

**B.TECH. (COSMETIC) SEM III**  
**Vertical –a Major/ Theory 1**  
**Subject code -900025**  
**Course Name –Cosmetic Technology- III**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	a	Theory 1	900025	Cosmetic Technology- III	2	2	50 (30+20)

Unit	Content	No. of Hours
<b>I</b>	<b>Cosmeceutical Formulation Building Blocks</b> Physical and Chemical properties of cosmetic agents. (Emollients and Preservatives).	05
<b>II</b>	<b>Skin Care Cosmetics</b> Basic structure and function of skin. Roles of Skin care cosmetics. Skin-related problems.	05
<b>III</b>	<b>Skin Care Cosmetic Formulations</b> a. Cleansing Foams: Classification of Cleansing Foams, Raw materials for cleansing Foams, formulation and evaluation of cleansing Foams. b. Lotion: Classification of lotion, Raw materials for lotion, Formulation and Evaluation of lotion. c. Cream: Classification of cream, Raw materials for cream, Formulation and Evaluation of creams. (Moisturizing cream, Cold cream, Vanishing cream, Night and Massage cream).	10
<b>IV</b>	<b>Make Up Cosmetics</b> Types and functions of makeup cosmetics. <b>a. Eye Cosmetics:</b> Classification of Eye Cosmetics, Raw materials for Eye cosmetics, Formulation and Evaluation of Eye cosmetics. (Eye Shadows, Eye Mascara, Eye Liners). <b>b. Face Powders:</b> Classification of Face powders, Raw materials for Face powders, Formulation and Evaluation of Face powders. (Loose Powder, Liquid face powder, Dusting powder, Talcum powder). <b>c. Lipsticks:</b> Raw materials for Lipsticks, Formulation and Evaluation of Lipsticks.	10

<b>Recommended Books:</b>
1. New Cosmetic Science by Takeo Mitsui.
2. Textbook of Cosmetology by Harry's.
3. A Handbook of Cosmetics by B. M. Mithal.
4. Soap, Detergent And Perfume Industry by S.B. Srivastava.
5. Handbook of Cosmetic Science and Technology by Andre O'Barel.

**B.TECH. (COSMETIC) SEM III**  
**Vertical – a Major / Practical 1**  
**Subject code -900034**  
**Course Name -Cosmetic Technology- III**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	a	Practical 1	900036	Cosmetic Technology- III	2	2	50 (25+25)

Practical	Content
1	<b>(Each for Two)</b> Preparation and Evaluation of Face Powder.
2	Preparation and Evaluation of Dry Shampoo.
3	Preparation and Evaluation of Skin care Products Night & massage Cream.
4	Preparation and Evaluation of Hair care Products ( Hair lotion, Cream, Mask)
5	Preparation and Evaluation of Lip bam, Lipstick.
6	Preparation and Evaluation of Base on Gels.
7	Preparation and Evaluation of Eye Shadows, Muscara, Liners.
8	Preparation and Evaluation of Nail remover, Bleach.

<b>Recommended Book:</b>
1) A Handbook of Cosmetics by B. M. Mithal.
2) Soap, Detergent And Perfume Industry by S.B. Srivastava.
3) Handbook of Cosmetic Science and Technology by Andre O'Barel.

**B.TECH. (COSMETIC) SEM III****Vertical –a Major / Theory 2****Subject code -900026**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	a	Theory 2	900026	Cosmetic Chemistry- I	2	2	50 (30+20)

**Course Name –Cosmetic Chemistry- I**

Unit	Content	No. of Hours
<b>I</b>	<b>Pharmacopoeia</b> Introduction, History of Indian Pharmacopoeia, British Pharmacopoeia, United States Pharmacopoeia, Introduction of Monograph.	05
<b>II</b>	<b>States of Matter</b> Intermolecular forces and their impact on states of matter, Gaseous state- Behavior of gases ideal and real gases, Liquefaction of gases, Liquids: Surface tension, Viscosity. Solid Amorphous and crystalline solids, geometry, symmetry of crystals and physical properties of crystals, X-ray, Crystallography, Polymorphism its types and uses.	05
<b>III</b>	<b>Physical Properties of Materials Potentially used in Cosmetic</b> Dielectric constant, Refractive index, Molar refraction, optical activity, interfacial tension, adhesion and spreading adsorption at solid/Liquid, solid -gas interfaces and their application in cosmetics.	10
<b>IV</b>	<b>Qualitative and Quantitative</b> Introduction, Methods, Aqueous Titration and Non-aqueous titration, Different techniques of analysis, Errors, Types of errors, Methods of minimizing error, accuracy and Precision.	10

**Recommended Books:**

1. Indian Pharmacopoeia.
2. Martin, Physical Pharmacy and Pharmaceutical Science, Wolters Kluwer.
3. Organic Chemistry by R. T. Morrison, R. N. Boyd and Bhattacharjee.
4. Physical Chemistry A. J. Mec.
5. Phramacutical Drug Analysis, by M. Zaffer Ahmad, Mohammed Ali.
6. A. I. Vogel Text book of Quantitative Inorganic Analysis.
7. Physical Pharmaceutics-I by CVS Subramanyam.

