

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

Mode of Teaching	Ver. No.	The Vertical	Types of Course	Course Code	Course Name	Credit	Workload (Hrs/ weeks)	Workload (Hrs/ weeks)
Classroom Teaching /Outdoor/ Field	a.	Major	Theory-1	900001	Cosmetic Technology -I	2	2	6
			Practical-1	900009	Cosmetic Technology -I Practical	2	4	
	b.	Minor	Theory I	900002	Fundamentals of HAP-I	2	2	6
			Practical - 2	900010	Fundamentals of HAP-I Practical	2	4	
	c.	Generic Open Elective	Theory-I	900003	Beauty Culture-I	2	2	4
			Theory-II	900004	Herbal Cosmetic	2	2	
	d.	Skill Enhancements Courses	Practical - 3	900011	Beauty Culture-I Practical	2	4	4
	e.	Ability Enhancement courses (AEC)- English	Theory - I	900005	Communication Skill - English	1	1	6
		Ability Enhancement courses- Modern Indian Language (AEC- MIL)	Theory - II	900006	Communication Skill -Marathi I	1	1	
		Indian Knowledge System (IKS)	Theory - III	900007	History of Indian Cosmetic Industry	2	2	
		Value Education Courses	Theory- IV	900008	Value Education	2	2	
		Field Project / community Engagement and Service (FP/ CES) /CC	Project	900012	Project Outdoor	2	4	4
		Total				22	30	30

B.TECH. (COSMETIC) SEM I
Vertical –a Major/ Theory 1
Subject code -900001
Course Name –Cosmetic Technology- I

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	a	Theory 1	900001	Cosmetic Technology- I	2	2	50 (30+20)

Unit	Content	No. of Hours
I	Introduction to Cosmetic and Personal Care products Definition of Cosmetic and Personal Care products, Classification (base on functions and marketed preparations), History of Cosmetics, Basic Cosmetic terminologies – Emollients, Emulsifiers, Humectants, Active Ingredients, Surfactants, preservatives, pH, Viscosity, Fragrance and Flavors.	10
II	Skin Care and Personal Care Products Theory and Applications of : Skin Care Products – Cleansers (Soaps, Facial Cleanser, micellar water), Moisturizers (Creams, Lotions, Gels) For Skin Care Treatments (Serums, Masks,Exfoliants); Personal Care Products – Sun Care Products (Sunscreens, After Sun-Products), Anti-Aging Products (Creams, Serum, Eye treatment).	10
III	Hair Care Products Theory and Applications of : Cleansers (Shampoos), Conditioners (Rinse-off, Leave-in, deep conditioners), Styling Products(Gels, Mousses, Sprays), For Hair care treatments (Hair Masks, Oils, Serums) Color Treatments (Hair Dyes, Color Protectants) .	10

Recommended Books:
1. New cosmetic Science by Takeo Mitsui
2. Harry's Cosmetology
3. Cosmetic Science Technology BY Sagrin C.B.
4. Handbook of cosmetic Science &Technology by Marc Paye, Andro Barel
5.Textbook of Cosmetic Formulations" Author: B.M. Mithal, R.N. Saha
6. Cosmetic Science by Author: Dr. R. D. Chaudhary
7. Handbook of Cosmetic Science and Technology by Authors: H. S. R. Murthy

B.TECH. (COSMETIC) SEM I
Vertical –a Major / Practical- 1
Subject code -900009
Course Name –Cosmetic Technology- I Practical

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	a	Practical-1	900009	Cosmetic Technology- I Practical	2	4	50 (25+25)

Practical on :	Content
I	Preparation and Evaluation of Emulsions (both o/w and w/o).
II	Preparation and Evaluation of Suspensions.
III	Preparation and evaluation of Sun Care Products.
IV	Preparation and Evaluation of Skin Care products.
V	Preparation and Evaluation of Hair Care products.
VI	Qualitative and quantitative evaluation of Cosmetic Excipients.

Recommended Books:
1. New cosmetic Science by Takeo Mitsui
2. Harry's Cosmetology
3. Cosmetic Science Technology BY Sagrin C.B.
4. Handbook of cosmetic Science &Technology by Marc Paye, Andro Barel
5. Textbook of Cosmetic Formulations" Author: B.M. Mithal, R.N. Saha
6. Cosmetic Science by Author: Dr. R. D. Chaudhary
7. Handbook of Cosmetic Science and Technology by Authors: H. S. R. Murthy

B.TECH. (COSMETIC) SEM I**Vertical –b Minor / Theory 1****Subject code -900002****Course Name –Fundamental of Human anatomy and Physiology-I**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	b	Theory 1	900002	Fundamental of HAP-I	2	2	50 (30+20)

Unit	Content	No. of Hours
I	Introduction to Human body Definition and scope of anatomy and physiology, basic anatomical terminology, Tissue level of organization - Classification of tissues, structure, location and functions of epithelial, muscular, nervous and connective tissues.	05
II	The Integumentary System (Skin, Hair, and Nails) Structure and functions of the skin, Layers of the skin - epidermis, dermis, and hypodermis, Structure and functions of Skin appendages- hair, nails, and glands, Role of the skin in protection, sensation, and thermoregulation	10
III	Skin Physiology and Biochemistry Skin barrier function, Skin hydration and moisturizing mechanisms, Collagen and elastin - structure and function, Melanin production and skin pigmentation, structure & function of Sweat gland & sebaceous gland	10
IV	Hair and Scalp Physiology Hair growth cycle, Hair structure and function, Common hair conditions - dandruff, hair loss, and scalp disorders, Cosmetic treatments for hair and scalp.	05

Recommended Books:

1. Medical physiology by Tortora & Grabowski.

2. Anatomy & Physiology by Ross & Wilson.

3. Grays Anatomy by Kimber & Gray.

4. Concise Medical Physiology by Chaudhary.

5. Human anatomy and Physiology by S.S. Randhawa, Atul Kabra.

B.TECH. (COSMETIC) SEM I**Vertical –b Minor / Practical- 2****Subject code -900010****Course Name – Fundamental of Human anatomy and Physiology – I Practical**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	b	Practical- 2	900010	Fundamental of HAP-I Practical	2	4	50 (25+25)

Practical on :	Content
I	To Study the compound microscope in details.
II	To Study, Identify and differentiate between the different epithelial tissue (e.g., simple squamous, stratified squamous, cuboidal, columnar) by using permanent slide under a microscope.
III	To study the different connective tissue by using permanent slide.
IV	To study the different muscular tissue by using permanent slide.
V	To study the nervous tissue by using permanent slide.
VI	To study the structure of skin ,hair ,sweat gland ,sebaceous gland by using permanent slide.
VII	Observe and identify the different layers and structures within skin tissue samples, focusing on the epidermis, dermis, and hypodermis.

