OFFICE OF THE PRINCIPAL & SECRETARY

Contact No. 8638079402

মৰাণ বাণিজ্য মহাবিদ্যালয়

MORAN COMMERCE COLLEGE

Estd. : 1993

NATUN NAGAR, P.O. DIKHARI MORAN

Dist.: Dibrugarh, Pin - 785675, Assam

(Commerce Stream Degree College, Affiliated to Dibrugarh University)

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Ref No. MCC/Add on/C.D/2023/A-1

Date. 02/06/2023

CERTIFICATE OF CONTRIBUTION

This is to certify that **Mr. Debajit Boruah, Asst. Professor of Department of Accountancy (Accounting and Finance)** has made a valuable contribution to the development of **e-content modules** for the complete course/paper titled "**5 Add on Courses**" for the **B. Com** programme. They are as follows:

- Certificate Course on Tea Clonal Nursery
- Certificate Course on Retail Management
- Certificate Course on Bio-fertilizer (Vermicompost)
- Certificate Course on Nutrition and Diet Guide
- Certificate Course on Knitting, Cutting and Stitching, Embroidery.

Mr. Debajit Boruah dedicated efforts have significantly enriched the digital learning resources, ensuring high-quality, accessible, and comprehensive e-content for B.Com students from the academic session **2023-24**.

We sincerely appreciate his expertise, commitment, and timely contribution to this important academic initiative.

(Iveelata Chutia)
Principal(i/c)
Moran Commerce College

Principal i/c
Moran Commerce College
Dibrugarh, Assam

DETAIL SYLLABUS OF ADD ON COURSES
SESSION-2023-24 Onwards

Course Code: ADD ON-01

Title of the course: Tea Clonal Nursery

Nature of the course: Certificate Course on Tea Clonal Nursery. (Add on)

Duration: 6 months

End Semester: 80 Marks

In Semester: 20 marks.

Total credit: 03.

Course objectives: To introduce the students with the fundamental concepts of Tea Clonal Nursery which aims to raise healthy, vigorous plants in the shortest possible time with a minimum cost

MARKS: 80

UNIT	CONTENTS	L	T	P
1 (15 MARKS)	INTRODUCTION 1.1 Tea Clonal Nursery: Meaning 1.2 Objectives and its importance 1.3 Types of tea nursery.	6	02	-
2 (20 MARKS)	Soil Preparation 2.1 Meaning and its relevance 2.2 Steps of preparing the land 2.3 Fencing of area/ land.	8	02	-
3 (20 MARKS)	Bed preparation 3.1 Steps to make drainage facility 3.2 Filling soil in polythene sleeve 3.3 Process of soil filling 3.4 Types of polythene sleeves.	8	02	-
4 (25 MARKS)	Cutting,Shading and Management 4.1 Preparation of cutting from scion 4.2 Planting cutting and timing of propagation.	10	2	10

	4.3 Nursery shading, Low level shade, Overhead shade, Types of overhead. 4.4 Management of tea clonal nursery-Irrigation, weeding, manuring (organic & inorganic) and pest control. 4.5 Sorting and stacking of nursery plants.			
		32	08	10

Here, L=Lecture, T= Tutorial, P= Practical's.

MODES OF IN-SEMESTER ASSESSMENT: (20 Marks)

- One Test =10 Marks
- Students have to choose any one of the following suggested activities in a semester for their in-semester assessment =10 Marks
  - Seminar presentation of any concept
  - Peer Teaching and Discussion
  - Writing report on study visits arranged by the institutes to organizations practicing these skills.
  - Autobiography writing.

LEARNERS OUTCOME:

After the completion of this course the learner shall be able to:

- Understand the detail of Tea Clonal Nursery.
- Identify the key opportunities of a Tea Clonal Nursery Business.
- Help to become an independent entrepreneur.

Reading List:

1.A Manual of Tea Cultivation by Dr. V.S. Sharma,2011, Publisher: International Society of Tea Science (Indian context, Delhi/Hyderabad editions referenced)

2.Tea Cultivation in the Plains of North East India by S.E. Kabir, Publisher: Astral International / Daya Publishing House

Course Code: ADD ON-02

Title of the course: Retail Management.

Nature of the course: Certificate Course on Retail Management.

Duration: 6 months

End Semester: 80 Marks

In Semester: 20 marks.

Total credit: 03.

Course objectives: To introduce the students with the fundamental concepts of retail management and the career opportunities associated with it.

MARKS: 80

UNIT	CONTENTS	L	T	P
1 (15 MARKS)	INTRODUCTION 1.4 Concept of Retail Management. 1.5 Retailing and its features. 1.6 Retailer and their types. 1.7 Structure of Retail Format.	6	02	-
2 (20 MARKS)	OPERATION OF RETAIL STORE 2.1 Store Operation-meaning and features. 2.2 Merchandizing. 2.3 Buying and Pricing. 2.4 Receiving Process. 2.5 Handling returns to vendor. 2.6 Inventory system.	8	02	-
3 (20 MARKS)	MODERN RETAIL OPERATION 3.1 Departments and functions. 3.2 Structure of front and store operation. 3.3 Role and responsibilities of a fr5ont and staff in retail. 3.4 Challenges faced by front and staff.	8	02	-
4 (25 MARKS)	RETAIL SELLING SKILLL 4.1 Retail selling skill- meaning, different types of selling. 4.2 Identifying the pre selling activities.	10	2	10

	4.3 Biggest selling mistakes. 4.4 Upselling and cross selling strategies. 4.5 Product knowledge and its importance.			
		32	08	10

Here, L=Lecture, T= Tutorial, P= Practical's.

MODES OF IN-SEMESTER ASSESSMENT: (20 Marks)

- One Test =10 Marks
- Students have to choose any one of the following suggested activities in a semester for their in-semester assessment =10 Marks
  - Seminar presentation of any concept
  - Peer Teaching and Discussion
  - Writing report on study visits arranged by the institutes to organizations practicing these skills.
  - Autobiography writing.

LEARNERS OUTCOME:

After the completion of this course the learner shall be able to:

- Understand the detail of retail business.
- Identify the key opportunities of a retail business.
- Help to become an independent entrepreneur.

Reading List:

1. Dr.R.S. Tiwari, Retail Management, Himalaya Publishing House.
2. Barry Berman, Joel R. Evans and Ritu Shrivastava, Retail Management: A Strategic Approach, Pearson Publication.

Course Code: ADD ON-03

Title of the course: Biofertilizers (Vermicompost)

Nature of the course: Certificate Course on Biofertilizers (Vermicompost)

Duration: 6 months

End Semester: 80 Marks

In Semester: 20 marks.

Total credit: 03.

Course objectives: To introduce the student about the essence of Vermicompost and its job prospects**.**

MARKS: 80

UNIT	CONTENTS	L	T	P
1 (25 MARKS)	INTRODUCTION 1.1 Meaning of Biofertilizers, Types, Meaning of vermicompost 1.2 Benefits of vermicomposting 1.3 Types earthworms used in vermicomposting 1.4 Methods of vermicomposting 1.5 Site selection and preparation	10	02	-
2 (25 MARKS)	Bed preparation 2.1 Inoculation of earthworms 2.2 Preparations and teach best practices of vermicomposting 2.3 Control predator attack.	10	02	10
3 (15 MARKS)	Material 3.1 Material required for vermicomposting 3.2 vermicomposting maturity identification.	6	02	-
4 (15 MARKS)	Marketing and Packaging. 4.1 Marketing and packaging of biofertilizers 4.2 Storage of the products. 4.3 Legal aspects of licensing.	6	2	
		32	08	10

Here, L=Lecture, T= Tutorial, P= Practical's.

