

Syllabus for Ornamental Horticulturalist and Floral Designer

Course Name	Ornamental Horticulturalist and Floral Designer
Sector	AGRICULTURE
Course Code	AGR/2024/OHFD/362
Level	4
Occupation	Ornamental Horticulturalist and Floral Designer
Job Description	A Ornamental Horticulturalist and Floral Designer is responsible for overseeing various aspects of floriculture, propagation, nursery management, ornamental horticulture, plant protection, floristry, floral craft, gardening, landscaping, and flower cultivation.
Course Duration	Total Duration: Min. 450 Hrs (Th 90 Hrs, Pr 180 Hrs OJT-120 Hrs and ES-60 Hrs)
Trainees' Entry Qualification	Grade 12 – Regular OR Vocational OR 10th grade pass plus 2-year NTC/NAC OR Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma OR 10th grade pass and pursuing continuous schooling OR 10th grade pass with 2 years' experience OR Previous relevant Qualification of NSQF Level 3.0 with minimum education as 8th Grade pass with 3 year relevant experience OR Previous relevant qualification of NSQF Level 3.5 with 1.5 year relevant experience
Trainers Qualification	NTC/NAC in the trade of floriculture and Landscaping with 4 yrs experience in relevant field OR Diploma in Agriculture/ Horticulture with 3 yrs experience in relevant field OR Graduate in Agriculture/ Horticulture/ Forestry with 2 yrs experience in relevant field OR M.Sc in Agriculture/ Botany/ Forestry/ Agronomy/ Horticulture and related streams with 1 yrs experience in relevant field

Structure of Course:

Module No.	Module name	Outcome	Compulsory/ Optional	Theory (Hrs)	Practical (Hrs)	Total (Hrs)
1	Basics of Floriculture	Explain the basics of Floriculture.	Compulsory	10	20	30
2	Propagation & Nursery Management	Demonstrate propagation techniques along with nursery management system.	Compulsory	10	20	30
3	Ornamental Horticulture	Demonstrate the procedure of ornamentals cultivation.	Compulsory	30	30	60
4	Introduction to plant protection	Identify and select common pests and diseases affecting ornamental plants along with appropriate utilization of plant protection chemicals.	Compulsory	10	20	30
5	Floristry & Floral craft	Develop floral designing skills for the floristry and floral craft.	Compulsory	10	20	30
6	Gardening and Landscaping	Design and maintain the garden along with the Landscaping.	Compulsory	10	20	30
7	Flower cultivation and the protection of floriculture.	Demonstrate the procedure of flower cultivation along with the protection of floriculture.	Compulsory	10	50	60
8	OJT	Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	Compulsory	--	120	120
9	Employability Skill	As per guided curriculum	Compulsory	60	--	60
TOTAL:				150	300	450

SYLLABUS:**Module No 1: Basics of Floriculture**

Outcome: Explain the basics of Floriculture.

Theory Content:

1. Explain the basics of Floriculture-identify different ornamentals plants
2. Definition of Annuals, perennials & biennials with special emphasis on common & vernacular names of Trees, shrubs climbers & seasonal flowering annuals(summer ,rainy & winter).
3. Basic idea of the different growing, seeding & rooting media- soil, peat, perlite, sand, Vermicompost, leaf mold their properties – pH (acidic & Alkaline, neutral), water holding & drainage properties etc. Mixing proportion of growing & rooting medias.
4. Different garden tools & implements- uses, safety measures & maintenance
5. Basic knowledge on Fertilizers & manures- role, source & nutrient content

Practical Content:

1. Identification of ornamental—annuals, shrubs, trees, house plants, cactus-succulents, ferns, palms etc
2. Identification of different soil types- clayey loam, sandy loam, loam & their properties.
3. Identifying different rooting media –media preparation, mixing ratios of different medias in respect to is water holding & drainage & type of cuttings etc.
4. Preparation of seeding media- mixing ratios
5. Identification of different types of pots- for house plants & garden plants, grow bags-size specification
6. Identification of garden tools & implements- secateurs, pruning shears, lawn shears, hedge shears rakes, spade, tree pruners, lawn mower, grass cutters, different types of weeding tools, sprayers, wheel barrow, trowel, shovel hoe, different types & sizes of watering cans etc- their handling & uses , safety precautions & maintenance.
7. Identification of fertilizers & manures, time & method of application.

