

COURSE CONTENT FOR FOREST GUARDS

TIME BUDGETING

1. **Timing** - 1st Jan to 30th June & 1st July to 31st December
2. **Calculation of Effective working days.**

i. Total Days available in Six months 180

S NO.	Particulars	Days
(a)	Sundays excluding tour period	(-) 16
(b)	Gazetted Holidays excluding Tour Period	(-)07
	Total Available Days	157
	Total days required for Training	
i	Joining date	01
ii	Inauguration	01
iii	Relieving formalities	01
iv	Examination	10
v	Annual sports	05
vi	Cultural activities	01
vii	Preparation of results	03
viii	No. of lecture hours available in Forenoon	46
	180	
ix	No. of lecture hours available in Afternoon	146
	146	
	326	
	Total days	157

**SUBJECT WISE ALLOTMENT OF LECTURE HOURS
(60 MINUTES) FOR
FOREST GUARDS COURSE**

Subjects	Hours	Theory	Lab	Excursion.	Tour
		Practical	Saturdays	Days	
1. Silviculture I	20	10		2	10
2. Forest Protection and Laws	20	5		1	5
3. Silviculture II	20	10		5	10
4. Survey & Engineering	30	20		5	15
5. Forest Utilization	20	5		2	5
6. Wildlife Conservation	20	5		5	10
7. Accounts and Procedure	20	4		-	-
8. Community Forestry & Rural Development	30	5		4	10
9. Environmental Conservation	7	4		-	-
		68x2			
Total	187	136			
		323/7			
Total Days	46	24	65		

(Each **subject carries** maximum 100 marks. Each Lecture will consist of 45 minutes and each practical will consist of 2 hours and in one working day there will be 5 lectures and one practical)

Abstract of Days-

1.	Lectures and Practicals	46
2.	Saturday Excursions	24
3.	Tour	65
4.	Formalities/ examination	22
	Total Days	157

SILVICULTURE – I

Theory - 20
A/N Practicals - 10
Saturday Ex.- 02days
Tour Field Exercises- 10days

1. **Introduction:**
 - Brief history of forestry in the state.
 - Overview of forest resources of the state.
 - Different categories of forests of the state.

 2. **Role of Forests:**
 - Importance of forests – general and special
 - Protective/Productive/Aesthetic functions
 - Environmental Conservation

 3. **Growth of tree:**
 - Tree growth, various stages of tree: seedling, sapling, pole, tree.
 - Parts of tree – stem, branches, crown.

 4. **Growth of Forests:**
 - Factors affecting growth climatic, topographic, edaphic, botic.
 - Impact of underlying rocks on soil; soil / rock types of the state.
 - Concept of soil profile, important characteristics pH, nutrients, porosity.
 - Nutrient cycle, humus & soil organic matter

 5. **Field Botany:**
 - Basic botany – plant morphology – leaf, stem, flower, inflorescence, fruit, seed.
 - General idea of photosynthesis – C, N, H₂O
 - Local, English, **Botanical names** of 50 important selected species along with their habitat, identification, characteristic.
- Practicals:** Identification of tree/soil-rock types
- Concepts to be developed only through practicals
 - Assignments to be given for collection of herbarium specimen, field identification, features, phenology of 50 selected species.

FOREST PROTECTION AND LAWS

Theory: 20
A/N Practicals: 05

Part -A Biotic and abiotic factors :

1. Introduction

- Factors responsible for depletion of forests
- man, cattle, fire and other natural calamities.

2. Forest Fires:

- Causes, types, evil & beneficial effects.
- Preventive measures – fire lines, early control burning.
- Combative measures – watch towers, fire indicators, fire fighting
- Introduction to modern fire fighting equipments
- Reporting of fire damage.

3. Grazing, Lopping

- Effects of cattle grazing on forests.
- Preventive measures – regulation, rotational grazing, fencing in regeneration areas.
- Introduction to grazing policy of the state vis-à-vis practices prevalent.
- Thumb rules relating to carrying capacity of forests for cattle grazing
- Lopping damage – Safe rule for lopping of fodder trees.

4. Man:

- Illicit felling – causes and effects, introduction to control measures
- Encroachments, maintenance of boundaries of forests, laws dealing with encroachments.
- Shifting cultivation: definition, causes & effects, practices, viability economic/ecological.

5. Duties and responsibilities

- Of Forest Guards in protection of forests-extension
- Roles of people, Village Forest (Protection) Committees.