MODES OF IN-SEMESTER ASSESSMENT: (20 Marks)

- One Test =10 Marks
- Students have to choose any one of the following suggested activities in a semester for their in-semester assessment =10 Marks
  - Seminar presentation of any concept
  - Peer Teaching and Discussion
  - Writing report on study visits arranged by the institutes to organizations practicing these skills.
  - Autobiography writing.

LEARNERS OUTCOME:

After the completion of this course the learner shall be able to:

- Understand in detail the essence of Biofertilizers & Vermicompost.
- Identify the key opportunities of a Biofertilizer business.
- Help to become an independent entrepreneur.

Reading List:

1.Hand Book of Biofertilizers & Vermiculture,**Publisher**: Engineers India Research Institute (EIRI), New Delhi.

2. **The Complete Technology Book on Vermiculture and Vermicompost (Earthworm)** (various editions, including revised),**Publisher**: NIIR Project Consultancy Services (NPCS), New Delhi.

Course Code: ADD ON-04

Title of the course: NUTRITION AND DIET GUIDE

Nature of the course: Certificate Course on NUTRITION AND DIET GUIDE

Duration: 6 months

End Semester: 80 Marks

In Semester: 20 marks.

Total credit: 03.

Course objectives: To introduce the students with the fundamental concepts of better health and wellbeing and the career opportunities associated with nutrition and diet.
Career opportunities: Students can work as project assistant, nutritionists in NGO's, dietician in hospitals and clinics.

MARKS: 80

UNIT	CONTENTS	L	T	P
1 (20 MARKS)	INTRODUCTION 1.1Introduction to Human organs 1.2 Importance of adequate Nutrition 1.3 Nutritional Biochemistry 1.4 Deficiency Disorders.	8	02	-
2 (25 MARKS)	Superfoods, Detoxification & Fat Diet 2.1 Introduction of Superfoods, 2.2 Organic Contents of the food. 2.3Introduction to Body Detoxification 2.4 Fat Diet, Fortified Foods	10	02	10
3 (20 MARKS)	Fitness and Nutritive Value of foods 3.1Methods used for Calculations of BMR 3.2 Impact of nutrition on human fitness 3.3 Nutritive Value of foods	8	02	-
4 (15 MARKS)	Well-being 4.1Mental well-being with Meditation	6	2	

	4.2 Meaning and its implementation			
		32	08	10

Here, L=Lecture, T= Tutorial, P= Practical's.

MODES OF IN-SEMESTER ASSESSMENT: (20 Marks)

- One Test =10 Marks
- Students have to choose any one of the following suggested activities in a semester for their in-semester assessment =10 Marks
  - Seminar presentation of any concept
  - Peer Teaching and Discussion
  - Writing report on study visits arranged by the institutes to organizations practicing these skills.
  - Autobiography writing.

LEARNERS OUTCOME:

After the completion of this course the learner shall be able to:

- Understand in detail the essence of **NUTRITION AND DIET GUIDE**
- Identify the key career opportunities to work as project assistant, nutritionists in NGO's, dietician in hospitals and clinics.
- Help to become a better health and wellbeing Conscious and create awareness among others.

Reading List:

1. Fundamentals of Foods, Nutrition and Diet Therapy by Sumati R. Mudambi & M.V. Rajagopal, Publisher: New Age International (Indian publisher)

2. Nutrition and Dietetics by Shubhangini A. Joshi, Publisher: McGraw Hill Education (India).

Course Code: ADD ON-05

Title of the course: Knitting and Cutting, Stitching, Embroidery.

Nature of the course: Certificate Course on Knitting and Cutting, Stitching, Embroidery.

Duration: 6 months

End Semester: 80 Marks

In Semester: 20 marks.

Total credit: 03.

Course objectives: The objective of the course is to impart necessary competencies (With the focus on technical competencies like skill and knowledge) so that they become employable in the small scale tailoring industry and be an entrepreneur.

MARKS: 80

UNIT	CONTENTS	L	T	P
1 (25 MARKS)	1. CUTTING: 1.1. Measuring 1.2. Making Patterns— • Drafting • Marking • Cutting for individual measurement. 1.3. Cutting components with hand cutting tools. 1.4. Stitching by Hand: • Functional-basting • Tacking • Running • Back stitch • Overcasting • Hem stitches • Slip stitches 1.5. List of dresses- • Petticoat (4 and 6 panels) • Plain blouse	10	02	-
2 (15 MARKS)	2. EMBROIDERY 2.1 Basic Hand Embroidery stitches	6	02	

	2.2 Decorative Hand Embroidery Stitches- • Stem stitch • Blanket stitch • Chain stitch • Lazy daisy stitch • Herting bone stitch			
3 (25 MARKS)	3. STITCHING 3.1. Stitching by Machine – • Straight • Curved • Cornered 3.2. Finishing seams by hand and Machine 3.3. Fixing fasteners- • Buttons • Hooks • Eyes • Press studs 3.4. Shaping a garment by- • Darts • Pleats • Tucks • Gathering 3.5. Finishing neckline	10	02	10
4 (15 MARKS)	4.KNITTING 4.1. Different knitting stitches 4.2. Knitting Design	6	2	
		32	08	10

Here, L=Lecture, T= Tutorial, P= Practical's.

MODES OF IN-SEMESTER ASSESSMENT: (20 Marks)

- One Test =10 Marks
- Students have to choose any one of the following suggested activities in a semester for their in-semester assessment =10 Marks
  - Seminar presentation of any concept
  - Peer Teaching and Discussion
  - Writing report on study visits arranged by the institutes to organizations practicing these skills.

- Autobiography writing.

LEARNERS OUTCOMES: -
After the completion of this course, the learner will be able to:

- Identify the opportunities to be self-empowered.
- Help to become an independent entrepreneur.

READING LIST:

1. Ganderton Lucinda, Embroidery: A Step-by-Step Guide to More than 200 Stitches, publisher D.K.
2.CLAYTON MARIE, The Ultimate A to Z Companion to 1,001 Needlecraft Terms: Applique, Crochet, Embroidery, Knitting, Quilting, Sewing and More, Publisher : St. Martin's Griffin (10 December 2007)

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Ref. No. DU/DR-A/Approval/Add-on Courses/2023/ 483 **Date:** 14/6/23

NOTIFICATION

Under Report to the Under Graduate Board and Academic Council, Dibrugarh University, the Hon'ble Vice Chancellor, Dibrugarh University is pleased to approve the following subjects as Add-on-Courses to be offered by Moran Commerce College, Dibrugarh, Assam w.e.f. the Academic Session 2023-2024.

Sl. No	Title of the Add-on Courses	Duration	Department
1	Certificate Course on Tea Clonal Nursery	6 Months	Accountancy
2	Certificate Course on Retail Management	6 Months	Marketing
3	Certificate Course on Biofertilizer (Vermicompost)	6 Months	Economics
4	Certificate Course on Nutrition and Diet Guide.	6 Months	Career Counselling and Guidance Cell
5	Certificate Course on Knitting and Cutting, Stitching, Embroidery.	6 Months	Women Cell

Issued with due approval.