Module No 2: Propagation & Nursery Management

Outcome: Demonstrate propagation techniques along with nursery management system.

Theory Content:

1. Consideration in raising the nursery- demand of the type of crops, location, distant to market , accessibility to market, area for expansion
2. Basic knowledge on nursery Layout with maximum emphasis on working efficiency & efficient land use.
3. Definition of propagation & details on different types propagating materials & methods of propagation –
 - **Sexual** –seeds & identification of seeds of annuals, biennial & perennials
 - **Asexual**- Cuttings- Stem Cutting- Hardwood cuttings, semi hardwood cuttings, soft wood cuttings, terminal cuttings, herbaceous cuttings, stem sections. Leaf cuttings, Layering, grafting, budding.
 - Specialized /modified organs with examples for each method of propagation. Hardening-off of plants
4. Raising & management of mother plant block... Fertilizer application, irrigation, plant protection, pruning etc.
5. Stages of flower harvesting for seeds, drying & storage of seeds
6. Pruning –time, method and intensity with respective to objective of pruning.
7. Different types of propagation structures- temporary & permanent structures

- Temporary structures- seed beds, seeds trays, flats & plugs, temporary sand beds for herbaceous cuttings
 - Permanent structures- seed beds & benches, shade house, mist unit, fog unit etc
8. Lawn / turf – land preparation, planting methods, different types of grasses for lawns (location specific) maintenance of lawn- Rolling & Mowing, fertilization & irrigation methods & scheduling
 9. Record keeping –documentation of inputs & outputs in the nursery, maintenance of work diary, propagation details, tools & implements etc
 10. Packaging & Marketing of nursery produce— Learning about the market channel.
 11. Nursery rules & regulation acts, awareness about government Schemes aiding nursery business
 12. Methods of Composting

Practical Content:

1. Identification of seeds of annuals; identification of modified plant organs –bulbs, rhizome, corm, tubers, .
2. Different propagation methods- layering, budding, grafting, stem Cuttings-Hardwood, semi hardwood, softwood, herbaceous cuttings. Leaf cuttings, Separation of clumps, propagation techniques using modified plant organs ; hardening off
3. Identification of different propagation structures- shade house, low polytunnels, mist house,
4. Preparation of seed beds: media preparation for seed sowing, rooting media; media sterilization
5. Hands on training on harvesting & drying of flowers for seeds & post-harvest handling of seeds.
6. Identification of lawn grasses, methods of planting lawn grasses, placing of turfs, learning methods of lawn mowing & rolling. Identification of different types of Lawn mowers & elementary knowledge about their working principles.
7. Pruning techniques /methods & Use of Pruning tools
8. Identification of different irrigation systems-sprinkler, pop-ups, drip etc
9. Visit to nurseries
10. Packaging of nursery produce for local & distant market.
11. Learning the process of Documentations & record keeping of regular activities. (Computerized / register work)

Module No 3: Ornamental Horticulture

Outcome: Demonstrate the procedure of ornamentals cultivation.