Part -B Forest Law: -

1. Salient Features of

- (i) Indian Forest Act, 1927**

- (ii) Wildlife (Protection) Act, 1972.
- (iii) Forest (Conservation) Act, 1980.

2. **Definitions:** Forest, Cattle, Forest Produce, Forest Offences, Forest Officer.

- Study to specific provisions of State Forest Act relating to: -
- Legal classification of forests – RF/VF/PF.
 - Acts prohibited in different categories of forests.
 - Punishment for violation of prohibited act.
 - Special provision regarding – seizure, search and confiscation.
 - Types of permits for transit of forest produce and authority to issue them, general rules for issue and checking of permits.
 - Types of hammers – property hammer, felling hammer, passing/seizure hammer/drift timber/private timber.
 - Introduction to various acts/rules and their objects. Forest Contract Rules – Coupe delivery certificate, interim/final report, Consequence of lease – termination.
 - Rules relating to detection, enquiry and disposal of forest offences.
 - drawing up of a seizure list filing of F.I.R. recording of statement, collection of evidence. arrest and release of offenders.

Practicals: Fire lines and boundary clearances, control burning/drawing up FIR/seizure list/offence report.

SILVICULTURE-II

Theory: 20
A/N Practical: 10
Saturday Ex 05 Days
Tour Exercise: 10 Days

1. **Introduction to the concept of forest management**
 - growth, increment, sustainability, removal, rotation.
2. **Natural regeneration/management of natural forests**
 - Introduction to growth characteristic of natural forests stand structure.
 - Regeneration as pre-requisite for removal of mature trees. Silvicultural systems - definition, types (high forest/coppice).

- Study of following systems with respect of characteristic of forests for application, nature of resulting crop and regeneration, distribution of harvest (diffused/concentrated).
 - (a) Clear felling systems – coppice/uniform.
 - (b) Selection system.
 - Method and importance of regeneration survey.
Important marking rules for different systems.
3. **Regeneration of Bamboo, canes, reeds and grass lands.**
- Special characteristics of these types of forest crops.
 - Classification and important cutting rules.
 - Subsidiary silvicultural operations and improvement works, cleaning of clumps, half-moon trenches.
4. **Man made forests:**
- Need for plantations – reforestation / afforestation.
 - Steps in plantations:
 - Site and species. selection
 - Nursery.
 - Preparation of plantation site
 - Plantation
 - Post-plantation works
 - Management of plantations.
 - Nursery Works : temporary/permanent, site selection.

Collection of seeds/storage/treatment (details of some important species including time of fruiting, seed collection methods, seed selection, graduation), pre-treatment, viability, germination, seed requirement per Hectare plantation of important species.

 - Detailed nursery techniques:
 - Layout, bed preparation, soil/compost preparation, polybag filling, root trainer filling, sowing, transplanting, grading, nursery shade, weeding, manuring and watering, use of insecticides/pesticides.
 - High Tech Nursery – Tools & Techniques
 - Preparation of planting stock, root shoot cutting, budding, grafting, layering.
 - Maintenance of nursery register.
 - Raising of tall plants.

- **Plantation:**
 - Treatment map
 - Demarcation of plantation site
 - Preparation of plantation site, alignment & stacking.
 - Plantation layout – sections, inspection paths.
 - Pitting – time and size, planting out.
 - Use of pesticide
 - Plantation root-shoot cutting
 - Clonal plantation and grafting techniques
 - Plantation season.
 - Causality replacement
 - Preparation and maintenance of plantation journal.
 - **Post Plantation operation:**
 - Weeding/soil working – mulching, staggered-trench,
 - Manuring, fertilizer application
 - Survival growth assessment.
5. **Maintenance of Regeneration area:**
 - Tending operations, thinning - types/methods, improvement felling.
 - Survival percentage/success of regeneration
 - Climber control – necessity in young/old regeneration area.
 6. **Rehabilitation of degraded forests:**
 - Rehabilitation techniques.
 - Protection, cleaning/singling, nature and properties of rooted wastes.
 - Plantation of important species
 7. **Introduction to the concept of Working Plan.**

SURVEY AND ENGINEERING

Theory: 30

A/N Practical:20

Saturday Ex.: 05 Days

Tour Field Exercises : 15 Days

Part A: SURVEY:

1. Simple knowledge on Angle, Triangle, Circle, Area of triangle, Rectangle, Square, Circle and Cylinder.
2. Chain survey: -

- (a) Testing the accuracy of a chain
 - (b) Elementary idea on chain survey and its applicability.
 - (c) General idea about ranging, offset and optical square & compass.
3. Elementary principles of map reading.

