knowledge of soft landscape.
- To understand hard landscape.
- To understand indoor landscape

DETAILED SYLLABUS

4012652-LANDSCAPE AND DETAILING

Contents: Practical

UNIT	TOPICS	HOURS
I	INTRODUCTION TO LANDSCAPE DRAWINGS Graphical understanding of drawing lines, plants, trees, shrubs, hedges, rocks, human, plant groups, water feature, pergolas & other elements of landscape in plan, section and elevations	10
II	INTRODUCTION TO LANDSCAPE DRAWINGS Evolving Schematic drawings, working drawing, planting plan and details for residential landscape design.	20
III	DETAIL DRAWINGS To understand sectional details such as soil medium, planter sections, water features, road ways, pathways, mound, boulders, boulevards, furniture, terrace garden, waterproofing detail in the terrace garden, courtyard details, indoor planters, electrical layout, plumbing layout, pavilions are to be studied and drawings to be prepared.	34

LIST OF EXERCISES:

Lab practice for landscape design and detail

1. Graphical representation of lines, rocks, grass, shrubs, hedges.
2. Graphical representation of trees, plants, plant groups, humans.
3. Graphical representation of water features, pergolas.
4. Working drawing of residential landscape – plan & Sectional elevations.

5. Planting plan of residential landscape.
6. Detailed drawings of soil medium, planter sections, mounds.
7. Detailed drawings of roadways, pathways, drainage details.
8. Details of terrace garden roof.
9. Electrical layout in residential landscape design.
10. Design of boulevards.

REFERENCES:

1. Time-Savers Standards for Landscape Architecture:
2. Harris & Dines Landscape Design Guide, Volume1,
3. Soft Landscape: Adrian Lisney& Ken Fieldhouse.
4. Landscape Architecture: A Very Short Introduction (Very Short Introductions) Illustrated Edition, by Ian Thompson (Author)
5. Landscape Architecture: An Introduction by Robert Holden (Author), Jamie Liversedge (Author)
1. Time-Saver Standards for Landscape Architecture by Charles Harris (Author), Nicholas Dines (Author)

WEBSITE

<https://nptel.ac.in>

<https://ndl.iitkgp.ac.in>

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BOARD EXAMINATION

ALLOCATION OF MARKS

Drawing	- 45 Marks
Specification	- 20 Marks
Rendering	- 30 Marks
Viva-voce	- 05 Marks

LIST OF EQUIPMENTS (for a batch of 30 students)

Drafting Table with stool	– 30 Nos
Pin-up board	- 1No

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4012652-LANDSCAPE AND DETAILING
MODEL QUESTION PAPER

Duration:3 Hours

Maximum marks: 100 marks

ALLOCATION OF MARKS:

Drawing	- 45 Marks
Specification	- 20 Marks
Rendering	- 30 Marks
Viva-voce	- 05 Marks

1. Planting plan of residential landscape (by lot)

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1012

DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP

III YEAR

N – SCHEME
www.binils.com
VI SEMESTER

**BUILDING SERVICES
PRACTICAL
(ELECTIVE PRACTICAL-II)**

IMPLEMENTED FROM 2020-2021

CURRICULUM DEVELOPMENT CENTRE

**DIRECTORATE OF TECHNICAL EDUCATION
CHENNAI-600 025, TAMIL NADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING-TAMILNADU
DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP SYLLABUS
N-SCHEME

(To be implemented for the students admitted from the year 2020-2021 onwards)

Course Name: 1012:DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP

Subject Code: 4012653

Semester : VI Semester

Subject Title : BUILDING SERVICES PRACTICAL

TEACHING AND SCHEME OF EXAMINATION:

No. of hours per Semester: 16 Weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
BUILDING SERVICES PRACTICAL	4 Hours	64 Hours	25	100*	100	3 Hours

*Examination will be conducted for 100 marks and it will be reduced to 75 marks.

