Syllabus on Vocational Education and Training Course (VTC)

Semester III, IV & VI

Syllabus on Vocational Education and Training Course (VTC)

Paper Title	: Floriculture and Landscaping -I
CODE	: VTC: 241.1
Number of Credits	: 4
Semester	: III
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:

Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
					In-Semester		End-Semester	
					Theory	Practical	Theory	Practical
Floriculture and Landscaping - I	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	1. To acquaint the students with the fundamentals of flower cultivation, its importance and different components 2. To acquire knowledge and understanding on the importance and cultivation aspects of ornamental plants 3. To familiarize with principles and practices of propagation and nursery management for ornamental plants. 4. To identify the ornamental plants and develop skills in different methods of the plant propagation, nursery management, bonsai and flower arrangement. 5. To provide information about employment, business opportunities and other avenues in the Floriculture sector
Course Learning Outcome	After the completion of the course the students are able to: 1. describe the basics of ornamental horticulture and its cultivation aspects 2. use techniques of propagation and nursery management of ornamental plants

	3. develop skills on flower arrangement, bonsai making 4. identify tools and equipment used in gardening
Unit I: (Theory) **15 Hours**	• Definitions, scope and importance of ornamental horticulture. • Floriculture industry and its components, area and production, acquaintance with different types of ornamental plants, its classification,designvaluesandgeneralcultivationas pects*viz.*annuals,biennials, trees, shrubs, climbers, indoor plants, cacti and succulents, herb aceous perennials ,grasses and bulbous ornamentals, propagation and nursery management, growing media. • Importance of flower arrangement, its different styles and type, selection of flowers and cut foliage for arrangement, study of roof garden, water garden, vertical garden, bottle garden, terrariums, dish garden, indoor garden, butterfly garden. • Bonsai- concepts, techniques and maintenance
UNIT-II: (Practical) **30 Hours**	• Identification and description of annuals,biennials, trees, shrubs, climbers, indoor plants, cacti and succulents, herbaceous sperennials, grasses and bulbous ornamentals. • General cultivation aspects and uses of ornamental plants • Study and identification of various tools and implements
UNIT-III: (Practical) **30 Hours**	• Practices of various propagation techniques *viz.* cuttings, budding, grafting, layering, etc. • Planning and layout of nursery • Preparation of nursery beds and raising of ornamental plants • Identification of growing media and preparation of media for raising ornamental plants • Visit to commercial nursery units
UNIT-IV: (Practical) **30 Hours**	• Identification and selection of flowers, containers for floral arrangement • Practices on preparation of different types/styles of flower arrangement

	• Techniques of bonsai making and its cultural practices • Projectwork on any topic mentioned above
Suggested Readings	1. Arora, J.S. 2006. Introductory Ornamental Horticulture. Kalyani Publishers, Ludhiana 2. Bose, Chowdhury and Sharma. 1991.Tropical Garden Plants in colour. Horticulture and allied publishers, 3D Madhab Chatterjee street Kolkata. 3. Bose, T.K. Mukherjee, D. 2004. Gardening in India. Oxford & IBH Publishers. 4. Chadha, K.L. and Chaudhary, B. 1986. Ornamental Horticulture in India. Publication and Information division. ICAR, New Delhi. 5. Chowdhury Bimal Das and Balai Lal Jana.2014.Flowering Garden trees. Pointer publishers, Jaipur. India. 6. Peter.K.V. 2009.Ornamental plants. New India publishing agency, Pitampura, New Delhi. 7. Randhawa, G.S. Amitabha Mukhopadhyay, 2004. Floriculture in India. Allied Publishers Pvt. Ltd., New Delhi. 8. Tiwari A.K. and R. Kumar. 2012. *Fundamentals of ornamental horticulture and landscape gardening*. New India
Requirements	1. Nursery and Greenhouse 2. Gardens 3. Propagation Unit 4. Floral Arrangement Workshop 5. Bonsai Studio **Tools and Equipment** 1. Horticultural Tools 2. Planting Equipment 3. Growing Media **4.** Floral Arrangement Supplies **Additional Facilities** 1. Computer Lab 2. Field Visit Arrangements 3. Administrative Office 4. Safety and First Aid **Any other item as required**
Qualified Instructors	• Instructors with experience in Floriculture and Landscaping and teaching. • Certifications or relevant qualifications in Floriculture and Landscaping

Paper Title	: Floriculture and Landscaping -II							
CODE	: VTC: 261.1							
Number of Credits	: 4							
Semester	: IV							
No. of Theory Hours Per Week	: One (1 hour)							
No. of Practical Hours per Week	: Three (3 Hours)							

Outline of the Paper:

Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
					In-Semester		End-Semester	
Floriculture and Landscaping - II					Theory	Practical	Theory	Practical
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40
	: External Assessment: 60
Course Objectives	1. To impart basic knowledge about the importance and management of commercial flowers grown in India.
	2. To explain the principles, theoretical aspects and developing skills in protected cultivation of flower crops
	3. To train manpower in acquiring skills of value addition in flowers.
Course Learning Outcome	After completion of the course students are able to:
	1. develop the required skills on production and management of commercial flower crops
	2. explain the process of production and post-harvest management of commercial flowers.
	3. identify on protected structures, cultivation of crops under protection and its management
	4. develop practical skills on the preparation of various value-added products from flower crops
	5. design, prepare and apply appropriate combinations of plants and methods of cultivation for commercial setup

Unit I: (Theory) **15 Hours**	• Scope and importance of commercial floriculture in India. Commercial cultivation of the rose, marigold, chrysanthemum, gladiolus, tuberose, orchid, carnation, gerbera, anthurium, bird of paradise, lilium, china aster for domestic and export market, plant protection, postharvest management and handling. • Protected cultivation- its classification, types, design and erection of structures, management and manipulation of environment in protected structures. • Drying and dehydration of flowers; preparation of value-added products from flowers
UNIT-II: (Practical) **30 Hours**	• Identification of commercially important floricultural crops. • Special horticultural practices in commercial crops. • Determination of harvest indices and harvesting methods, postharvest handling, packing methods
UNIT-III: (Practical) **30 Hours**	• Study of various protected structures and practices in design, layout and erection of different types of structures • Microclimate management: different methods to control temperature, carbon dioxide and light • Visit to commercial nurseries, cut flower production enterprises, flower shows, flower markets.
UNIT-IV: (Practical) **30 Hours**	• Identification and study of plants suitable for drying and dehydration • Practices on drying and dehydration of flowers by different techniques • Preparation of value-added products from fresh flowers, dried flowers, processed products, etc.
Suggested Readings	1. Arora JS. 2010. Introductory Ornamental Horticulture. Kalyani Publishers. 6th edition, pp. 230. 2. Bhattacharjee SK. 2018. Advances in Ornamental Horticulture. Vols. I-VI. Pointer Publ. Reprint, pp. 2065. 3. Bose TK and Yadav LP. 1989. Commercial Flowers. Naya Prokash, Kolkata, India. 4. Bose TK, Maiti, RG, Dhua RS and Das P. 1999. Floriculture and Landscaping. Prokash, Kolkata, India. 5. Chadha KL and Bhattacharjee SK. 1995. Advances in Horticulture: Ornamental Plants. Vol. XII, Parts 1 & 2. pp. 533, pp. 574. Malhotra Publ. House, New Delhi, India. 6. Chadha KL and Chaudhury B. 1992. Ornamental Horticulture in India. ICAR, New Delhi, India. 7. Larson RA. 1980. Introduction to Floriculture.

	New York Academic Press. pp. 628. 8. Laurie A and Rees VH. 2001. Floriculture-Fundamentals and Practices. Agrobios Publications, Jodhpur. pp.534. 9. Prasad S and Kumar U. 2003. Commercial Floriculture. Agrobios Publications, Jodhpur. 10. Randhawa GS and Mukhopadhyay A. 2001. Floriculture in India. Allied Publ. pp 660. 11. Reddy S, Janakiram T, Balaji Kulkarni S and Misra RL. 2007. Hi- Tech Floriculture. Indian Society of Ornamental Horticulture, New Delhi, India. 12. Singh AK. 2006. Flower Crops: Cultivation and Management. New India Publ. Agency, New Delhi, India
Requirements	**Floriculture Lab** **Greenhouse and Protected Cultivation Facilities:** 1. Greenhouses/Polyhouses 2. Climate Control Systems. **Field Facilities:** 1. Cultivation Plots 2. Nurseries **Postharvest Handling and Processing Facilities:** 1. Processing Units 2. Packaging Units **Supporting Facilities:** 1. Storage Rooms 2. Tool Rooms 3. Library **IT and Digital Facilities:** • Computer Labs • Internet Access **Any other item as required**
Qualified Instructors	• Instructors with experience in Floriculture and Landscaping and teaching. • Certifications or relevant qualifications in Floriculture and Landscaping

Paper Title	: Floriculture and Landscaping -III
CODE	: VTC: 361.1
Number of Credits	: 4
Semester	:VI
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:

Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
					In-Semester		End-Semester	
Floriculture and Landscaping III					Theory	Practical	Theory	Practical
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	1. To teach students the basic knowledge required to develop entrepreneurship skills in the development of nursery, gardening and landscaping 2. To familiarize with principles and practices of landscaping and ornamental gardening. 3. To build human resources as landscape designers, supervisors, gardeners and entrepreneurs in the area of landscaping
Course Learning Outcome	After completion of the course students are able to: 1. explain basic constituents of grape, wine and their storage stability 2. demonstrate the Microbial techniques for wine 3. evaluate the quality of wine
Unit I: (Theory) 15 Hours	**Landscape Gardening** • History of gardening, Styles of gardening-formal, informal, free style and wild gardens. • Steps in preparation of garden design. • Use of Auto CAD and Arch CAD in designing gardens. Principles and elements of landscape design.

	Importance, design and establishment of garden features/components. • Importance of garden adornments. • Bio aesthetic planning, avenue planting, urban landscaping, landscaping for important public places. • Specialized gardens- rock garden, bog garden, sunken garden, clock garden, sacred groves, etc
UNIT-II: (Practical) **30 Hours**	• Identification and selection of ornamental plants • Study of graphic symbols and notations in landscaping designing and use of drawing equipment • Layout and planning for styles of gardening • Practices in preparing design for home gardens, institutional gardens, public places, etc.
UNIT-III: (Practical) **30 Hours**	• Study of the garden components/features and garden adornments • Practices in planning and planting of special types of garden – rock garden, sunken garden, bog garden, dish garden, terrariums, etc. • Identification of different types of lawn grasses • Practices in laying out a lawn
UNIT-IV: (Practical) **30 Hours**	• Concept and Application of Computer aided Designing (CAD) for landscape designing • Preparation of landscape designs for school and college using CAD technology • Visit to parks and botanical gardens
Suggested Readings	1. Arora, J.S. 2006. Kalyani publishers, Ludhiana. Introductory Ornamental Horticulture. Kalyani publishers, Ludhiana. 2. Bose, T.K. Malti, R.G. Dhua, R.S. & Das, P. 2004. Nayaprakash, Calcutta. Floriculture and Landscaping 3. De, L.C. 2012. Handbook of Gardening, Aavishkar Publishers, Jaipur 4. De,L.C.. Nursery and landscaping.2013. Pointer publishers, Jaipur India. 5. Grewal H.S. and Parminder Singh. 2014. Landscape designing and ornamental plants 6. Randhawa GS & Mukhopadhyay A. 1986. Floriculture in India. Allied Publishers. 7. Randhawa, G.S. and Amitabha Mukhopadhyay 2004. Floriculture in India. Allied Publishers Pvt. Ltd., New Delhi. 8. Roy R.K. Fundamentals of Garden designing. 2013. New India publishing agency, Pitampura, New Delhi. 9. Sabina GT & Peter KV. 2008. Ornamental Plants. New India Publishing Agency, New Delhi.

	10. Srivastava.Rajesh 2014. Fundamentals of Garden designing. Agrotech press, Jaipur, New Delhi. 11. Sundaram, v. 2016. Textbook on Commercial flowers and Ornamental Gardening. Kalyani Publishers 12. Syamal, M.M. 2014. Commercial Floriculture. Jaya Publishing House, New Delhi 13. Tiwari A.K. and R. Kumar. 2012. Fundamentals of ornamental horticulture and landscape gardening. New India.
Requirements	**Classroom Facilities** • **CAD Labs**: Computer labs with AutoCAD, ArchiCAD, and other relevant landscape design software. **Laboratory and Workshop Facilities:** 1. Landscape Design Lab 2. Horticulture Lab **Outdoor Facilities:** 1. Demonstration Gardens 2. Specialized Gardens **Practical Training Facilities:** 1. Garden Components and Features Area 2. Lawn Areas 3. Avenue Planting and Urban Landscaping Zones **Supporting Facilities:** 1. Tool and Equipment Storage. 2. Plant Protection and Care Facilities **IT and Digital Facilities:** 1. High-Speed Internet Access **2.** Printing and Plotting Equipment **Field Visit Arrangements:** 1. Transportation **2.** Partnerships with Local Parks and Gardens **Any other item as required**

Qualified Instructors	- Instructors with experience in Floriculture and Landscaping and teaching. - Certifications or relevant qualifications in Floriculture and Landscaping

Syllabus on Vocational Education and Training Course (VTC)

Paper Title	: Mushroom Cultivation -I
CODE	: VTC: 241.2
Number of Credits	: 4
Semester	: III
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:								
Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
					In-Semester		End-Semester	
Mushroom Cultivation-I					Theory	Practical	Theory	Practical
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	1. To enrich the students with basic information of mushrooms, 2. To enable them to identify edible and poisonous mushrooms 3. To provide exposure on various aspects of mushroom cultivation through field visits.
Course Learning Outcome	At the end of the course students will be able to: • identify edible and poisonous mushrooms • demonstrate the aspects of production and processing of mushrooms.
Unit I: (Theory) 15 Hours	• Introduction, history and scope of mushroom cultivation; Common edible mushrooms; Other economically important and medicinal mushrooms; • Different parts of a typical mushroom & variations in mushroom morphology;

	• Characters of edible and poisonous mushrooms; • Mushroom classification based on occurrence, Natural habitats, Colour of spores, Morphology, Structure and texture of fruit bodies; Nutritional and health benefits of mushrooms.
UNIT-II: (Practical) **30 Hours**	• Identification of edible and poisonous mushrooms (specimen/chart). • Study of nutritional profile of common edible mushrooms. • Study of general morphology, distinguishing characteristics, spore germination and life cycle of common edible mushrooms
UNIT-III: (Practical) **30 Hours**	• Determination of soil temperature, soil moisture content, soil pH etc • Identification of different parts of mushroom • Classification of mushroom
UNIT-IV: (Practical) **30 Hours**	• Visit to mushroom production unit • Visit to mushroom processing unit • Visit to spawn production unit.
Suggested Readings	1. Biswas, Subrata M. Datta, S. V. Ngchan. (2012) Mushrooms: A manual for Cultivation. PHI Learning Pvt Ltd. 2. Gogoi, R. Y. Rathaiah, T.R. Borah. (2006). Mushroom cultivation technology, Scientific Publishers, Jodhpur, India. 3. Kannaiyan S. & Ramasamy K. (1980). A hand book of edible mushrooms, Today & Tomorrows printers & publishers, New Delhi. 4. Nita, B. (2000). Handbook of Mushrooms. Vol 1 & 2. Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi. 5. Pandey, R.K. and Ghosh, S.K. (1996). A handbook of Mushroom Cultivation. Emkey Publication. 6. Som, D. 2021. A Practical Manual on Mushroom Cultivation. P.K. Publisher and Distributor. 7. Tripathi, D.P (2005). Mushroom Cultivation. Oxford & IBH Publishing Co. Pvt. Ltd, New Delhi.
Requirements	• Microscopes • Charts and specimens • Tools for studying nutritional profiles • Growing chambers or areas for cultivating mushrooms.

