

LD 106- PLANT MATERIAL AND STUDIES-1

CourseTitle	Plant Material and Studies-1	CoursevCode	LD-106
Semester	I Year	CourseGroup	Core
TeachingschemeinHrs(L:T:P)	4:1:0	Credits	3.00
TypeofCourse	Lecture+Assignments	TotalContactHours	150
CIE	60 marks	SEE	40 Marks

Pre-Requisites

This course requires the knowledge of basic awareness of natural environment and ecosystems and an introductory knowledge of design principles (balance, proportion, harmony) as well as observation and sketching skills for recording plant forms and foliage.

Course Outcomes

CO1	Introduce fundamentals of plant materials and their role in landscape and built environment design.
CO2	Identify and classify common trees, shrubs, ground covers, foliage, and flowering plants based on physical characteristics.
CO3	Understand aesthetic, functional, and environmental qualities of plant forms, foliage, and flowers for effective design applications.
CO4	Select appropriate plant materials considering form, growth habit, and maintenance requirements for interior and exterior spaces.
CO5	Apply plant material knowledge in small-scale design projects, site analysis, and case studies integrating ecological and aesthetic principles.

TimeSchedule		
Unit No.	UnitName	Hour
1	Introduction to Plant Materials	15
2	Identification of Common Trees	15
3	Shrubs and Ground Covers	10
4	Study of Foliage	10
5	Study of Flowers	15
6	Forms of Plant Materials	10
	Total	75

Course Contents:

UNIT 1 Introduction to Plant Materials

DURATION:15 HOURS

- 1.0 Meaning and importance of plant materials in landscape design
- 1.1 Role of plants in built and natural environments
- 1.2 Functions: aesthetic, environmental, ecological, climatic
- 1.3 Basic classification of plants
- 1.4 Indigenous vs. exotic species
- 1.5 Role of plants in sustainable design

UNIT 2 Identification of Common Trees

DURATION:15 HOURS

- 2.0 Identification of Common Trees
- 2.1 Characteristics of trees (form, canopy, bark, leaves, flowers, fruits)
- 2.2 Methods of plant identification
- 2.3 Identification based on leaf shape, bark texture, arrangement, and color
- 2.4 Study of commonly used avenue and garden trees (local/regional species) Clay and Clay-Based Materials
- 2.5 Shrubs and Ground

UNIT 3 Shrubs and Ground Covers

DURATION:10 HOURS

- 3.0 Shrubs and Ground Covers
- 3.1 Uses of shrubs in landscaping: hedges, borders, screens
- 3.2 Ground covers and their functions
- 3.3 Climbers and creepers – basic introduction
- 3.4 Identification of common shrubs and ground covers
- 3.5 Applications in residential and public landscapes

UNIT 4 STUDY OF FOLIAGE

DURATION:10 HOURS

- 4.0 Study of Foliage
 - 4.1 Types of foliage: evergreen and deciduous

- 4.2 Leaf forms, sizes, textures, and colors
- 4.3 Seasonal variation in foliage
- 4.4 Foliage as a design element
- 4.5 Use of foliage plants in indoor and outdoor spaces

UNIT 5 Study of Flowers

DURATION:15 HOURS

5.0 Study of Flowers

5.1 Parts of a flower and flowering habit

- 5.2 Seasonal flowering plants
- 5.3 Color, fragrance, and texture of flowers
- 5.4 Ornamental value of flowering plants
- 5.5 Use of flowering plants in landscape and interior design

UNIT 6 Forms of Plant Materials

DURATION: 10 HOURS

6.0 Forms of Plant Materials

- 6.1 Plant forms: columnar, spreading, drooping, pyramidal, round, irregular
- 6.2 Growth habits and their influence on design
- 6.3 Functional and aesthetic roles of plant forms
- 6.4 Selection of plant forms for interior and exterior spaces
- 6.5 Maintenance considerations in plant form selection

Reference Books:

- Planting Design and Plant Materials – S.K. Sharma (India-focused text)
- Trees of Delhi: A Field Guide – Pradip Krishen
- Indian Trees – K.C. Sahni
- Landscape Planting Design – Norman Booth
- Manual of Tropical and Subtropical Trees and Shrubs– D. Brandis
- Ornamental Plants for Gardens – B.P. Singh
- Landscape Architecture: A Manual of Site Planning and Design – John Ormsbee Simonds

Specific learning Outcomes

CO 1: Introduction to Plant Materials

After completing this chapter, students will be able to:

- 1.1 Explain the role of plant materials in built and natural environments.
- 1.2 Identify aesthetic, environmental, ecological, and climatic functions of plants.
- 1.3 Classify plants into basic categories (trees, shrubs, climbers, ground covers).
- 1.4 Differentiate between indigenous and exotic species.
- 1.5 Evaluate the role of plants in sustainable design.

CO 2: Identification of Common Trees

After completing this chapter, students will be able to:

- 2.1 Describe key characteristics of trees (form, canopy, bark, leaves, flowers, fruits).
- 2.2 Apply methods of plant identification based on physical features.
- 2.3 Recognize commonly used avenue and garden trees in local/regional contexts.
- 2.4 Assess suitability of tree species for landscape applications.