Topics and Allocation of Hours

Sl. No	Topics	Time (Hrs)
1	WATER SUPPLY	13
2	DRAINAGE AND SANITATION	13
3	ELECTRICAL AND ALLIED INSTALLATIONS	13
4	AIR CONDITIONING	13
5	ACOUSTICS	12
TOTAL		64

RATIONALE:

Note: The course is to be taught with respect to residential buildings

On completion of the study of the subject, the student should be able to

OBJECTIVES:

At the completion of the study, the students will be able to

- Know the principles of laying water supply pipe lines within the premises of building.
- Sketch the water supply arrangement in single and multi-storey buildings.
- Draw sketches of septic tank with a soak pit and know its operation.
- Draw the drainage arrangement for a single and multi-storey building.
- Draw different sanitary fittings used in building.
- Sketch rainwater harvesting pit.
- Know various electrical energy consuming devices.
- Electrical energy distribution systems.
- Know the various systems of wiring.
- List out wiring accessories.
- Know about the types of lamps and lamp circuits.
- Estimate the no. of circuits and sub circuits.
- Study the working of various A/C systems.
- Estimate the capacity of A/C system.
- Classify the A/C equipment and their functions
- List out various sound absorptive materials.
- Know the principles of acoustics.

DETAILED SYLLABUS

4012653- BUILDING SERVICES PRACTICAL

Contents :Practical

UNIT	TOPICS	HOURS
I	<p>1.0 WATER SUPPLY</p> <p>1.1 Conveyance of water Definitions- a) residual head b) plumbing system c) water main d) service pipe e) communication pipe f) supply pipe g) distribution pipe h) back flow I) air gap.</p> <p>1.2 Water supply arrangements in buildings. Identification of different types of water supply pipes - draw the sketch as per NBC. General layout of water supply arrangement for single and multi storey building as per NBC. Principles and precautions in laying pipelines within the premises of a building. Sketch for Water supply connection from water main to a building, water supply fittings, stop cock, ferrule, goose neck.</p> <p>1.3 Water supply and Sanitary appliances Fixtures – Meaning of the term fixture, soil appliances- water closets (floor mounted and wall hung), squatting pans, bidets, urinals, and waste appliances-wash basins. Fittings- meaning of the term fitting; fittings- coupling, flange, branch, bend, tees, elbows, unions, waste with plug, P or S trap with vent, stop ferrule, bib tap, pillar tap, ball valve, etc. Faucets- kitchen and toilet faucets, showers- bath and shower Fixtures.</p>	13

II	<p>2.0 DRAINAGE AND SANITATION</p> <p>2.1 Sewerage treatment methods- Septic tank – construction and operation. Design of a septic tank with a soak pit for a given quantity of sewage Draw Plan and cross section.</p> <p>2.2 Drainage and sanitation in buildings Aims of building drainage. Requirements of good drainage system in buildings. Preliminary data for design. (i) Site plan not smaller than 1:500 scale and (ii) Drainage plan not smaller than 1:100 scale Layout of sanitary fittings to house drainage arrangements – Draw layout plan. Pipes used in drainage arrangement -Soil pipes, waste pipes, ventilating pipes. Plumbing systems - single stack, one - pipe, two - pipe system.</p> <p>2.3 Drainage appurtenances Drainage appurtenances –floor drains - Fitting and fixtures, closets, flushing cisterns, urinals and Inspection chambers. Inspection of building drainage system, testing, maintenance.</p> <p>2.4 Storm water drainage Natural infiltration, combined system. Roof drainage.</p> <p>2.5 Rain water harvesting Rain water harvesting - various methods & explanatory sketches.</p>	13
III	<p>3.0 ELECTRICAL AND ALLIED INSTALLATIONS</p> <p>3.1. House wiring systems Introduction – definitions of ampere, cable, circuit breaker, conduit, cut-out, earthing system. Definition of wiring system, a sketch for typical house wiring.</p> <p>3.2. Systems of wiring- Cleat wiring, wooden casing capping, conduit wiring (surface or open type, recessed or</p>	13