	- Soil testing kits (for temperature, moisture content, pH). - Equipment for measuring environmental factors (light, humidity). - Specimens of mushrooms for hands-on identification **Any other item as and when required**
Qualified instructors	- Qualified instructors with expertise in mushroom cultivation and related fields. - Support staff for maintaining equipment and facilities

Paper Title	: Mushroom Cultivation -II
CODE	: VTC: 261.2
Number of Credits	: 4
Semester	: IV
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:

Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
					In-Semester		End-Semester	
					Theory	Practical	Theory	Practical
Mushroom Cultivation-II	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40
	: External Assessment: 60
Course Objectives	1. To impart knowledge on the different aspects of cultivation of common edible mushrooms 2. To identify problems encountered during cultivation and management strategies.
Course Learning Outcome	At the end of the course students are able to: 1. create a mushroom cultivation unit. 2. apply various procedures required for cultivation of common edible mushrooms 3. detect diseases and pests effectively.
Unit I: (Theory) 15 Hours	• Principles of mushroom cultivation: Structure and construction of mushroom house (small village unit and large commercial unit), Sterilization of substrates; • Spawn production: culture media preparation, preparation of mother spawn, production of planting spawn, storage and transportation of spawn, criteria for selection of good quality spawn; Cultivation of Button, • Oyster and Straw Mushrooms: Collection of raw materials, compost & composting, spawn &

	spawning methods —bed method, Polythene bag method, field cultivation; • Casing & case run: importance of casing mixture, quality parameters of casing soil, different types of casing mixtures and commonly used materials; cropping & crop management, picking & packing. • Problems in cultivation - diseases, pests, nematodes, weed moulds and their management strategies.
UNIT-II: (Practical) **30 Hours**	• Preparation of compost using paddy straw and mushroom bed preparation. • Spawning using different methods, spawn running and harvesting. • Preparation of casing mixture, casing and case run. • Sterilization and sanitation of mushroom house, instruments and substrates.
UNIT-III: (Practical) **30 Hours**	• Introduction to microbiology laboratory, Laminar air flow, Autoclave etc. • Preparation of mother culture, media, inoculation, incubation and spawn production. • Study of common diseases, pests, nematodes and their management strategies during mushroom cultivation.
UNIT-IV: (Practical) **30 Hours**	• Cultivation of Paddy straw mushroom. • Cultivation of Oyster mushroom using paddy straw. • Cultivation of Button mushroom.
Suggested Readings	1. Ahlawat, O.P. R.P. Tewari (2007). Cultivation technology of Paddy straw Mushroom. National Research Centre for Mushroom (ICAR), Chambaghat, Solan, India. 2. Biswas, Subrata M. Datta, S. V. Ngchan. (2012) Mushrooms: A manual for Cultivation. PHI Learning Pvt Ltd. 3. Gogoi,R. Y. Rathaiah, T.R. Borah. (2006). Mushroom cultivation technology, Scientific Publishers, Jodhpur, India. 4. Gupta P. K. Elements of Biotechnology. Rastogi Publications. 5. Som, D. 2021. A Practical Manual on Mushroom Cultivation. P.K. Publisher and Distributor.

	6. Tripathi, D.P (2005). Mushroom Cultivation. Oxford & IBH Publishing Co. Pvt. Ltd, New Delhi.
Requirements	1. Mushroom Cultivation Area: 2. Sterilization Facilities: 3. Microbiology Laboratory: 4. Disease Management: **Any other item as required**
Qualified instructors:	• Qualified instructors with expertise in mushroom cultivation and related fields. • Support staff for maintaining equipment and facilities

Paper Title	: Mushroom Cultivation -III
CODE	: VTC: 361.2
Number of Credits	: 4
Semester	:VI
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:

Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
					In-Semester		End-Semester	
					Theory	Practical	Theory	Practical
Mushroom Cultivation-III								
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40
	: External Assessment: 60
Course Objectives	1. To explain on preparation of various value-added products from mushroom and funding opportunities in Mushroom Cultivation.
Course Learning Outcome	At the end of the course students are able to: 1. prepare and present proposals on mushroom and spawn production 2. prepare value added products from mushroom. 3. identify the economics of mushroom cultivation. 4. demonstrate the economics of value-added products from mushroom.
Unit I: (Theory) 15 Hours	• Post-harvest management and processing of mushrooms: Blanching, Steeping, sun drying, canning, pickling, freeze drying; packaging; Storage-short term and long term; Marketing • Economics of mushroom cultivation; Economics of processed products of mushrooms. • Application of Artificial Intelligence in mushroom cultivation.
UNIT-II: (Practical)	• Sterilization of glasswares, equipments etc.

30 Hours	• Blanching, Steeping, sun drying of mushrooms. • Freeze drying of mushrooms. • Packaging of mushrooms.
UNIT-III: (Practical) **30 Hours**	• Pickling of mushrooms. • Study of storage life of processed mushrooms. • Economics of processed products of mushroom.
UNIT-IV: (Practical) **30 Hours**	• Economics of Mushroom cultivation and spawn production. • Visit to various financial funding agencies. • Preparation of project proposal for mushroom cultivation and spawn production.
Suggested Readings	1. Biswas, Subrata M. Datta, S. V. Ngchan. (2012) Mushrooms: A manual for Cultivation. PHI Learning Pvt Ltd. 2. Gogoi,R. Y. Rathaiah, T.R. Borah. (2006). Mushroom cultivation technology, Scientific Publishers, Jodhpur, India. 3. Hand Book of Mushroom Cultivation, Processing and Packaging, Eiri Staff, Engineers India Research Institute (2007) 4. Pathak, V.N. Nagendra Yadav and Maneesha Gaur (2010). Mushroom Production and Processing Technology. Published by Agrobios (India). 5. Rai R.D. and T. Arumuganathan (2008). Post-Harvest Technology of Mushrooms, Technical Bulletin 2008, NRCM, ICAR, Chambaghat, Solan1731213, (H.P.). 6. Revathy, N. A. Vijayasamundeeswari, V.M. Indumathi, V. Gomathi Mushroom Cultivation (Paperback,), Shanlax Publications, ISBN: 9789390082735, Edition: 1, 2020 7. Som, D. 2021. A Practical Manual on Mushroom Cultivation. P.K. Publisher and Distributor. 8. Tripathi, D.P. (2005). Mushroom Cultivation. Oxford & IBH Publishing Co. Pvt. Ltd, New Delhi.
Requirements	• Microscopes • Charts and specimens • Tools for studying nutritional profiles • Growing chambers or areas for cultivating mushrooms. • Soil testing kits (for temperature, moisture content, pH). • Equipment for measuring environmental factors (light, humidity). • Specimens of mushrooms for hands-on identification

	• **Any other item as and when required**
Qualified instructors	• Qualified Instructors with expertise in mushroom cultivation and related fields. • Support staff for maintaining equipment and facilities

Syllabus on Vocational Education and Training Course (VTC)

Paper Title	: Web Designing -I
CODE	: VTC: 243.1
Number of Credits	: 4
Semester	: III
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:

Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
					In-Semester		**End-Semester**	
					Theory	Practical	Theory	Practical
Web Designing - I								
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	1. Develop skills in designing and creating websites using essential tools and technologies for web development. 2. Distinguish between front-end and back-end development roles and responsibilities. 3. Implement front-end development techniques using HTML, CSS, and JavaScript to build interactive and visually appealing web pages. 4. Manage server-side processes and database interactions to ensure robust and secure back-end functionality. the front-end.
Course Learning Outcome	After the completion of the course the students are able to: 1. use fundamental skills to maintain web server services required to host a website

	2. select and apply mark-up languages for processing, identifying, and presenting information in web pages
	3. use scripting languages and web services to transfer data and add interactive components to web pages
	4. create and manipulate the web Employ media objects using editing software
	5. combine multiple web technologies to create advanced web components
	6. design websites using appropriate security principles, focusing specifically on the vulnerabilities inherent in common web implementations.
Unit I: (Theory) **15 Hours**	**Introduction to Web Technology and Web Designing** • **Web Technology**: HTTP; System Architecture of a Web server; Client-side Scripting versus Server-side Scripting. • **Introduction to HTML**: What is HTML- HTML Documents- Basic structure of an HTML document. CSS: What is CSS, Structure of CSS. Advantages of CSS. • **Javascripts:** What is JavaScript? -Client-Side JavaScript -Advantages of JavaScript-Limitations of JavaScript.
UNIT-II: (Practical) **30 Hours**	**Hyper Text Markup Language (HTML5)** **1. HTML5 Basics:** Structure of an HTML5 document (<!DOCTYPE html>, <html>, <head>, <title>, <body>), Semantic elements (<header>, <nav>, <section>, <article>, <footer>, etc.) **2. Text and Multimedia:** Text formatting (headings, paragraphs, emphasis, etc.),Adding images (<img> tag) and multimedia content (<video>, <audio> tags), Using HTML entities for special characters **3. Links, Lists, and Tables:** Creating hyperlinks (<a> tag) and anchor links,Lists (unordered , ordered , and definition <dl> lists),Creating tables (<table>, <tr>, <th>, <td>) **4. Forms and Input Elements:** Building forms (<form> tag) with various input types (text, password, email, etc.), Radio buttons, checkboxes, and dropdown lists,Form validation using HTML5 attributes (required, pattern, min/max, etc.)

	5. Media and Embedding: Embedding multimedia content (videos, audio) from external sources, Using the <iframe> tag for embedding content from other websites **6. HTML5 APIs :**Geolocation API for obtaining user location, Canvas API for drawing graphics and animations, Local Storage and Session Storage for client-side data storage **7. Accessibility and SEO:** Importance of semantic HTML for accessibility and SEO, Using ARIA attributes for enhancing accessibility, Optimizing HTML for search engines (meta tags, title tags, alt attributes) **8. Responsive Design and Mobile Compatibility:** Creating responsive layouts using HTML5 and CSS3, Meta viewport tag for mobile responsiveness, Mobile-friendly forms and input elements **9. Advanced HTML5 Features:** Web components and custom elements,Drag and drop functionality, Web storage (local Storage, session Storage)
Suggested Practical Assignment:	**1. Create a Web Page Structure:** Design a web page structure using HTML5 semantic elements such as <header>, <nav>, <section>, <article>, <footer>, and <aside>. **2.** Create a web page for a cake shop to display all the different types of cakes and price to choose from. **3. Multimedia Embedding:** Embed an audio or video file using the <audio> or <video> tag with appropriate attributes like controls, autoplay, and loop. **4. Responsive Image Gallery:** Build a responsive image gallery using HTML5 <figure> and <figcaption> elements. Ensure that the gallery adjusts smoothly on different screen sizes. **5. Interactive Form Validation:** Develop an HTML5 form with input fields like text, email, password, and a submit button. Implement HTML5 form validation using attributes like required, pattern, and min/max. **6.** Create a HTML page with controls to take data for a College Admission with all the proper validations in the form. **7. Geolocation API Integration:** Implement the HTML5 Geolocation API to display the user's current location on a map or show nearby places based on latitude and longitude.