14/6/23

Deputy Registrar (Academic) i/c
Dibrugarh University

Copy to:

1. The Hon'ble Vice Chancellor, Dibrugarh University for favour of information.
2. The Deans, Dibrugarh University, for favour of information.
3. The Registrar i/c, Dibrugarh University, for information.
4. The Controller of Examinations, Dibrugarh University, for favour of information.
5. The Inspector of Colleges i/c, Dibrugarh University, for information.
6. The Principal i/c, Moran Commerce College, Dibrugarh, Assam for information.
7. The Joint Controller of Examinations "C", Dibrugarh University, for information.
8. The Deputy Controller of Examinations, Dibrugarh University, for information.
9. File.

Deputy Registrar (Academic)
Dibrugarh University
Dibrugarh-786004

14/6/23

Deputy Registrar (Academic) i/c
Dibrugarh University

Deputy Registrar (Academic)
Dibrugarh University
Dibrugarh-786004

Tea Clonal Nursery Study Notes Course Code: ADD ON-01 Title: Tea Clonal Nursery (Certificate Course – Add-on) Duration: 6 months | Credits: 03 | Total Marks: 100 (End Semester: 80 | In-Semester: 20)

Course Objective: To introduce students to the fundamental concepts of Tea Clonal Nursery for raising healthy, vigorous plants in the shortest possible time at minimum cost through vegetative (clonal) propagation.

UNIT 1: INTRODUCTION (15 Marks)

1.1 Tea Clonal Nursery: Meaning A tea clonal nursery is a specialized facility for the asexual (vegetative) propagation of tea plants (*Camellia sinensis*) to produce genetically identical "clones" from selected superior mother plants (scion sources). Unlike seed propagation (which produces variable seedlings), clonal methods ensure uniformity in yield, quality, disease resistance, drought tolerance, and other desirable traits. Cuttings (typically single-node or multi-node) are rooted in controlled conditions like polythene sleeves before field transplanting.

Clonal propagation maintains the exact genetic makeup of elite bushes, leading to higher productivity, consistency in tea quality (e.g., flavor, aroma), and faster establishment compared to seedlings. It is widely used in major tea regions like India (Assam, Darjeeling), Sri Lanka, Kenya, and others.

1.2 Objectives and Importance Objectives:

- Raise healthy, vigorous, uniform plants of selected clones.
- Minimize casualties and produce plants ready for field planting in the shortest time (typically 6–12 months for sleeved plants).
- Ensure cost-efficiency through optimized resource use (soil, water, shade, labor).
- Produce plants with superior traits suited to local conditions (e.g., drought or pest resistance).

Importance:

- **Uniformity & Quality:** All plants are genetically identical, leading to even growth, synchronized flushing, and consistent tea quality.
- **Higher Yields:** Clones can significantly boost productivity (e.g., potential for over 4000 kg/ha in suitable conditions).
- **Disease & Stress Resistance:** Selected clones resist pests, diseases, drought, wind, etc.
- **Faster Establishment:** Clonal plants establish quicker in the field than seedlings.
- **Economic Benefits:** Reduces replanting costs and improves overall plantation efficiency. Clonal tea is vital for modern commercial plantations.

1.3 Types of Tea Nurseries

- **Seed Nurseries:** For generative propagation (less uniform).

- **Clonal/Vegetative Nurseries:** Use cuttings for propagation (primary focus of this course). Sub-types include:
    - **Sleeve Nurseries:** Cuttings planted in polythene sleeves filled with soil (most common for field-ready plants).
    - **Bed Nurseries (Bheti):** Cuttings rooted in ground beds before transplanting with soil ball.
    - **Callusing/Rooting Beds:** Temporary beds for initial rooting before sleeving.
- Other classifications: Temporary vs. permanent; high-shade vs. low-shade; based on elevation/climate.

UNIT 2: Soil Preparation (20 Marks)

2.1 Meaning and Relevance Soil preparation involves clearing, tilling, amending, and conditioning the land to create an ideal growing medium for tea cuttings. Relevance: Tea requires acidic (pH 4.5–5.6), well-drained, friable, nutrient-rich soil free of pests/weeds. Poor preparation leads to poor rooting, disease, waterlogging, or nutrient deficiencies.

2.2 Steps of Preparing the Land

1. **Site Selection:** Near water source, sheltered from wind, well-drained friable soil, pH 5.0–5.6. Avoid low-lying/frost-prone areas.
2. **Clearing:** Remove vegetation, weeds, debris, rocks, roots. Test soil 1 year ahead.
3. **Survey & Planning:** Prepare contour maps for slopes; mark beds/drains.
4. **Tilling/Digging:** Plough/dig to 25–75 cm depth. Remove hard lumps, stones, undecomposed matter.
5. **Amendments:** Mix topsoil with subsoil if needed; add organic matter (compost), fertilizers (e.g., SSP, potash, based on soil test). Level and create raised beds (15 cm high).
6. **Final Leveling & Firming:** Rake to fine tilth; lightly roll or ram for stability. Prepare 6–8 weeks before planting.

2.3 Fencing of Area/Land Fencing protects the nursery from animals, theft, and wind. Use bamboo, wire mesh, or live hedges. Erect a low bamboo fence (20 cm high) around beds to support sleeves. Outer fencing should be secure and wind-breaking.

UNIT 3: Bed Preparation (20 Marks)

3.1 Steps to Make Drainage Facility

- Lay out beds East-West, max 1.2–1.5 m wide for easy access.
- Separate beds with drains (45–60 cm wide, 45–60 cm deep) sloping to outer drains.
- Raise beds 15 cm above paths for runoff.
- Camber bed surface slightly. Spread thin sand/grit layer for drainage.
- Ensure overall site has good slope or contour terracing on hills.

3.2 Filling Soil in Polythene Sleeve

- Use sleeves 6–8 weeks before planting for settling.
- Fill with ~0.75 kg well-mixed, sieved soil (topsoil + amendments). Lightly compact.
- Top up after settling with loam. Spot-seal or staple bottom for drainage.

3.3 Process of Soil Filling

- Separate topsoil (nutrient-rich) from subsoil.
- Mix with organic matter/fertilizers per recommendations.
- Fill sleeves on prepared beds; firm gently. Water to settle. Remove roots/stones. Place under shade.

3.4 Types of Polythene Sleeves

- **Standard (for normal plants):** 10–17.5 cm layflat width, 25 cm long, 150 gauge (recycled for 1-year use).
- **Larger (for infilling/long transport):** 15 cm layflat, 35–40 cm long, 200–250 gauge, heavier duty.
- Spot-sealed at bottom for drainage while retaining soil.

UNIT 4: Cutting, Shading and Management (25 Marks)

4.1 Preparation of Cutting from Scion

- Select healthy, vigorous 5–7 month old shoots from pruned mother bushes.
- Prepare single-node cuttings: 1 leaf + 3–4 cm stem below (slanting cuts). Remove lower leaves if multi-node.
- Soak in fungicide (e.g., mancozeb). Keep moist/shaded. Use sharp knives; avoid damaged material.