Recommended Books:
1. Medical physiology by Tortora & Grabowski.
2. Anatomy & Physiology by Ross & Wilson.
3. Grays Anatomy by Kimber & Gray.
4. Concise Medical Physiology by Chaudhary.
5. Human anatomy and Physiology by S.S. Randhawa, Atul Kabra.

B.TECH. (COSMETIC) SEM I
Vertical –c Generic Open Elective / Theory-I
Subject code -900003
Course Name- Beauty Culture-I

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	c	Theory I	900003	Beauty Culture-I	2	2	50 (30+20)

Unit	Content	No. of Hours
I	Skin types, Recognition of skin types, choice of treatment suitable to skin condition and skin types. Skincare in summer & winter season different types of skin blemishes and their treatment.	05
II	Basic types of facial muscles of facial expression, steps during facial like cleaning, Toning, face massage, Steaming. Use of different face packs, Face pack ingredients, advantage of facial.	05
III	Setting masks, Peel off masks, Thermal type paraffin base mask, Non Setting mask, Hot oil mask.	05
IV	Eye care, eye brow, factors affecting eyebrow setting, determination of correct length of eyebrow, application of false eye lashes, methods, contraindications, different methods for eyebrow shaping – Threading, Tweezing Eye lashes & eye brows, tinting-method contraindication.	10
V	Treatment of superfacial hair waxing - Hot wax treatment, cold wax treatment, Leg waxing, hand waxing, under arm waxing; Bleaching - Preparation of paste, Face bleaching, Hand bleaching, Leg bleaching, Precaution during bleaching.	05

Recommended Books:
1. Malady's Cosmetics.
2. Beauty & Skin care - Indu Puri.
3. Guide for Health & Beauty Therapists - Gayner Winyard.
4. Health & Beauty - Rama Bans.
5. Cosmetics Makeup Manicure - Ann Raton & Furrence Openshaw.

B.TECH. (COSMETIC) SEM I
Vertical –c Generic Open Elective / Theory-II
Subject Code -900004
Course Name- Herbal Cosmetic

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	c	Theory II	900004	Herbal Cosmetic	2	2	50 (30+20)

Unit	Content	No. of Hours
I	Introduction to Herbal Cosmetics and Herbal Ingredients Definition and scope of herbal cosmetics, History and evolution of herbal cosmetics, Benefits of using herbal cosmetics, Classification of herbal ingredients, Commonly used herbs in cosmetics: Aloe Vera, Neem, Turmeric, etc., Extraction and processing of herbal ingredients, Chemical properties and benefits of herbal ingredients	05
II	Formulation of Herbal Cosmetics Principles of formulation, Types of herbal cosmetic products: creams, lotions, shampoos, etc., Carriers and Bases in Cosmetic Formulations, Stability and preservation of herbal products	10
III	Safety and Regulatory Aspects Safety assessment of herbal ingredients, Good Manufacturing Practices (GMP), Regulatory frameworks for herbal cosmetics (FDA, EU regulations, etc.), Labelling and packaging requirements for Herbal Products	05
IV	Quality Control and Assurance Quality control tests for herbal cosmetics, Handling and storage of herbal products, Advanced analytical techniques for quality control	10

Recommended Books:
1. Natural Excipients – Dr. R.S. Gaud.
2. Text Book of Pharmacognosy- Trease & Evans.
3. Text book of Pharmacognosy by Gokhale & Kokate.

B.TECH. (COSMETIC) SEM I
Vertical –d Skill Enhancement Course Practical- 3
Subject code -900011
Course Name – Beauty Culture –I Practical

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	d	Practical-3	900011	Beauty Culture –I Practical	2	2	50 (25+25)

Practical on :	Content
I	Eye brows : To study- a) Factors affecting eye brow shaping b) Determination of correct length of eye brow.
II	To Study different method of eyebrow shaping a) Threading b) Tweezing .
III	To Study Treatment of superficial hair waxing a) Hot Waxing Treatment b) Cold Waxing Treatment - i) Leg waxing ii) Hand Waxing.
IV	To Study Bleaching a) Face bleaching b) Hand Bleaching c) Leg Bleaching.
V	To Study Manicure a) Nail Shaping b) Cuticle removing c) Hand Massage

Recommended Books:
1. Malady's Cosmetics.
2. Beauty & Skin care - Indu Puri.
3. Guide for Health & Beauty Therapists - Gayner Winyard.
4. Health & Beauty - Rama Bans.
5. Cosmetics Makeup Manicure - Ann Raton & Furrence Openshaw.

B.TECH. (COSMETIC) SEM I
Vertical –e Ability Enhancement Course / Theory- I
Subject code -900005
Ability Enhancement Course -English
Course Name – Communication Skill- English

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	e	Theory	900005	Communication Skill- English	1	1	25 (15+10)

Unit	Content	No. of Hours
I	Communication Skill Introduction, Definition, Importance, Barriers to communication, Perspectives in Communication, Elements of Communication, Communication Styles, Basic Listening Skills, Written Communication - Letter writing (Customer complaints, general complaints, seeking information, placing orders), Reading skills- Scanning & skimming, reading comprehension, summarising.	10
II	Interview Skills Purpose of an interview, Do's and Dont's of an interview, Giving Presentations - Dealing with Fears, Planning your Presentation, Structuring Your Presentation, Delivering Your Presentation, Techniques of Delivery.	05
III	Communication skills Language function (Greeting, Taking leave, Thanking, Apologizing, Introducing Self), Group Discussion - Introduction, Communication skills in group discussion, Do's and Dont's of group discussion.	05
IV	Revisiting English Grammar Articles prepositions, adjectives, Word formation – Prefix and Suffix, Direct and Indirect Narration, Active and Passive Voice.	05