	8. Local Storage Usage: Create a web page that allows users to store data locally using HTML5 localStorage or session Storage. Develop functionality to add, edit, and delete stored items. **9.** Create a HTML Page to display the number of the times the web page was visited using local storage. **10. Semantic Markup for SEO:** Optimize an existing web page for search engines using semantic HTML5 tags. Use <header>, <nav>, <main>, <article>, <section>, <aside>, and <footer> tags appropriately.
UNIT-III: (Practical) **30 Hours**	**Cascading Style Sheets (CSS)** **1. Introduction to CSS:** What is CSS? Importance and benefits, CSS syntax: selectors, properties, and values, External, internal, and inline CSS **2. CSS Selectors and Specificity:** Basic selectors: element selectors, class selectors, ID selectors, Combinators: descendant, child, adjacent sibling, general sibling, Pseudo classes and pseudo-elements, CSS specificity and inheritance **3. CSS Box Model:** Understanding the box model: content, padding, border, margin, Box sizing: content-box vs. border-box, Margin collapsing **4. Layout and Positioning:** Display property: block, inline, inline-block, flex, grid, Position property: static, relative, absolute, fixed, sticky, Floats and clearing floats, CSS Grid and Flexbox layouts **5. Typography and Fonts:** Font properties: font-family, font-size, font-weight, font-style, line-height, Text properties: color, text-align, text-decoration, text-transform, letter spacing, word-spacing, Google Fonts and custom font usage **6. Colors and Backgrounds :**Color values: named colors, hexadecimal, RGB, RGBA, HSL, HSLA, Background properties: background-color, background-image, background repeat, background-position, background-size **7. Responsive Design and Media Queries:** Responsive design principles, Media queries syntax and usage, Designing responsive layouts for different screen sizes (mobile-first approach**)** **8. CSS Transitions and Animations:** Transition properties: transition-property, transition duration, transition-timing-function, transition-delay, CSS animations: keyframes, animation properties,

	animation-duration, animation-timing-function, animation-delay **9. Flexbox and Grid Layouts:** Flexbox properties: flex-direction, justify-content, align items, align-self, flex-grow, flex-shrink, CSS Grid properties: grid-template-columns, grid-template-rows, grid-gap, grid-template-areas **10. CSS Frameworks and Preprocessors:** Introduction to CSS frameworks (Bootstrap, Tailwind),Overview of CSS preprocessors (Sass): variables, mixins, nesting, inheritance **11. Advanced CSS Techniques:Transformations:** translate, rotate, scale, skew, CSS variables (custom properties), CSS gradients, shadows, and filters,Cross-browser compatibility and vendor prefixes
Suggested Practical on the topics	**1. CSS Selectors and Box Model:** ○ Create a webpage with different elements styled using basic selectors, class selectors, and ID selectors. Apply different properties such as background color, padding, border, and margin to understand the box model. **2. Layout and Positioning:** ○ Design a web page layout using CSS display properties (e.g., flexbox or grid) for header, navigation, content, and footer sections. Use positioning (static, relative, absolute) to position elements within the layout. **3. Typography and Fonts:** ○ Style text on a webpage with different font families, sizes, weights, styles, colors, and text alignments. Experiment with line height, letter spacing, and text decorations. **4. Colors and Backgrounds:** ○ Create a webpage with various background colors, gradients, images, and patterns. Apply different background properties such as background-size, background-position, and background-repeat. **5. Responsive Design with Media Queries:** ○ Develop a responsive webpage that adjusts its layout and styling based on different screen sizes using media queries. Test the responsiveness on mobile devices and desktop screens. **6. CSS Transitions and Animations:**

	○ Add transitions to elements (e.g., hover effects) using CSS transition properties (transition-duration, transition-property, transition-timing-function). simple animations using keyframes and animation properties. **7. Flexbox and Grid Layouts:** ○ Design a webpage layout using CSS Flexbox properties (flex-direction, justify content, align-items) for a navigation menu or card-based layout. Create a grid based layout using CSS Grid properties (grid-template-columns, grid-templaterows, grid-gap). **8. Customizing CSS Frameworks:** ○ Customize a CSS framework (e.g., Bootstrap) by modifying variables, adding custom styles, and overriding default styles to create a unique design. **9. Advanced CSS Techniques:** ○ Implement CSS transformations (translate, rotate, scale, skew) on elements to create interactive effects. Use CSS gradients, shadows, and filters to enhance visual elements. ○ Optimize CSS code by minifying, concatenating, and compressing stylesheets. Use browser developer tools to debug and optimize CSS for performance.
UNIT-IV: (Practical) **30 Hours**	Java Scripts 1. **JavaScript Basics** :JavaScript syntax: variables, data types, operators, expressions, statements, Functions: defining functions, function expressions, arrow functions, Control flow: if statements, switch statements, loops (for, while) **2. Arrays and Objects:** Arrays: creating arrays, accessing elements, array methods (push, pop, shift, unshift, slice, splice),Objects: creating objects, object properties, methods, constructor functions, prototypes **3. DOM Manipulation:** Accessing DOM elements: get Element ById, querySelector, querySelectorAll, Manipulating DOM elements: changing content, styles, attributes, adding/removing elements **4. Events and Event Handling:** click, mouseover, keydown, submit, etc. Event listeners: adding event listeners, event propagation (bubbling, capturing) Handling user interactions with events

	5. Forms and Validation: Working with HTML forms in JavaScript, Form validation: validating input fields, displaying error messages, preventing default form submission **6. Error Handling:** Handling errors in JavaScript: try-catch blocks, Debugging JavaScript code using browser developer tools
Suggested Practical Assignments	**1. Basic JavaScript Concepts:** ○ Write JavaScript code to declare variables of different data types (string, number, boolean). ○ Implement arithmetic operations, comparison operators, and logical operators in JavaScript. **2. Functions and Control Flow:** ○ Create a function to calculate the factorial of a number using recursion. ○ Write a JavaScript program to check if a number is prime or not using a function. ○ Write a Javascript program to print all the perfect numbers from 1 to n. **3. Arrays and Objects:** ○ Create an array of numbers and write JavaScript code to find the sum, average, maximum, and minimum value in the array. ○ Define an object representing a person with properties like name, age, and country. Use object methods to display information about the person. **4. DOM Manipulation and Events:** ○ Build an HTML form with input fields for username and password. Use JavaScript to validate the form on submission and display appropriate messages. ○ Create a webpage with a button that changes the background color of a div element when clicked using event handling. **5. Project-Based Assignments:** ○ Choose a project idea (e.g., interactive quiz, weather app, budget tracker) and implement it using JavaScript. Use concepts learned throughout the syllabus to build the project.
Suggested Readings	1. David Flanagan, "JavaScript: The Definitive Guide" by, O'Reilly Media. 2022. 8th Edition 2. Elizabeth Castro and Bruce Hyslop, "HTML and CSS: Visual QuickStart Guide", Peachpit Press, 9th Edition 3. Jennifer Niederst Robbins, "Learning Web Design: A Beginner's Guide to

	HTML, CSS, JavaScript, and Web Graphics". 4. Marijn Haverbeke, "Eloquent JavaScript: A Modern Introduction to Programming".
Requirements	• Computers • Software • Internet Access • External Storage • Printers and Scanners • Projector and Screens • **Any other item as required**
Qualified Instructors	• Instructors with experience in Web Designing and teaching. • Certifications or relevant qualifications in Web Designing

Paper Title	: Web Designing -II
CODE	: VTC: 263.1
Number of Credits	: 4
Semester	:IV
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:

Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
Web Designing - II	VTC				In-Semester		End-Semester	
					Theory	Practical	Theory	Practical
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	1. The course is designed to impart knowledge and skill to the students to learn and know the principles and techniques of programming for the Web. 2. This course aims to build in the students a web programming knowledge using PHP and MySQL and Laravel Framework.
Course Learning Outcome	After completion of the course students are able to: 1. Gain a strong foundation in PHP programming language, including variables, data types, operators, control structures, functions, and arrays. 2. Learn how to handle forms, process user input, validate data, and interact with databases using PHP. 3. Master the Laravel framework and its key components such as routing, controllers, views, models, migrations, and middleware. 4. Understand Laravel's MVC (Model-View-Controller) architecture and how to use it to build scalable and maintainable web applications. 5. Learn how to integrate PHP and Laravel applications with databases (e.g., MySQL) and perform CRUD operations using Laravel's

	6. Gain proficiency in defining database relationships, designing schemas, and using migrations for database management.
Unit I: (Theory) **15 Hours**	**Introduction to Server side Technology (Theory)** • **Server-side technology**: Overview of server-side vs. client-side technologies, Common server side languages and frameworks, Introduction to PHP and its role in web development, Setting up a development environment (e.g., XAMPP, WAMP). • **Database:** Overview of relational databases and Mysql, Advantages to Mysql. • **Frameworks:** What is a web frameworks ,Introduction to Laravel framework,History and evolution of Laravel, Features and advantages of using Laravel
UNIT-II: (Practical) PHP **30 Hours**	• **PHP:** Conditions and Branches, Loops, Functions, Working with types,User-defined Functions, Arrays, Strings and Advanced Data Manipulation in PHP, Arrays, Strings, Regular Expressions, Dates and Times, Integers and Floats. • **Object-Oriented Programming with PHP :** Classes and Objects, Inheritance, Throwing and Catching Exceptions Advance Features of Object-Oriented Programming in PHP : Working with Class Hierarchies, Abstract Classes and Interfaces.Session and Cookies in PHP. • **File Handling:** File open,close,read and write, File Manipulation (Rename,delete copying file), Uploading of files.
UNIT-III: (Practical) **30 Hours**	**Introduction to MySQL with PHP** • Working with MySQL: Database Basics, MySQL Command Interpreter, Managing Databases and Tables, Inserting, • Updating and Deleting Data, Querying with SQL SELECT, Join Queries, Querying Web Databases, Querying a MySQL Database using PHP, • Processing User Input Writing to Web Databases, Database Inserts, Updates and Deletes, • Issues in Writing Data to Database
UNIT-IV: (Practical) **30 Hours**	**PHP Frameworks** • **Introduction to Laravel: Overview** of Laravel framework, Installation and setup, basic folder structure, Introduction to MVC architecture.

	• **Routing and Controllers:** Routing basics, Route parameters, Route naming, Creating and using controllers, Controller methods. • **Views and Blade Templating:** Views in Laravel, Introduction to Blade templating, Blade directives and control structures, Blade layouts and partials. • **Database Integration:** Database configuration in Laravel, Using Eloquent ORM for database operations, Defining models and relationships, Querying the database using Eloquent. **Forms and Validation:** Creating forms in Laravel, Form validation using Laravel's validation rules, Displaying validation errors, Custom validation rules.
Suggested PHP Practicals	1. Declare variables for name, age, and email address. Print these variables with appropriate labels. 2. Write PHP code to perform arithmetic operations (addition, subtraction, multiplication, division) on two numbers. 3. Create a PHP script that checks if a user's age is greater than or equal to 18. If true, display "You are an adult"; otherwise, display "You are a minor". 4. Use a loop (for or while) to print numbers from 1 to 10 on separate lines. 5. Write a PHP program to print all the fibonacci series from 1 to n. 6. Create an array of fruits and use a loop to print each fruit on a new line. 7. Write a PHP function that takes two parameters (length and width) and calculates the area of a rectangle. Call the function with different values to test it 8. Create an HTML form with input fields for name and email. Write a PHP script to process the form data and display the submitted values. 9. Write PHP code to read the contents of a text file and display them on the screen. 10. Implement a PHP script that sets a session variable (e.g., username) when a user logs in. Display a personalized message using the session variable on subsequent visits.
Suggested Laravel Practical	1. **Routing and Controllers:** a. Create a new route that points to a controller method. The controller method should return a simple message or view. b. Implement route parameters in Laravel and use them to fetch data from a database in the controller method.

	2. **Views and Blade Templating**: a. Create a new Blade template that includes a header, footer, and a content section. Extend this template in multiple views. b. Use Blade directives (if, foreach) to conditionally display content or loop through data in a view. 3. **Database Operations:** a. Create a migration to add a new table to the database schema. Run the migration to apply the changes. b. Implement CRUD operations (Create, Read, Update, Delete) for a resource (e.g., articles, users) using Laravel's Eloquent ORM. 4. **Form Handling and Validation:** a. Create a form to add new data to the database. Implement form validation using Laravel's validation rules. b. Display validation errors in the form and repopulate form fields with old input on validation failure. 5. **File Upload and Storage**: a. Build a form for users to upload files to the server. b. Implement functionality to store uploaded files in Laravel's storage system
Suggested Minor Project work (Students are to undertake one minor project for internal assesment)	1. **To-Do List Application:** Create a basic to-do list application where users can add, edit, delete, and mark tasks as completed. Implement user authentication so that each user has their own set of tasks. 2. **E-commerce Store:** Develop a simple ecommerce store with product listings, product details, shopping cart functionality, and checkout process. Implement user authentication and roles for customers and administrators. 3. **Contact Management System:** Build a contact management system where users can add, edit, delete, and search for contacts. Implement features like contact groups, import/export contacts, and contact sharing. 4. **Event Management System:** Develop an event management system for organizing and managing events. Include features such as event creation, registration, ticketing, attendee management, and event analytics 5. **Task Management System:** Create a task management system with task lists, task details, deadlines, priorities, and task assignments. Implement notifications and reminders for upcoming tasks.
Suggested Readings	1. DuBoi Paul s, MySQL Cookbook. 2. DuBois Paul, My SQL Cookbook

	3. Pecoraro,Christopher John Mastering Laravel: A Comprehensive Guide to Laravel's Best Practices. 4. Stauffer,Matt Laravel: Up & Running. 5. Welling Luke and Laura Thomson, PHP and MySQL Web Development. 6. Welling Luke and Laura Thomson, PHP and MySQL Web Development.
Requirements	1. Computers 2. Desktop computers or laptops with adequate RAM and processing power. 3. Required software installed (e.g., PHP development environment, MySQL, Laravel, text editors). 4. Software: XAMPP, WAMP, or similar for local server setup (Apache,MySQL, PHP). 5. IDEs (Integrated Development Environments) such as Php Storm, Visual Studio Code, or Sublime Text for PHP and Laravel development. 6. Database Management MySQL or Maria DB for database management php MyAdmin or MySQL Workbench for database administration 7. Internet Access 8. External Storage 9. Printers and Scanners 10. **Any other item as required**
Qualified Instructors	• Instructors with experience in Web Designing and teaching. • Certifications or relevant qualifications in Web Designing

Paper Title	: Web Designing -III
CODE	: VTC: 363.1
Number of Credits	: 4
Semester	:VI
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:

Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
Web Designing - III					In-Semester		End-Semester	
					Theory	Practical	Theory	Practical
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40
	: External Assessment: 60
Course Objectives	1. Understand the fundamentals of front-end development and the role of React in modern web development. 2. Learn how to set up a development environment for React applications using tools like Node.js and npm. 3. Gain proficiency in creating reusable components, managing state, and handling events in React. 4. Explore advanced React concepts such as hooks, context API, and component lifecycle methods. 5. Develop skills in building responsive and interactive user interfaces using React and CSS.
Course Learning Outcome	After completion of the course students are able to: 1. design and develop dynamic and interactive user interfaces using React components and JSX syntax 2. implement state management solutions using React's built-in state management and context API 3. utilize React Router for handling navigation and creating multi-page applications 4. integrate third-party libraries, APIs, and services into React applications for enhanced functionality

	5. apply responsive design principles and CSS techniques to create visually appealing and mobile-friendly interfaces.
Unit I: (Theory) **15 Hours**	• **Introduction to React:** Understanding the React ecosystem, Virtual DOM, and JSX, React • **Components and Props:** Creating components, passing props, and composing UIs, • **State Management:** Understanding state, setState, and component re-rendering. React Lifecycle • **Methods:**Exploring component DidMount, component DidUpdate.
UNIT-II: (Practical) **30 Hours**	**Concepts Covered** • Component creation and rendering • State management with React hooks • Handling user interactions and events • Asynchronous data fetching with APIs • Form handling, validation, and dynamic updates • React Router for client-side navigation
	Sample exercises and assignments • **Exercise:** Build a simple To-Do list application using React components, state management, and event handling. • **Assignment:** Create a weather forecast application using React components to display weather data fetched from an API. • **Exercise:** Develop a user registration form with form validation using React hooks and controlled components. • **Assignment:** Build a movie search application using React and an external API to search and display movie details.
UNIT-III: (Practical) **30 Hours**	**Concepts Covered** • Structuring components for scalability • State management for dynamic data with Redux or Context API • Implementing CRUD operations for data manipulation • Utilizing React Router for multi-page applications • Filtering and sorting data for enhanced user experience
	Sample exercises and assignments • **Exercise:** Implement a simple e-commerce product listing page with React components and state management.