Theory Content:

- Primary knowledge on cultivation techniques /package of practices of different types of annuals, biennials & perennial ornamentals suitable for gardens-
- Time of sowing seeds of different season annuals, transplanting, fertilizer application, irrigation, harvesting etc.
- Planting of shrubs, climbers & tree sapling- Time of planting, making of pits, mixing of soil, manuring & fertilizer application, pruning objectives, time & methods. Special emphasis on **shrubs** like rose, hibiscus(Joba), Tabernaemontana (Togor), Mussaenda, Ixora (Rongon), Gardenia (Gondhoraj), Jasmines (Beli) & other flowering & foliage shrubs; **trees**- Krinachura, Radhachura, Amaltas, jarul. Shirish, khirish, Sonajhuri Neemjhuri, Shiuli, Bokul, champa, devdaru, etc **climbers**- Allamanda, bougainvillea, thunbergia, clerodendron,passiflora, etc
- knowledge on growing habits & habitats of shrubs, climbers & trees – height, flowering time etc.
- Fundamentals of Green walls, green roofs, balcony garden, window garden, water garden etc-their salient features , plants suitable for these garden types & their care & maintenance
- Hedge – objective/purpose, Trench preparation for planting, soil preparation, pruning for shape, fertilizer requirement, shrubs suitable for hedge(Shade/partial shade/full shade)

- Topiary- giving shape through pruning, time of pruning & plants suitable for topiary

Practical Content:

1. Hands on training on land preparation, seeds sowing & lifting of seedlings of annuals & transplanting.
2. Exercises on pit preparation, soil mixing, planting of shrubs & trees (bare rooted, balled & burlapped & containerized plants): lifting of plants for relocating, identifying the shoots for pruning, pruning techniques/method & time.
3. Rose- identifying the types of roses, some common cultivars, pit preparation, soil preparation time & method of planting(bare rooted, balled & burlapped & containerized plants), pruning practices & time, identifying suckers(ala)& desuckering, fertilizer & Manure application
4. Hands on training of hedge & topiary making, care & maintenance.
5. Visit to buildings for first level knowledge on roof garden/green roofs; green walls.
6. Experiential learning to establish, care & maintain roof garden/green roofs & green walls.

Module No 4: Introduction to plant protection

Outcome: Identify and select common pests and diseases affecting ornamental plants along with appropriate utilization of plant protection chemicals.

Theory Content:

1. First level knowledge of common pests of ornamentals- symptoms, damage caused, life-cycle, habit & their control.
2. First level knowledge of common disease of ornamentals- symptoms, damage caused, life-cycle & their control.
3. Names of plant protection chemicals – characteristics, dose, toxicity, precautions, application methods etc

Practical Content:

1. Identification of major pests of ornamentals, kind of damage
2. Identification of major diseases and their symptoms.
3. Identifying the common pesticides & fungicides
4. Hands on training on the application methods of plant protection chemicals, measuring their dose& precautions to be taken.

Module No 5: Floristry & Floral craft

Outcome: Develop floral designing skills for the floristry and floral craft.

Theory Content:

1. Learn the fundamentals & concept of floristry & floral crafts,
2. Knowledge on different floral designs- floral ornaments, floral carpets, wedding flower designs, flower arrangements, bouquets, corsages, boutonnieres, wreaths, decor and centerpieces—according to occasion & purpose.
3. Learn the design basics
4. Materials required for floral crafts- cutting tools, tapes, adhesives, ribbons, vases, pin holders, glue, hair pins, papers
5. Firsthand knowledge on floral craft industry & marketing

Practical Content:

1. Hands on training on floral craft preparation for different occasion, purpose & according to season
2. Training on different types of flower arrangements
3. Visit to floral craft industries/ self –help groups

Module No 6: Gardening and Landscaping

Outcome: Design and maintain the garden along with the Landscaping.

Theory Content:

1. Primary information about gardening- types of gardens & designs of gardens
2. Fundamental principles of garden & information on purpose based garden designing
3. Different garden features/ components in relation to the purpose & area of the garden & their placements- gates, fences/boundaries, arches, pergolas, bowers, statue, fountains, flower beds, lawns, hedge, edge rockery, water bodies etc
4. Landscaping /interiorscaping some important places- airports & hotel lounges, offices, corporate houses, hospitals, resorts etc.
5. Basic requirements for maintaining the gardens
6. Preliminary knowledge on landscaping the cities, traffic islands, boulevards.