Recommended Book:
1. Strength Your English, OUP by Bhaskaran & Horsbug
3. Macmillan's Foundation English by Dwivedi&Kumar

B.TECH. (COSMETIC) SEM I
Vertical –e Ability Enhancement Course / Theory- II
Subject code -900006
Ability Enhancement Course - Modern Indian Language
Course Name – Communication Skill- Marathi I

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	e	Theory II	900006	Communication Skill- Marathi I	1	1	25 (15+10)

Unit	Content	No. of Hours
I	वाचन कौशल्य - वाचनाचे महत्व , पूर्ववतयारी , वाचन प्रक्रियेतील घटक , वक्त्राचे फायदे व प्रकार	7
II	संभाषण कौशल्य - संभाषणात भाषेचे महत्व संभाषणाचे प्रकार , संभाषण कौशल्यातील अडचणी , संभाषण कौशल्य सुधारण्याचे उपाय	8

Recommended Book:
1. व्यावहारिक मराठी - पुणे वदवापीठ संभाषण
2. व्यावहारिक व उपयोक्त मराठी व प्रसार माध्यमाची कायवशैली - संपादक डॉ . संदीप सांगळे .
3. व्यावहारिक मराठी - डॉ . सयाजीराजे मोकाशी , डॉ . रंजना नेमाडे .

B.TECH. (COSMETIC) SEM I
Vertical –e Indian Knowledge System/ Theory III
Subject code -900007
Course Name – History of Indian Cosmetic Industry

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	e	Theory III	900007	History of Indian Cosmetic Industry	1	1	50 (25+25)

Unit	Content	No. of Hours
I	Introduction to the Indian Cosmetic Industry Overview of the cosmetic industry globally and in India, Significance of studying the history of cosmetics in India, Scope and objectives of the course.	05
II	Ancient Traditions and Texts The role of Ayurveda in traditional Indian cosmetics- Key texts: Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya. Ingredients and formulations: Herbs, minerals, and other natural substances. Influence of traditional practices on ancient beauty rituals and skincare.	10
III	Historical Evolution of Indian Cosmetics The medieval period - Influence of Mughal and Persian cultures - Use of kajal, henna, and essential oils, Documentation of cosmetic practices by scholars and travelers. The colonial period: Impact of Western influence and the evolution of the industry, Contributions of Indian entrepreneurs and innovators in the 19th and early 20th centuries.	10
IV	Revival and Modern Developmentss The post-independence era - Re-establishing traditional practices, Role of government policies and initiatives in promoting traditional cosmetics, Growth of indigenous brands and the incorporation of traditional knowledge, Modern research and development in the context of Indian herbal cosmetics.	10

Recommended Book:
1. Charaka Samhita" - Translation and commentary by Dr. S. S. Bhasin.
2. Sushruta Samhita" - Text and translation by Dr. R. K. Sharma
3. Indian Cosmetics and Perfumes" by Dr. S. K. Sharma
4. The Ayurveda Encyclopedia" by Dr. Vasant Lad
5. Articles and research papers on the history and development of the Indian cosmetic industry

B.TECH. (COSMETIC) SEM I
Vertical –e Value Education / Theory IV
Subject code -900008
Course Name – Value Education Courses

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	e	Theory IV	900008	Value Education	2	2	50 (25+25)

Unit	Content	No. of Hours
I	Value Education & Spirituality Definition, Concept and Classification of values, The need for value education in India, Developing Spirituality, Challenges of Value Adoption.	10
II	Personal Development & Values In Life The principles of integrity, Character Development, A childlike approach to Life, Values in everyday life, Values, Virtues, Powers & Qualities.	10
III	Meditation & Values In Society Meditation, Positive thinking & Emotional Maturity, Consciousness & the Divine.	10
IV	Values For Excellence In Life In response to Living Values, Value adoption for Self-development, Value adoption in Family life, Value adoption in professional life.	10

Recommended Book:
1. Value education by N. N. Gupta.

B.TECH. (COSMETIC) SEM I
Vertical –f Field Project/ Community Engagement and Service (FP/CES)
Co-Curricular (CC)
Subject code –900012
Course Name – Field Project/ Outdoor

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)
Classroom Teaching	f	Project/ Outdoor	900012	(FP/CES)/ (CC)	2	4

All the students shall undertake a project under the supervision of a teacher and submit a report. The project shall be carried out in group not exceeding 5 in number. The project report shall be submitted in triplicate (typed & bound copy not more than 25 pages).

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

Mode of Teaching	Ver. No.	The Vertical	Types of Course	Course Code	Course Name	Credit	Workload (Hrs/ weeks)	Workload (Hrs/ weeks)
Classroom Teaching /Outdoor/ Field	a.	Major	Theory - I	900013	Cosmetic Technology -II	2	2	6
			Practical - 1	900020	Cosmetic Technology -II Practical	2	4	
	b.	Minor	Theory - II	900014	Fundamentals of HAP-II	2	2	6
			Practical - 2	900021	Fundamentals of HAP-II Practical	2	4	
	c.	Generic Open Elective	Theory - I	900015	Beauty Culture-II	2	2	4
			Theory - II	900016	Fundamentals of Cosmetic Chemistry	2	2	
	d.	Vocational Skill courses (VSC)	Practical - 3	900022	Computer Skill	2	4	8
		Skill Enhancements Courses (SEC)	Practical - 4	900023	Beauty Culture-II	2	4	
	e.	Ability Enhancement courses (AEC)- English	Theory - I	900017	English and Communication Skill	1	1	4
		Ability Enhancement courses- Modern Indian Language (AEC- MIL)	Theory - II	900018	Communication Skill – Marathi II	1	1	
		Value Education	Theory - III	900019	Computer Skill	2	2	
	f.	Field Project / community Engagement and Service (FP/ CES) /CC	Project	900024	Project Outdoor	2	4	4
			Outdoor					
			Total			22	32	32

B.TECH. (COSMETIC) SEM II
Vertical –a Major/ Theory I
Subject code -900013
Course Name –Cosmetic Technology- II