	• **Assignment:** Create a blog application where users can view, create, and delete blog posts using React Router for navigation. • **Exercise:** Build a chat application using React components and state to display messages in real-time. • **Assignment:** Develop a recipe finder application using React to search and display recipes fetched from an API.
UNIT-IV: (Practical) 30 Hours	**Concepts Covered**: • Building multi-step forms with conditional rendering • Designing responsive layouts for various devices • Implementing user authentication and authorization with JWT tokens • Securing routes and resources based on user roles
	Sample exercises and assignments • **Exercise:** Create a multi-step form using React Router for navigation between form sections. • **Assignment:** Build a portfolio website using React to showcase projects and skills with responsive design. • **Exercise:** Implement user authentication and authorization in a React application using JWT tokens. • **Assignment:** Develop a social media dashboard application with React components to display user posts and interactions.
Suggested Readings	1. Kirupa Chinnathambi, Learning React: A Hands-On Guide to Building Web Applications Using React and Redux, 2nd Edition, Addison-Wesley Professional, 2018 2. Michele Riva, React Design Patterns and Best Practices: Build easy to scale modular applications using the most powerful components and design patterns, 2nd Edition, Packt Publishing, 2019
Requirements	**Materials:** 1. Computers 2. Node.js for running JavaScript on the server (needed for npm or yarn) 3. phpMyAdmin or MySQL Workbench for database administration 4. Internet Access 5. External Storage 6. Printers and Scanners 7. Any other item as required

Qualified Instructors	• Instructors with experience in Web Designing and teaching. • Certifications or relevant qualifications in Web Designing

Syllabus on Vocational Education and Training Course (VTC)

Paper Title	: Vocals -I							
CODE	: VTC: 245.4							
Number of Credits	: 4							
Semester	: III							
No. of Theory Hours Per Week	: One (1 hour)							
No. of Practical Hours per Week	: Three (3 Hours)							

Outline of the Paper:								
Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
Vocals -I					In-Semester		End-Semester	
					Theory	Practical	Theory	Practical
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	**1.** Students will have an understanding of vocal music, timbre and tonality.
Course Learning Outcome	At the end of the course students will be able to apply this skill and fine tune the voice culture with a comprehensive understanding of vocal music, technical aspects like timbre and tonality and exploring the different expressive dimensions.
Unit I: (Theory) 15 Hours	**Introduction** • Definition: Music, Sound, Notes, Scale, Pitch, Key-Tone, Octave, Degree, Mental Effects, Technical Names • Scale: Diatonic Scale & Natural Scale • Tune: 1st, 3rd, 5th $^{\text{with}}$ their Octaves • Mental effects and Technical Names of 1$^{\text{st}}$, 3rd, 5thDegrees • Times: Accent, Pulse, Measurement, Braces, Double Bars, Breathing Place, Continued Tones

	• Times: 2-PulseMeasurement, 4-PulseMeasurement and Forms with Time Names • Pulse Division: ½PulseDivision, ½PulseContinuation & ½ to ½ Pulse Continuation with Time Names • Tunes: 2nd&7th with Mental Effects and Technical Names • Slurs, Silent Pulse & Corona
UNIT-II: (Practical) 30 Hours	**Sight Singing** • Tune: 1st, 3rd, 5th with their Octaves • Time: Measurement 2-Pulse, 4-Pulse and Forms with Time Names • Pulse Division: ½PulseDivision, ½PulseContinuation&½to½Pulse Continuation with Time Names • Tunes: 2nd&7th in2-Pulse&4-Pulse Measure with ½ Pulse Division • Slurs, Silent Pulse & Corona • Time & Rhythm–Keeping Time–Tapping • Vocalising– LINES
UNIT-III: (Practical) 30 Hours	**Aural Test** • Tune: 1st,3rd,5th • Time: Measurement2-Pulse–Primary Form • Time:Measurement4-Pulse–Primary Form • Tunes: 2nd&7th in 2- Pulse Measurement
UNIT-IV: (Practical) 30 Hours	**Voice Lesson** • Posture, Position of the Mouth • Breathing and Chest Exercises • Vocalisation • Singing (Art of Producing Good Tone) • Pieces – Hymns & Choruses etc
Suggested Readings	1. Cicely Berry, Your Voice and How to Use it 2. Elizabeth Sabine, Strengthening Your Singing Voice 3. Full voice The Art and Practice of Vocal Presence 4. Jan Schmidt, Basics of Singing 5. Klaus Heizmann, Vocal Warm-Ups: 200 Exercises for Chorus and Solo Singers 6. Samuel W. Cole, Melodia; a comprehensive course in sight-singing (solfeggio); the educational plan 7. Stephen Greenlane, Find Your Own Singing Voice: Vocal Training from Fundamentals to Mastery

	Techniques to Help You Enjoy Singing More and More See less
Requirements	• Classrooms • Practice Rooms • Performance Hall • Musical Instruments and Equipment • Sound Equipment • Technology and Software • Computers and Software • Multimedia Resources • Rehearsal Spaces • Any other item as and when required
Qualified instructors	• Experienced vocal coaches and music theory teachers. • Guest lecturers and visiting artists for workshops and masterclasses

Paper Title	: Vocals -II
CODE	: VTC: 265.4
Number of Credits	: 4
Semester	: IV
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:

Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
					In-Semester		End-Semester	
					Theory	Practical	Theory	Practical
Vocals - II								
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	1. To familiarize the students with aural training and sight singing exercises.
Course Learning Outcome	At the end of the course students are able to develop the ability to sight-sing and reproduce tunes accurately, focusing on intervals of the 4th and 6th degrees, within the context of various time signatures and pulse divisions.
Unit I: (Theory) 15 Hours	**Introduction** • Definition: Duration, Tempo, Timbre, Interval, Rhythm, Hold/Pause/Corona • Scales: Diatonic Scale, Mental Effects, Technical Names, Chart • Tune: 4th, 6th Degree • Pulse Division: Quarter Pulse, 3-Quarter Pulse, Silent Pulse, Silent ½ Pulse with Time-Names • Interval: Major, Minor, Augmented, Diminished, Formula, Inverted Chart • Triads: Primary Triad sofa Major Scale, Triad Technical Names

	• Dynamics: D.C., D.S., &Fine
UNIT-II: (Practical) **30 Hours**	**Sight Singing** • Tune: 4th, 6th with Degree • Time: Measurement2-Pulse, 3-Pulse & 4-Pulse (Primary & Secondary Forms) • Pulse Division: Quarter Pulse, 3- Quarter Pulse, Silent Pulse, Silent½ Pulse with Time Names. • Tunes: All Notes (Natural)–Remembering C–Major. • Time & Rhythm–Keeping Time–(Rate of Movement)–Tapping [Remembering–M60]. • Dynamics: D.C, D.S. & Fine, Tempo, Moderato.
UNIT-III: (Practical) **30 Hours**	**Aural Test** • Tune: All Natural Notes • Time: Measurement3- Pulse–Primary Form • Time: Measurement4- Pulse–Primary Form • Tunes: 4th& 6th in 3 and 4 Pulse Measurement • Tunes: All Notes in 3 & 4 Measurement
UNIT-IV: (Practical) **30 Hours**	**Voice Lesson** • Breathing Support and Chest Exercises • Resonation • Art of Singing • Vocalisation • Pieces–Hymns & Choruses etc.
Suggested Readings	1. Cicely Berry, Your Voice and How to Use it 2. Elizabeth Sabine, Strengthening Your Singing Voice 3. Full voice The Art and Practice of Vocal Presence 4. Jan Schmidt , Basics of Singing 5. Klaus Heizmann, Vocal Warm-Ups: 200 Exercises for Chorus and Solo Singers 6. Samuel W. Cole, Melodia; a comprehensive course in sight-singing (solfeggio); the educational plan 7. Stephen Greenlane,.Find Your Own Singing Voice: Vocal Training from Fundamentals to Mastery Techniques to Help You Enjoy Singing More and More See less
Requirements	• Musical Instruments and Equipment • Sound Equipment • Technology and Software • Computers and Software • Multimedia Resources

	- Rehearsal Spaces - Any other item as and when required
Qualified instructors	- Experienced vocal coaches and music theory teachers. - Guest lecturers and visiting artists for workshops and masterclasses

Paper Title	: Vocals -III
CODE	: VTC: 365.4
Number of Credits	: 4
Semester	:VI
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:

Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
Vocals - III					**In-Semester**		**End-Semester**	
					Theory	**Practical**	**Theory**	**Practical**
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	1. To enable the students to read and sing music notation fluently, focusing on recognizing and reproducing tunes, understanding pulse divisions, and interpreting dynamics. To enhance listening skills through identifying tunes, measuring time signatures, and recognizing notes.
Course Learning Outcome	At the end of the course students are able to identify and understanding musical elements such as duration, tempo, and dynamics. Students will be able to read and sing music notation accurately, including recognizing tunes, pulse divisions, and dynamics markings
Unit I: (Theory) 15 Hours	**Introduction** • Scales: Diatonic Scale, Chromatic Scale, Standard Scale • Intervals: Major, Minor, Perfect, Augmented & Diminished • Construction of Major Scale: Tetra Chord System • Construction of Triads & Chords, Chords Inversion • Modulator 3 Scales, Circle of Fifth

	• Transition • Dynamics • Construction of Minor Scales • Construction of Triads & Chords of Minor Scale • Technical Names of Minor Scale
UNIT-II: (Practical) **30 Hours**	**Sight Singing** • A Half & Two Quarters, Two Quarters & a Half, All Natural Notes • Tone (fe) & (ta) with other Notes • Measurement6-Pulsewith'fe'and'ta' • Thirds of a Pulse • Memorising 3 Scales (F,C,G) • Transition: 1-#Remove&1-bRemove • Process of learning a new Song, Remembering C Major • Learn the New Key Tone of 'F' & 'G' based on Key-C
UNIT-III: (Practical) **30 Hours**	**Aural Test** • Tune: All Natural Notes. • Tune: Chromatic Notes of 'fe' & 'ta' • Tune of Minor Scale: 11, d, m • Time: Measurement 2, 3, &4 Pulse Measurement; Primary & Secondary Forms • Process of Understanding the Up & Down of Beat.3&4 Pulse Measurement
UNIT-IV: (Practical) **30 Hours**	**Melody Writing With Text** • Melody Structure: Khasi Traditional, Modern • Phrasing • Setting Words to Music • Beautifying the Melody: Use of Slurs
Suggested Readings	1. Cicely Berry, Your Voice and How to Use it 2. Elizabeth Sabine, Strengthening Your Singing Voice 3. Find Your Own Singing Voice: Vocal Training from Fundamentals to Mastery Techniques to Help Stephen Greenlane, You Enjoy Singing More and More See less 4. Full voice The Art and Practice of Vocal Presence 5. Jan Schmidt, Basics of Singing 6. Klaus Heizmann, Vocal Warm-Ups: 200 Exercises for Chorus and Solo Singers 7. Samuel W. Cole, Melodia; a comprehensive course in sight-singing (solfeggio); the educational plan
Requirements	• Musical Instruments and Equipment • Sound Equipment

	- Technology and Software - Computers and Software - Multimedia Resources - Rehearsal Spaces - Any other item as and when required
Qualified instructors	- Experienced vocal coaches and music theory teachers. - Guest lecturers and visiting artists for workshops and masterclasses

Syllabus on Vocational Education and Training Course (VTC);

Paper Title	: Khasi Traditional Music -I
CODE	**: VTC: 245.5**
Number of Credits	**: 4**
Semester	**: IV**
No. of Theory Hours Per Week	**: One (1 hour)**
No. of Practical Hours per Week	**: Three (3 Hours)**

Outline of the Paper:

Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
					In-Semester		**End-Semester**	
Khasi Traditional Music- I					**Theory**	**Practical**	**Theory**	**Practical**
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	**: Internal Assessment: 40** **: External Assessment: 60**
Course Objectives	1. This course will introduce the students to the basic understanding of Khasi Music. 2. It will train them to develop professional skills in handling Khasi membrane musical instruments and learn the rhythmic patterns of different Skits.
Course Learning Outcome	After the completion of the course the students are able to play and become proficient in handling Khasi membrane instruments.
Unit I: (Theory) **15 Hours**	**Understanding Khasi Music& Khasi Polity (Theory)** • Sur Shnong (Music at the Village Level) • Music at the level of "Ka Hima" (Khasi Native State) • Concept of Khasi Rhythmic Pattern (Oral Tradition and Notation)

UNIT-II: (Practical) **30 Hours**	**Learning of The Khasi Membrane Musical Instruments (Practical)** • Recitation of Drum Syllables • Playing Techniques • Ki Skit: Learning of Ka Lumpaid and Shadwait Tem Beit
UNIT-III: (Practical) **30 Hours**	**Learning of the Rhythmic Patterns (Practical)** • Ki Skit on Ka KsingShynrang: Ka Shadwait Kynting Dieng and Ka Mastieh • Ksing Kynthei: Rhythm of Ka Padiah Ardieng
UNIT-IV: (Practical) **30 Hours**	**Further Training and Learning of other Membrane Musical Instruments (Practical)** • Ka Bom: The Rhythmic Patterns of Ka Lumpaid, Shadwait and Ka Mastieh • Ka Padiah: Playing of Ka Padiah Ardieng
Suggested Readings	1. Alfred Einstein: *A Short History of Music*, Illustrated, Edition, London, 1986. 2. All India Radio, Shillong (Archival Collection). 3. Arun Kumar Sen: *Indian Concept of Rhythm* (Director Bhatkhande Institute of Music and Musicology), Kanishka Publisher & Distributor New Delhi, 1994. 4. Barthakur D.R: *The Music and Musical Instruments of North East India*, Mittal Publications, New Delhi. 5. David Roy: *Principles of Khasi Customs*, Shillong, 1934. 6. Deva B.C.: *Musical Instruments*, National Book Trust, Reprint, 1979. 7. Fr. G Costa: *Ka Riti jong ka Ri LaiphewSyiem Vol I(1036) and Vol II (1938),* Don Bosco Press,Shillong. 8. Hamlet Bareh : *The History and Culture of the Khasi People*, Shillong, 1964. 9. Helen Giri (Ed) :*U Myllung ha ki Sur – Thup II* (in press) 10. Helen Giri (Ed): *KattoKatneshaphang ka Put ka Tem*, La Riti Publications. 11. Helen Giri (Ed): *Lest We Forget, Published Seven Huts Enterprise*, Shillong 1994. 12. Helen Giri(Ed) : *U Myllung ha ki Sur – Thup II* (Reprint 2016), La Riti Publications. 13. KJWA Publication Cell: *Ka Thwet Jingstad*.