Practical Content:

1. Visit to different gardens
2. Experiential training on establishing & maintenance of gardens & garden components

Module No 7: Flower cultivation and the protection of floriculture.

Outcome: Demonstrate the procedure of flower cultivation along with the protection of floriculture.

Theory Content:

1. Different types of protected structures in respect to location & frame materials & components, different cladding/ covering materials in respect to locations. Considerations to be made or factors to be considered before construction of greenhouse.
2. Package of practices of ornamentals like gerbera, rose, chrysanthemum & some important foliage plants & pot plants -Bed preparation & planting, specification of drip irrigation & fertigation, temperature & light factors,
3. Cooling system of greenhouse – shading, ventilation, fan –pad cooling system, foggers
4. Heating systems
5. Different types of growing media (Soilless & soil based) used in protected cultivation, & their properties: media sterilizations techniques.
6. Construction cost of different greenhouses in reference to frame materials & cladding materials used; automations, naturally ventilated, Fan & Pad cooling systems

Practical Content:

1. Visit to different greenhouse & discussion with entrepreneurs on cost benefit ratios, & Government Schemes.
2. Hands on training on bed preparation & planting of some important commercially flower crops & their package of practices.
3. Hands on training on operation of foggers, drip irrigation system, fertigation units
4. Identifications of different soilless media.

Module No 8: OJT

Outcome: Work in real job situation with special emphasis on basic safety and hazards in this domain

Practical Content:

Assessor will check report prepared for this component of Practical training of the course and assess whether competency has been developed to work in the real job situation with special emphasis on basic safety and hazards in this domain. (The trainee is expected to undertake work in actual workplace under any supervisor / contractor for **60 Hours**.)

Module No 9: Employability Skills (60 Hrs)**Key Learning Outcomes****Introduction to Employability Skills**

Duration: 1.5 Hours

After completing this programme, participants will be able to:

1. Discuss the Employability Skills required for jobs in various industries
2. List different learning and employability related GOI and private portals and their usage

Constitutional values - Citizenship

Duration: 1.5 Hours

3. Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen
4. Show how to practice different environmentally sustainable practices.

Becoming a Professional in the 21st Century

Duration: 2.5 Hours

5. Discuss importance of relevant 21st century skills.
6. Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.
7. Describe the benefits of continuous learning.

Basic English Skills

Duration: 10 Hours

8. Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
9. Read and interpret text written in basic English
10. Write a short note/paragraph / letter/e -mail using basic English

Career Development & Goal Setting

Duration: 2 Hours

11. Create a career development plan with well-defined short- and long-term goals

Communication Skills

Duration: 5 Hours

12. Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.
13. Explain the importance of active listening for effective communication
14. Discuss the significance of working collaboratively with others in a team

Diversity & Inclusion

Duration: 2.5 Hours

15. Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
16. Discuss the significance of escalating sexual harassment issues as per POSH act.

Financial and Legal Literacy

Duration: 5 Hours

17. Outline the importance of selecting the right financial institution, product, and service
18. Demonstrate how to carry out offline and online financial transactions, safely and securely
19. List the common components of salary and compute income, expenditure, taxes, investments etc.
20. Discuss the legal rights, laws, and aids

Essential Digital Skills

Duration: 10 Hours

21. Describe the role of digital technology in today's life
22. Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
23. Discuss the significance of displaying responsible online behavior while browsing, using various social media platforms, e-mails, etc., safely and securely
24. Create sample word documents, excel sheets and presentations using basic features
25. utilize virtual collaboration tools to work effectively

Entrepreneurship

Duration: 7 Hours

26. Explain the types of entrepreneurship and enterprises
27. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
28. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
29. Create a sample business plan, for the selected business opportunity