4.2 Planting Cutting and Timing of Propagation

- Timing: Often April–May or Aug–Sept (region-dependent); 5–7 months after mother bush pruning.
- Make hole in moist soil; insert cutting (bud just above soil, leaf not touching). Press firmly. Water gently.

4.3 Nursery Shading

- **Low-level shade:** Temporary covers close to plants.
- **Overhead shade:** Permanent structures (e.g., bamboo/nett ing). Types: 50–70% shade initially, reduce gradually for hardening. Maintain dappled light to prevent scorching while promoting rooting.

4.4 Management of Tea Clonal Nursery

- **Irrigation:** Frequent gentle watering/misting to keep moist (avoid waterlogging). Use mist systems in controlled setups.
- **Weeding:** Hand weeding; keep circles around plants clean. Use mulch or approved herbicides carefully.
- **Manuring:** Organic (compost) + inorganic (e.g., nursery mixtures with NPK, applied fortnightly after establishment). Follow soil tests.
- **Pest & Disease Control:** Monitor for aphids, mites, fungi; use integrated management (cultural + selective chemicals).

4.5 Sorting and Stacking of Nursery Plants

- Sort by size/uniformity after rooting (6–12 months).
- Stake taller plants for support. Harden off by reducing shade/water gradually. Stack/transport ready plants carefully to field.

Key Tips for Success: Advanced planning, regular supervision, hygiene, and climate-appropriate practices minimize losses and costs. Refer to local Tea Research Institutes (e.g., UPASI, TRI, TRFK) for region-specific clones and guidelines.

Retail Management Study Notes Course: Certificate Course on Retail Management (ADD ON-02) Duration: 6 months | Credits: 03 | Total Marks: 100 (End Sem: 80, In Sem: 20)

Course Objective: To introduce students to the fundamental concepts of retail management and associated career opportunities.

These notes are structured unit-wise with key concepts, explanations, examples, and practical insights for descriptive understanding and exam preparation.

UNIT 1: INTRODUCTION (15 Marks)

1.1 Concept of Retail Management

Retail management is the process of planning, organizing, directing, and controlling retail operations to deliver the right merchandise to the right customer at the right time, place, and price, while maximizing profitability and customer satisfaction.

It involves managing the entire retail value chain—from sourcing and merchandising to sales, customer service, and inventory. In the modern era, it integrates omnichannel strategies (physical stores + online + mobile) to meet evolving consumer expectations.

Key Functions: Buying, pricing, promotion, store operations, inventory control, and customer relationship management.

1.2 Retailing and its Features

Retailing is the sale of goods and services directly to end consumers for personal, non-business use (unlike wholesaling).

Features/Characteristics:

- **Direct Consumer Interaction:** Involves face-to-face or digital engagement with final buyers.
- **Small Quantity Sales:** Goods sold in smaller units suited for individual consumption.
- **Wide Variety:** Offers assortment of products under one roof or platform.
- **Value Addition:** Provides services like credit, home delivery, after-sales support, and personalized advice.
- **High Competition:** Dynamic due to changing trends, technology, and consumer preferences.
- **Economic Significance:** Contributes significantly to GDP, employment, and distribution efficiency.
- **Technology-Driven:** E-commerce, POS systems, data analytics, and AI personalization.

1.3 Retailer and their Types

A **retailer** is a business or individual that sells goods/services to consumers. Retailers act as intermediaries between manufacturers/wholesalers and consumers.

Types of Retailers (based on ownership, format, merchandise, etc.):

- **Store-Based Retailers:**
  - **Department Stores:** Wide variety of product lines (e.g., clothing, electronics) — Macy's, JCPenney.
  - **Supermarkets/Hypermarkets:** Self-service grocery and household items (e.g., Walmart, Publix).
  - **Specialty Stores:** Narrow product focus with deep assortment (e.g., AutoZone for auto parts).
  - **Discount Stores:** Low prices, limited service (e.g., Dollar General).
  - **Convenience Stores:** Small, high-margin, quick purchases (e.g., 7-Eleven).
  - **Category Killers:** Dominant in one category (e.g., large home improvement stores).
- **Non-Store Retailing:** Online (e-commerce like Amazon), direct selling, vending machines, catalogs, TV shopping.
- **Ownership-Based:**
  - Independent retailers (single shop).
  - Chain stores (multiple outlets under common ownership).
  - Franchises (contractual brand use).
  - Cooperatives.

1.4 Structure of Retail Format

Retail formats refer to the design, layout, and business model of retail outlets that influence customer experience and operations.

Common Structures:

- **Grid Layout:** Aisles in straight lines (efficient for supermarkets).
- **Racetrack/Boutique Layout:** Circular paths for specialty stores.
- **Free-Flow Layout:** Flexible for department stores.
- **Omnichannel Formats:** Integration of physical + digital (click-and-collect, BOPIS).

Formats evolve with trends like pop-up stores, experiential retail, and sustainable practices.

UNIT 2: OPERATION OF RETAIL STORE (20 Marks)

2.1 Store Operation – Meaning and Features

Store operations encompass day-to-day activities ensuring smooth functioning, including layout management, staffing, visual merchandising, security, and customer flow.

Features: Efficiency-focused, customer-centric, technology-enabled (POS, CCTV), compliance with safety standards, and adaptability to peak hours/seasons.

2.2 Merchandising

Merchandising is the process of planning, acquiring, displaying, and promoting products to maximize sales and profitability. It includes assortment planning, visual presentation, and category management.

Key Aspects: Right product mix, stock levels, pricing, and in-store placement.

2.3 Buying and Pricing

- **Buying:** Involves forecasting demand, selecting suppliers, negotiating terms, and creating purchase orders. Considers trends, seasonality, and supplier reliability.
- **Pricing:** Strategies include cost-plus, competitive, psychological (e.g., ₹99), premium, and dynamic pricing. Factors: Costs, competition, perceived value, and margins.

2.4 Receiving Process

The receiving process involves verifying incoming shipments against purchase orders for quantity, quality, condition, and pricing before accepting into inventory.

Steps:

1. Create PO.
2. Inspect goods.
3. Record in system.
4. Store/allocate.
5. Handle discrepancies (shortages, damages).

Best practices: Use barcodes/scanners, standardize procedures, and update inventory immediately.

2.5 Handling Returns to Vendor

This includes processing defective, excess, or unsold merchandise back to suppliers. Involves documentation, inspection, credit notes, and minimizing losses through clear return policies and vendor agreements.

2.6 Inventory System

Inventory management tracks stock levels, orders, sales, and storage to avoid stockouts or overstock.

Systems: Perpetual (real-time via software), periodic (physical counts). Tools: ERP, RFID, ABC analysis. Goals: Optimize turnover, reduce holding costs, and ensure availability.

UNIT 3: MODERN RETAIL OPERATION (20 Marks)

3.1 Departments and Functions

Modern retail operations divide into:

- **Front-End:** Customer-facing (sales, service, checkout).
- **Back-End/Support:** Logistics, HR, finance, IT, inventory, merchandising.

Key departments: Merchandising, Operations, Marketing, Finance, HR, Supply Chain.

3.2 Structure of Front and Store Operation

- **Front Office/Store Operations:** Direct customer interaction, sales floor management, visual displays, and service delivery.
- **Back Office:** Administrative support (accounting, payroll, procurement) that enables front-end efficiency.