	14. Kyndiah P R (1969): *A peep into Khasi and Jaintia Music, Khasi Heritage*, Shillong. 15. La Riti Publications. 16. LapynshaiSyiem: *The Evolution of Khasi Music: A Study of the Classical Content*, La Riti Publications.2005 17. La-Riti Archival Documentation. 18. Mawrie H O : *Ka Pyrkhat u Khasi*, Shillong, 1973. 19. Mawrie H O : *U Khasi ha la ka Niamra*, Ri Khasi Press Shillong, 1973. 20. P R T Gurdon: *The Khasis, Cosmo Publications*, Delhi,1975. 21. Rash Mohan Roy: *U Khasi Hyndai*, Shillong, 1958. 22. Seng Khasi: Khasi Heritage, Ri Khasi Press, Shillong,1969. 23. Webstar Davies Jyrwa: *Phra Tylli ki Essay*.
Requirements	1. Music Rooms: 2. Instruments: 3. Drums (KsingShynrang and KsingKynthei) 4. Bom 5. Padiah 6. String Instruments (Duitara): 7. Craft Workshop: 8. Recording Studio: 9. Performance Hall: 10. IT and Digital Resources: 11. Cultural Resource Center: **Any other item as required**
Qualified Instructors	• Instructors with experience in Khasi Traditional Music • Certifications or relevant qualifications in Khasi Traditional Music

Paper Title	: Khasi Traditional Music-II
CODE	: VTC: 265.5
Number of Credits	: 4
Semester	: IV
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:

Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
					In-Semester		End-Semester	
					Theory	Practical	Theory	Practical
Khasi Traditional Music-II	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	1. This course will introduce students to the basic understanding of Khasi Music in written form. 2. It will help and improve them in learning and training of vocal music. 3. It will also help the students to learn the notations and Khasi Music written in Tonic Solfa Notation.
Course Learning Outcome	After completion of the course students are able to make use of skills in Khasi vocal music with proper vocal exercises.
Unit I: (Theory) 15 Hours	**Study of Khasi Songs (Theory)** • Types of Khasi Songs • Prominent Khasi Composers
UNIT-II: (Practical) 30 Hours	**Note Reading and Writing in Tonic Solfa Notation (Practical)** • Tune and Time • Natural Scale and Arpeggio Scale • Exercises on the 1st, 3rd and 5th Degree of the Major Scale

UNIT-III: (Practical) **30 Hours**	**Combined Time and Tune in Music (Practical)** • Exercises on the 2nd and 7th degree of the Major Scale • Learning of the Time and Tune in 2, 3 and 4 Pulse Measurement
UNIT-IV: (Practical) **30 Hours**	**Singing Technique (Practical)** • Posture, Breathing Exercises and Voice Training • Learning of Khasi Folk Songs and Khasi Composed Songs composed by the Prominent Composers to be identified by the Teachers
Suggested Readings	1. Birendranath Dutta (Rd.): *Traditional Performing Arts of North East India*, Assam Academy for Cultural Relation, Guwahati, 1990. 2. Wanswett E B R: *Khasi folk Songs of North East India*, Jalani Publishers Pvt.Ltd, Shillong, 1995 – 1st Edition. 3. Kharsahnoh E W: *Ki Sur Bathiang (Na Thwei ka Dohnud)*: *Sweet Melodies from the Heart*. La Riti Publication. 4. Kharsahnoh E W: *Ka Intermediate Tonic Solfa Bynta I*, Published by Board of Synod Institute of Music, Shillong, 2016. 5. Kharsahnoh E W: *Ka Intermediate Tonic Solfa Bynta II*, Published by Board of Synod Institute of Music, Shillong, 2009. 6. Kharsahnoh E W: *Voice Lesson I &; II*, Published by Board of Synod Institute of Music, Shillong, 2009. 7. Sainkur S. Syiemlieh : *Elementary Tonic Solfa 1&;2*, Published by Board of Synod Institute of Music, Shillong, 2006. 8. Sainkur S. Syiemlieh: *Lamphang Thaw Jingrwai*, Published by Board of Synod Institute of Music, Shillong, 1999. 9. Sainkur S. Syiemlieh: *Ki Tynrai Thaw Jingrwai Saw Sur*, Staff Music Notation Vol.I, Bynta 1&2, Published by Board of Synod Institute of Music, Shillong, 1998. 10. Sainkur S. Syiemlieh: *Ki TynraiJingrwai (Fundamentals of Music)*, Staff Notation Edition Vol.I, Bynta 1&2, Published by Board of Synod Institute of Music, Shillong, 1998. 11. Sainkur S. Syiemlieh: *Ki TynraiJingrwai (Fundamentals of Music)*, Staff Notation Edition Vol.II, Bynta 1&2, Published by Board of Synod Institute of Music, Shillong 1998.

	12. David M Lartang: *Junior Tonic Solfa Part* I, Publications HepmelyneWanniang, West Khasi Hills District, Meghalaya, 2010. 13. David M Lartang: *Elementary Tonic Solfa* Part II, Publications HepmelyneWanniang, West Khasi Hills District, Meghalaya, 2012. 14. David M Lartang: *Intermediate Tonic Solfa* Part III, Publications HepmelyneWanniang, West Khasi Hills District, Meghalaya, 2022. 15. Helen Giri (Ed): *U Myllung ha ki Sur* – Thup II (Reprint 2016), La Riti Publications. 16. Helen Giri(Ed) : *U Myllung ha ki Sur*–Thup II (in press), La Riti Publications. 17. *Kharsyntiew M S: Phawar.* 18. *KJWA Publication Cell: Khasi Phawar.* 19. All India Radio, Shillong (Archival Collection). 20. La-Riti Archival Documentation.
Requirements	1. Music Rooms 2. Instruments 3. Drums (KsingShynrang and KsingKynthei) 4. Bom 5. Padiah 6. String Instruments (Duitara) 7. Craft Workshop 8. Recording Studio 9. Performance Hall 10. IT and Digital Resources **Any other item as required**
Qualified Instructors	• Instructors with experience in Khasi Traditional MusicCertifications or relevant qualifications in Khasi Traditional Music

Paper Title	: Khasi Traditional Music-III
CODE	:VTC: 365.5
Number of Credits	: 4
Semester	:VI
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:

Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
					In-Semester		End-Semester	
					Theory	Practical	Theory	Practical
Khasi Traditional Music-III	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90					15	60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	1. This course will introduce students to the basic understanding of the classification of Khasi Musical Instruments. 2. It will help and improve them in learning and in the training of String Instruments. 3. This course is also designed to enable students to develop skills in crafting of Khasi Musical Instruments.
Course Learning Outcome	After completion of the course students are able to display skills in using traditional instruments and also in crafting them.
Unit I: (Theory) 15 Hours	**Classification of Khasi Musical Instruments (Theory)** • Understanding the classification of Khasi Traditional Musical Instruments: Membranophones/ Chordophones/ Idiophones/ Bamboo Instruments
UNIT-II: (Practical) 30 Hours	**Khasi String Instrument (Duitara)(Practical)** • Fingering Position • Rhythm of Ka Skit Lumpaid, Ka Skit Dum Dum

	• Learning of the Rhythm with scale in Major Scale
UNIT-III: (Practical) 30 Hours	**Learning of More Rhythm and Pieces on Ka Duitara (Practical)** • Rhythm of Ka Skit Shadwait • Three pieces to be identified by the Teacher
UNIT-IV: (Practical) 30 Hours	**Crafting of some traditional instruments** • Students shall have to craft at least one musical Instrument (Practical)
Suggested Readings	1. Costa. G: *Ka Riti jong ka Ri LaiphewSyiem Vol I (1036) and Vol II (1938)*, Don Bosco Press, Shillong. 2. Dilip Bhattacharjee: *Musical Instruments of tribal India*, Manas 3. Dkhar E.W.: *Ka Mariang ka Kren*, B.Dkhar, 1999. 4. HanabalahunKharbuki: *Khasi Traditional Musical Instruments in East Khasi Hills, West Khasi Hills and Ribhoi District in Meghalaya*, Unpublished Dissertation. 5. Helen Giri (Ed): *KattoKatneshaphang ka Put ka Tem*, La Riti Publications. 6. KasliwalSuneera (2001): *Instruments Matter Craftsmen of Musical Instruments and Masters*. 7. Kharkongor I: *U Khasi bad ka Mariang*, Mrs.DarkosNongkhlaw, 2005. 8. Kharsahnoh E W: *Ki Sur Bathiang (Na Thwei ka Dohnud):* Sweet Melodies from the Heart. La Riti Publication. 9. Kharsahnoh E W: *Voice Lesson I & II*, Published by Board of Synod Institute of Music, Shillong, 2009. 10. Khongsit S.: *Ki Dieng bad ka Culture Jongngi*, Mrs.S. Khongngain, 2012 (Sienshon Ba ar). 11. LapynshaiSyiem: *The Evolution of Khasi Music: A Study of the Classical Content*, La Riti Publications 2005. 12. Publications, New Delhi, 1999. 13. Shangpliang J.S.: U Briew bad ka Mariang (Ki SngiJongngi) Ri Khasi Book Agency, 2014. 14. Webstar Davies Jyrwa: *Phra Tylli ki Essay*.
Requirements	1. Music Rooms: 2. Instruments: 3. Drums (KsingShynrang and KsingKynthei) 4. Bom 5. Padiah 6. String Instruments (Duitara): 7. Craft Workshop: 8. Recording Studio:

	9. Performance Hall: 10. IT and Digital Resources: **Any other item as required**
Qualified Instructors	• Instructors with experience in Khasi Traditional MusicCertifications or relevant qualifications in Khasi Traditional Music

Syllabus on Vocational Education and Training Course (VTC)

Paper Title	: Baking and Confectionary -I
CODE	: VTC: 246.1
Number of Credits	: 4
Semester	: III
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:								
Type of Course	**Units in the VTC**	**Hours**	**Credits**	**Total Marks**	**Distribution of Marks (as per OC-8)**			
Baking and Confectionary- I					**In-Semester**		**End-Semester**	
					Theory	Practical	Theory	Practical
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	1. To describe a wide variety of topics related to basics of bakery, and its related technology 2. To explain about the various types of food products made using baking technology
Course Learning Outcome	After the completion of the course the students are able to: 1. describe the basic concepts of bakery 2. make use of the major and minor baking equipment 3. analyse the sensory quality parameter in prepared bread 4. plan and create small-scale bakery unit
Unit I: (Theory) 15 Hours	**Introduction to bakery** • **Introduction:** Scope of bakery, Units of measurement, Bakery terms, Organization chart of bakery, Minor and major equipment, baking temperatures for bread.

	Major baking ingredientsand their functions: Role of raw materials in bread making- Flour, Salt, Leavening Agents, Water, Sugar, Egg, Milk, Fat, Oil. Bread improvers and additives - S.M.P, Soya flour, Glycerol Mono State, Potassium Bromate, Potassium Iodate. **Flour:** Structure of wheat, Types of Wheat, Types of Flour, Processing of Wheat-flour, Uses of Flour in Food Production, Cooking of Flour (Starch); Characteristics of good flour used for making bread, biscuits and cakes. Quality – Hardness, Gluten strength, protein content, soundness. **Ingredients and equipment:** Identification and uses of equipment- large, medium, and small; **Mixing methods:** Basic steps involved in mixing ingredients- Kneading, stirring, whipping, creaming etc. **Breads:** Principles of Bread making, Methods of bread making Bread Making Process - Methods-Straight Dough Method, Ferment dough, salt delayed method, no dough time method- types of bread. Quality of Bread - Characteristic of good bread- External- volume, symmetry, shape, colour- Internal- texture, aroma, elasticity. Bread faults and remedies-Basic reasons for faults, Common bread faults (internal and external), Remedies. **Bread diseases:**Rope and Mold-Causes and Prevention. **Setting up Bakery unit**: Setting up a bakery unit-Location, Layout, Selection of equipment, Total space required, and Electricity, Government procedure.
UNIT-II: (Practical) **30 Hours**	**A. Basic Laboratory skills for bakery:** - Introduction to ingredients / Equipment - Identification and uses of equipment – large, small and utilities - Ingredients – Types of flour, Sugar, Nuts and Dry fruits, Shortenings, leavening etc. - Know the different dough making procedures - Acquire skill in operating different types of ovens - Handling of major and minor baking equipment

	- Analyze the sensory quality parameter in prepared bread - Handling the raw materials and baking supplies. - Design the layout of bakery unit **B. Quality Checking & Basic Mixing Methods** - Flour: W.A.P Test, Gluten Content - Yeast: Flying fermentation - Mixing Methods: Basic steps involved in mixing ingredients – Kneading, stirring, whipping, creaming etc. - Simple yeast fermented products: Bread Sticks, Bread Rolls, hand and Soft Rolls, sour dough etc.
UNIT-III: (Practical) 30 Hours	**A. Preparations:** - Basic buns - Fruit buns - Hot cross buns - Garlic rolls - Milk bread - Bread loaf - Raisin bread - Masala bread
UNIT-IV: (Practical) 30 Hours	**A. Preparations:** - Fermented doughnuts - Brioche - Baba au rhum - French bread - Chelsea bread - Croissants - Burger buns - Pizza base. - Visit to the bakery industry: Report writing and presentation
Suggested Readings	1. Potter, N. N., & Hotchkiss, J. H. (2012). Food science. Springer Science & Business Media. United States. 2. Mathuravalli, S. M. D. (2021). Handbook of Bakery and Confectionery. CRC Press.United States. 3. The Culinary Institute of America (CIA). (2018). Baking and pastry: Mastering the art and craft (3rd ed.). John Wiley & Sons, United States.