Customer Service

Duration: 5 Hours

30. Describe the significance of analyzing different types and needs of customers
31. Explain the significance of identifying customer needs and responding to them in a professional manner.
32. Discuss the significance of maintaining hygiene and dressing appropriately

Getting Ready for apprenticeship & Jobs

Duration: 8 Hours

33. Create a professional Curriculum Vitae (CV)
34. Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively
35. Discuss the significance of maintaining hygiene and confidence during an interview
36. Perform a mock interview
37. List the steps for searching and registering for apprenticeship opportunities

Learning Outcome – Assessment Criteria

Module No.	Outcome	Assessment Criteria
1	Explain the basics of Floriculture.	<p>After completion of this module students will be able to:</p> <ol style="list-style-type: none"> 1. Identify different ornamental plants 2. Identify different garden tools & equipments & their uses. 3. Identify different types of fertilizers& manures 4. Identify different growing and rooting media
2	Demonstrate propagation techniques along with nursery management system.	<p>After completion of this module students will be able to:</p> <ol style="list-style-type: none"> 1. Analyze nursery requirements, considering factors such as crop demand, location, and market accessibility. 2. Design nursery layouts for optimal land use 3. Identifying various propagation methods, including sexual and asexual techniques, with appropriate examples. 4. Manage mother plant blocks effectively, including fertilization, irrigation, and plant protection measures. 5. Execute flower harvesting stages, seed drying, and storage procedures. 6. Demonstrate pruning techniques, including timing, methods, and intensity, aligned with specific objectives. 7. Describe different types of propagation structures and their suitability for temporary and permanent use. 8. Recognize and apply lawn/turf management practices, including land preparation, planting methods, and maintenance procedures. 9. Record-keeping and documentation of nursery activities, including propagation details and tool inventory. 10. Familiarize with composting methods and their application in nursery management.
3	Demonstrate the procedure of ornamentals cultivation.	<p>After completion of this module students will be able to:</p> <ol style="list-style-type: none"> 1. Demonstrate the cultivation techniques of annuals, biennials, and perennial ornamentals, including appropriate timing for seed sowing, transplanting, fertilization, irrigation, and harvesting.

Module No.	Outcome	Assessment Criteria
		<ol style="list-style-type: none"> 2. Apply planting procedures for shrubs, climbers, and tree saplings, showcasing competency in tasks such as pit preparation, soil mixing, manuring, pruning, and planting techniques. 3. Exhibit the growth habits and environmental requirements of shrubs, climbers, and trees, including factors such as height, flowering time, and habitat preferences. 4. Identify and explain the key features and maintenance practices associated with green walls, green roofs, balcony gardens, window gardens, and water gardens, including suitable plant selections and care routines. 5. Implement hedge planting techniques effectively, demonstrating proficiency in trench preparation, soil management, pruning for shape, and selection of shrubs suited for hedge formation in various light conditions.
4	Identify and select common pests and diseases affecting ornamental plants along with appropriate utilization of plant protection chemicals.	<p>After completion of this module students will be able to:</p> <ol style="list-style-type: none"> 1. Identify common pests and diseases of ornamental plants, including recognizing symptoms. 2. Describe various plant protection chemicals, including their characteristics, appropriate dosage. 3. Identify major pests of ornamental plants 4. Describe the damage caused by each. 5. Select and apply plant protection chemicals, including measuring appropriate doses.
5	Develop floral designing skills for the floristry and floral craft.	<ol style="list-style-type: none"> 1. Articulate the fundamental concepts and principles of floristry and floral crafts. 2. Apply different floral designs to create arrangements suitable for various occasions and purposes. 3. Design basics to create aesthetically pleasing floral arrangements. 4. Utilize materials required in floral crafts. 5. Select and handle tools and supplies. 6. Prepare floral crafts for different occasions and seasons. 7. Describe the floral craft industry and marketing practices through engagement with relevant organizations and self-help groups.