**B.TECH. (COSMETIC) SEM III**  
**Vertical –a Major / Theory 3**  
**Subject code -900027**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	a	Theory 3	900027	Perfume and Colors- I	2	2	50 (30+20)

**Course Name –Perfume and Colors- I**

Unit	Content	No. of Hours
I	Role of Fragrance in Cosmetics - History of perfume, Olfaction and its role, Classification of Fragrance on the basis of their sources.	05
II	Fixatives : - Introduction, Classification ,Chemical composition, and Uses of the following- a. Animal Source: - Civet ,Musk, Ambergris b. Plant Source: - Eucalyptus ,Mint, Rose c. Resinous Fixatives:- Benzoin, Balsams, Myrrh, Cinnamyl Alcohol, Orris, Vanillin. d. Essential Oil Fixatives :- Sandalwood, Lemon, Cinnamon, Patchouli Oil, Phenyl e. Synthetic Fixatives: - Diethyl phthalate, Benzyl Benzoate, Alcohols, Acetophenone, Musk ketone, Musk Ambrette, Heliotropin, Hydroxy Citronellal, Indole.	10
III	Method of Manufacturing of Alcohols: - Method and General names, Compounding, Safety. a. Manufacturing of Ethanol b. Purification of Ethanol c. Deodorization of Ethanol	10
IV	Flavours : Sources and Properties of Following; vanilla, rose, pineapple, peppermint, mango, raspberry, orange, lemon, eugenol, citral, nerol.	05

**Recommended Books:**

- 1) Perfume soaps& cosmetics by Poucher.
- 2) Essential oil vol.I by Guenther.
- 3) Perfumes, flavours & Essential Oils, Industries SBP Board.
- 4) Manufacture of perfumes, cosmetics and detergents by Prasad.
- 5) Cosmetic Science & Technology By Sagarin.

**B.TECH. (COSMETIC) SEM III**  
**Vertical –a Indian Knowledge system (IKS) Major Specific / Theory**  
**Subject code -900033**  
**Course Name- Indian Herbal Cosmetic**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	a (IKS)	Theory	900033	Indian Herbal Cosmetic	2	2	50 (30+20)

Unit	Content	No. of Hours
<b>I</b>	<b>Natural Resources in Indian Cosmetic</b> Classification of drugs: Alphabetical, Morphological, Taxonomical, Chemical, Pharmacological, Sources of Drug- plant, Animal, Marine used in cosmetic preparation, Organized and Unorganized drug, Different method used for extraction – Maceration, percolation and decoction and modern method of extraction.	10
<b>II</b>	<b>Cosmetic Crude Drug</b> Apricot, Aloe, Almond oil, Amal, Brahmi, Bhringaraja, Bawachi, Coconut oil, Heena, Hibiscus, Manjistha, Jatamansi, Olive oil, Tulsi, Neem, Wheat Gram Oil, Safflower Ritha, Shikakai, Manjistha, Jatamansi.	10
<b>III</b>	<b>Herbal Formulations</b> Creams, lotions, Powders, Shampoo, lipstick, other cosmetics, formulations. A brief account of plant based cosmetic industries and its evaluations.	05
<b>IV</b>	<b>Regularly Aspect</b> Good Manufacturing Practices of Indian cosmetic industry, Cosmetic rules of 2020, Trade Marks Act 1999, Consumer protection Act 1986. Other Regulation -The Bureau of Indian standards sets for cosmetic.	05

<b>Recommended Books:</b>
1. Pharmacognosy by S. B. Gokhale, C. K. Kokate, A. P. Purohit, Nirali Prakashan.
2. Indian Cosmetics and Perfumes by Dr. S. K. Sharma.
3. Articles and research papers rules and regulation in Indian cosmetic.
4. Quality Control of Herbal Drugs by Dr. Pulok K. Mukherjee, Horizons Phramceutical Publishers.
5. Trease and Evans Pharmacognosy, by Willam C. Evans, Elsevier.

**B.TECH. (COSMETIC) SEM III**  
**Vertical –b Minor Specific / Theory 1**  
**Subject code -900028**  
**Course Name- Dermatology**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	b	Theory 1	900028	Dermatology	2	2	50 (30+20)

Unit	Content	No. of Hours
<b>I</b> a. b. c.	<b>Introduction of Pharmacology</b> Definition of Pharmacology, Scope, Routes of administration of drug especially topical routes of application with merits and demerits. Topical routes mechanisms of action and its absorption and distribution along with adverse drug reaction. Pharmacology of topical routes of preparation drugs: Protective and adsorbents, Demulcent Astringents and antiperspirants, Irritants, Rubefacients Vesicants, Sclerosing agents, Caustics and Escharotics, Keratolytics (Desquamating agents), cleansing preparation.	10
<b>II</b> a. b. c.	<b>Skin hypersensitivity and metal poisoning</b> Hypersensitive reaction types and its disorders due to it. Autacoids Histamine its pharmacology role and antihistamine drugs. Symptoms and management of Heavy metal poisoning and metal antagonist of Mercury, Arsenic, lead, and copper poisoning.	10
<b>III</b> a. b. c. d. e.	<b>Skin disorder</b> Disorder of Skin pigmentation: Hyper pigmentation and Hypopigmentation, different agents use in it. Disorder of hair with treatment management. Disorder of sweat and Sebaceous gland with treatment management. Disorder of Nail and tooth.	05
<b>IV</b> a. b. c. d.	Acute toxicity contact dermatitis, Allergic contact dermatitis, Irritant contact dermatitis. Homeostatic Imbalance : Burns, Sunburns, Skin cancer, pressure sores. Skin Aging, factors affecting aging, Managements of aging. Environmental hazards and Industrial hazards.	05