Part B: MEASUREMENT:

- 1. Measurement of diameter and girth of the standing trees.
 - (a) Breast height measurement under different situations.
 - (b) Measurement with caliper and tape, advantages and disadvantages.
- 2. Measurement of height, Haga altimeter shadow and stick method.
- 3. Simple calculation of basal area and volume of trees.
- 4. Calculation of volume of stacked timber.
- 5. Field records and rules for marking and enumerations.
- 6. Calculation of crop height, top height and girth of trees.
- 7. Calculation of mortality percentage in a plantation, Inter sampling.
- 8. Manpower planning with reference to out-turn of works.

Practicals:

Layout of sample plot, preservation plots, objectives, types of initial and periodic measurement, maintenance and demarcation of a forest coupe, boundary line of a forest, various types of measurement of tree, calculation of plot area/volume of timber-Log, sawn & stacked.

Part C: FOREST ENGINEERING:

I. Building materials -

- (a) Stone – Different kinds of stone, collection.
- (b) Bricks –characteristics of 1st Class bricks. No. of bricks required for 100 cft. of brick works
- (c) Brief idea about tile, lime cement, sand and metal chips.
- (d) Mortar – Lime, cement and mud
- (e) Concrete – Lime, cement and R.C.C.
- (f) Plastering and Painting
cement plaster, mud plaster, preparation of surface for plastering and painting, curing and its objects.

II. Building Construction:

- 1. (a) Selection of site.

- (b) Foundation, plinth, super structure, floor, masonry walls (Brick & Stones).
- 2. Doors and Windows: Panel, Batton, Glazed (Introduction only).
- 3. Roof: Different types of roof- Asbestos, Tile, Thatch, R.C.C.

III. **Miscellaneous :**

- 1. Wells -
 - (a) Selection of site – Dug well/Tube well.
 - (b) Elementary idea about construction, repair and cleaning, purification of water.
- 2. Problems - Simple volumetric and area calculation of various works such as earthwork, whitewashing and ascertaining the quantities of building materials used in brick and stone masonry.

FOREST UTILISATION

Theory: 20
A/N Practicals: 5
Saturday Ex.: 02 days
Tour Field Exercises: 5 days

PART-A: WOOD PRODUCTS

- 1. **Wood Products: Timber and Fire-wood.**
 - (a) Implements used in felling and logging – Axe, Saws, general rules for economic felling, advantages/disadvantages of different modes of felling.
 - (b) Season for felling.
 - (c) Method of conversion – Logging, squaring, rough dressing and squaring, machine sawing, description of converted timbers, railway sleepers.
 - (d) Grading
- 2. **Disposal of Timber:**
 - (a) Working of Government agency.
 - (b) Working by purchasers including Forest Corporation and co-operative societies.
 - (c) Various types of depots – Forest depot, Transit depot, Sale depot.
 - (d) Records/returns for a, b, c. above

3. Use of timbers of common species, introduction to wood seasoning and wood preservation.
4. Common defects in timber such as abnormal growth dry rot, red rot, heart rot, borer attack, bends and twist, climber attack and different kinds of shakes.
5. **Fuel-wood and charcoal :-**
 - (a) Method of cutting, collection, stacking of fuelwood.
 - (b) Method of measuring (by volume and by weight) drying percent.
 - (c) General idea about demand/supply of firewood, fuel saving devices – smokeless improved chullha, biogas plants, solar cookers.

PART – B: NON-TIMBER FOREST PRODUCTS(N.T.F.P.)

Relevant to state, in brief: -

- (a) Name and use of important items of N.T.F.P. such as Sabai grass, Lemon grass, Rosa grass, Thatch grass, Barks, Honey, Wax, Resin, Gums, Lac, Tussar cocoons, katha, Mohua, Dyes.
- (b) Use of oil seed (Sal, Neem, Eucalyptus, Rosa, Khus etc.).
- (c) Working of Tendu Leaves (for specific states only).
- (d) Important Medicinal plants – Trees, Herbs, Shrubs-techniques of ex-situ conservation
- (e) Forest foods – tuber, leaves, fruits, seeds, etc.