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	a	Theory I	900013	Cosmetic Technology- II	2	2	50 (30+20)

Unit	Content	No. of Hours
I	Biphasic Liquid formulations - Emulsion & Suspension Emulsion – types, Identification test of Emulsion preparation & stability, suspension- Flocculated and deflocculated suspensions, selection of wetting suspending and dispersing agents. Preparation and stability of biphasic liquid formulations.	05
II	Color Cosmetics and Personal Care Products Theory and Applications of – Color Cosmetics – Face (Foundations, Powders, Blushes), Eyes (Eye Shadows, Eyeliners, Mascaras), Lips (Lipsticks, Glosses, Liners), Nails (Nail Polishes, Treatments, Removers). Personal Care Products – Oral Care (Toothpaste, Mouthwashes), Bath and Shower (Soaps, Body Washes, Bath oils) Deodorants and Anti-perspirants (Roll-ons, Sprays, Sticks) Hand and Foot Care (Creams, Scrubs, Treatments)	05
III	Cosmetics Containers Introduction, Ideal Characteristic for Cosmetic Containers, Types of Cosmetic Containers – (Narrow Mouth bottles, Wide Mouth Bottles, Tubes, Tubular, Powder Containers, Compact containers, Stick containers, pencil containers Applicator containers.)	10
IV	Regulatory Framework and Safety of Cosmetic Products Regulatory Bodies, Safety Assessments (Safety Testing and Regulations) Importance of safety in cosmetics, Restricted and prohibited substances in cosmetics, Safety considerations for different types of cosmetics (e.g., skincare, hair care, makeup, fragrances).	10

Recommended Books:
1. Cooper & Gunn Dispensing for Pharmaceutical.
2. Harry's Cosmetology
3. Mittal Test Book of Pharma Formulation B.I.E.T. Pilani.
4. The Pharmacopoeia of India
5. Remington's Pharmaceutical Practices.

B.TECH. (COSMETIC) SEM II
Vertical –a Major / Practical- 1
Subject code -9000020
Course Name –Cosmetic Technology- II Practical

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	a	Practical- 1	900020	Cosmetic Technology- II Practical	2	4	50 (25+25)

Practical on :	Content
I	Preparation and Evaluation of Emulsions (both o/w and w/o).
II	Preparation and Evaluation of Suspensions.
III	Preparation and evaluation of Ointment bases – a. Hydrocarbon b. Absorption c. Water soluble d. Water miscible
IV	Preparation and Evaluation of cosmetics like cleansing cream, Lotion cold cream, vanishing creams at least two examples from each category.
V	Preparation of simple stick bases.
VI	Preparation of paste & Jelly bases.

Recommended Books:
1. Mittal Test Book of Pharma Formulation B.I.E.T. Pilani.
2. The Pharmacopoeia of India.
3. Remington's Pharmaceutical Practices.
5. HUSA: Pharmaceutical Dispensing Mack Publishing.
6. Mittal Test Book of Pharma Formulation B.I.E.T. Pilani.
7. The Pharmacopoeia of India.

B.TECH. (COSMETIC) SEM II**Vertical –b Minor / Theory I****Subject code -900014****Course Name –Fundamental of Human anatomy and Physiology-II**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	b	Theory I	900014	Fundamental of HAP-II	2	2	50 (30+20)

Unit	Content	No. of Hours
I	Cosmetic Dermatology Different skin types, Common skin conditions (acne, eczema, psoriasis), Impact of UV radiation on the skin, Principles of cosmetic dermatology, Interaction between cosmetics and skin, Role of vitamins, antioxidants, and peptides in Dermatological preparations.	05
II	Sensory Systems Anatomy and physiology of sensory organs – (eyes, nose, and skin.), Sensory perception in the skin, Role of the olfactory system in cosmetics, Texture, scent, and visual appeal in product development,	10
III	Essentials of Skin Management Wound Healing and Scar Management (Stages of wound healing, role of growth factors, and scar prevention and treatment), Impact of Environmental Factors on Skin, Nutritional Influence on Skin Health (vitamins, minerals, and antioxidants)	10
IV	Toxicology and Safety in Cosmetics Introduction to toxicology, Assessing the safety of cosmetic ingredients, Regulatory aspects of cosmetic safety, Patch testing and clinical trials	05

Recommended Book:

1. Medical physiology by Tortora & Grabowski.
2. Anatomy & Physiology by Ross & Wilson.
3. Grays Anatomy by Kimber & Gray.
4. Concise Medical Physiology by Chaudhary .

B.TECH. (COSMETIC) SEM II**Vertical –b Minor/ Practical- 2****Subject code -900021****Course Name – Fundamental of Human Anatomy and Physiology – II Practical**

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	b	Practical- 2	900021	Fundamental of HAP-II Practical	2	4	50 (25+25)

Practical on :	Content
I	Examine and Report Hair Samples under microscope
II	Conduct sensory evaluation of cosmetic products
III	Examine and Report Nail Clippings under microscope to identify different layers and any abnormalities.
IV	Learn and apply different staining techniques to enhance the visualization of tissue structures.
V	To demonstrate & setup neubar slide under the microscope.
VI	To study the structure (model) of eye, ear,tongue,skin

Recommended Books:
1. Principles of Anatomy and Physiology" by Gerard J. Tortora and Bryan H. Derrickson
2. Textbook of Human Physiology" by A.K. Jain
3. Handbook of Cosmetic Science and Technology" by B. S. Madhuri
4. Principles of Anatomy and Physiology" by Gerard J. Tortora and Bryan H. Derrickson

B.TECH. (COSMETIC) SEM II
Vertical –c Generic Open Elective / Theory-I
Subject code -900015
Course Name- Beauty Culture-II

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	c	Theory I	900015	Beauty Culture-II	2	2	50 (30+20)