<b>Recommended Books:</b>
1. Textbook of Pharmacology. Barar F.S. K. Published by S. Chand
2. Roxburgh's Common Skin Diseases Edited by Ayşe Serap Karadag, Lawrence Charles Parish, Jordan V. Wang published by CRC Pr I Llc; 19th edition
3. Manual of Skin Diseases by Jain / Deshore CBS Publisher & Distributors P Ltd, 2010
4. Pharmacology and Pharmacotherapeutics, satooskar and bhanadrkar Elsevier.
5. Manual of Dermatology in General Practice Prof. (Dr) Md Rokun Uddin, Published by Jaypee Brothers Medical Publishers.

**B.TECH. (COSMETIC) SEM III**  
**Vertical –b Minor / Theory 2**  
**Subject code -900029**  
**Course Name- Cosmetic Business Management**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	b	Theory 2	900029	Cosmetic Business Management	2	2	50 (30+20)

Unit	Content	No. of Hours
<b>I</b>	<b>Introduction</b> Introduction, definition of Management , Principle of management , Functions of Management, It's Art / Science.	05
<b>II</b>	<b>Marketing Management</b> Consumer behaviour, International marketing, Digital marketing, Managerial Economics, Supply chain Management, Cosmetic Marketing Management.	10
<b>III</b>	<b>Production Management</b> Quality control, Product design, Supply Chain Management.	05
<b>IV</b>	<b>Financial Management</b> Financial Accounting , Investment planning , Risk Management , Financial Modeling , International Finance, Corporate Finance.	10

<b>Recommended Books:</b>
1. Production and operation management by R.Paneer Selvan 3 <sup>rd</sup> edition.
2. Fundamentals of management by Stephen p. Robbins pearson 11 <sup>th</sup> edition.
3. Fundamentals of management by Ricky Griffin Principles of marketing by Philip kotler , Pearson 19 <sup>th</sup> edition.
4. Marketing management by Philip Kotler, Jagishn. Sheth.
5. Financial management by I. M. Pandey .
6. Financial risk management by Angelo Corelli.
7. Drug store and business management by R. M. Mehta.
8. Drug store and business management by Dr. M. D. Burande.
9. Drug store and business management by Atul Kabra.
10. Drug store and business management by Neelam Mahajan.

**B.TECH. (COSMETIC) SEM III**  
**Vertical –c Generic Open Elective (OE)**  
**Subject code - 900030**  
**Course Name – OE Sciences of Nutraceuticals**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)
Classroom Teaching	c	Theory 1	900030	(OE) Nutraceuticals	2	2

Unit	Content	No. of Hours
<b>I</b> <b>a.</b>  <b>b.</b>	<b>Introduction to Nutraceuticals as Science</b> Historical perspective, classification, scope & future prospects. Applied aspects of the Nutraceutical Science. Sources of Nutraceuticals. Properties, structure and functions of various Nutraceuticals Glucosamine, Octacosanol, Lycopene, Carnitine, Melatonin and Ornithine alpha ketoglutarate. Use of proanthocyanidins, grape products, flaxseed oil as Nutraceuticals.	05
<b>II</b> <b>a.</b>  <b>b.</b>	<b>Vitamins and Water</b> Vitamins their Structure Classification, plant animal sources, vitamins as coenzymes, deficiency of vitamins . (Choline, Carnitine , Vitamin B <sub>12</sub> , C, D, Folic Acid) Water: Functions of water in body and its regulation. Solution interactions.	10
<b>III</b>	<b>Antioxidants</b> Concept of free radicals and antioxidants; antioxidants role as nutraceuticals and functional Foods.	05
<b>IV</b>	<b>Nutraceutical Rich Supplements</b> Bee Pollen, Caffeine, Green Tea, Grape Tea, Wheat Grass, Lecithin, Mushroom Extract, Chlorophyll, Kelp and Spirulina, Garcinia Cambogia , Aloe Vera and Blue Tea4.	10

<b>Recommended Books:</b>
1. Nutraceutical , Vikas R. Publishing House Pvt.
2. Robert E.C. Wildman; Handbook of Nutraceuticals and Functional Foods, Second Edition; CRC Press.
3. Susan Sungsoo Cho, Mark L. Dreher; Marcel; Dekker Handbook of Dietary Fibre.
4. Handbook of Nutraceuticals and Natural Products: Biological, Medicinal, and Nutritional Properties and Applications, Preetha Balakrishnan, Sreerag Gopi, 2022.
5. Dietary Supplements and Nutraceuticals Technical Publications.
6. Lehninger Principles of Biochemistry, Albert L. Lehninger, David L. Nelson, Michael M. Cox W. H. Freeman, 2005.