CO 3: Shrubs and Ground Covers

After completing this chapter, students will be able to:

- 3.1 Explain the uses of shrubs in landscaping (hedges, borders, screens).
- 3.2 Identify common shrubs, ground covers, climbers, and creepers.
- 3.3 Evaluate functional roles of ground covers in soil protection and aesthetics.
- 3.4 Apply shrubs and ground covers in residential and public landscapes.

CO 4: Study of Foliage

After completing this chapter, students will be able to:

- 4.1 Differentiate between evergreen and deciduous foliage.
- 4.2 Identify leaf forms, sizes, textures, and colors.
- 4.3 Analyze seasonal variation in foliage.
- 4.4 Use foliage as a design element in indoor and outdoor spaces.
- 4.5 Evaluate aesthetic and functional qualities of foliage plants.

CO 5: Study of Flowers

After completing this chapter, students will be able to:

- 5.1 Identify parts of a flower and explain flowering habits.
- 5.2 Recognize seasonal flowering plants and their ornamental value.
- 5.3 Evaluate color, fragrance, and texture of flowers in design.
- 5.4 Apply flowering plants in landscape and interior compositions.

CO 6: Forms of Plant Materials

After completing this chapter, students will be able to:

- 6.1 Classify plant forms (columnar, spreading, drooping, pyramidal, round, irregular).
- 6.2 Explain growth habits and their influence on design.
- 6.3 Assess functional and aesthetic roles of plant forms.
- 6.4 Select plant forms suitable for interior and exterior spaces.
- 6.5 Evaluate maintenance requirements of different plant forms.

Co curricular activities:

- **Plant Identification Surveys** Field exercises in campus gardens, parks, or botanical gardens to identify trees, shrubs, ground covers, foliage, and flowers.
- **Visits to Botanical Gardens and Nurseries** Hands-on exposure to diverse plant species, their growth habits, and maintenance practices.
- **Herbarium / Plant Specimen Collection** Preparation of leaf, flower, and bark samples with proper labeling to aid identification and classification.
- **Seasonal Plant Observation Diary** Students maintain a journal documenting seasonal changes in foliage, flowering habits, and plant forms.

- **Landscape Walks and Sketching Sessions** Guided walks to observe plant use in public landscapes, followed by sketching exercises to record plant forms.
- **Participation in Horticultural Exhibitions** Exposure to ornamental plants, new hybrids, and sustainable planting practices showcased in exhibitions.
- **Creation of a Mini Plant Museum / Display** Curated collection of plant samples, photographs, and charts for peer learning and reference.
- **Community Garden Engagement** Involvement in local greening projects to understand practical aspects of plant selection, planting, and maintenance.

CO-POMATRIX

	Basic knowledge	Discipline knowledge	Experiments and practice	Engineering tools	Engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Lifelong learning	
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	Mapped POs
CO1	x				x						1,5
CO2	x	x						x	x		1,2,8,9
CO3					x		x				5,7
CO4					x		x	x	x		5,7,8,9
CO5	x	x		x	x	x					1,2,4,5,6

EXAMINATIONPATTERN								
MID SEM-I EXAM (Duration of Exam:1Hour)								
		PARTA		PARTB	PARTC	Total Marks		
Marks/Question		1Markeach		3Markseach	5 Marks each	20 Marks		
No.ofQuestions		4 Questions		2/4 Questions	2/4 Questions			
S.No.	UnitNo.	R		U	A	Remarks		
1	UNIT I	1,2		5(a)or5(b)	7(a)or 7(b)			
2	UNIT II	3,4		6(a)or 6(b)	8(a)or 8(b)			
TotalQuestions		4		4	4			
TotalMarks		4		6	10	20 Marks		
MIDSEM-IIEXAM(Duration ofExam:1Hour)								
1	UNITIII	1,2		5(a)or5(b)	7(a)or 7(b)			
2	UNITIV	3,4		6(a)or 6(b)	8(a)or 8(b)			
TotalQuestions		4		4	4			
TotalMarks		4		6	10	20 Marks		
SEMESTERENDEXAMINATION(DurationofExam:2 Hours)								
		PARTA		PARTB	PARTC	Total Marks		
Marks/Question		1Markeach		3Markseach	5Marks each	40 Marks		
No.ofQuestions		8 Questions		4/8 Questions	4/8 Questions			
S.No.	UnitNo.	R		U	A	Remarks		
1	UNITI	4	1		9(a)	13(a)		
2	UNITII							
3	UNITIII		2		10(a)	14(a)		
4	UNITIV							
5	UNITV		3	5,6		9(b)		13(b)
				11(a)		15(a)		
				11(b)		15(b)		
6	UNITVI			7,8		10(b)		14(b)
				12(a)		16(a)		
				12(b)		16(b)		
TotalQuestions		8		8	8			
TotalMarks		8		12	20	40 Marks		

MODEL QUESTION PAPER
STATE BOARD OF TECHNICAL EDUCATION AND TRAINING BOARD
DIPLOMA MID SEM – I EXAMINATION (C-26)
LD 106- PLANT MATERIAL AND STUDIES-1

Duration: 1 Hour
Maximum Marks: 20

Instructions

1. Answer all questions in Part A.
2. Answer any TWO questions from Part B.
3. Answer any TWO questions from Part C.

PART – A

(4 × 1 = 4 Marks)

1. Define indigenous plant species?
2. Name one aesthetic function of plants in design?
3. What is meant by canopy of a tree?
4. Mention one method of plant identification?