	4. Migoya, F. J. (2017). The elements of dessert. John Wiley & Sons, United States.
Requirements	• Ovens • Refrigerators • Mixers, blenders, rolling pins, scales, measuring cups and spoons. • Baking sheets, pans, molds, mixing bowls, spatulas, whisks, piping bags. • Basic Ingredients for baking • Any other items as and when required
Qualified Instructors	• Bakery Experts: Hire instructors with extensive experience in baking and food science. • Pedagogical Training: Ensure instructors have or receive training in effective teaching methods.

Paper Title	: Baking and Confectionary -II
CODE	:VTC: 266.1
Number of Credits	: 4
Semester	: IV
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:

Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
					In-Semester		End-Semester	
					Theory	Practical	Theory	Practical
Baking and Confectionary - II	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	1. To explain to students the knowledge on confectionary 2. To describe and illustrate to them the manufacturing technology of Confectionary products focusing on skill development to meet the demands from ongoing innovations in the field.
Course Learning Outcome	After completion of the course students are able to: 1. apply various methods and techniques of baking confectionery products 2. connect and differentiate various principles of pastry cakes and icing 3. apply various methods and techniques of baking of cakes 4. distinguish and prepare various baking and confectionery products
Unit I: (Theory) 15 Hours	• Manufacture of Sugar: Sugarcane, jaggery, khandasari sugar, raw sugar, refined sugar, white sugar, beet sugar, manufacture of sugar from sugar cane, refining of sugar.

	- Confectionery: Introduction - Scope of confectionery, confectionery terms, small and large equipment used in bakery and confectionery. - Classification of confectionery: Sugar boiled confectionery- crystalline and amorphous confectionery, rock candy, hard candy, lemon drop, china balls, soft candy, lollypop, marshmallows, fudge, cream, caramel, toffee, lozenges, gumdrops, honeycomb candy. - Confectionery Ingredients: Moistening agents-milk, egg, water. Leavening agents-chemical, natural, water vapour. Role of raw materials-wheat flour, sugar, fat, eggs. Essential ingredients, flour sugar, shortening, egg. Optional ingredients baking powder, milk, milk products, dry fruits, baking soda, dairy products. - Chocolate Work - Fundamentals of the science of chocolate, - Established industry standards in - Tempering, moulding, modelling, enrobing, filling, show pieces, stencils, chocolate couverture.Sugar Work - Chemical properties and changes in sugars at various stages of the cooking and cooling processes, Pulled, blown, Spun, Poured, caramelized sugar. Casting of sugar. Pastillage and Saltillage fondant, gum paste and royal icing
UNIT-II: (Practical) **30 Hours**	**A. Toffees:** - Milk Toffee, Chocolates - Stick Jaws - liquor chocolates **B. Indian Confectionery:** - Chenna - Rasgulla, Chamcham, Pakiza, Chenna Toast, Rasmalai - Khoya - Gulab Jamun, Barfi - Sugar - Mysore Pak, Ghewar - Flour / Besan - Patisa, Shakarpare, Halwa, Laddoo, Peda. - Milk - Kheer, Rabri - Nuts - Barfi, Chekki **C. Quality checking and sensory tests for products**
UNIT-III: (Practical) **30 Hours**	**A. Chocolate works:** - Chocolate candies - Ganache fillings - Hand-dipped candies - Molded bonbons - Danish pastry and truffles - Use of an enrobing machine - Clean and store chocolate candy moulds and other equipment used in chocolate candy making

	B. Quality checking and sensory tests for products
UNIT-IV: (Practical) **30 Hours**	**A. Sugar works:** • Fruit paste • Guimauve (marshmallow) • Praline • Caramels • Nougats • Lollipops • Marzipans • Gummies. • Prepare sugar sticks, nest, bow, ribbon, flower, leaf, bubble sugar and decorations • Appropriate package and display of candies. • Fudge • Almond paste **B. Quality checking and sensory tests for products** **C. Industry Visit: 1. Report writing and presentations**
Suggested Readings	1. Cauvain, S. P., & Young, L. S. (2008). Baked products: science, technology and practice. John Wiley & Sons, United States. 2. Friberg, B. (2002). The professional pastry chef: fundamentals of baking and pastry. John Wiley &Sons,United States. 3. Pyler, E. J., & Gorton, L. A. (2010). Baking science & technology: Formulation& production. Sosland Pub, United States. 4. Zhou, W., Hui, Y. H., De Leyn, I., Pagani, M. A., Rosell, C. M., Selman, J. D., &Therdthai, N. Bakery Products Science and Technology.Wiley-Blackwell, United States.
Requirements	• Ovens • Refrigerators • Mixers, blenders, rolling pins, scales, measuring cups and spoons. • Baking sheets, pans, molds, mixing bowls, spatulas, whisks, piping bags. • Basic Ingredients for baking • Any other items as and when required
Qualified Instructors	• Bakery Experts: Hire instructors with extensive experience in baking and food science. • Pedagogical Training: Ensure instructors have or receive training in effective teaching methods.

Paper Title	: Baking and Confectionary -III
CODE	:VTC: 366.1
Number of Credits	: 4
Semester	:VI
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:								
Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
					In-Semester		End-Semester	
					Theory	Practical	Theory	Practical
Baking and Confectionary - III	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	1. To explain to students the how to apply technology in baking and confectionary. 2. To demonstrate how to use manufacturing technology in bakery and confectionary production.
Course Learning Outcome	After completion of the course students are able to: 1. identify different types of ingredients used in confectionery 2. identify the small and large equipment used in confectionery 3. prepare and present basic sponges and different cookies and biscuits, pastries and its derivatives 4. prepare basic icings and toppings 5. prepare and present international cakes and puddings
Unit I: (Theory) 15 Hours	Cake and Biscuit manufacturing: Processing of cakes and biscuits- ingredients, development of batter, baking and packing, Spoilage in cakes and biscuits. Cake making methods: rubbing in method, melting method, creaming method, whisking method, all in one method. Cake faults

	and their remedies. Icing- types of icing. Preparation of cookies and biscuits- principles of cookies and biscuits making, various types of cookies and biscuits, Pastry: Pastry making principles of pastry making, various types of pastries.

UNIT-II: (Practical)
30 Hours
	A. Cake making:
	   • Plain sponge
	   • Madeira cake
	   • Rock cake
	   • Fruit cake
	   • Fatless sponge
	   • Swiss rolls
	   • Genoise sponge
	B. Icings and Toppings:
	   • Fondant
	   • American frosting
	   • butter cream icing
	   • Royal icing,
	   • Glace icing
	C. Basic Pastry & Derivatives:
	   • Short crust pastry
	   • Choux pastry
	   • Puff pastry
	   • Flaky pastry
	   • Apple pie
	   • Filo pastry
	D. Quality checking and sensory tests for products

UNIT-III: (Practical)
30 Hours
	A. Preparation of Biscuits and cookies:
	   • Plain biscuits
	   • Piping biscuits
	   • Cherry knobs
	   • Langue –de – chats (cats tongue)
	   • Salted biscuits
	   • Nut biscuits
	   • Coconut biscuits
	   • Melting moment
	   • Macaroons
	   • Chocolate biscuits
	   • Marble biscuits
	   • Nan-khatai
	   • Short bread biscuits
	   • Ginger biscuits
	   • Cheese biscuits
	   • Cream fingers.
	
	B. Quality checking and sensory tests for products

UNIT-IV: (Practical) **30 Hours**	**A. Hot dessert:** • Caramel custard • Soufflé chaud • Bread and butter pudding truffle **B. Cold dessert:** • Bavarois • Ginger pudding • Cold lemon soufflé • Chocolate mousse **C. Ice Cream** • Vanilla • Strawberry • Chocolate • Pineapple • Mango • Sorbets • Bombe • Sundaes • Parfaits **B. Quality checking and sensory tests for products**
Suggested Readings	1. John Wiley & Sons, United States. Gisslen, W. (2016). Professional baking (7th ed.). John Wiley & Sons, United States. 2. Pomeranz, Y. (2003). Modern Cereal Science and Technology. MVCH Publications, New York. Figoni, P. (2010). How baking works: Exploring the fundamentals of baking science (2nd ed.). 3. Stanley, P., Cauvain, S. Linda and Young. (2008). Baked Products: Science Technology and Practice. John Wiley & Sons Publishers, United States. 4. Zhou, W., and Hui, Y. H. (2014). Bakery Products Science and Technology. Wiley Blackwell Publishers, United Kingdom.
Requirements	• Ovens • Refrigerators • Mixers, blenders, rolling pins, scales, measuring cups and spoons. • Baking sheets, pans, molds, mixing bowls, spatulas, whisks, piping bags. • Basic Ingredients for baking • Any other items as and when required

Qualified Instructors	• Bakery Experts: Hire instructors with extensive experience in baking and food science. • Pedagogical Training: Ensure instructors have or received training in effective teaching methods.

Syllabus on Vocational Education and Training Course (VTC)

Paper Title	: Beauty Care -I
CODE	: VTC: 247.1
Number of Credits	: 4
Semester	: III
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:								
Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
Beauty Care - I					In-Semester		End-Semester	
					Theory	Practical	Theory	Practical
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	1. To enable students to recognize and adhere to professional ethics and conduct in the workplace, ensuring high standards of professionalism and integrity in all aspects of their work. 2. To explain and equip students with various techniques of manicure and pedicure, promoting proper nail care and aesthetic enhancement. 3. To enable students to apply skills in threading, bleaching, facials, and waxing, offering a range of beauty treatments to meet client needs effectively. 4. To demonstrate the skills required for comprehensive hair care, including various hair treatments, to maintain and improve hair health and appearance.
Course Learning Outcome	Students will be able to 1. recognise professional ethics and professional conduct in the work place 2. explain and equip themselves with the various technique of manicure and pedicure

	3. apple the skill of threading, bleaching, facial and waxing 4. demonstrate the skill for hair care including hair treatment
Unit I: (Theory) **15 Hours**	**Personal Development for beautician and Introduction to Beauty care (Theory)** • Professional Outlook, Personal Grooming, Professional Ethics and Communication Skills • Threading and Bleach - Types, Side effects and Remedial measures • Facial - Types, Types of Skin, Phases of massages, Side effects and Remedial measures. Waxing - Types of wax, Types of waxing, Preparation of wax and Testing • Importance of hair care, Types of hair, Factors affecting hair growth, Hair problems
UNIT-II: (Practical) **30 Hours**	**Introduction to basic Beauty care (Practical):** • Threading - Materials required, Methods • Bleach –Trolley setting, Materials required, Methods • Facial - Materials required, Method, • Waxing - Methods of applying wax- hand, leg and underarm waxing, Methods of Epilation and Depilation.
UNIT-III: (Practical) **30 Hours**	**Manicure and Pedicure (Practical):** • Types of pedicures and manicure • Manicure and pedicure techniques • Nail Art: Different methods of nail art, types of nail polish, application and their methods. • Mehandi: Introduction, preparation of Mehandi paste, Mehandi cone preparation and Technique of application - hands and legs.
UNIT-IV: (Practical) **30 Hours**	**Hair Care (Practical)** • Scalp massage - Materials required and Procedure and Technique • Shampooing and rinsing- Types of shampoo and their uses, Application and Technique, Types of rinses and methods of rinsing • Hair conditioning – Types of Hair conditioner, Application and Technique • Hair Treatment
Suggested Readings	1. Burne, Deborah. The Beauty Geek's Guide to Skin Care: 1,000 Essential Definitions of Common Product Ingredients. Rockridge Press, 2019 2. Coetzee, Bronwyn. Manicure & Pedicure: A Complete Guide to Beautiful Hands and Feet. Kindle Editions 2015 3. Essential Beauty Guide. Goodwill Publishing House 2001 4. Gupta, Renu. Complete Beautician course. New Delhi, Diamond pocket books Pvt Ltd, 2001

	5. Husain, Shanaz. Shahnaz Husain's Beauty Book, Orient Paperbacks, 2014 6. Johnson, Dale H. Hair and Hair Care. New York: Marcel Decker Inc, 1997 7. Kochar, Blossom. Hair, Skin and Beauty Care 9 The complete body Book. New Delhi: VBSPD/VBS Publishers Distributors Ltd 2000 8. Paudwal, Madhumita. Practical Guide to Beautician Training. New Delhi: Asian Publishers, 2002 9. Saikia, Madhumita. Basic Beautician Training Course. Computech Publications Limited, 2019 10. Sinha, M, Rajgopal and Banerjee. S. All You Wanted To Know About Hair Care. New Delhi: Sterling Publishers Pvt. Ltd, 2000 11.
Requirements	**Threading** • Thread (antibacterial and hypoallergenic) • Tweezers • Threading scissors • Disinfectants and sterilization equipment **Bleach** • Bleach creams and powders • Mixing bowls and applicators • Trolley for organization • Protective gear (gloves, masks) • Aftercare products (soothing creams, lotions) **Facial** • Cleansers, toners, and moisturizers • Facial masks and scrubs • Massage creams and oils • Steamers and facial towels • Sponges and cotton pads • Facial beds/chairs **Waxing** • Wax heaters • Different types of wax (soft, hard, strip) • Wax applicators (spatulas) • Waxing strips • Pre-wax and post-wax care products **Manicure and Pedicure**

- Manicure and pedicure kits (nail files, buffers, clippers, cuticle pushers)
- Bowls for soaking
- Foot baths and spas
- Exfoliating scrubs
- Lotions and creams

Nail Art

- Nail polishes (various types and colors)
- Nail art brushes and tools
- Stencils and stickers
- UV/LED nail lamps for gel polish

Mehandi

- Henna powder
- Mixing bowls and spoons
- Mehandi cones
- Design stencils and instructional guides

Hair Care

Scalp Massage

- Massage oils and creams
- Scalp massagers and brushes
- Towels and capes

Shampooing and Rinsing

- Various types of shampoos and conditioners
- Rinsing bowls or salon sinks
- Applicator bottles

Hair Conditioning

- Different hair conditioners
- Leave-in conditioners and hair masks
- Heat caps and steamers

Hair Treatment

- Treatment-specific products (anti-dandruff, anti-hair fall)
- Applicators and mixing bowls
- Towels and capes

	Any other item as and when required
Qualified Instructors	- Qualified instructors with experience in beauty care - Guest lecturers or industry professionals for specialized sessions - Ensure instructors have or receive training in effective teaching methods.