Integration via technology ensures seamless omnichannel experience.

3.3 Role and Responsibilities of Front and Staff in Retail

- **Front Staff (Sales Associates, Cashiers):** Greet customers, provide product info, handle transactions, upsell, maintain store appearance, and resolve queries.
- **Responsibilities:** Customer satisfaction, sales targets, inventory reporting, and teamwork.

3.4 Challenges Faced by Front and Staff

- High pressure during peaks, dealing with difficult customers, low margins, staff turnover, competition from e-commerce, technological adaptation, and maintaining work-life balance.
- Solutions: Training, motivation, technology tools, and supportive policies.

UNIT 4: RETAIL SELLING SKILLS (25 Marks)

4.1 Retail Selling Skill – Meaning, Different Types of Selling

Retail selling skills involve persuading customers to purchase through effective communication, product knowledge, and relationship building.

Types:

- **Transactional Selling:** Quick, price-focused.
- **Consultative/Relationship Selling:** Needs-based, long-term.
- **Solution Selling:** Addressing specific problems.

4.2 Identifying Pre-Selling Activities

Activities before the actual sale: Prospecting (identifying customers), qualifying needs, building rapport, product presentation/preparation, and store readiness (cleanliness, stock).

4.3 Biggest Selling Mistakes

- Being pushy or aggressive.
- Lack of product knowledge.
- Ignoring customer signals/needs.
- Poor listening.
- Focusing only on price.
- Failing to follow up.

4.4 Upselling and Cross-Selling Strategies

- **Upselling:** Encouraging purchase of a higher-end or upgraded product (e.g., premium version).
- **Cross-Selling:** Suggesting complementary items (e.g., shoes with dress).

Strategies:

- Understand needs.
- Highlight value/benefits.
- Timing (after initial interest).
- Personalization.
- Training staff with scripts and role-plays.

Avoid mistakes like irrelevance or pressure.

4.5 Product Knowledge and its Importance

Deep understanding of features, benefits, usage, competitors, and care instructions. It builds credibility, enables effective selling, reduces returns, and enhances customer trust and satisfaction.

Career Opportunities in Retail Management: Store manager, merchandiser, buyer, visual merchandiser, sales executive, supply chain roles, e-commerce specialist, and entrepreneurship in retail startups.

Preparation Tips:

- Understand concepts with real-world examples (Reliance Retail, Amazon, local stores).
- Focus on diagrams (retail formats, inventory flow).
- Practice case studies on challenges and strategies.

Study Notes on Biofertilizers (Vermicompost) Course Code: ADD ON-03 Title: Biofertilizers (Vermicompost) Certificate Course, 6 months, 3 Credits End Semester: 80 Marks | In Semester: 20 Marks

These notes are structured unit-wise per the syllabus for easy revision. They provide descriptive explanations with key points, benefits, processes, and practical tips.

UNIT 1: INTRODUCTION (25 Marks)

1.1 Meaning of Biofertilizers, Types, Meaning of Vermicompost

Biofertilizers are substances containing living microorganisms (bacteria, fungi, algae) that enhance nutrient availability in soil and promote plant growth when applied to seeds, plant surfaces, or soil. They are eco-friendly alternatives to chemical fertilizers, fixing atmospheric nitrogen, solubilizing phosphates, or producing growth-promoting substances.

Main Types of Biofertilizers:

- Nitrogen-fixing (e.g., Rhizobium, Azotobacter, Azospirillum).
- Phosphate-solubilizing (e.g., PSB like Pseudomonas, Bacillus).
- Potassium-mobilizing.
- Bio-organic or composite (organic matter like compost/vermicompost + microbial consortia).
- Others like mycorrhizal fungi.

Vermicompost (worm manure or worm castings) is the nutrient-rich end product of vermicomposting — the biological decomposition of organic waste (kitchen scraps, plant residues, manure) using earthworms and associated microorganisms. It is a dark, crumbly, earthy-smelling material rich in macro- and micronutrients, enzymes, hormones, and beneficial microbes. It serves as an excellent organic fertilizer and soil conditioner.

1.2 Benefits of Vermicomposting

Vermicompost offers multiple advantages for soil, plants, environment, and farmers:

- **Soil Health**: Improves structure, aeration, water retention, and drainage. Increases microbial activity (enzymes like phosphatase, cellulase) and humus content.
- **Nutrient Availability**: Rich in plant-available N (1-2%+), P, K, micronutrients, humic/fulvic acids. Enhances cation exchange capacity (CEC).
- **Plant Growth**: Boosts germination, root development, flowering, yield. Suppresses diseases and pests via beneficial microbes.
- **Environmental**: Reduces landfill waste, methane emissions, and chemical fertilizer use. Recycles organic waste sustainably.
- **Economic**: Low-cost production, improves crop quality, reduces irrigation needs, and creates job opportunities in organic farming and waste management.

It is particularly valuable for organic and sustainable agriculture.

1.3 Types of Earthworms Used in Vermicomposting

Not all earthworms are suitable; epigeic (surface-dwelling) species that tolerate high organic matter, reproduce quickly, and thrive in bins/beds are preferred.

Common Species:

- **Eisenia fetida** (Red Wiggler/Tiger Worm): Most popular worldwide. Striped red-brown, tolerates wide temperature (15-25°C optimal), high reproduction rate.
- **Eisenia andrei**: Similar to E. fetida, often used together.
- **Eudrilus eugeniae** (African Nightcrawler): Good for tropical climates, larger, fast processor.
- **Perionyx excavatus** (Indian Blue Worm): Suitable for warmer regions.
- Others: Lumbricus rubellus (Red Earthworm), Dendrobaena veneta.

Avoid deep-burrowing anecic or endogeic garden worms (e.g., common nightcrawlers) as they do not thrive in high-organic waste bins.

1.4 Methods of Vermicomposting

- **Bed Method (Surface)**: Raised beds (1-1.5m wide, 0.3m high) on ground or concrete. Layer bedding + waste + worms. Easy for large scale.
- **Pit Method**: Dug pits (avoid waterlogging). Similar layering but below ground.
- **Container/Bin Method**: Suitable for small scale/home (plastic/wooden bins). Good for controlled environments.
- **Windrow Method**: Long heaps for commercial scale.
- **Flow-through Reactors**: Advanced continuous systems.

Process generally involves pre-composting feedstock (to reduce heat/ammonia), adding worms, maintaining conditions, and harvesting after 45-90+ days.

1.5 Site Selection and Preparation

- **Site Criteria**: Shaded, cool (avoid direct sun/rain), high humidity, good drainage, near water source. Protected from extremes. Abandoned sheds, thatched roofs, or indoor spaces ideal.
- **Preparation**: Level ground, concrete base (for large units) to prevent worms escaping downward. Ensure ventilation and pest protection. Provide shade/netting.

UNIT 2: BED PREPARATION (25 Marks)

2.1 Inoculation of Earthworms

- Prepare bedding: Shredded newspaper, cardboard, dried leaves, coir, sawdust (carbon-rich, ~50-60% of mix).
- Add pre-composted organic waste (cow dung, plant residues) in layers. Maintain C:N ratio ~25-30:1 initially.
- Moisten to 70-80% (like a wrung sponge).
- Introduce worms (1-2 kg per m^2 or ~0.5-1 kg per bin) after 1-2 weeks of pre-composting (to lower temperature <30°C and ammonia). Place near surface and cover lightly.

