

**Punyashlok Ahilyadevi Holkar Solapur
University, Solapur**



Name of the Faculty: Science & Technology

CHOICE BASED CREDIT SYSTEM

**Syllabus: Five Year Integrated M. Tech. (Cosmetic
Technology)**

Name of the Course: M.Tech. II (Semester- III & IV)

(Syllabus to be implemented from w.e.f. June 2021)

PunyashlokAhilyadeviHolkar Solapur University, Solapur

SCHOOL OF TECHNOLOGY

Syllabus of Five Year Integrated M. Tech. (Cosmetic Technology)

(Choice Based Credit System)

- 1) **Title of the course:** Integrated M. Tech. (Cosmetic Technology).
- 2) **Duration of course:** Five years.
- 3) **Pattern:** Semester and Credit system.
- 4) **Eligibility:** For Five Year Integrated M. Tech. Course in Cosmetic Technology following candidates are eligible.
 - Students with H.S.C. with Science Stream.
 - Students with B.Sc.(B group) subject: Chemistry, Zoology, Botany, Microbiology, Biotechnology, Biochemistry, Bioinformatics etc. are eligible for the direct admission to 3rd year after successful completion of Orientation/ Induction program. Orientation/Induction program will be conducted by the School in V sem. of third year.
 - Students with D.Pharm are eligible for the direct admission to 2nd year.
 - Students with B.Pharm are eligible for the direct admission to 3rd year.
 - Students after completion of fourth year are eligible to award B.Tech. degree.
- 5) **Strength of the Students:** 30
Five Year Integrated M. Tech. (Cosmetic Technology) consists of 250 credits.

Five Year Integrated M. Tech. (Cosmetic Technology)

Semester	No. of Papers/ Practical's / Tutorial	Marks	Credits
Semester III <ul style="list-style-type: none">• Theory Papers• Practical Paper• Seminar/Tutorial/ Industrial Visit/ Field Tour	05 02 01	250 100 10	20 08 01
Semester IV <ul style="list-style-type: none">• Theory Papers• Practical Paper• Seminar/Tutorial/ Industrial Visit/ Field Tour	06 02 01	300 100 10	20 08 01
Total marks and credits for Course		770	58

Second Year syllabus (according to the Semester Pattern Examination) to be effective from the Academic Year 2021-22

Semester	Code	Title of the Paper	Semester Examination			L	T	P	Credits
			Theory (UA)	CA	Total				
Sem-III		Hard Core							
	HCT3.1	Cosmetic Technology-I	40	10	50	4	--	--	4
	HCT3.2	Instrumental methods of Analysis - I	40	10	50	4	--	--	4
	HCT3.3	Cosmetic Engineering - I	40	10	50	4	--	--	4
	HCT3.4	Cosmetic Chemistry III	40	10	50	4	--	--	4
		Soft Core (Any one)							
	SCT3.1	Drugs& Cosmetics Laws-I	40	10	50	4	--	--	4
	SCT3.2	Introductory Pharmacology and Toxicology-I	40	10	50	4	--	--	4
		Seminar/Tutorial/ Industrial Visit/ Field Tour	---	10	10	--	1	--	1
	HCP3.1	Practical-I(HCT3.1 and HCT3.2)	40	10	50	--	--	04	4
	HCP3.2	Practical-II(HCT3.3and HCT3.4)	40	10	50	--	--	04	4
		Total for Semester-III	280	80	360	20	01	08	29
Sem-IV		Hard Core							
	HCT4.1	Cosmetic Technology - II	40	10	50	4	--	--	4
	HCT4.2	Instrumental methods of Analysis - II	40	10	50	4	--	--	4
	HCT4.3	Cosmetic Engineering - II	40	10	50	4	--	--	4
	HCT4.4	Cosmetic Chemistry - IV	40	10	50	4	--	--	4
	HCT4.5	Environmental Studies	40	10	50	3	--	--	NC
		Soft Core (Any one)							
	SCT4.1	Drugs& Cosmetics Laws - II	40	10	50	4	--	--	4
	SCT4.2	Introductory Pharmacology and Toxicology-II	40	10	50	4	--	--	4
		Seminar/Tutorial/ Industrial Visit/ Field Tour	---	10	10	--	1	--	1
	HCP4.1	Practical-III(HCT4.1&HCT4.2)	40	10	50	--	--	04	4
	HCP4.2	Practical-IV(HCT4.3 &HCT4.4)	40	10	50	--	--	04	4
		Total for Semester-IV	320	90	410	23	01	08	29