	<p>concealed type- advantages and disadvantages),</p> <p>General rules for wiring.</p> <p>3.3 Wiring Accessories</p> <p>Switches, lamp holders, ceiling rose, socket outlets, plug ins, conduit wiring accessories-</p> <p>PVC conduit, elbows, bends, junction box, fuses etc.</p> <p>3.4. Estimation of domestic Installation</p> <p>Electrical symbols.</p> <p>3.5 Estimation of circuits</p> <p>Load ratings for different electrical appliances-</p> <ul style="list-style-type: none"> (i) Fluorescent lamp-40 watt. (ii) Incandescent lamp- 60 watt. (iii) Fan point- 80 watt. (iv) Socket outlet- 100 watt. (v) Power socket- 1000 watt. <p>Number of sub circuits</p> <p>Problems on calculation of no. of circuits- graphical representation in plans.</p> <p>Problems- 1. Estimate the no. of circuits in wiring installations as per IEE rules for the following loads:</p> <ul style="list-style-type: none"> (i) 80 watt fans- 7 nos. (ii) 60 watt lamps- 12 no. (iii) 100-watt plug points- 6 no. (iv) Refrigerator- 1 no. (v) 1/2HP pump motor- 1 no. 	
IV	<p>4.0 AIR CONDITIONING SYSTEMS</p> <p>4.1 Introduction- need and definition-Classification of A.C. systems- Central A.C, Split A.C and Window A.C, Principles of A.C. Parts of A.C., layout diagram. Capacity of A.C. systems</p> <p>4.2 Air conditioning equipment- Air filters and dust collectors, fans and blowers, ducts, grills, humidifiers and dehumidifiers.</p>	13

	<p>Functions of A.C. equipment.</p> <p>Quantities of AC requirement for various interior spaces of various buildings.</p>	
V	<p>5.0 ACOUSTICS</p> <p>5.1 Introduction</p> <p>Meaning of the term acoustics.</p> <p>Terminology- velocity of sound, decibel scale, co-efficient of absorption, noise, reverberation time, sound insulation.</p> <p>Reflection and diffraction of sound in rooms.</p> <p>5.2 Sound absorptive materials</p> <p>5.3 Principles of room acoustics.</p> <p>Requirements for good acoustics.</p> <p>Design of room shape- floor plan, elevation of seats, ceilings, side walls, rear wall; volume per seat.</p> <p>Reverberation time, optimum and control of RT.</p> <p>Principles of acoustics in auditoriums.</p>	12

EXERCISES (To be done in CADD Laboratory)

1.0 WATER SUPPLY

1. Draw different types of water supply pipes as per NBC, Connection from water main to a building, fixtures, fittings, faucets and accessories.
2. Draw the layout of water supply for a two-bed room house.

2.0 DRAINAGE AND SANITATION

3. Typical sketch of a single/double compartment septic tank.
4. Draw the types of sewage systems.
5. Typical sketch of a rain water harvesting pit.
6. Draw the layout of drainage system of a two-bed room house.

3.0 ELECTRICAL AND ALLIED INSTALLATION

7. Draw a typical house wiring diagram.
8. Draw a layout plan of all electrical installations of a two-bedroom house.

4.0 AIR CONDITIONING

9. Layout of central A/C system diagram.
10. Layout of window A/C diagram.
11. Layout of Split A/C diagram.

5.0 ACOUSTICS

12. Plan and cross section of an auditorium for a capacity of 1000 persons based on Acoustical Requirements and naming various parts and specifying various standards.