Worms migrate and start processing.

2.2 Preparations and Best Practices of Vermicomposting

- **Moisture**: 60-80%. Spray water as needed; avoid waterlogging.
- **Temperature**: 15-25°C optimal (worms die above ~35°C or below freezing).
- **Aeration**: Turn occasionally; use porous bedding.
- **Feeding**: Add small amounts of kitchen/plant waste (no meat, dairy, oily, citrus in excess). Bury under bedding.
- **pH**: Neutral to slightly acidic (6-8).
- **Harvesting**: Separate worms/castings when material is dark, granular, earthy-smelling (no raw waste visible). Use light migration or sieving.
- Monitor and maintain balance for continuous production.

Best practices emphasize patience, balance, and observation.

2.3 Control Predator Attack

Predators include ants, centipedes, birds, rodents, moles, soldier flies, mites (in excess).

Controls:

- Raise bins off ground; use tight lids/covers.
- Maintain proper moisture/temperature to discourage pests.
- Avoid overfeeding (attracts flies/rodents).
- Use barriers, diatomaceous earth (food-grade) for some insects.
- Hand-pick larger predators; ensure good ventilation but shade.
- Healthy bin conditions naturally limit most issues.

UNIT 3: MATERIAL (15 Marks)

3.1 Materials Required for Vermicomposting

- **Organic Feedstock**: Cow dung/FYM, kitchen waste (veggie/fruit scraps), crop residues, dried leaves, coffee grounds, cardboard/paper (shredded).
- **Bedding**: Coconut coir, sawdust, leaf mold.
- **Earthworms**: 1-2 kg starter culture per unit.
- **Infrastructure**: Beds/pits/bins, shade, water source, gunny bags/straw for cover.
- **Tools**: Shredder, watering can, sieve, thermometer, pH meter (optional).

Ratio example: 1 part green (N-rich) to 2-3 parts brown (C-rich) + manure.

3.2 Vermicomposting Maturity Identification

Mature vermicompost:

- Dark brown to black, granular/crumbly texture (90% passes 4mm sieve).
- Earthy smell (no foul odor).
- Cool temperature (ambient).
- Moisture 15-25%.
- pH ~7-8.2; low EC.
- High in humus, nutrients; rich in microbes but stable.

- No visible raw waste or many worms on surface (they move deeper).

Tests: Seed germination assay, lab nutrient analysis, visual/tactile checks. Cure for weeks/months for best results.

UNIT 4: MARKETING AND PACKAGING (15 Marks)

4.1 Marketing and Packaging of Biofertilizers

- **Packaging**: Use breathable bags (jute, paper, HDPE) to maintain moisture/aeration. Label with contents, usage, expiry, nutrients. Sizes: 1-50 kg. Seal properly.
- **Marketing**: Target organic farmers, nurseries, gardeners, agri-input stores. Promote benefits (soil health, yield, eco-friendliness). Use demos, farmer meetings, online/e-commerce, government schemes. Brand as "organic" or certified.

4.2 Storage of the Products

- Store in cool, dry, shaded place away from direct sun/rain.
- Maintain 15-25% moisture; avoid compaction.
- Use ventilated bags/sacks; shelf life 6-12 months if proper.
- Monitor for pests/moisture loss.

4.3 Legal Aspects of Licensing

In India (common context for such courses):

- **FCO License** (Fertilizer Control Order): Mandatory for manufacturing/selling fertilizers including vermicompost (especially packaged for agriculture). Apply via State Controller of Fertilizers.
- **MSME/Udyam Registration**: For benefits/subsidies.
- **GST Registration**: If turnover exceeds threshold.
- **Other**: NPOP for organic certification/export; local permissions. Small-scale (<50 MT/year vermicompost) may have exemptions.

Comply with quality standards, labeling, and packing rules to avoid penalties.

Job Prospects: Vermicompost production offers opportunities in organic farming, waste management units, self-employment, agri-startups, government schemes (e.g., subsidies for bio-inputs), teaching/training, and export.

Revision Tips: Focus on processes, benefits, and practical steps. Diagrams of beds/worm types and flowcharts of the process are useful for exams. Practice site/bed setup mentally. These notes align directly with objectives for understanding essence and prospects.

Study Notes on Nutrition and Diet Guide Course Code: ADD ON-04 Title: NUTRITION AND DIET GUIDE (Certificate Course, 6 months, 3 credits)

Objectives: Introduce fundamental concepts of health, wellbeing, and career opportunities in nutrition and dietetics (e.g., project assistant, nutritionist in NGOs, dietician in hospitals/clinics). Assessment: End Semester 80 marks + In-Semester 20 marks.

UNIT 1: INTRODUCTION (20 Marks)

1.1 Introduction to Human Organs

The human body comprises 11 major organ systems that interact to maintain homeostasis, many directly involved in nutrition. Key systems include:

- **Digestive System**: Breaks down food mechanically and chemically. Includes mouth, esophagus, stomach, small/large intestines, and accessory organs (liver, pancreas, gallbladder). Nutrients are absorbed primarily in the small intestine via villi.
- **Circulatory System**: Transports absorbed nutrients, oxygen, and removes wastes.
- **Endocrine System**: Hormones regulate metabolism and nutrient use (e.g., insulin for glucose).
- **Nervous System**: Controls appetite and digestion.
- **Other systems** (respiratory, urinary, etc.): Support energy production, waste elimination, and overall function.

Organs like the liver (detoxification and metabolism) and kidneys (filtration) are central to processing nutrients.

1.2 Importance of Adequate Nutrition

Adequate nutrition supplies energy, supports growth/repair, and prevents disease. Benefits include:

- Reduced risk of chronic diseases (heart disease, diabetes, stroke, cancer, osteoporosis).
- Better immune function, energy levels, and recovery from illness/injury.
- Support for mental health, weight management, and longevity.
- Essential across life stages (infancy to aging).

Malnutrition (under- or over-nutrition) leads to health issues. A balanced diet with macronutrients (carbs, proteins, fats) and micronutrients (vitamins, minerals) is foundational.

1.3 Nutritional Biochemistry

This field studies how nutrients are metabolized at cellular/molecular levels. Key aspects:

- **Macronutrients**: Carbohydrates (energy via glucose/glycogen), proteins (amino acids for tissue repair/enzymes), lipids (energy, cell membranes, hormone precursors).
- **Micronutrients**: Vitamins (organic, e.g., B vitamins in energy metabolism) and minerals (inorganic, e.g., iron in hemoglobin, calcium in bones).
- **Metabolism**: Digestion → absorption → catabolism/anabolism. Involves pathways like glycolysis, Krebs cycle, and electron transport for ATP production.
- Interactions: Nutrients act as cofactors in enzymatic reactions; imbalances affect gene expression and health.

Focus on energy balance, nutrient density, and biochemical roles in preventing disease.

1.4 Deficiency Disorders

Deficiencies arise from inadequate intake, absorption issues, or increased needs. Common examples:

- **Iron**: Anemia (fatigue, pallor).
- **Vitamin D**: Rickets (children), osteomalacia (adults) — weak bones.
- **Vitamin A**: Night blindness, increased infection risk.
- **Iodine**: Goiter, developmental issues.
- **Vitamin C**: Scurvy (bleeding gums, poor healing).
- **Protein-Energy Malnutrition**: Marasmus (wasting), Kwashiorkor (edema).
- **Others**: B12 (neurological issues), calcium (bone loss).