Unit	Content	No. of Hours
I	Pedicure and Medicure Pedicure - Requirement of pedicure, Pedicure methodology, Massage for pedicure, Applications of False Nails Electric manicure : Requirement of manicure, Nail shapeing, Cuticle removing, hand massage, Application of Varnish, Application of false nails.	10
II	Beauty Treatments Treatment for crack hands, dry hands, tanned hands, Freckles on hand, Allergies, Rough elbow, Cracked Nails, General problems of hair, Treatment of hair – (Heenadye, Heena conditioning, Black dye, Hair styles, & hair setting, diet & exercise).	10
III	Makeup Pre make up skin care, Make up technique, Complexion planning, Use of cosmetics during Makeup (Cleanser, Toner, Astringent, Moisturiser, Foundation, Powder, Blusher, Lipsticks) Eye Make-up – (Use of Eye Shadow, Eye Liners, Mascara, Eye brow grooming), Day make up, Evening makeup, party make up, Bridal make up, corrective make up, Precaution during & after make up.	05
IV	Beautician & Aptitude to Client & Professional Ethics, Set up of beauty parlour for Clients Comfort.	05

Recommended Books:
1. Malady's Cosmetics.
2. Beauty & Skin care - Indu Puri.
3. Guide for Health & Beauty Therapists - Gayner Winyard.
4. Health & Beauty - Rama Bans.
5. Cosmetics Makeup Manicure - Ann Raton & Furrence Openshaw.

B.TECH. (COSMETIC) SEM II
Vertical –c Generic Open Elective / Theory-II
Subject code -900016
Course Name- Fundamentals of Cosmetic Chemistry

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	c	Theory II	900016	Fundamentals of Cosmetic Chemistry	2	2	50 (30+20)

Unit	Content	No. of Hours
I	Fundamental Chemistry Concepts Chemical bonding and molecular structure, Types of chemical reactions, Acid-base theory, concept of pH, Buffer solutions, Solutions and solubility.	05
II	Impurities in Cosmetic Preparations Sources of Impurities in cosmetic raw materials, Limit Test, Limit test of Chlorides, Sulphates, Lead, Arsenic and Heavy Metals.	10
III	Basics of Chemical Analysis Definition and scope of Different techniques of Analysis, Methods of expressing concentration, Primary and Secondary Standards, Preparation and Standardization of various molar and normal solutions- Oxalic acid, Sodium Hydroxide, Hydrochloric acid, Errors - Types of errors, methods of minimizing errors, Accuracy and Precision.	05
IV	Qualitative and Quantitative Analysis Introduction to Qualitative and Quantitative Analysis, Instrumental and Non Instrumental Methods of Analysis, Titrimetric Methods for analysis – Aqueous Titration and Non-Aqueous Titrations.	10

Recommended Books:
1. A.H. Beckett & J.B. Stenlake's, Practical Pharmaceutical Chemistry Vol I & II, Stahlone Press of University of London.
2. A.I. Vogel, Text Book of Quantitative Inorganic analysis.
3. John H. Kennedy, Analytical chemistry principles.
4. Indian Pharmacopoeia.

B.TECH. (COSMETIC) SEM II
Vertical –d Vocational Skill Courses / Practical- 3
Subject code -900022
Course Name – Computer Skill

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	d	Practical-6	900022	Computer Skill	2	4	50 (25+25)

Practical on :	Content
I	Creating Document, Structure of MS word window.
II	Creating Power Point presentations.
III	Creating and working with MS access.
IV	Creating and working MS- Excel.
V	Exporting Tables, Queries, Forms and Reports to web pages.
VI	Exporting Tables, Queries, Forms and Reports to XML pages.
VII	Create a HTML web page to show personal information.
VIII	Creating mailing labels Using Label Wizard, generating label in MS WORD

Recommended Books:
1. Computer Application in Pharmacy – William E. Fassett –Lea and Febiger, 600 South Washington Square, USA, (215) 922-1330.
2. Computer Application in Pharmaceutical Research and Development –Sean E kins –Wiley Inter science, A John Willey and Sons, INC., Publication, USA
3. Bioinformatics (Concept, Skills and Applications) – S.C. Rastogi -CBS Publishers and Distributors, 4596/1- A, 11 Darya Gani, New Delhi – 110 002 (INDIA)
4. Microsoft office Access - 2003, Application Development Using VBA, SQL Server, DAP and Info path – Cary N. Prague – Wiley Dream tech India (P) Ltd., 4435/7.

B.TECH. (COSMETIC) SEM II
Vertical –d Skill Enhancement Course Practical- 4
Subject code -900023
Course Name – Beauty Culture –II

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	d	Practical-4	900023	Beauty Culture –II	2	4	50 (25+25)

Practical on :	Content
I	Pedicure Massage.
II	Facial Massage.
III	Facial Make-up.
IV	Hair Colouring.
V	Hair Styling.
VI	Hair Setting (Formal and Informal).

Recommended Books:
1. Malady's Cosmetics.
2. Beauty & Skin care - Indu Puri
3. Guide for Health & Beauty Therapists - Gayner Winyard.
4. Cosmetics Makeup Manicure - Ann Raton & Furrence Open shaw.

B.TECH. (COSMETIC) SEM II
Vertical –e Ability Enhancement Course / Theory I
Subject code -900017
Ability Enhancement Course
Course Name – English and Communication Skill

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	e	Theory I	900017	English and Communication Skill	1	1	25 (15+10)

Unit	Content	No. of Hours
I	Revisiting English Grammar Model Auxiliaries, adverbs& adverbial Phases.	07
II	Written communication Job application, Resumes, Responding to advertisements.	08
III	Reading skills Note making, Distinguishing facts from beliefs, Opinions.	07
IV	Communication Skills Language functions (asking for information, requesting, agreeing & disagreeing complimenting& responding to complaints	08

Recommended Book:
1. Bhaskaran & Horsbug, Strength Your English.
2 Patil Walke Thorat & Marchant. English for Practical Purpose Macmillon.
3 Dwivedi & Kumar Macmillon foundation English .Macmillon.

B.TECH. (COSMETIC) SEM II
Vertical –e Ability Enhancement Course / Theory II
Subject code -900018
Ability Enhancement Course-Modern Indian Language
Course Name –Communication Skill in Marathi II

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	e	Theory II	900018	Communication Skill in Marathi II	1	1	25 (15+10)

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

Recommended Book:
1. सुगम मराठी व्याकरण व लेखन - मो. रा. वाल्मिकी, वनतीन प्रकाशन २०१६.
2. सुबोध मराठी व्याकरण : नवनीत प्रकाशन.