**B.TECH. (COSMETIC) SEM III**  
**Vertical –d Ability Enhancement Course / Theory**  
**Subject code -900031**  
**Course Name – Ability Enhancement Course (AEC)- English**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	e	Theory	900031	Ability Enhancement Course (AEC)- English	1	1	25 (15+10)

Unit	Content	No. of Hours
<b>I</b> a. b. c.	<b>Prose</b> Ratan Tata. Sundar Pichai. Ram Chandra Rao and Laxman Kirloskar.	07
<b>II</b> a. b. c.	<b>Writing Skills</b> E- mail writing. Blog writing. Resume writing.	08

<b>Recommended Book:</b>
1. Boarde of Editors : Orient Black Swan Publication.

**B.TECH. (COSMETIC) SEM III**  
**Vertical –e Ability Enhancement Course- Modern Indian Language / Theory**  
**Subject code -900032**  
**Course Name – Ability Enhancement Course- Modern Indian Language (AEC- MIL)**  
**Marathi**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	e	Theory	900032	Ability Enhancement Course- Modern Indian Language (AEC- MIL) Marathi	1	1	25 (15+10)

Unit	Content	No. of Hours
I	1. समास : व्याखा, स्वरूप ,प्रकार . 2. प्रयोग : व्याखा,स्वरूप प्रकार.	07
II	1. नाम : व्याखा,स्वरूप प्रकार. 2. सर्वनाम : व्याखा,स्वरूप प्रकार. 3. विभक्ती : व्याखा,स्वरूप प्रकार.	08

<b>Recommended Book:</b>
1. सुगम मराठी व्याकरण व लेखन - मो. रा. वाळबे , नितीन प्रकाशन २०१६. 2. सुबोध मराठी व्याकरण : नवनीत प्रकाशन.

**B.TECH. (COSMETIC) SEM III**  
**Vertical –d Vocational Skill Courses (VSC) / Practical -2**  
**Subject code -900035**  
**Course Name –Perfume and Colors- I**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	d (VSC)	Practical 2	900035	Perfume and Colors- I	2	2	50 (25+25)

Practical	Content
1	To carry out distillation of Ethyl alcohol and determine its boiling point.
2	To carry out extraction of Clove oil by distillation Method.
3	To carry out extraction of Rose oil by distillation Method.
4	To carry out extraction of Orange peel oil by distillation Method.
5	To carry out of extraction of Curcumin by Soxhlet apparatus.
6	To carry out of extraction of Ginger by Soxhlet apparatus.
7	To carryout Identification of given samples of Perfumes.
8	To carryout Identification of given samples of Flavors.

<b>Recommended Book:</b>
1) Perfume soaps & cosmetics by Poucher.
2) Essential oil vol. I by Guanter.
3) Perfumes, flavours & Essential Oils, Industries SBP Board.
4) Manufacture of perfumes, cosmetics and detergents by Prasad.
5) Cosmetic Science & Technology by Sagarin.

**B.TECH. (COSMETIC) SEM III**  
**Vertical –f Field Project/ Community Engagement and Service (FP/CES)**  
**Co-Curricular (CC)**  
**Subject code -900036**  
**Course Name – Field Project/ Outdoor**

<b>Mode of Teaching</b>	<b>Vertical No.</b>	<b>Types of Course</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Credits</b>	<b>Workload (Hrs/week)</b>
<b>Classroom Teaching</b>	<b>f</b>	<b>Project/ Outdoor</b>	<b>900036</b>	<b>(FP/CES) (CC)</b>	<b>2</b>	<b>2</b>

**B.TECH. (COSMETIC) SEM IV**  
**Vertical –a Major/ Theory 1**  
**Subject code - 900037**  
**Course Name –Cosmetic Technology- IV**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	a	Theory 1	900037	Cosmetic Technology- IV	2	2	50 (30+20)

Unit	Content	No. of Hours
<b>I</b>	<b>Cosmeceutical Formulation Building Blocks</b> Perfumes, Controversial ingredients.	05
<b>II</b>	<b>Hair Care Cosmetics</b> Basic structure of hair.Hair growth cycle. Roles of hair care cosmetics. Hair damage and its causes, Split hairs.	05
<b>III</b> a. b. c.	<b>Hair Care Cosmetics Formulations</b> <b>Shampoos:</b> Classification of Shampoo, Raw materials for shampoo, Formulation and evaluation of shampoo. (Clear liquid shampoo, Aerosol shampoo, Acid balanced shampoo). <b>Hair Tonics and Conditioners:</b> Classification of Hair tonics and conditioners, Raw materials for hair tonics and conditioners, Formulation and evaluation of hair tonics and conditioners. (Medicated and Non-medicated hair tonics and conditioners). <b>Hair Setting:</b> Classification of hair Settings, Raw materials for settings, Formulation and evaluation of hair settings. (Men's and Women's hair dressing, Hair lotion, Hair sprays, and brilliantine's).	10
<b>IV</b> a. b. c.	<b>Body Cosmetics</b> Types and functions of body cosmetics. <b>Soaps:</b> Classification of Soaps, Raw materials for soaps, Formulation and evaluation of soaps. <b>Body Shampoo:</b> Classification of bath shampoo, Raw materials for bath shampoo, Formulation and evaluation of bath shampoo. <b>Foam Baths:</b> Classification of Foam baths, Raw materials for foam baths, Formulation and evaluation of foam baths.	10

<b>Recommended Book:</b>
1. New Cosmetic Science by Takeo Mitsui.
2. Textbook of Cosmetology by Harry's.
3. A Handbook of Cosmetics by B M Mithal.
4. Cooper and Gun Dispensing For Pharmaceutical students.
5. Soap, Detergent And Perfume Industry by SB Srivastava.
6. Handbook of Cosmetic Science and Technology by Andre O'Barel.