Paper Title	: Beauty Care -II
CODE	: VTC: 267.1
Number of Credits	: 4
Semester	: IV
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:

Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
					In-Semester		**End-Semester**	
Beauty Care-II					Theory	Practical	Theory	Practical
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	1. To enable students to identify hair anatomy, hair types and conditions 2. To enable students to recognize hair and scalp disorders and implement massage techniques 3. To enable students to develop proficiency in hair cutting and hair styling techniques 4. To choose appropriate hair colour and make use of colouring techniques
Course Learning Outcome	At the end of the course students will be able to: 1. explain the anatomy of hair and to identify hair conditions, and different hair types. 2. identify hair and scalp disorder and the influencing factors that may cause damage to the hair and equip oneself with various massage technique 3. make use of skills relating to hair cutting and hair styling techniques 4. describe the classification of hair colour and as well as colouring techniques
Unit I: (Theory) 15 Hours	Introduction to Hair care (Theory)

	• Anatomy and physiology of hair, Hair analysis, Structure of hair and Layers of Hair • Benefits of hair spa and Precautions • Study of profiles, Hair shaping and cutting implements and their uses, Different types of sectioning and patterns making. • Basic law of colour, classification of hair colour, allergy test and precaution, hair dyeing (Herbal & Chemical)
UNIT-II: (Practical) **30 Hours**	Scalp Massage and Hair Spa (Practical) • Identifying client's hair and scalp condition • Procedure of hair spa and Massage manipulation • Hair Spa for - dandruff, oily scalp, coloured hair, hair smoothing and itchy scalp • Massage techniques: Effleurage, petrissage, tapotement, rotary, vibration, friction, champissage
UNIT-III: (Practical) **30 Hours**	Hair Cutting and Hair styling (Practical) • Types of cutting to suit the texture (fine, curly, straight, wavy and course hair). • Types and technique of haircuts- trimming, blunt-cut, layered, cutting & tapering • Basic hairstyle - Open Hair Styles, Semi-Tied & Up styles, Bridal Hair Dos, Party Hairdos, Sleep-in Looks, Ringlets and Plaits • Types of hairstyling -Thermal styling, Wet styling, Roller Setting and Artificial Aids, Technique of Hair styling: Rolls, twists, braiding, Roller setting, Blow drying, Comb out techniques,
UNIT-IV: (Practical) **30 Hours**	Hair colouring and tinting (Practical) • Examination of scalp and hair: Skin test, colour or dye selection, Sectioning the hair, application of hair, colour or dye, conditioning and setting. • Colouring techniques – frosting, tipping, slicing, foil technique, comb technique, global colouring. • Types and techniques of crimping • Pre and post treatment
Suggested Readings	1. Claude Bouillon and John Wilkinson. The Science of Hair Care, Taylor & Francis, 2005 2. Goldman, D. The Professional's Illustrated Guide to Haircare & Hairstyles, Lorenz Books, 2010 3. Johnson, Dale H. Hair and Hair Care. New York: Marcel Decker Inc, 1997 4. Kochar, Blossom. Hair, Skin and Beauty Care. New Delhi: VBSPD/VBS Publishers Distributors Ltd 2000 5. Meenakshi Sinha, Reena Rajgopal, Suchismita Banerjee. All You Wanted to Know About Hair

	Care, New Delhi: Sterling Publishers Pvt. Ltd., 2000 6. Parott. Hairstyles Coloring Book, Notion Press 2022 7. Paudwal, Madhumita. Practical Guide to Beautician Training. New Delhi: Asian Publishers, 2002 8. Regan Peter. Hair Colour Book: A Practical Guide To The Theory Of Colouring Hair. Kindle Edition 2018 9. Worthington, C. The Complete Book of Hairstyling., Carlton Books Ltd, 2001
Requirements	**Hair Spa** • Hair spa products (shampoos, conditioners, masks) • Massage oils and creams • Towels and capes **Hair Cutting and Hair Styling** • High-quality hair cutting scissors • Thinning shears • Razors • Combs and sectioning clips **Basic Hairstyle Techniques** • Hair styling products (gels, sprays, mousses) • Hair accessories (pins, bands, clips) • Tools for creating different styles (curling irons, flat irons, rollers) • Instructional materials for various styles (open hairstyles, semi-tied styles, bridal hairdos, party hairdos, sleep-in looks, ringlets, and plaits) **Examination of Scalp and Hair** • Skin test kits • Color or dye selection charts • Sectioning clips and combs **Colouring Techniques** • Hair coloring products (frosting, tipping, slicing, foil technique, comb technique, global coloring) • Applicators (brushes, bowls) • Protective gear (gloves, capes)

	• Conditioning and setting products **Types and Techniques of Crimping** • Crimping tools and irons • Instructional guides on crimping techniques **Pre and Post Treatment** • Pre-treatment products (scalp protectors, primers) • Post-treatment products (conditioners, serums) • Care instructions for colored and treated hair
Qualified Instructors	• Qualified instructors with experience in hair care and styling • Guest lecturers or industry professionals for specialized sessions • Ensure instructors have or receive training in effective teaching methods. **Any other item as and when required**

Paper Title	: Beauty Care III
CODE	: VTC: 367.1
Number of Credits	: 4
Semester	:VI
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:

Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
Basic Beauty Care-III					In-Semester		End-Semester	
					Theory	Practical	Theory	Practical
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	1. To enable students to identify and explain various skin care problems, such as acne, dryness, and sensitivity, and describe basic skin care methods to address these issues effectively. 2. To enable students to develop and equip oneself with techniques for effective facial cleansing and facial massage, promoting healthy skin and relaxation. 3. To enable students to gain proficiency in applying different types of facial makeup, including foundation, eyeshadow, and lipstick, to enhance facial features and create desired looks. 4. To enable students to discover and describe different types of spa therapies and massage techniques, learning how they contribute to overall wellness and skin health.
Course Learning Outcome	At the end of the course students will be able to 1. identify and explain the various skin care problems and describe the basic skin care methods

	2. develop and equip themselves with the techniques of facial cleansing and facial massage 3. make use of skills relating to facial make-ups 4. discover different types of spa therapies and massage techniques
Unit I: (Theory) **15 Hours**	**Introduction** • Importance of skin care, Factors affecting skin condition, skin analysis, Basic skin care methods Natural and artificial • Classification & identification of common skin problems, Skin type and treatment, Types of Natural cleanser, importance and types of Toners • Types of facial, Facial masks- Benefits and contraindications, Types of Make-up • SPA products and knowledge, Product Testing, Efficacy, Shelf Life, Storage, Contamination and Allergies, Types of massage Therapy, benefits of massage and its precautions
UNIT-II: (Practical) **30 Hours**	**Cleansing and Facial** • Types of Cleanser, Techniques of cleansing for different skin types • Techniques used in Plain facial, Vegetable peel facial, Gauze facial, Paraffin mask treatment, High frequency facial, Ozone facial, Galvanic facial, Thermo herb facial, Aroma facial, Gold and silver facial. • Knowledge and use of machines in facial • Pack and mask- Preparation of pack and mask, Techniques of applying face pack and mask
UNIT-III: (Practical) **30 Hours**	**Make-up** • Color Wheel, Skin tones, Brow shaping • Selection of cosmetics -Foundation Gel, Moisturizer, Face powder, Face compact, Concealer, Blusher, Eye shadow and lipstick • Selection of Tools - Different types of brushes, Make-up products, Selection of Sponges • Techniques of applying Make-up- Day make-up, Evening Make-up, Party Make-up, Bridal Make-up and special effects make-up
UNIT-IV: (Practical) **30 Hours**	**SPA** • SPA therapies - Acupressure, Acupuncture, Colon therapy, Ear Candling • SPA products and its uses - Essential Oils, Aromatic Oils, Body Scrubs, Body Wraps, Active Ingredients,

	Carrier Oil & Base Creams, Pre blended oils, pre-blended creams, Soaps, lotions. • Seasonal SPA therapy - winter, spring, summer, and autumn • Massage Techniques and procedure
Suggested Readings	1. Baumann, Leslie. The Skin Type Solution, Bantam, 2006 2. Baxi, Nishant. Massage Therapy, Notion Press, 2023 3. Brown, Bobbi. Makeup Manual, Grand Central Life & Style, 2011 4. Goroway, Patricia. Facial Fitness, Ergodebooks, 2006 5. Handa, P. Speaking of Skin Care, New Dawn Press, 2007 6. Reyna, G.M. How to Be a Professional Makeup Artist, Kindle Edition, 2013 7. Shapiro, B. Skin Deep: Women on Skin Care, Makeup, and Looking Their Best, Harry N. Abrams,2017 8. Sharma, Rajiv. Skin And Hair Care, Delhi: Manoj Publications, 2017 9. Steve Capellini, (2009), The Complete Spa Book for Massage Therapists, Cengage Learning Publishing 10. Tezak,Edward. Successful Salon and Spa Management, Milady Publishing Co, 2011
Requirements	**Cleansing and Facial** **Facial Techniques** • Facial beds or chairs • Facial steamers • Machines for advanced treatments (galvanic, ozone) • Masks and treatment products (paraffin, high frequency) **Pack and Mask - Preparation of Pack and Mask, Techniques of Applying Face Pack and Mask** • Mixing bowls and spatulas • Ingredients for pack and mask preparation (clays, herbs) • Instructional guides on application techniques **Make-up** • Color wheels and charts • Makeup palettes (foundations, powders, blushes, eye shadows, lipsticks) • Eyebrow shaping tools (tweezers, eyebrow pencils)

	Selection of Cosmetics
	• Makeup brushes (various types for foundation, eye makeup, blush) • Sponges and applicators • Makeup products for different skin tones and types **SPA** **SPA Therapies - Acupressure, Acupuncture, Colon Therapy, Ear Candling** • SPA therapy equipment (acupressure mats, acupuncture needles, ear candles) • Safety and hygiene protocols for specialized therapies **SPA Products and Their Uses** • Essential oils, aromatic oils, carrier oils • Body scrubs, wraps, active ingredients • Pre-blended oils, creams, soaps, and lotions **Seasonal SPA Therapy - Winter, Spring, Summer, and Autumn** • Seasonal skincare products (moisturizers, masks) • Instructional materials on seasonal treatments **Massage Techniques and Procedure** • Massage tables or chairs • Massage oils and creams • Training on various massage techniques (swedish, deep tissue, aromatherapy) **Any other item as and when required**
Qualified Instructors	• Qualified instructors with experience in skincare, makeup, and spa therapies • Guest lecturers or industry professionals for specialized sessions • Ensure instructors have or receive training in effective teaching methods.

Syllabus on Vocational Education and Training Course (VTC);

Paper Title	: Fashion Design -I							
CODE	:VTC: 247.3							
Number of Credits	: 4							
Semester	: IV							
No. of Theory Hours Per Week	: One (1 hour)							
No. of Practical Hours per Week	: Three (3 Hours)							

Outline of the Paper:								
Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
Fashion Design - I					In-Semester		End-Semester	
					Theory	Practical	Theory	Practical
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	The course is designed to familiarize the students to the concept and practice of fashion design by encouraging them to explore their imagination, creativity and fashion sense.
Course Learning Outcome	After the completion of the course the students are able to make use of the learnt experiences and artistry to come up with designs and innovations which is necessary in the realm of clothing and fashion design.
Unit I: (Theory) 15 Hours	**Elements of Design:** Primary Colours, Secondary Colours, Colour Wheel, Tints & Shades, Shapes (Line & Form), Colour Interaction, Motif, Repeats, Texture (2-2D & 3-3D), Paper Craft (Quilling, Layering, Rolling, Coiling & Exploration). Lab Sessions.
UNIT-II: (Practical) 30 Hours	**Fashion Illustration:**Front Block Figure, Front Flesh Figure, Side Block Side Figure, Side Flesh Figure, Pose-1, Pose-2, Stylize Figure, Figure with Fabrics Sketch,

	Figure with Different Medium, Different Types of Garments Silhouette. Lab Sessions.
UNIT-III: (Practical) **30 Hours**	**Surfaces Development Technique**: Basic Embroidery (Running Stitch, Double Running Stitch, Stem Stitch, Chain Stitch, Feather Stitch, Fly Stitch, Button Hole/ Basket Stitch, Single Satin Stitch, Double Satin Stitch, Lazy Daisy, French Knot, Bullion Knot), Exploration, Traditional Embroidery (Kantha, Phulkari, Kashida, Kasuti, Banjara), Tie & Dye (Ombre, Crunching, Pinching, Folding, Stripes, Titrik, Sunburst, Bulls Eye, Exploration with Natural Dye-5, Mix Media), Knitting & Crochet (Knit & Purl, Cable, Rib, Purl, Knit, Crochet & Exploration), Weaving (Plain, Twill, Basket, Satin & Exploration), Fabric Analysis, Stencil Painting. Lab Sessions.
UNIT-IV: (Practical) **30 Hours**	**Garment Construction**: Understanding the Machine, Basic Line Stitching, Seam Stitching (Plain, French, Flat & Felt, Lapped, Turned & Stitch, Pinked, Pinked & Stitch, Hand Overcast, Overlock, Mock Seam, Seam Binding with Tape, Bias Bound, Hong Kong Bound, Welt, Sloth), Hem Stitching (Blind Hem, Slip Hem, Top Stitch Hem, Narrowed Top Stitch Hem), Pleats (Knife Pleats, Box Pleats, Inverted Box Pleats), Gathers Shirring, Tucks (Pin Tucks, Space Tucks, Blind Tucks, Cross Pin Tucks), Facing (Shape Facing, Bias Facing & Combine Facing), Trims (Velcro, Snap Button, Hook & Eye, Skirt Hook & Eye, Buttons, Zipper). Lab Sessions.
Suggested Readings	1. Arbetter, Lisa. 2003. *Secrets of Style: Instyle's Complete Guide to Dressing Your Best Everyday*. New York: Hachette Book Group. 2. Bheda, Rajesh. 2006. *Managing Productivity in the Apparel Industry*. Bengaluru: CBS Publishers. 3. Bliss, Debbie & Peverill, Sue. 1985. *"She" Fashion Clothes*. London: Ebury Press. 4. Burgo, Fernando. 2002. *Il Figurino di Moda*. Milan: Istituto Di Moda Burgo. 5. Chijiiwa, Hideaki. 1994. *Colour Harmony: A Guide to Creative Colour Combinations*. Gloucester: Rockport Publishers. 6. Dwivedi, Sharada. 2000. *Abu Jani, Sandeep Khosla: A celebration of style*. AJSK Publications. 7. Frings, Gini Stephens. 2008. *Fashion: From Concept to Consumer*. New Jersey: Pearson Prentice Hall.