B.TECH. (COSMETIC) SEM II
Vertical –e Value Education / Theory III
Subject code -900019
Course Name – Computer Skill

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	e	Theory III	900019	Computer Skill	2	2	50 (25+25)

Unit	Content	No. of Hours
I	Word Processing Introduction, Starting word, creating document, structure of MS-word window & its application, mouse & keyboard operation, designing documents, formatting-selection cut copy Paste, toolbars, operating on text, printing saving, opening closing of document creating a template.	10
II	Power Point Presentation Working with power point window, standard toolbar, formatting toolbar, drawing toolbar, moving the frame, inserting clip art, picture slide, text styling, send to back, Entering data to graph, organization chart, table design template, master slide, animation setting, saving and presentation, auto content Wizard, package for CD.	10
III	MS-Excel Navigating, excel toolbars, and operations, formatting features, copying data between worksheets, entering & editing cell entries, creation of charts, editing & formatting charts, Mathematical, Statistical & Financial functions in MS –excel.	05
IV	MS-Access Introduction to database mgmt. System, DBMS vs RDMMS, Data base Administrator (DBA) & it's role.	05

Recommended Book:
1. Information Technology concept by Dr. Madhulika Jain
2. Fundamentals of Information technology by Alexis & Mathews Leon
3. Database system concepts by A.Silbers (McGraw hills ltd)
4. Introduction to data base management By Naveen Prakash
5. An Introduction to data base system By Bipin C Desai
6. Data base mgmt. system by Raghu ram Krishnan McGraw Hill

B.TECH. (COSMETIC) SEM II
Vertical –f Field Project/ Community Engagement and Service (FP/CES)
Co-Curricular (CC)
Subject code -900024
Course Name – Field Project/ Outdoor

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)
Classroom Teaching	f	Project/ Outdoor	900024	(FP/CES) (CC)	2	4

All the students shall undertake a project under the supervision of a teacher and submit a report. The project shall be carried out in group not exceeding 5 in number. The project report shall be submitted in triplicate (typed & bound copy not more than 25 pages).

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)
Classroom Teaching /Outdoor/ Field	a.	Major	Theory - I	900025	Cosmetic Technology -III	2	2	10
			Theory - II	900026	Cosmetic Chemistry-I	2	2	
			Theory - III	900027	Perfume and Colors -I	2	2	
			Practical -I	900034	Cosmetic Technology-III	1	2	
		Indian Knowledge system (IKS)- Major Specific	Theory - IV	900028	Indian Herbal Cosmetic	2	2	
	b.	Minor	Theory - I	900029	Dermatology	2	2	4
			Theory -II	900030	Cosmetic Business Management	2	2	
	c.	Generic Open Elective	Theory - I	900031	Science of Nutraceutical	2	2	2
	d.	Vocational Skill courses (VSC)	Practical - II	900035	Perfume and Colors -I (PR)	1	2	2
	e.	Ability Enhancement courses (AEC- English)	Theory - I	900032	AEC- English	1	1	2
		Ability Enhancement courses- Modern Indian Language (AEC- MIL)	Theory - II	900033	AEC- MIL-Hindi I	1	1	
	f.	Field Project / community Engagement and Service (FP/ CES)	Project	900036	Outdoor	2	4	8
		Co-curricular (CC)	Outdoor		Outdoor	2	4	
		Total				22	28	28

B.TECH. (COSMETIC) SEM III
Vertical –a Major/ Theory I
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 I	900025	Cosmetic Technology- III	2	2	50 (30+20)

Unit	Content	No. of Hours
I	Cosmeceutical Formulation Building Blocks Physical and Chemical properties of cosmetic agents. (Emollients and Preservatives).	05
II	Skin Care Cosmetics Basic structure and function of skin. Roles of Skin care cosmetics. Skin-related problems.	05
III	Skin Care Cosmetic Formulations 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
IV	Make Up Cosmetics Types and functions of Makeup cosmetics. a. Eye Cosmetics: Classification of Eye Cosmetics, Raw materials for Eye cosmetics, Formulation and Evaluation of Eye cosmetics. (Eye Shadows, Eye Mascara, Eye Liners). b. Face Powders: Classification of Face powders, Raw materials for Face powders, Formulation and Evaluation of Face powders. (Loose Powder, Liquid face powder, Dusting powder, Talcum powder). c. Lipsticks: Raw materials for Lipsticks, Formulation and Evaluation of Lipsticks.	10

Recommended Books:
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- I
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-I	900034	Cosmetic Technology-III	1	2	50 (25+25)

Practical on	Content
1	(Each for two) Preparation and Evaluation of Face Powder.
2	Preparation and Evaluation of Dry Shampoo.
3	Preparation and Evaluation of Skin care product 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.

Recommended Books:
1. Soap, Detergent And Perfume Industry by S.B. Srivastava.
2. Handbook of Cosmetic Science and Technology by Andre O'Barel.

B.TECH. (COSMETIC) SEM III
Vertical –a Major / Theory II
Subject code -900026
Course Name –Cosmetic Chemistry- I

[illegible]

B.TECH. (COSMETIC) SEM III
Vertical –a Major / Theory III
Subject code -900027
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	a	Theory III	900027	Perfume and Colors- I	2	2	50 (30+20)

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	Flavors : 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 IV
Subject code -900033
Course Name- Indian Herbal Cosmetic- Major Specific

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

Unit	Content	No. of Hours
I	Natural Resources in Indian Cosmetic 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
II	Cosmetic Crude Drug 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
III	Herbal Formulations Creams, lotions, Powders, Shampoo, lipstick, other cosmetics, formulations. A brief account of plant based cosmetic industries and its evaluations.	05
IV	Regularly Aspect 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

Recommended Books:
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 Pharmaceutical Publishers.
5. Trease and Evans Pharmacognosy, by William C. Evans, Elsevier.