**B.TECH. (COSMETIC) SEM IV**  
**Vertical - a Major/ Practical-1**  
**Subject code -900045**  
**Course Name –Cosmetic Technology -IV**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	a	Practical-1	900045	Cosmetic Technology - IV	1	1	25 (15+10)

Practical	Content
1	(Each for Two) Preparation and Evaluation of Compact Powder.
2	Preparation and Evaluation of Herbal Soap.
3	Preparation and Evaluation of Foot cream, scrub,
4	Preparation and Evaluation of Hair care Product ( Hair Serum, Shampoo, Conditioner)
5	Preparation and Evaluation of Face wash.
6	Preparation and Evaluation of Hand and Body lotion.
7	Preparation and Evaluation of Soild Brilliantine.
8	Preparation and Evaluation of Bath Oil.

<b>Recommended Book:</b>
1. Soap, Detergent And Perfume Industry by SB Srivastava.
2. Handbook of Cosmetic Science and Technology by Andre O'Barel.

**B.TECH. (COSMETIC) SEM IV**  
**Vertical –a Major / Theory 2**  
**Subject code -900038**  
**Course Name –Cosmetic Chemistry- II**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	a	Theory 2	900038	Cosmetic Chemistry- II	2	2	50 (30+20)

Unit	Content	No. of Hours
<b>I</b>	<b>Structure Nomenclature</b> Preparation and reaction of following groups in cosmetic - Alkanes, Alkenes, Alkynes, Cycloalkanes, Dienes, Alkyl halides.	05
<b>II</b>	<b>Acid, Bases, Buffers</b> Introduction for Acids and Bases, Buffers, Properties, Buffer action, Isotonic Buffers, types, Concept of pH.	05
<b>III</b> a. b. c.	<b>Topical Agents</b> Introduction, Astringent- Zinc oxide, Zinc Sulphate, Potash alum. Antimicrobial Agent- Introduction, Ideal properties Hydrogen Peroxide, Chlorinated Lime, Potassium Permanganate, Boric acid, Iodine. Protective and Adsorbents: Talc, Calamine.	10
<b>IV</b> a. b.	<b>Impurities in cosmetic Substances and Limit Tests:</b> Sources of Impurity, Test for Purity, Limit Test Chloride, Sulphate, Iron, lead, Heavy metal, Arsenic. Hazards in chemistry laboratories and necessary precautions.	10

<b>Recommended Book:</b>
1. Pharmaceutical Inorganic Chemistry, Dr. S. B. Bhushan, Dr. S. G. Walode Nirali Prakashan.
2. Organic chemistry by R. T. Morrison , R. N. Boyd.
3. The chemistry and Manufacture of cosmetics Vol. I & II
4. A. I. Vogel Text book of Quantitative Inorganic Analysis.
5. Pharmacopoeia.
6. Organic Chemistry by R. T. Morrison, R. N. Boyd and Bhattacharjee.

**B.TECH. (COSMETIC) SEM IV**  
**Vertical –a Major / Theory 3**  
**Subject code -900039**  
**Course Name –Perfume and Colors- II**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	a	Theory 03	900039	Perfume and Colors- II	2	2	50 (30+20)

Unit	Content	No. of Hours
<b>I</b> a.  b.	<b>Sources of Perfumery Raw materials and their use in Formulation</b> Essential Oils: - Theory and Principle of Distillation. Production equipment's required to extract Essential Oils, methods of installation of steam and water Distillation Assembly. Apparatus used for treatment of condensate water after distillation. Flower Oils: - Methods of extraction with Cold fat and Hot fat alcoholic extracts, absolutes of effleurages and chassis. Extraction with volatile solvent, selection of solvents and extraction apparatus. Merits and Demerits of extraction methods used to extract flower oils.	10
<b>II</b>	<b>Resins, Gums and Exudates</b> Extraction Processes like Maceration, Percolation and Continuous Extraction methods. Resins:- Rosin and Shellac Oleo Resins :- Ginger Oleo Resins Oleo Gum Resins :- Gum storax , gum benzoin Balsums :- Types of balsams, Myrrh Isolates :- Methods of Isolation , properties and uses of Eugenol ,Pinene , Linal citrate ,Giraniol.	10
<b>III</b> a. b. c.	<b>Packaging of Perfumes with special emphasis on Aerosol products</b> Aerosol :- principle and mechanism Method of preparation:- Cold fill method and Press fill method Packaging components.	05
<b>IV</b>	<b>Revision , adaptation of incorporation of Perfumes in cosmetic products</b> Creams, lotions, Powders, eye make-up preparations, Hair care preparations, Lip Care preparations, Oral care preparations, Body care preparations and Toiletries products.	05

<b>Recommended Book:</b>
1) Perfume, Flowers and Essential Oil industries By S.B. Shrivastava.
2) Manufacture of Perfume, Cosmetics and Detergents By Giriraj Prasad.
3) Cosmetics—Science and Technology BySagarin.
4) Industrial Pharmacy By Leon Lachman.
5) Essential Oil Vol. I ByGaunther.
6) Perfume ,Soaps and cosmetics By Poucher.