Note:

1. The students should be given proper training in all the exercises. All the exercises must be completed before the examinations.
2. The students should maintain observation notebook/manual and record notebook. The record note should be submitted during the Board Practical Examination. Common print out to the record note book should not be allowed. Individual student output for every exercise should be kept in the record note book.
3. All the exercises must be given in the question paper and a student is allowed to select any one by lot. All exercises with the hardcopy of the template related to the exercise should be provided by the external examiner for the examination. Template can be varied for every batch.
4. The external examiner should verify the availability of the infrastructure for the batch strength before the commencement of practical examination.

REFERENCE BOOKS:

1. "National Building code of India. 1983"
2. "S. Gokulachari"- "Building Services"
3. "A. Balasubramaniyan" "Advanced Constructions Technology"
4. "David Gunttee"- "Fire& Human Behaviours" "Jhon Willy & Sons"
5. "E.G. Bercher& A.C. Pernall" "Designing for fire safety".
6. "Thomas Adam and Charles Black"- "Fire Safety in Building"
7. "E.G. Bucher & A.C. Parhall"- " Designing for Fire Safety" " John Wiley & sons."
8. "Alan Obrart , Richard Parlour , Vince Aherne"- " Building Services: Engineering for Architects and Building Design Professionals"
9. "Cybil M. Harris"- "Handbook of Utilities and Services for Buildings"
10. "Roger Greeno , .F.Hall , Roger Green"- "Building Services Handbook"
11. "A.K. Mittal"- "Electrical and Mechanical Services in High Rise Building: Design and

Estimation Manual: Including Green Buildings”

12. “Mouafak Zaher , Richard Parlour , Vince Aherne” “Building Services “

WEBSITES

<https://nptel.ac.in>

<https://ndl.iitkgp.ac.in>

<https://www.autodesk.in>

<https://www.thesourcecad.com/autocad-tutorials>

<http://www.cadtutor.net/>

<https://static.sdcpublications.com/pdf>

LIST OF EQUIPMENTS (for a batch of 30 students)

Computer - 30 Nos

SOFTWARE

CADD software

BOARD EXAMINATION

ALLOCATION OF MARKS

S.NO	Description	Marks allotted
1	Aim & Procedure	20
2	Execution*	50
3	Output Printout#	25
4	Viva voce	5
Total Marks		100

*Should be evaluated during the execution by examiners only.

#Students – All actual output should be printed and submitted with the exam paper for evaluation.

VI SEMESTER
4012653- BUILDING SERVICES PRACTICAL
MODEL QUESTION PAPER

Duration:3 Hours

Maximum marks: 100 marks

ALLOCATION OF MARKS

S.NO	Description	Marks allotted
1	Aim &Procedure	20
2	Execution*	50
3	Output Printout#	25
4	Viva voce	5
Total Marks		100

*Should be evaluated during the execution by examiners only.

#Students – All actual output should be printed and submitted with the exam paper for evaluation.

PART-A

1. Draw a typical house wiring diagram (by lot)

www.binils.com



1012

DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP

III YEAR

N – SCHEME

www.binils.com
VI SEMESTER

PROJECT WORK & INTERNSHIP

IMPLEMENTED FROM 2020-2021

CURRICULUM DEVELOPMENT CENTRE

**DIRECTORATE OF TECHNICAL EDUCATION
CHENNAI-600 025, TAMIL NADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING-TAMILNADU
DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP SYLLABUS
N-SCHEME

(To be implemented for the students admitted from the year 2020-2021 onwards)

Course Name : 1012: DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP
Subject Code : 4012660
Semester : VI Semester
Subject Title : PROJECT TWORK & INTERNSHIP

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per Semester: 16 Weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
PROJECT WORK AND INTERNSHIP	6 Hours	96 Hours	25	100*	100	3 Hours

*Examination will be conducted for 100 marks and it will be reduced to 75 marks.

RATIONALE:

The aim of this course is to articulate and develop a focused argument for a particular approach to a question. The project work is conducted as group work at diploma level during the final semesters, and thus attempts to test this approach in a project where intellectual ideas and design objectives merge.