PART – B

(2 × 3 = 6 Marks)

5(a) Explain the role of plant materials in sustainable design ?

OR

5(b) List any three ecological functions of plants ?

6(a) Describe identification of trees based on leaf shape and bark texture?

OR

6(b) List three commonly used avenue trees in India?

PART – C

(2 × 5 = 10 Marks)

7(a) Discuss the role of plant materials in built and natural environments?

OR

7(b) Explain classification of plants with examples?

8(a) Explain characteristics of trees with reference to form, canopy, and flowers?

OR

8(b) Compare indigenous and exotic tree species with examples?

MODEL QUESTION PAPER
STATE BOARD OF TECHNICAL EDUCATION AND TRAINING BOARD
DIPLOMA MID SEM – I EXAMINATION (C-26)
LD 106- PLANT MATERIAL AND STUDIES-1

MID–SEM II EXAMINATION

Duration: 1 Hour

Maximum Marks: 20

Instructions

1. Answer all questions in Part A.
2. Answer any TWO questions from Part B.
3. Answer any TWO questions from Part C.

PART – A

(4 × 1 = 4 Marks)

1. Define ground cover?
2. Name one use of shrubs in landscaping?
3. What is meant by evergreen foliage?
4. Mention one seasonal variation in foliage?

PART – B

(2 × 3 = 6 Marks)

5(a) Explain the role of shrubs in hedges and borders?

OR

5(b) List three common ground covers used in landscaping?

6(a) Differentiate between evergreen and deciduous foliage?

OR

6(b) List three foliage plants used in indoor spaces?

PART – C

(2 × 5 = 10 Marks)

7(a) Discuss applications of shrubs and ground covers in residential landscapes?

OR

7(b) Explain functions of ground covers in soil protection and aesthetics?

8(a) Explain foliage as a design element with examples?

OR

8(b) Discuss seasonal variation in foliage and its impact on design?

MODEL QUESTION PAPER
STATE BOARD OF TECHNICAL EDUCATION AND TRAINING BOARD
DIPLOMA SEMESTER EXAMINATION (C-26)
LD 106- PLANT MATERIAL AND STUDIES-1

Semester End Examination (SEE)

Duration: 2 Hours

Maximum Marks: 40

Instructions to Candidates

1. Answer all questions in Part A.
2. Answer any FOUR questions from Part B.
3. Answer any FOUR questions from Part C.
4. Draw neat sketches wherever necessary.

PART – A

(8 × 1 = 8 Marks)

(Answer all questions)

1. Define exotic plant species?
2. Name one avenue tree commonly used in India?
3. What is meant by climbers?
4. Define foliage texture?
5. Give one example of a seasonal flowering plant?
6. What is meant by ornamental value of flowers?
7. Define columnar plant form?
8. Mention one maintenance requirement of shrubs?

PART – B

(4 × 3 = 12 Marks)

(Answer any FOUR questions)

9(a) Explain functions of plants in landscape design?

OR

9(b) List indigenous and exotic species with examples?

10 (a) Describe methods of plant identification?

OR

10(b) List three commonly used garden trees?

11(a) Explain uses of shrubs in landscaping?

OR

11(b) List three ground covers and their functions?

12(a) Differentiate between evergreen and deciduous foliage?

OR

12(b) List three foliage plants used in outdoor spaces?

13(a) Explain parts of a flower?

OR

13(b) List three seasonal flowering plants?

14(a) Define plant forms with examples?

OR

14(b) Define flower forms with examples?

PART – C

(4 × 5 = 20 Marks)

(Answer any FOUR questions)

15 (a) Discuss role of plant materials in sustainable design?

OR

15 (b) Explain classification of plants with examples?

16(a) Explain characteristics of trees and methods of identification?

OR

16(b) Discuss avenue and garden trees used in Indian landscapes?

17(a) Explain applications of shrubs and ground covers in public landscapes?

OR

17(b) Discuss climbers and creepers with examples?

18(a) Explain foliage as a design element in landscape composition ?

OR

18(b) Discuss seasonal variation in foliage and its impact on design ?

19(a) Explain ornamental value of flowers in landscape design ?

OR

19(b) Discuss use of flowering plants in residential and public spaces ?

20 (a) Explain plant forms and their influence on design?

OR

20(b) Discuss selection of plant forms considering growth habit and maintenance ?