**B.TECH. (COSMETIC) SEM IV**  
**Vertical –b Minor / Theory 1**  
**Subject code -900040**  
**Course Name- Account and Book keeping**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	b	Theory 1	900040	Account and Book keeping	2	2	50 (30+20)

Unit	Content	No. of Hours
<b>I</b>	<b>Accounting</b> Introduction to accounting, definition, Objective, limitations, Branches of accounting, Differentiate between personal and Interpersonal accounts, Identify the possessions of the business. Accounting concepts, Accounting conventions.	10
<b>II</b>	<b>Trial Balance</b> Define, Construct, advantages and short falls, financial statements, Profit and loss account, Balance sheet, Method of financial analysis, Interpretation and Capital of the business.	10
<b>III</b>	<b>Books Keeping</b> Book Keeping, Role Double entry Book Keeping System, Principle Advantages of double book Keeping .	05
<b>IV</b>	<b>Financial Statements</b> Advantages of Financial Statements, Limitation, Profit and Loss account, Balance Sheet, Methods of Financial Analysis.	05

<b>Recommended Book:</b>
1. R. M. Mehta Drug store and business management, Vallabh bPrakashan.
2. Double entry book keeping accounting for companies, by T. S. Grewal's, Sultan Chand.
3. Book keeping & accounting by Nabhi's publication.
4. Financial accounting, by CA (Dr) P. C. Tulsian, C. A. Bharat Tulsian.

**B.TECH. (COSMETIC) SEM IV**  
**Vertical –b Minor / Theory 2**  
**Subject code -900041**  
**Course Name- Science of Nutrients**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	b	Theory 2	900041	Science of Nutrients	2	2	50 (30+20)

Unit	Content	No. of Hours
<b>I</b> a. b.	<b>Food Balance diet and Nutrition</b> Definition of Health, Nutrition and Dietetics, Functions of Food, Balanced Diet Use of Balanced Diet in Meal Planning, Factors affecting Meal Planning. Basic food groups, their sources and nutritional importance.	05
<b>II</b> a. b. c. d. e.	<b>Nutritional and Health education</b> Definition, Importance , Nutrition Education Methods. Teaching aids used in Nutrition Education. Mass communication media used in Nutrition Education. Nutrition Education through Educational Institutions. Role Of Nutrition Education Programs In Eradication Of Malnutrition.	05
<b>III</b> a. b. c. d. e.	<b>Nutrition Policy and Programmes</b> Integrated Child Development Services (ICDS) Programme Nutrient Deficiency Control Programme Supplementary Feeding Programme Food Security Programme Self-Employment and Wage Employment Schemes.	10
<b>IV</b> a. b. c.	<b>Nutrition Metabolisms and Diet Therapy</b> Metabolism of Carbohydrates, Lipids, Proteins, Vitamins, Minerals and Water and Electrolyte balance Principles of Diet Therapy Modification of Normal diet for therapeutic purpose Nutritional management in Common ailments a. Diarrhoea b. Constipation c. Jaundice d. Diabetes Mellitus e. Anaemia f. Typhoid g. Fever Food Preservation – Dehydration, Chemical, Preservation by Control of Temperature with sugar, salt, oil and spices , Importance of Health drinks made from vegetable (Antioxidant and Fibres)	10

<b>Recommended Book:</b>
1. Mahan L. K., Escott- Stump, S. and Raymond J. L. (2012): “Krause’s Food and the Nutrition Care Process”, 13th Edition, Elsevier.
2. C. Gopalan, B.V. Rama Sastri& S. C. Bala subramanian ‘Nutritive Values of Indian Foods’ ICMR- National Institute of Nutrition Hydradabad Indian.
3. Wadhwa, A. and Sharma, S. (2003) Nutrition in the Community - A text book SCN News, UN ACC/SCN Subcommittee on Nutrition.
4. FAO/WHO. Preparation and use of food based dietary guidelines. Report of a joint FAO/WHO consultation: Nicosia, Cyprus. Nutrition Programme, WHO, Geneva (1996).
5. National Nutrition Policy. Department of Women and child Development. Ministry of Human Resource Development, New Delhi, Government of India, 1993.
6. Dasgupta, S. K., Biochemistry Vol. I; n & III, McMillan Co. of India Limited.
7. Biochemistry, U. Satyanarayna, U. Chakrapani 4th edition.
8. Ross, A.C., Caballero B., Cousins R. J., Tucker K.L. and Ziegler T. (2014) Modern Nutrition in Health and Disease. Wolters Kluwer Health/ Lippincott Williams and Wilkins. Ed 11. <sup>th</sup>

**B.TECH. (COSMETIC) SEM IV**  
**Vertical –c Generic Open Elective (OE) Theory 1**  
**Subject code -900042**  
**Course Name – OE Cosmetology**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)
Classroom Teaching	c	Theory 1	900042	(OE) Cosmetology	2	2