B.TECH. (COSMETIC) SEM III
Vertical –b Minor Specific / Theory I
Subject code -900029
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 I	900029	Dermatology	2	2	50 (30+20)

Unit	Content	No. of Hours
I a. b. c.	Introduction of Pharmacology 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
II a. b. c.	Skin hypersensitivity and metal poisoning 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
III a. b. c. d. e.	Skin disorder 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
IV 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

Recommended Books:
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.

B.TECH. (COSMETIC) SEM III
Vertical –b Minor / Theory II
Subject code -900030
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 II	900030	Cosmetic Business Management	2	2	50 (30+20)

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

Recommended Books:
1. Production and operation management by R.Paneer Selvan 3 rd edition.
2. Fundamentals of management by Stephen p. Robbins pearson 11 th edition.
3. Fundamentals of management by Ricky Griffin Principles of marketing by Philip kotler, Pearson 19 th 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) Theory I
Subject code - 900031
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 I	900031	(OE) Nutraceuticals	2	2

Unit	Content	No. of Hours
I a. b.	Introduction to Nutraceuticals as Science 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
II a. b.	Vitamins and Water Vitamins their Structure Classification, Plant Animal sources, vitamins as coenzymes, deficiency of vitamins . (Choline, Carnitine , Vitamin B ₁₂ , C, D, Folic Acid) Water: Functions of water in body and its regulation. Solution interactions.	10
III	Antioxidants Concept of free radicals and antioxidants; antioxidants role as nutraceuticals and functional Foods.	05
IV	Nutraceutical Rich Supplements Bee Pollen, Caffeine, Green Tea, Grape Tea, Wheat Grass, Lecithin, Mushroom Extract, Chlorophyll, Kelp and Spirulina, Garcinia Cambogia , Aloe Vera and Blue Tea4.	10

Recommended Books:
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, <u>Albert L. Lehninger</u> , <u>David L. Nelson</u> , Michael M. Cox W. H. Freeman, 2005.

B.TECH. (COSMETIC) SEM III
Vertical –d Ability Enhancement Course / Theory I
Subject code -900032
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 I	900032	Ability Enhancement Course (AEC)- English	1	1	25 (15+10)

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

Recommended Book:
1. Boarde of Editors : Orient Black Swan Publication.

B.TECH. (COSMETIC) SEM III
Vertical –e Ability Enhancement Course- Modern Indian Language / Theory II
Subject code -900033
Course Name – (AEC- MIL) Hindi I

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks (External + Internal)
Classroom Teaching	e	Theory II	900033	Ability Enhancement Course- Modern Indian Language (AEC- MIL) Hindi I	1	1	25 (15+10)

Unit	Content	No. of Hours
I	लघुकथा लेखन संवाद लेखन पटकथा लेखन	07
II	पयावयवाची शब्द ववलोम शब्द अनेकाथी शब्द	08

Recommended Book:
1. राघव पवब्लके शन नागपूर .

B.TECH. (COSMETIC) SEM III
Vertical –d Vocational Skill Courses (VSC) / Practical II
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 1	900035	Perfume and Colors- I	1	2	50 (25+25)

Practical on	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.

Recommended Book:
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 -900035
Course Name – Field Project/ Outdoor

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)
Classroom Teaching	f	Project/ Outdoor	900035	(FP/CES) (CC)	2	2

All the students shall undertake a project under the supervision of a teacher and submit a report. The project shall be carried out in group not exceeding 5 in number. The project report shall be submitted in triplicate (typed & bound copy not more than 25 pages).

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 – IV

Mode of Teaching	Ver. No.	The Vertical	Types of Course	Course Code	Course Name	Credit	Workload (Hrs/ weeks)	Workload (Hrs/ weeks)
Classroom Teaching /Outdoor/ Field	a.	Major	Theory - I	900036	Cosmetic Technology- IV	2	2	8
			Theory- II	900037	Cosmetic Chemistry-II	2	2	
			Theory - III	900038	Perfume and Colours- II	2	2	
			Practical- -I	900044	Cosmetic Technology- IV	1	2	
	b.	Minor	Theory - I	900039	Account and Book keeping	2	2	4
			Theory - II	900040	Science of Nutrients	2	2	
	c.	Generic Open Elective	Theory - I	900041	Cosmetology	2	2	2
	d.	Vocational Skill courses (VSC)	Practical - II	900045	Cosmetic Chemistry-II Practical	1	4	8
		Skill Enhancement Courses (SEC)	Practical - III	900046	Beauty Culture- III Practical	2	4	
	e.	Ability Enhancement courses (AEC)- English	Theory - I	900042	AEC-English	1	1	2
		Ability Enhancement courses- Modern Indian Language (AEC- MIL)	Theory -II	900043	AEC- MIL Hindi II	1	1	
	f.	Field Project / community Engagement and Service (FP/ CES)	Project	900047	Outdoor	2	4	8
		Co-curricular (CC)	Outdoor		Outdoor	2	4	
		Total				22	30	30

B.TECH. (COSMETIC) SEM IV
Vertical –a Major / Theory II
Subject code -900036
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 I	900036	Cosmetic Technology- IV	2	2	50 (30+20)

Unit	Content	No. of Hours
I	Cosmeceutical Formulation Building Blocks Perfumes, Controversial ingredients.	05
II	Hair Care Cosmetics Basic structure of hair.Hair growth cycle.Roles of hair care cosmetics.Hair damage and its causes, Split hairs.	05
III a. b. c.	Hair Care Cosmetics Formulations Shampoos: Classification of Shampoo, Raw materials for shampoo, Formulation and evaluation of shampoo. (Clear liquid shampoo, Aerosol shampoo, Acid balanced shampoo). Hair Tonics and Conditioners: 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). Hair Setting: 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
IV a. b. c.	Body Cosmetics Types and functions of body cosmetics. Soaps: Classification of Soaps, Raw materials for soaps, Formulation and evaluation of soaps. Body Shampoo: Classification of bath shampoo, Raw materials for bath shampoo, Formulation and evaluation of bath shampoo. Foam Baths: Classification of Foam baths, Raw materials for foam baths, Formulation and evaluation of foam baths.	10

Recommended Book:
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-I
Subject code -900044
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 - I	900044	Cosmetic Technology- IV	2	2	50 (25+25)

Practical	Content
1	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 Solid brilliantine.
8	Preparation and Evaluation of Bath oil.