| | 8. Ireland, Patrick John. 2006. *Fashion Design Drawing and Presentation* (Fourth Edition). London: Batsford Ltd.
9. Jaffe, Hilde & Relis, Nurie. 2011. *Draping for Fashion Design* (Fifth Edition). New Jersey: Pearson.
10. Lorenz, Joanna. 2000. *The Complete Book of Papercrafts: A Truly Comprehensive Collection of Papercraft Ideas, Designs and Techniques, with over 300 Projects*. Pennsylvania: Hermes House.
11. Peacock, John. 1993. 20th Century Fashion. London: Thames & Hudson Ltd.
12. Portas, Mary. 1999. *Windows: The Art of Retail Display*. London: Thames & Hudson Ltd.
13. Pugh-Gannon, JoAnn. 1999. *Making the Most of Your Sewing Machine & Serger Accessories*. New York: Sterling Pub Co Inc.
14. Sodhia, Manmeet & Chatley, Pooja. 2003. *Fashion Marketing And Merchandising*. Ludhiana: Kalyani Publishers. |

| **Requirements** | **Fashion Illustration**

- **Figures (Block & Flesh)**: Sketchpads, pencils, erasers
- **Poses**: Fashion illustration templates, sketchpads
- **Stylize Figure**: Markers, coloured pencils, watercolours
- **Figure with Fabrics Sketch**: Fabric swatches, glue, sketchpads
- **Different Mediums**: Markers, watercolours, pastels
- **Garment Silhouettes**: Templates, sketchpads

Surface Development Techniques

- **Basic Embroidery**: Embroidery hoops, needles, threads, fabric
- **Traditional Embroidery**: Kantha, Phulkari, Kashida, Kasuti, Banjara threads and fabrics
- **Tie & Dye**: Fabrics, dyes, rubber bands, gloves
- **Knitting & Crochet**: Knitting needles, crochet hooks, yarn
- **Weaving**: Looms, various threads, yarns
- **Fabric Analysis**: Magnifying glass, fabric swatches
- **Stencil Painting**: Stencils, fabric paints, brushes

Garment Construction |

	- **Machine Understanding**: Sewing machines, manuals - **Basic Line Stitching**: Sewing machine, threads, fabric scraps - **Seam Stitching**: Threads, fabric, needles, sewing machines - **Hem Stitching**: Threads, fabric, sewing machines - **Pleats & Gathers**: Fabric, sewing machines - **Tucks**: Fabric, sewing machines - **Facing**: Fabric, interfacing materials - **Trims**: Velcro, snaps, hooks, eyes, buttons, zippers **Lab Sessions** - **Hands-on Practice**: Materials listed above for practical application in each category. - **Fashion Show & Exhibition Preparation**: Mannequins, fabric, design boards, sewing machines, lighting, runway setup. **Any other item as required**
Qualified Instructors	- Instructors with experience in Fashion Design - Certifications or relevant qualifications Fashion Design

Paper Title	: Fashion Design-II							
CODE	:VTC: 267.3							
Number of Credits	: 4							
Semester	:IV							
No. of Theory Hours Per Week	: One (1 hour)							
No. of Practical Hours per Week	: Three (3 Hours)							

Outline of the Paper:								
Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
Fashion Design - II					In-Semester		End-Semester	
					Theory	Practical	Theory	Practical
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40 : External Assessment: 60
Course Objectives	The course is tailored to guide the students in understanding fabric, textile and clothing material through an engagement with stitching, pattern-making, colour-blending and styling.
Course Learning Outcome	After completion of the course students are able to develop the necessary skills and sense to help in the design and production of clothing and fashion accessories.
Unit I: (Theory) 15 Hours	**Pattern Making & Fashion Styling**: Women's Basic Bodice, Basic Sleeve, Basic Skirt, Basic Pants, Collars (3 Types of Collars), Cuff, Plackets (Continuous Placket, Diamond Placket, Continuous Shirt Placket, Shirt Placket), Women's Top, Women's Pant Variation, Kids Garment (Any). Fashion Makeover, Theme Styling (Create & Style an Onsome drawing inspiration from any theme). Lab Sessions.
UNIT-II: (Practical) 30 Hours	**Final Products**: Collection Boards (7 Boards), One Complete Onsome – 1 Theme. Lab Sessions
UNIT-III: (Practical) 30 Hours	**Portfolio Development:** Creation of a professional portfolio showcasing the fashion design work of the student.

	Presenting designs to make them visually appealing. Design aesthetic communication. Lab Sessions
UNIT-IV: (Practical) 30 Hours	**Internship / Apprenticeship (for 1 semester):** Assisting Designers. Support Production. Marketing & PR Support. Research & Trend Analysis. Administrative Tasks. Networking Opportunities.
Suggested Readings	1. Arbetter, Lisa. 2003. *Secrets of Style: Instyle's Complete Guide to Dressing Your Best Everyday*. New York: Hachette Book Group. 2. Bheda, Rajesh. 2006. *Managing Productivity in the Apparel Industry*. Bengaluru: CBS Publishers. 3. Bliss, Debbie & Peverill, Sue. 1985. *"She" Fashion Clothes*. London: Ebury Press. 4. Burgo, Fernando. 2002. *Il Figurino di Moda*. Milan: Istituto Di Moda Burgo. 5. Chijiiwa, Hideaki. 1994. *Colour Harmony: A Guide to Creative Colour Combinations*. Gloucester: Rockport Publishers. 6. Dwivedi, Sharada. 2000. *Abu Jani, Sandeep Khosla: A celebration of style*. AJSK Publications. 7. Frings, Gini Stephens. 2008. *Fashion: From Concept to Consumer*. New Jersey: Pearson Prentice Hall. 8. Ireland, Patrick John. 2006. *Fashion Design Drawing and Presentation* (Fourth Edition). London: Batsford Ltd. 9. Jaffe, Hilde & Relis, Nurie. 2011. *Draping for Fashion Design* (Fifth Edition). New Jersey: Pearson. 10. Lorenz, Joanna. 2000. *The Complete Book of Papercrafts: A Truly Comprehensive Collection of Papercraft Ideas, Designs and Techniques, with over 300 Projects*. Pennsylvania: Hermes House. 11. Peacock, John. 1993. 20th Century Fashion. London: Thames & Hudson Ltd. 12. Portas, Mary. 1999. *Windows: The Art of Retail Display*. London: Thames & Hudson Ltd. 13. Pugh-Gannon, JoAnn. 1999. *Making the Most of Your Sewing Machine & Serger Accessories*. New York: Sterling Pub Co Inc. 14. Sodhia, Manmeet & Chatley, Pooja. 2003. *Fashion Marketing And Merchandising*. Ludhiana: Kalyani Publishers.
Requirements	**Fashion Illustration** - **Figures (Block & Flesh)**: Sketchpads, pencils, erasers

	- **Poses**: Fashion illustration templates, sketchpads - **Stylize Figure**: Markers, coloured pencils, watercolours - **Figure with Fabrics Sketch**: Fabric swatches, glue, sketchpads - **Different Mediums**: Markers, watercolours, pastels - **Garment Silhouettes**: Templates, sketchpads **Surface Development Techniques** - **Basic Embroidery**: Embroidery hoops, needles, threads, fabric - **Traditional Embroidery**: Kantha, Phulkari, Kashida, Kasuti, Banjara threads and fabrics - **Tie & Dye**: Fabrics, dyes, rubber bands, gloves - **Knitting & Crochet**: Knitting needles, crochet hooks, yarn - **Weaving**: Looms, various threads, yarns - **Fabric Analysis**: Magnifying glass, fabric swatches - **Stencil Painting**: Stencils, fabric paints, brushes **Garment Construction** - **Machine Understanding**: Sewing machines, manuals - **Basic Line Stitching**: Sewing machine, threads, fabric scraps - **Seam Stitching**: Threads, fabric, needles, sewing machines - **Hem Stitching**: Threads, fabric, sewing machines - **Pleats & Gathers**: Fabric, sewing machines - **Tucks**: Fabric, sewing machines - **Facing**: Fabric, interfacing materials - **Trims**: Velcro, snaps, hooks, eyes, buttons, zippers **Lab Sessions** - **Hands-on Practice**: Materials listed above for practical application in each category. - **Fashion Show & Exhibition Preparation**: Mannequins, fabric, design boards, sewing machines, lighting, runway setup. **Any other item as required**
Qualified Instructors	- Instructors with experience in Fashion Design - Certifications or relevant qualifications Fashion Design

Paper Title	: Fashion Design-III
CODE	: VTC: 367.3
Number of Credits	: 4
Semester	:VI
No. of Theory Hours Per Week	: One (1 hour)
No. of Practical Hours per Week	: Three (3 Hours)

Outline of the Paper:

Type of Course	Units in the VTC	Hours	Credits	Total Marks	Distribution of Marks (as per OC-8)			
Fashion Design III					In-Semester		End-Semester	
					Theory	Practical	Theory	Practical
	Unit-I Theory (25 Marks)	15	4	100	25			
	Unit-II to IV Theory (75 Marks)	90				15		60

Marks Distribution	: Internal Assessment: 40
	: External Assessment: 60
Course Objectives	The course is designed to familiarize the students with fashion history, trends and fashion economics including shows and pageants.
Course Learning Outcome	After completion of the course students are able to make use of with substantial information and knowledge about fashion trends, their cultural dimensions including the relationship with performance.
Unit I: (Theory) 15 Hours	**Fashion History & Theory**: History of fashion and its evolution over time. Social, Cultural & Economic factors that have influenced fashion trends throughout history. Lab Sessions.
UNIT-II: (Practical) 30 Hours	**Fashion Marketing & Merchandising**: Business aspects of fashion design. Fashion marketing strategies, retail operations and branding. Lab Sessions.
UNIT-III: (Practical) 30 Hours	**Fashion Production**: Manufacturing process and production techniques used in the fashion industry. Quality control and production management. Lab Sessions.
UNIT-IV: (Practical) 30 Hours	**Fashion Sustainability**: Environmental and social impact of the fashion industry. Sustainable design practices,

	Ethical manufacturing and responsible consumption. Lab Sessions. **Fashion Show & Fashion Exhibition**
Suggested Readings	1. Arbetter, Lisa. 2003. *Secrets of Style: Instyle's Complete Guide to Dressing Your Best Everyday*. New York: Hachette Book Group. 2. Bheda, Rajesh. 2006. *Managing Productivity in the Apparel Industry*. Bengaluru: CBS Publishers. 3. Bliss, Debbie & Peverill, Sue. 1985. *"She" Fashion Clothes*. London: Ebury Press. 4. Burgo, Fernando. 2002. *Il Figurino di Moda*. Milan: Istituto Di Moda Burgo. 5. Chijiiwa, Hideaki. 1994. *Colour Harmony: A Guide to Creative Colour Combinations*. Gloucester: Rockport Publishers. 6. Dwivedi, Sharada. 2000. *Abu Jani, Sandeep Khosla: A celebration of style*. AJSK Publications. 7. Frings, Gini Stephens. 2008. *Fashion: From Concept to Consumer*. New Jersey: Pearson Prentice Hall. 8. Ireland, Patrick John. 2006. *Fashion Design Drawing and Presentation* (Fourth Edition). London: Batsford Ltd. 9. Jaffe, Hilde & Relis, Nurie. 2011. *Draping for Fashion Design* (Fifth Edition). New Jersey: Pearson. 10. Lorenz, Joanna. 2000. *The Complete Book of Papercrafts: A Truly Comprehensive Collection of Papercraft Ideas, Designs and Techniques, with over 300 Projects*. Pennsylvania: Hermes House. 11. Peacock, John. 1993. 20th Century Fashion. London: Thames & Hudson Ltd. 12. Portas, Mary. 1999. *Windows: The Art of Retail Display*. London: Thames & Hudson Ltd. 13. Pugh-Gannon, JoAnn. 1999. *Making the Most of Your Sewing Machine & Serger Accessories*. New York: Sterling Pub Co Inc. 14. Sodhia, Manmeet & Chatley, Pooja. 2003. *Fashion Marketing And Merchandising*. Ludhiana: Kalyani Publishers.
Requirements	**Fashion Illustration** • **Figures (Block & Flesh)**: Sketchpads, pencils, erasers • **Poses**: Fashion illustration templates, sketchpads • **Stylize Figure**: Markers, coloured pencils, watercolours

	• **Figure with Fabrics Sketch**: Fabric swatches, glue, sketchpads • **Different Mediums**: Markers, watercolours, pastels • **Garment Silhouettes**: Templates, sketchpads **Surface Development Techniques** • **Basic Embroidery**: Embroidery hoops, needles, threads, fabric • **Traditional Embroidery**: Kantha, Phulkari, Kashida, Kasuti, Banjara threads and fabrics • **Tie & Dye**: Fabrics, dyes, rubber bands, gloves • **Knitting & Crochet**: Knitting needles, crochet hooks, yarn • **Weaving**: Looms, various threads, yarns • **Fabric Analysis**: Magnifying glass, fabric swatches • **Stencil Painting**: Stencils, fabric paints, brushes **Garment Construction** • **Machine Understanding**: Sewing machines, manuals • **Basic Line Stitching**: Sewing machine, threads, fabric scraps • **Seam Stitching**: Threads, fabric, needles, sewing machines • **Hem Stitching**: Threads, fabric, sewing machines • **Pleats & Gathers**: Fabric, sewing machines • **Tucks**: Fabric, sewing machines • **Facing**: Fabric, interfacing materials • **Trims**: Velcro, snaps, hooks, eyes, buttons, zippers **Lab Sessions** • **Hands-on Practice**: Materials listed above for practical application in each category. • **Fashion Show & Exhibition Preparation**: Mannequins, fabric, design boards, sewing machines, lighting, runway setup. **Any other item as required**
Qualified Instructors	• Instructors with experience in Fashion Design • Certifications or relevant qualifications Fashion Design