L=Lecture T=Tutorials P=Practical IA=Internal Assessment HCT=Hard Core Theory SCT=Soft Core Theory HCP=Hard Core Practical

EvaluationScheme:

Each theory paper will have 50 marks out of which 40 marks will be for Term End examination and 10 marks for Internal Assessment. Practical paper will have 50 marks out of which 40 marks will be for Term End examination and 10 marks for Internal Assessment. The candidate has to appear for internal evaluation of 10 marks and external evaluation (University Examination) of 40 marks for each **theory** paper. The candidate also has to appear for internal evaluation of 10 marks and external evaluation (University Examination) of 40 marks for **practical** paper.

Internal Evaluation:

- Incaseoftheorypapersinternalexaminationswillbeconductedbyschool.
- In case of practical paper 05 marks shall be for day-to-day journal and internal examination will be conducted by the school.

External Evaluation (End of Term University Examination):

I) Nature of Theory questionpaper:

Q. No.1) Multiple choice questions (08)

- 1) -----
a) b) c) d)
- 2)
3)
4)
5)
6)
7)
8)

Q.No.2) Answer any four of the following (08)

- i)
ii)
iii)
iv)
v)
vi)

Q.No.3 A) Write notes on any one of the following (03)

- i)
ii)

B) Solve / short answer (05)

Q. No.4) Answer any Two of the following (08)

- i)
ii)
iii)

Q.No.5) Answer any one of the following (08)

- i)
ii)

II) Nature of Practical Question paper: Practical examination will be of 6 hours duration carrying 80 marks. VIVA & record book will be for 05 marks each.

COSMETIC TECHNOLOGY– I

Unit-1: Physical & Chemical properties of agents (Drug & Cosmetics) influencing design of products forms. (10 L)

Unit-2: Introduction to Dosage Form: Monophasic liquid formulations, Biphasic dosage form and special emphasis on monophasic liquid formulation, techniques of enhancing solubility of ingredients in vehicles. (10 L)

Unit-3: Surface active agents – Definition classification based on chemical nature and HLB scale, properties and significance in cosmetics. (10L)

Unit-4: Packaging and dispensing of cosmetic formulations: Importance of different materials for containers and closures. Packaging of cosmetic product and labeling. Environmental aspects of packaging materials, appropriate recycling and disposal. Green packaging. (10L)

Reference Books:

1. Mithal Text Book of Pharm formulations B 11, Piloni.
2. The Pharmacopoeia of India
3. Remington's Pharmaceutical Practices.
4. Cooper & Gum Dispensing for Pharmaceutical Students.
5. Husa: Pharmaceutical Dispensing: mach Publishing Co.
6. Text Book of Cosmeticology – by Harry's

Paper No.II

Paper Code:HCT3.2

INSTRUMENTAL METHODS OF ANALYSIS - I

Unit-1: Introduction to Instruments used for cosmetic product analysis, Classification of instrumental Methods based on Spectral Methods.

Spectroscopy: Introduction, electromagnetic radiation- its properties and Electromagnetic spectrum. **(10L)**

Unit-2: Colorimetric, UV and Visible spectroscopy - Basic Principles, Essential parts of spectrophotometers, uses and application of spectrophotometer. Spectrophotometric titration. **(10L)**

Unit-3: Flame photometry- Introduction, General principles, Instrumentations and applications **(10L)**

Unit-4: Chromatography- Introduction, General Principles and classification of Chromatography, types of columns, Paper chromatography (PC) and Thin Layer Chromatography (TLC) and their applications. **(10 L)**

Reference Books:

1. Instrumental Methods of Analysis – Dean, Willar
2. Instrumental Methods of Analysis –Ewing.
3. Quantitative Inorganic Analysis – A.I.Vogel
4. Commercial Method of Analysis – FrankBiffen.