Recommended Book:
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 II
Subject code -900037
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 II	900037	Cosmetic Chemistry- II	2	2	50 (30+20)

Unit	Content	No. of Hours
I	Structure Nomenclature Preparation and reaction of following groups in cosmetic - Alkanes, Alkenes, Alkynes, Cycloalkanes, Dienes, Alkyl halides.	05
II	Acid, Bases, Buffers Introduction for Acids and Bases, Buffers, Properties, Buffer action, Isotonic Buffers, types, Concept of pH.	05
III a. b. c.	Topical Agents 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
IV a. b.	Impurities in cosmetic Substances and Limit Tests: Sources of Impurity, Test for Purity, Limit Test Chloride, Sulphate, Iron, lead, Heavy metal, Arsenic. Hazards in chemistry laboratories and necessary precautions.	10

Recommended Book:
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 III
Subject code -900038
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 III	900038	Perfume and Colors- II	2	2	50 (30+20)

Unit	Content	No. of Hours
I a. b.	Sources of Perfumery Raw materials and their use in Formulation 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
II	Resins, Gums and Exudates 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
III a. b. c.	Packaging of Perfumes with special emphasis on Aerosol products Aerosol :- principle and mechanism Method of preparation:- Cold fill method and Press fill method Packaging components.	05
IV	Revision , adaptation of incorporation of Perfumes in cosmetic products Creams, lotions, Powders, eye make-up preparations, Hair care preparations, Lip Care preparations, Oral care preparations, Body care preparations and Toiletries products.	05

Recommended Book:
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 I
Subject code -900039
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 I	900039	Account and Book keeping	2	2	50 (30+20)

Unit	Content	No. of Hours
I	Accounting 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
II	Trial Balance 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
III	Books Keeping Book Keeping, Role Double entry Book Keeping System, Principle Advantages of double book Keeping .	05
IV	Financial Statements Advantages of Financial Statements, Limitation, Profit and Loss account, Balance Sheet, Methods of Financial Analysis.	05

Recommended Book:
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 II
Subject code -900040
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 II	900040	Science of Nutrients	2	2	50 (30+20)

Unit	Content	No. of Hours
I a. b.	Food Balance diet and Nutrition 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
II a. b. c. d. e.	Nutritional and Health education 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
III a. b. c. d. e.	Nutrition Policy and Programmes Integrated Child Development Services (ICDS) Programme Nutrient Deficiency Control Programme Supplementary Feeding Programme Food Security Programme Self-Employment and Wage Employment Schemes.	10
IV a. b. c.	Nutrition Metabolisms and Diet Therapy 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 (An	10

Recommended Book:

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 Hydrabad 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.th

B.TECH. (COSMETIC) SEM IV
Vertical –c Generic Open Elective (OE) Theory I
Subject code -900041
Course Name – OE Cosmetology

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)
Classroom Teaching	c	Theory I	900041	(OE) Cosmetology	2	2

Unit	Content	No. of Hours
I	Scope of Cosmetic Science Definition Cosmetic Science, History of Cosmetic, Principle, Formulation, Development, and Evaluation of cosmetic Products, their functions.	05
II	Cosmeceutical Products a. Classification of cosmetic and cosmeceutical products, Definition of cosmetics, evolution of cosmeceuticals from cosmetics. b. Cosmetic excipients: Surfactants, Rheology Modifiers, Humectants, Emollients, Preservatives. Classification and application.	05
III	Skin and Hair Care a. 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. b. Antiperspirants & deodorants: Actives & mechanism of action. c. Sun protection, Classification of Sunscreens and SPF. Role of herbs in cosmetics Skin Care: Aloe and turmeric Hair care: Henna and amla. d. 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
IV	Cosmetic problems Oily and dry skin, causes leading to dry skin, skin moisturisation. Basic understanding of the terms Comedogenic, dermatitis. a. Hair and scalp: Dandruff, Hair fall causes b. Skin: blemishes, wrinkles, acne, prickly heat and body odor. Antiperspirants and Deodorants- Actives and mechanism of action.	10

Recommended Book:
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 - d Vocational Skill Course / Practical II
Subject code -900045
Course Name –Cosmetic Chemistry- II Practical

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks
Classroom Teaching	d	Practical -II	900045	Cosmetic Chemistry- II Practical	1	2	50

Practical	Content
1	(Each of Two) 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.

Recommended Book:
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 –d Skill Enhancements Course Practical III
Subject code -900046
Course Name – Beauty Culture- III Practical

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)	Marks
Classroom Teaching	d(SEC)	Practical III	900046	Beauty Culture-III Practical	2	2	50

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.

Recommended Book:
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 –e Ability Enhancement Course / Theory I
Subject code -900042
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	900042	Ability Enhancement Course (AEC)- English	1	1	25 (15+10)

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

Recommended Book:
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 II
Subject code -900043
Course Name – (AEC- MIL) Hindi II

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

Unit	Content	No. of Hours
I	कायव का िीवन संतुलन - डॉ. नेहा भांडारकर. दुसरो के वलये विना - भुवें० त्यागी .	07
II	रटपणी वलखाना. ऐँवनमेशन वलखाना और ववस्तार - शुबी दावधच.	08

Recommended Book:

- ववचारशोधभाग : राघव पववल्के शन, नागपुर प्रथम आवृती २०२४.
- ज्ञानदीपभाग - १ संपादक - डॉ. वनभाउपाध्य, डॉ. तीथवरारिाय, डॉ. सुशांतठोक.

B.TECH. (COSMETIC) SEM IV
Vertical –f Field Project/ Community Engagement and Service (FP/CES)
Co-Curricular (CC)
Subject code -900047
Course Name – Field Project/ Outdoor

Mode of Teaching	Vertical No.	Types of Course	Course Code	Course Name	Credits	Workload (Hrs/week)
Classroom Teaching	f	Project/ Outdoor	900047	(FP/CES) (CC)	2/2	2

All the students shall undertake a project under the supervision of a teacher and submit a report. The project shall be carried out in group not exceeding 5 in number. The project report shall be submitted in triplicate (typed & bound copy not more than 25 pages).