This course provides a forum for discussion on a broad range of social, political, technical and aesthetic interests and issues related to design, which prepares students to develop research interests for their thesis. First, the course will introduce methodologies and strategies used in architectural research. Second, it will expose students to case studies/former theses related to research areas. Third, it will guide students in the development of a thesis proposal. Finally, it will help craft a program and/or schedule for the thesis proposal.

The course will involve discussions, lectures, and presentations. Each student is expected to participate in, and at times, lead discussions, develop a thesis proposal, and make a presentation. Out of these presentations and discussions, a detailed research plan for their thesis project should emerge. Students will be expected to

demonstrate the strategies and methodologies thus exhibiting a full understanding of the context that their project inhabits and validating the notion that their work is an original and unique statement.

OBJECTIVES:

At the completion of the study, the students will be able to

- Develop innovative skills in project designs.
- Apply the knowledge and skills gained through the course work in the design of particular project or by undertaking a project.
- Contribute to offer a solution to real life problem.
- Apply the technical or professional (computer) skills which the students had learned throughout the programme.

GUIDELINES:

- The project assignment can be individual assignment or a group assignment. There should not be more than 6 students if the project work is given to a group. The students should identify themselves or accept the given project assignment at least two to three months in advance. The project work identified in collaboration with industry should be preferred.
- The objective of the project work is to enable the students to work in convenient groups of not more than six members in a group on a Project involving theoretical and real studies related to Architecture.
- Every project Work shall have a Guide who is a member of the faculty.
- Six Hours per week shall be allotted in the Time table for this important activity and this time shall be utilized by the students to receive directions from the Guide, Case studies, Library reading, computer analysis, field work or model making as assigned by the Guide.
- Each group shall present periodical seminars in the progress made In the Project.
- Each student shall finally produce a comprehensive report covering the Project Work details such as Architectural Design, Working Drawing, Model and Approximate estimate of the Project and Conclusion.
- The continuous assessment and a final evaluation may be carried out for the award of marks.

- Each student shall finally submit a neatly prepared project report at the time of project viva-voce.
- Each student shall finally submit a report of internship training at the time of project viva-voce.

(Note: The project assignments may consist of:

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

Effort should be made to provide actual field problem as project work to students. Project selected should be not too large in size and complexity and be related to local situations)

4012660- PROJECT WORK AND INTERNSHIP

(PROJECT WORK NORMS AS PER THE LATEST REGULATIONS ONLY)

The Project shall be Planning and designing of any one of the following:

1. Residential Building
2. College Building
3. Hostel Building
4. Hotel Building
5. Hospital Building
6. School Building
7. Guesthouse
8. Bank Building
9. Shopping Complex
10. Community Hall
11. Theatre
12. Apartment
13. Staff Quarters
14. Restaurant
15. Hospital Building

(The building selected should have a minimum of TWO floors.)

- Minimum Marks for Pass is 50 out of which minimum 35 marks should be obtained out of 100 marks in the board Examination alone.
- Implement the theoretical and practical knowledge gained through the curriculum into an application suitable for a real practical working environment preferably in an industrial environment
- Understand what entrepreneurship is and how to become an entrepreneur.
- Learn and understand the gap between the technological knowledge acquired through curriculum and the actual industrial need and to compensate it by acquiring additional knowledge as required.
- Carry out cooperative learning through synchronous guided discussions within the class in key dates, asynchronous document sharing and discussions, as well as to prepare collaborative edition of the final project report.

INTERNAL ASSESSMENT:

The internal assessment should be calculated based on the review of the progress of the work done by the student periodically as follows.

Detail of assessment	Period of assessment	Max. Marks
First Review	6 th week	10
Second Review	12 th week	10
Attendance	Entire semester	5
Total		25

EVALUATION FOR BOARD EXAMINATION:

Details of Mark allocation	Max Marks
Demonstration and presentation	25
Report	25
Viva-Voce	30
Internship Report	20
Total	100