Prevention: Balanced diet, fortification, and supplementation where needed. Global issues persist in vulnerable populations.

UNIT 2: Superfoods, Detoxification & Fat Diet (25 Marks)

2.1 Introduction to Superfoods

"Superfoods" is a marketing term for nutrient-dense foods offering high levels of vitamins, minerals, antioxidants, fiber, and beneficial compounds with potential health benefits beyond basic nutrition.

Examples: Berries (antioxidants), leafy greens (vitamins A/C/K, fiber), fatty fish (omega-3s), nuts/seeds, broccoli/cruciferous veggies, quinoa, turmeric (curcumin), and avocados. They support immunity, reduce inflammation, and aid disease prevention when part of a varied diet. No single food is "super"—focus on overall patterns.

2.2 Organic Contents of Food

Organic foods are produced without synthetic pesticides, fertilizers, GMOs, or certain additives. Nutritional differences vs. conventional are often small or inconsistent, but organics may have slightly higher antioxidants/vitamin C in some produce and better fatty acid profiles in milk/meat.

Benefits: Reduced pesticide exposure; environmental sustainability. Limitations: Higher cost; nutrient content varies by soil, variety, and handling. Prioritize whole foods regardless of label.

2.3 Introduction to Body Detoxification

The body naturally detoxifies via liver (Phase I/II metabolism), kidneys, lungs, skin, and gut. Toxins (endogenous like metabolic waste; exogenous like pollutants) are transformed and excreted.

Support via nutrition: Antioxidant-rich foods (fruits/veggies), fiber (binds toxins), cruciferous vegetables (sulfur compounds aid liver enzymes), hydration, and adequate protein. Extreme "detox diets" lack strong evidence and may be unnecessary or risky—focus on sustainable healthy eating.

2.4 Fat Diet, Fortified Foods

Dietary Fats: Provide 9 kcal/g; essential for energy, hormone production, vitamin absorption (A/D/E/K), and cell structure. Types: Unsaturated (healthy: olive oil, avocados, nuts, fish), saturated (limit), trans (avoid). Balance omega-3/6.

Fortified Foods: Nutrients added (e.g., iodine in salt, vitamins in cereals/milk, iron in flour) to address deficiencies and improve public health. Benefits: Combat widespread shortfalls. Caution: Can be high in sodium/sugar; not a substitute for whole foods.

UNIT 3: Fitness and Nutritive Value of Foods (20 Marks)

3.1 Methods for Calculations of BMR

Basal Metabolic Rate (BMR): Calories burned at rest for basic functions (breathing, circulation, etc.). Influenced by age, sex, weight, height, muscle mass.

Common formulas:

- **Harris-Benedict**: Men: 88.362 + (13.397 × wt kg) + (4.799 × ht cm) – (5.677 × age). Women: Similar adjusted coefficients.
- **Mifflin-St Jeor**: Often more accurate. Men: 10×wt + 6.25×ht – 5×age + 5. Women: 10×wt + 6.25×ht – 5×age – 161.
- **Katch-McArdle**: Uses lean body mass.

Total Daily Energy Expenditure (TDEE) = BMR × activity factor. Use for weight management.

3.2 Impact of Nutrition on Human Fitness

Nutrition fuels performance, recovery, and adaptation. Carbs for glycogen/energy, protein for muscle repair, fats for endurance, micronutrients for metabolism/oxygen transport.

- Pre-workout: Carbs/protein for energy.
- Post-workout: Protein + carbs for recovery.
- Hydration and electrolytes critical.
- Deficiencies impair strength, endurance, and immunity. Balanced diet + exercise optimizes body composition, reduces injury risk, and supports long-term health.

3.3 Nutritive Value of Foods

Refers to nutrient content (calories, macros, micros, fiber) per serving. Assessed via databases (e.g., USDA FoodData Central). Prioritize nutrient-dense foods (high nutrients, lower calories).

Examples: Vegetables/fruits (vitamins/fiber), lean proteins, whole grains. Labels and tables help compare; consider bioavailability and overall diet pattern.

UNIT 4: Well-being (15 Marks)

4.1 Mental Well-being with Meditation

Meditation trains attention/awareness, promoting mind-body integration. Benefits: Reduced stress/anxiety (lowers cortisol), improved mood/focus, better emotional regulation, pain management, and sleep.

Types: Mindfulness (present-moment awareness), loving-kindness (compassion), focused attention, etc.

4.2 Meaning and Implementation

Meaning: A practice for calm, self-awareness, and resilience. Not religious per se—accessible for wellness.

Implementation:

- Start simple: 5-10 minutes daily.
- Techniques: Sit comfortably, focus on breath, body scan, or guided apps.
- Integrate: Morning/evening routine, during breaks.
- Combine with nutrition/exercise for holistic wellbeing.
- Evidence-based benefits accumulate with consistency; consult resources for beginners.

Overall Course Tips: Emphasize balanced, sustainable habits. Careers involve applying this knowledge in community/hospital settings. Review with practical examples, calculations, and meal planning for exams.

Study Notes: Certificate Course on Knitting, Cutting, Stitching, and Embroidery (ADD ON-05), Assessment: End Semester (Theory + Practical) – 80 Marks; In-Semester – 20 Marks; Total Credits – 03; Duration – 6 months.

Course Objectives: To develop technical skills and knowledge in garment construction, enabling employability in small-scale tailoring units or self-employment as entrepreneurs. Emphasis is on practical competencies in measuring, pattern making, cutting, stitching, finishing, embroidery, and basic knitting.

UNIT 1: CUTTING (25 Marks)

1.1 Measuring

Accurate body measurement is the foundation of well-fitted garments.

- **Key measurements**: Bust, waist, hip, shoulder width, arm length (sleeve), neck circumference, length (garment), armhole depth, etc.
- Use a flexible measuring tape. Measure over undergarments. Take measurements twice for accuracy.
- Record individual/client measurements systematically. Note ease allowances (extra space for comfort/movement: 2-4 cm for bust/waist, more for loose fits).
- **Tips**: Stand straight, relax shoulders. For women, measure at fullest part of bust; for men, at chest. Common errors: loose tape or incorrect posture.

1.2 Making Patterns – Drafting, Marking, Cutting for Individual Measurement

- **Drafting**: Creating a basic pattern on paper (brown paper/newsprint) using measurements.
    - Use tools: Ruler, French curve, set square, tracing wheel.
    - Draft basic blocks (bodice, sleeve, skirt) and adapt for style.
- **Marking**: Transfer draft to fabric using tailor's chalk, carbon paper, or tracing wheel. Mark grain line (straight grain for stability), seam allowances (1-1.5 cm usually), notches, darts.
- **Cutting for individual measurement**: Cut along marked lines carefully.
    - Respect fabric grain (warp/weft) to prevent distortion.
    - For symmetric pieces, fold fabric and cut doubles.
- **Importance**: Proper pattern ensures fit and reduces fabric wastage.

1.3 Cutting Components with Hand Cutting Tools

- **Tools**: Tailor's scissors (bent handle for smooth cutting), pinking shears (for zigzag edges to prevent fraying), thread snips, rotary cutter (for straight lines).