Unit	Content	No. of Hours
<b>I</b>	<b>Scope of Cosmetic Science</b> Definition Cosmetic Science, History of Cosmetic, Principle, Formulation, Development, and Evaluation of cosmetic Products, their functions.	05
<b>II</b> <b>a.</b> <b>b.</b>	<b>Cosmeceutical Products</b> Classification of cosmetic and cosmeceutical products, Definition of cosmetics, evolution of cosmeceuticals from cosmetics. Cosmetic excipients: Surfactants, Rheology Modifiers, Humectants, Emollients, Preservatives. Classification and application.	05
<b>III</b> <b>a.</b> <b>b.</b> <b>c.</b> <b>d.</b>	<b>Skin and Hair Care</b> Principles of formulation and building blocks of skin care products Face wash, Moisturizing cream, Cold Cream, Vanishing cream and their advantages and disadvantages. Application of these products in formulation of cosmeceuticals. Antiperspirants & deodorants: Actives & mechanism of action. Sun protection, Classification of Sunscreens and SPF. Role of herbs in cosmetics Skin Care: Aloe and turmeric Hair care: Henna and amla. Principles of formulation and building blocks of Hair care products, Conditioning Shampoo, Hair conditioner, Anti-dandruff shampoo, Hair oils Chemistry and formulation of Para phylene diamine based hair dye.	10
<b>IV</b> <b>a.</b> <b>b.</b>	<b>Cosmetic problems</b> Oily and dry skin, causes leading to dry skin, skin moisturisation. Basic understanding of the terms Comedogenic, dermatitis. Hair and scalp: Dandruff, Hair fall causes Skin: blemishes, wrinkles, acne, prickly heat and body odor. Antiperspirants and Deodorants- Actives and mechanism of action.	10

<b>Recommended Book:</b>
1. Harry's Cosmeticology, Wilkinson, Moore, Seventh Edition, George Godwin.
2. Cosmetics – Formulations, Manufacturing and Quality Control, P.P. Sharma, 4th Edition, Vandana Publications Pvt. Ltd., Delhi.
3. Textbook of cosmetology by Sanju Nanda & Roop K. Khar, Tata Publishers.
4. Textbook of Cosmetics by M. Vimaladevi.

**B.TECH. (COSMETIC) SEM IV**  
**Vertical –e Ability Enhancement Course / Theory 2**  
**Subject code -900043**  
**Course Name – Ability Enhancement Course (AEC)- English**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	e	Theory-2	900043	Ability Enhancement Course (AEC)- English	1	1	25 (15+10)

Unit	Content	No. of Hours
<b>I</b> a. b. c.	Formal Letters, Formal Circulars Memo Writing.	07
<b>II</b> a. b. c.	Formal E- mail writing Agenda Minutes of Meeting and Action Taken Report.	08

<b>Recommended Book:</b>
1. English Grammar and Communication Skills, Prof. Sakina Raja Prashant Publications.
2. Communication Skills VivekKayade, Prashan Publications.
3. Business Communication Anil Patil and Hemantkumar, Prashant Publications.

**B.TECH. (COSMETIC) SEM IV**  
**Vertical –e Ability Enhancement Course- Modern Indian Language / Theory**  
**Subject code -900044**  
**Course Name – Ability Enhancement Course- Modern Indian Language (AEC- MIL)**  
**Hindi**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	e	Theory	900044	Ability Enhancement Course- Modern Indian Language (AEC- MIL) Hindi	1	1	25 (15+10)

Unit	Content	No. of Hours
I	कार्य का जीवन संतुलन - डॉ. नेहा भांडारकर. दुसरो के लिये जिना - भुवेंद्र त्यागी .	07
II	टिपणी लिखाना. ऐनिमेशन लिखाना और विस्तार - शुबी दाधिच.	08

**Recommended Book:**

1. विचारशोधभाग : राघव पब्लिकेशन, नागपुर प्रथम आवृत्ती२०२४.
2. ज्ञानदीपभाग – १ संपादक - डॉ. निभाउपाध्य, डॉ. तीर्थराजराय, डॉ. सुशांतठोक.

**B.TECH. (COSMETIC) SEM IV**  
**Vertical - a Vocational Skill Course / Practical 2**  
**Subject code -900046**  
**Course Name –Cosmetic Chemistry- II**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	e	Practical-2	900046	Cosmetic Chemistry- II	1	1	25 (15+10)

Practical	Content
1	<b>(Each of Two)</b> To Perform Identification testing for - Magnesium hydroxide, Ferrous sulphate Sodium bicarbonate, Calcium gluconate, Copper sulphate.
2	To Perform Limit Test for- Chloride, Sulphate, Iron, Arsenic, Heavy metal.
3	To Perform Preparations for - Potash Alum, Potassium Permanganate, Sodium Chloride, Magnesium Sulphate, Boric acid.
4	To Perform Assay for- Ammonium Chloride, Ferrous sulphate ,Copper Sulphate ,Calcium gluconate, Hydrogen Peroxide , Sodium Benzoate , Sodium Chloride.