WILDLIFE CONSERVATION

Theory: 20
A/N Field Practicals: 5
Saturday Excursion: 5 Days
Tour Field Exercises: 10 Days

1. **Introduction, Importance of wildlife**
 - Aesthetic, recreational and cultural values
 - Economic values (Financial value to state and individual).
 - Scientific values
2. **Management of Wildlife**
 - Protected Area Network in the country
 - Alternative resource utilization strategies to reduce pressure on the resource.

3. **Field techniques in Wildlife**
 - Census techniques: definition, objects, methods, track & trails, Kill evidences, marking total Block counts.
 - Techniques of scientific compatibility, field techniques in wildlife management, data collection and assessment techniques viz. vegetation sampling, density
 - Monitoring techniques for large herbivores and carnivores with emphasis on species of regional importance.
 - Habitat assessment and monitoring
 - Damages caused by wildlife
 - Habits and habitats-migration, migratory birds, breeding seasons; habitats of important birds and animals.
 - Evidences for prevalence of wildlife.
 - (a) Foot prints of animals with paws, pugmarks, animals with hooves, bird tracks, preparation of foot print traces and preparation of plaster casts.
 - (b) Feeding signs on kills, recognizing kills made by tiger.
 - (c) Wildlife remains.
 - (d) Dropping and pellets.
4. **Distribution of Wildlife in India with particular reference to state.**
5. **Legal Instruments, Law and Policy Significance and provisions**
 - Indian Forest Act, 1927
 - Forest (Conservation) Act, 1980
 - Wildlife(Protection) Act 1972 as amended in 1991
6. **Management of Wildlife sanctuaries and National parks with particular reference to the state.**
7. **Management of Wildlife habitat**
 - (a) General principles
 - (b) Salt licks, water holes, water towers, meadow development.
 - (c) Zoo management, Captive breeding, enclosures of different types.
 - (d) Concept of Safari Park.

ACCOUNTS AND PROCEDURE

Theory: 20
A/N Practicals: 04

1. Different types of vouchers for payment, muster rolls, measurement books, their preparation and maintenance, register of sanctioned works, completion reports, lost or missing receipts/vouchers.

2. Procedure of handing over – taking over charges, charge reports.
3. Leave Rules – Earned Leave, Casual Leave, Leave without pay, Half pay leave, Commuted Leave.
4. Travelling Allowance Rules and preparation of T.A. bills and T.T.A. bills
5. Maintenance of consumable store register, register of stores, tools/plants, writing off of unserviceable stores.
6. Basic elements of labour laws.
7. Organizational structure of the department – practical.

COMMUNITY FORESTRY AND RURAL DEVELOPMENT

Theory: 30
A/N Practicals: 5
Saturday Excursions: 04 days
Tour field Exercises: 10

1. **Introduction-Definition and, scope,**
2. **Components of Community Forestry**
 - Agro-forestry, farm forestry, urban forestry, recreational forestry.
 - Strip plantation along road, canal, railway line.
 - Community plantation – Village wood lot, role of community development, protection of village forests and distribution & marketing of produce.
 - Decentralized nurseries – Kisan, School, Mahila etc.
 - Social security plantation.
3. **Motivation and Extension**
 - Method of extension.
 - Farmers camps, nature awareness camps, forest protection camps.
4. **Participatory Forest Management**
 - Need for role of community in forest regeneration and protection.

- Interaction with local people for explaining programme and assessing their needs.
- Village level societies, forest protection committee, role of NGOs in participatory forest management. Mahila Mandal, Tree Growers Co-operative Societies etc.
- Role of forest guards in the societies.
- Techniques for collection of data/information for preparation of micro-plan by involving people (PRA & RRA Techniques).

5. **Watershed management – Basic Concept.**

PRACTICAL EXERCISE

- Collection of data of village communities on different forms for preparation of Micro Planning.
- Role of Forest officials in Village Forest .

Group exercise on Motivation and Communication skill. Evaluation of various extension strategies.

**ENVIRONMENTAL CONSERVATION
A GENERAL OVERVIEW**

**Theory: 7
A/N Practicals :4**

- a. Overview of Forestry scenario including problems, proposals concepts of Environmental Conservation
- b. Ecotourism

FIRST AID

**Total Lecture Hrs: 3
Pract/Field Ex.: 2
Theory Practical Field**

Syllabus as prescribed by Medical authorities **3 2**

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For having certificates of First Aids.