Module No.	Outcome	Assessment Criteria
6	Design and maintain the garden along with the Landscaping.	<ol style="list-style-type: none"> 1. Demonstrate the various types of gardens and their designs. 2. Apply fundamental principles of garden design to create purpose-based layouts. 3. Evaluate and select appropriate garden features/components considering garden size and purpose. 4. Implement landscaping/interiorscaping techniques effectively in designated areas. 5. Execute basic garden maintenance. 6. Apply preliminary landscaping knowledge to urban environments such as cities, traffic islands, and boulevards.
7	Demonstrate the procedure of flower cultivation along with the protection of floriculture.	<ol style="list-style-type: none"> 1. Analyze and select appropriate protected structures based on location, frame materials, and cladding materials. 2. Implement package of practices for ornamental cultivation. 3. Operate and manage greenhouse cooling systems. 4. Demonstrate heating process in greenhouse environments. 5. Identify different types of growing media. 6. Assess and compare construction costs of various greenhouses.
8	OJT	Assessor will check report prepared for this component of Practical training of the course and assess whether competency has been developed to work in the real job situation with special emphasis on basic safety and hazards in this domain. (The trainee is expected to undertake work in actual workplace under any supervisor / contractor for 60 Hours.)
9	Employability Skill	As per guided curriculum

List of Tools, Equipment & materials needed for 30 Trainees (Practical)

Sl No	Items Name	Specification	Qty
1	Scateur	Anvil ,bypass, (Falcon)	15
2	Spades	-	20
3	Nirani & khurpi	-	20 each
4	Weeding tools	Different types	30
5	Lawn mowers	Self –propelled mowers,walk mowers	1 each type
6	Lawn rollers	Steel 2 different sizes	1 each
7	Sprayers-	Hydraulic Knapsack Sprayer	1
8	Sprayers-	Manual pneumatic knapsack sprayer	1
9	Shears-		20
10	Rakes		20
11	tyne		10
12	Dibblers (of variable depths)		5
13	Watering cans		20
14	Forks		15
15	Tree pruners		2
16	Hand gloves of various sizes		5 for each size
17	Scissors & floral shears		10
18	Floral tapes		2 rolls
19	Adhesives & glues for floral craft		10
20	Oasis(Red/ green)		20 blocks for each
21	Artificial flowers & foliage		As required
22	Vases (different shapes & sizes)		2 for at 10 different types
23	wires		2 rolls
24	Pin holders (different shapes & sizes)		2 for each shape & size
25	Budding –grafting knife		30
26	Growing & rooting Media components	Cocopeat, vermicompost, perlite, sand vermiculite etc	Quantity of purchase can be made as per need
27	Different oil cakes	Neem, Mustard, ground nut ,mahua cake	Quantity of purchase can be made as per need
28	Fertilizers for both soil application & foliar spray	Urea, Single Super Phosphate, Murite of Potash, Diammonium Phosphate, Calcium Ammonium Nitrate,Sujala,, Micronutrients, Slow release fertilizers	Quantity of purchase can be made as per need

Marks Distribution

Outcome	Outcome Code	Total Th marks	Total Pr marks	Total OJT marks
Explain the basics of Floriculture.	AGR/0269/OC1	20	50	0
Demonstrate propagation techniques along with nursery management system.	AGR/0269/OC2	20	60	0
Demonstrate the procedure of ornamentals cultivation.	AGR/0269/OC3	30	100	0
Identify and select common pests and diseases affecting ornamental plants along with appropriate utilization of plant protection chemicals.	AGR/0269/OC4	20	60	0
Develop floral designing skills for the floristry and floral craft.	AGR/0269/OC5	20	60	0
Design and maintain the garden along with the Landscaping.	AGR/0269/OC6	20	60	0
Demonstrate the procedure of flower cultivation along with the protection of floriculture.	AGR/0269/OC7	20	110	0
Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	AGR/0269/OC8	0	0	300
Employability Skills – 60 Hrs	DGT/VSQ/N0102	50	0	0