- **Techniques**: Cut on flat surface. Hold fabric firmly. Cut with long, smooth strokes. Leave seam allowances. Cut notches for matching pieces.
- Handle delicate fabrics (silk, chiffon) with care; use weights to hold pattern.

1.4 Stitching by Hand (Functional Stitches)

Hand stitching is essential for preparation, finishing, and repairs.

- **Basting/Tacking**: Temporary long running stitches to hold layers. Remove after machine stitching.
- **Running Stitch**: Even small stitches for seams or gathering.
- **Back Stitch**: Strong, continuous stitch for seams (stronger than running).
- **Overcasting/Overlock**: Prevents fraying on raw edges. Diagonal stitches over edge.
- **Hem Stitches**: Invisible or decorative for folded edges (e.g., slip hem).
- **Slip Stitch**: Almost invisible for hems and joins.
- **Practice**: Use contrasting thread initially. Maintain even tension.

1.5 List of Dresses (Practical Focus)

- **Petticoat (4 and 6 panels)**:
  - 4-panel: Simpler, less flare.
  - 6-panel: More flare for volume under sarees/gowns. Draft waistband, panels with gores for flare. Gather or pleat at waist.
- **Plain Blouse**: Basic fitted bodice with darts, sleeves (short/half), front opening. Emphasizes proper dart placement for bust shaping and neckline finishing.

Unit Tips: Focus on accuracy in measurements (80% of fit depends on this). Practice drafting standard blocks before styling.

UNIT 2: EMBROIDERY (15 Marks)

Embroidery adds decorative value, enhances aesthetics, and can be a value-added skill for custom garments.

2.1 Basic Hand Embroidery Stitches

- Foundational stitches for outlining, filling, and edging. Practice on embroidery hoop with plain fabric and embroidery thread (6-strand floss, adjustable strands).
- Common basics: Running, back, stem (basic version), satin, cross stitch, etc.

2.2 Decorative Hand Embroidery Stitches

- **Stem Stitch**: For outlines and stems. Bring needle up, take short backward stitch along line, bring out halfway. Creates rope-like effect.
- **Blanket Stitch**: For edges, borders, appliqué. Even spacing creates blanket-like loops. Variants: Closed blanket for solid edges.
- **Chain Stitch**: Linked loops resembling chain. Useful for outlines, filling, and floral work. Start with anchor, loop each subsequent stitch through previous.

- **Lazy Daisy Stitch**: Detached chain for petals/leaves. Ideal for floral motifs. Pull loop, anchor with small stitch.
- **Herringbone Stitch**: Zigzag crossed stitches for borders, hems, or decorative seams. Even width and spacing key for neat appearance.

Practice Tips:

- Use embroidery hoop to keep fabric taut.
- Work from center outward.
- Combine stitches for motifs (e.g., stem + lazy daisy for flowers).
- Care: Wash gently; iron on reverse.
- Applications: Blouse necklines, saree borders, kids' wear, home furnishings.

UNIT 3: STITCHING (25 Marks)

Machine stitching is the backbone of garment construction for speed and strength.

3.1 Stitching by Machine – Straight, Curved, Cornered

- **Straight Stitch**: Basic seam. Set stitch length 2-3 mm. Backstitch at start/end for security.
- **Curved Stitch**: Reduce stitch length on curves (1.5-2 mm). Ease fabric, pivot gently. Use for armholes, necklines.
- **Cornered Stitch**: Pivot at corners. Stop with needle down, lift presser foot, turn fabric 90°, continue. Reinforce with backstitch.
- Machine settings: Tension, presser foot pressure, needle size (match fabric weight).

3.2 Finishing Seams by Hand and Machine

- Prevents fraying and gives professional look.
- **Machine**: Zigzag stitch, overlock (serger), French seam (enclosed), bound seam.
- **Hand**: Overcasting, pinking, turning under and stitching.
- **Types**: Plain seam, flat felled (jeans), lapped.

3.3 Fixing Fasteners

- **Buttons**: Mark position, reinforce with shank. Sew with stem for ease.
- **Hooks & Eyes**: For concealed closures (neck, waist). Sew securely.
- **Press Studs/Snap Fasteners**: For quick closures. Attach with tool or hand.
- **Tips**: Align properly. Use buttonhole foot for machine buttonholes.

3.4 Shaping a Garment by Darts, Pleats, Tucks, Gathering

- **Darts**: Triangular folds for contouring (bust, waist). Mark, fold, stitch tapering to point. Press towards center.
- **Pleats**: Folded fabric for fullness/control (knife, box, inverted). Even spacing crucial.
- **Tucks**: Narrow stitched folds for decoration or shaping.

- **Gathering**: Two rows of long basting stitches, pull threads to create fullness (sleeves, skirts). Distribute evenly.

3.5 Finishing Neckline

- **Methods**: Binding (bias tape), facing (shaped fabric), piping, collar attachment.
- Ensure smooth curve, no puckering. Understitch to prevent rolling.
- Common styles: Round, V, square, boat neck.

Unit Tips: Press at every stage (seams open or to one side). Match thread to fabric. Test tension on scrap.

UNIT 4: KNITTING (15 Marks)

Knitting creates stretchy, comfortable fabrics ideal for casual wear, winter garments, and accessories.

4.1 Different Knitting Stitches

- **Basic Stitches**:
  - **Knit (K)**: Insert right needle into stitch, wrap yarn, pull through.
  - **Purl (P)**: Opposite of knit; creates bumpy texture.
- **Common Patterns**:
  - Garter Stitch: All knit rows (ridges on both sides).
  - Stockinette/Stocking Stitch: Alternate knit and purl rows (smooth V on right side).
  - Rib Stitch (1x1 or 2x2): Knit-purl alternation for elasticity (cuffs, neckbands).
  - Moss/Seed Stitch: Alternating for textured look.
- Tools: Knitting needles (straight, circular), yarn (match weight), markers, tapestry needle for finishing.
- Tension: Maintain even gauge (stitches per inch) using swatch.

4.2 Knitting Design

- **Design Process**: Select pattern, calculate gauge, plan size, follow chart/instructions.
- Elements: Color work (Fair Isle, intarsia), cables, lace, shaping (increases/decreases for armholes, neck).
- **Basic Projects**: Scarves, caps, baby garments, sweater panels.
- **Applications in Garments**: Knitted collars, cuffs, trims on woven garments; full knitted dresses/sweaters.
- Care: Hand wash or gentle machine cycle; dry flat to prevent stretching.

Tips: Practice casting on/off, binding off. Read patterns carefully. Experiment with yarn types (wool, cotton, acrylic).

General Course Advice for Employability/Entrepreneurship:

- Practice on different fabrics (cotton, silk, wool, knits).
- Focus on quality finishing for professional output.
- Learn costing, fabric estimation, and client handling.
- Portfolio: Document completed garments (petticoat, blouse, embroidered pieces, knitted samples).
- Safety: Proper tool handling, ergonomics to avoid strain.
- Entrepreneurship: Start small with alterations, custom blouses, embroidery services, or knitted accessories.

Revision Strategy:

- Theory: Diagrams of stitches, pattern drafting steps.
- Practical: Daily practice sessions on each technique.
- Combine skills: Embroider a stitched blouse or add knitted trim.