<b>Recommended Book:</b>
1. Organic chemistry by R. T. Morrison , R. N. Boyd.
2. The chemistry and manufacture of cosmetics Vol. I & II
3. Quantitative Inorganic analysis by Vogel.
4. Pharmacopeia.

**B.TECH. (COSMETIC) SEM IV**  
**Vertical –a Skill Enhancements Course (SEC) / Practical 3**  
**Subject code -900047**  
**Course Name – Beauty Culture- III Practical**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	d(SEC)	Practical 3	900047	Beauty Culture-III Practical	2	2	50 (25+25)

Practical	Content
1	Haircuts and its care - Hair Spas, Hair nourishing.
2	Hair styling: Roller setting, French braid plait, formal style, back combing.
3	Nail Art basic and advanced, Nail shaping, filing, buffing, Gel and acrylic nail.
4	Advance Make up technique and cosmetic: Foundation, Rouge, Trend makeup, Airbrush Day and Evening Makeup.

<b>Recommended Book:</b>
1. Meladay's cosmetic
2. Rama bans –Health & beauty.
3. A beauty culture : a Practical handbook on the care by William A. Woodbury.

**B.TECH. (COSMETIC) SEM IV**  
**Vertical –f Field Project/ Community Engagement and Service (FP/CES)**  
**Co-Curricular (CC)**  
**Subject code -900048**  
**Course Name – Field Project/ Outdoor**

<b>Mode of Teaching</b>	<b>Vertical No.</b>	<b>Types of Course</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Credits</b>	<b>Workload (Hrs/week)</b>
<b>Classroom Teaching</b>	<b>f</b>	<b>Project/ Outdoor</b>	<b>900042</b>	<b>(FP/CES) (CC)</b>	<b>2</b>	<b>2</b>

**Sant Gadge Baba Amravati University, Amravati**  
**Faculty of Science and Technology**  
**Teaching and Learning scheme for the Degree of B. Tech (Cosmetic)**  
**SECOND YEAR: SEMESTER - III**

Mode of Teaching	Ver. No.	The Vertical	Types of Course	Course Code	Course Name	Credit	Workload (Hrs/ weeks)	Workload (Hrs/ weeks)
<b>Classroom Teaching /Outdoor/ Field</b>	<b>a.</b>	Major	Theory - I	900025	Cosmetic Technology -III	2	2	10
			Practical- I	900034	Cosmetic Technology -III	2	2	
			Theory - II	900026	Cosmetic Chemistry-I	2	2	
			Theory - III	900027	Perfume and Colors -I	2	2	
	<b>b.</b>	Minor	Theory - I	900028	Dermatology	2	2	4
			Theory -II	900029	Cosmetic Business Management	2	2	
	<b>c.</b>	Generic Open Elective	Theory - I	900030	Science of Nutraceutical	2	2	2
	<b>d.</b>	Vocational Skill courses (VSC)	Practical - II	900035	Perfume and Colors -I (PR)	2	2	2
	<b>e.</b>	Ability Enhancement courses (AEC- English )	Theory - I	900031	AEC- English	1	1	2 may be 4
		Ability Enhancement courses- Modern Indian Language (AEC- MIL)	Theory - II	900032	AEC- MIL- Marathi	1	1	
		Indian Knowledge system (IKS)- Major Specific	Theory - III	900033	Indian Herbal Cosmetic	2	2	
	<b>f.</b>	Field Project / community Engagement and Service (FP/ CES)	Project	900036	Outdoor	2	4	8
		Co-curricular (CC)	Outdoor		Outdoor	2	4	
		<b>Total</b>				24	28	28

**Sant Gadge Baba Amravati University, Amravati**  
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**SECOND YEAR: SEMESTER – IV**

Mode of Teaching	Ver. No.	The Vertical	Types of Course	Course Code	Course Name	Credit	Workload (Hrs/ weeks)	Workload (Hrs/ weeks)
<b>Classroom Teaching /Outdoor/ Field</b>	<b>a.</b>	Major	Theory - I	900037	Cosmetic Technology- IV	2	2	8
			Practical - I	900045	Cosmetic Technology- IV	2	2	
			Theory- II	900038	Cosmetic Chemistry-II	2	2	
			Theory - III	900039	Perfume and Colours- II	2	2	
	<b>b.</b>	Minor	Theory - I	900040	Account and Book keeping	2	2	4
			Theory - II	900041	Science of Nutrients	2	2	
	<b>c.</b>	Generic Open Elective	Theory - I	900042	Cosmetology	2	2	2
	<b>d.</b>	Vocational Skill courses (VSC)	Practical - II	900046	Cosmetic Chemistry-II Practical	2	2	4
		Skill Enhancement Courses (SEC)	Practical - III	900047	Beauty Culture-III Practical	2	2	2
	<b>e.</b>	Ability Enhancement courses (AEC )- English	Theory - I	900043	AEC-English	1	1	
		Ability Enhancement courses- Modern Indian Language (AEC- MIL)	Theory -II	900044	AEC- Hindi	1	1	
	<b>f.</b>	Field Project / community Engagement and Service (FP/ CES)	Project	900048	Outdoor	2	4	8
		Co-curricular (CC)	Outdoor		Outdoor	2	4	
		<b>Total</b>				<b>24</b>	<b>28</b>	<b>28</b>