Paper No.III

Paper Code: HCT3.3

COSMETIC ENGINEERING - I

Unit-1: Flow of Fluids: Fluid statics, manometers, Reynolds No. Bernoulli's Theorem, frictional losses. **(10L)**

Unit-2: Measurement of fluid flow: Meters-Orifice meters, Venturimeter, Pitot tube, Rotameter, displacement meter. **(10 L)**

Unit-3: Transportation of fluids:

Pumps: Various types of pumps: Reciprocating, Piston, Duplex diaphragm, rotary, centrifugal and turbine pumps. **(10L)**

Unit-4: Conveying: Belt, Apron, Bucket, Screw & pneumatic. **(10L)**

Reference Books:

1. Badger & Banchero : Introduction to chemical Engineering.
2. McCabe & Smith : Unit operations in chemical Engineering.
3. Richardson & Coulsion Vol. I & II : Chemical Engineering.
4. Hougen & Watson : Material & Energy Balances Part –I

Paper No. IV

Paper Code: HCT3.4

COSMETIC CHEMISTRY - III

Unit-1: Amino Acids:

Classification, essential and non-essential amino acids, ketogenic & glucogenic amino acids, Zwitterions. Physical & Chemical properties of amino acids with respect to their use in cosmetic preparations. Their wide applications in cosmetics. **(10 L)**

Unit - 2 Proteins:

Sources, classification in detail, Physical and Chemical properties and relation of these properties in use of proteins in cosmetic preparations. Importance of proteins in cosmetic and Pharmaceutical industries. **(10 L)**

Unit - 3 Enzymes:

Definition, nomenclature & classification. Mechanism of enzyme action. Coenzymes & Prosthetic group. Properties of enzymes. Their industrial uses with respect to cosmetic and pharmaceutical industries. **(10 L)**

Unit - 4 Clay minerals and the natural and synthetic silicates: Chemistry in brief of silicones. Properties, Natural silicates, synthetic silicates. Their properties and uses in preparation of cosmetics and drugs. Toxicity of Silicones. Silk powder.

I) Synthetic Surfactants:

Classification, commercial surfactants, cosmetic uses.

II) Insoluble Metallic soaps:

Methods of manufacture and uses. **(10 L)**

Book Recommended:

1. Chemistry & Manufacture of Cosmetics by M. G. DeNavarre

DRUGS AND COSMETICS LAWS - I

Unit-1: Drugs & Cosmetic Acts and Rules (with reference to cosmetics)

Objectives. Definitions: Drug, Misbranded Drug, Adulterated Drug, Spurious Drug, Misbranded Cosmetic, Spurious Cosmetic, Inspector and Government Analyst. Duties of Inspector and Government Analyst. DTAB (Drugs Technical Advisory Board): Constitution, Function of DTAB. Provision Related to Cosmetics: Prohibition of import of certain cosmetics, Manufacture of Cosmetics for Sale, Sale of Cosmetics, and Labelling of Cosmetics. Offences and Penalties relating to cosmetics. **(10L)**

Unit-2: The Medicinal and Toilet preparations (Excise duties) Acts and Rules

Objectives. Definitions: Alcohol, Dutiable goods, Medicinal Preparation, Toilet Preparation, Manufacture, Narcotic Drug, Bonded Manufactory, Non-bonded Manufactory, Denatured Spirit or Denatured alcohol, Spirit Store, Restricted Preparation, Unrestricted Preparation, Substandard Preparation. Procedure for Licenceto manufacture medicinal and toilet preparation, Particulars in Application. Bonded Laboratory or Bonded Manufactory. Non-bonded laboratory/ Non-bonded manufactory. Classification of Medicinal and Toilet Preparations containing alcohol. Warehousing of alcohol Preparations. Export of Medicinal and Toilet Preparations: Export of duty paid Goods, Export Under Bond. Movement of dutiable goods from one Bonded Warehouse to another Bonded warehouse, Entry, Search And Seizure. Offences and Penalties. **(10 L)**

Unit-3: Schedule M (II), Q & S of Drugs and Cosmetics Act.

Schedule M (II): General requirements, Requirement of Plant and Equipment:

Equipment Area and other requirement (if applicable) required for Powder (face powder, cake make-up, compacts, face packs, rouges etc.), Cream, lotion, Shampoos, Hair oils, Emulsion, Shaving cream, Nail polishes and Nail lacquers, Lipsticks,

Depilatories, Preparations used for Eyes: i) Eye brows, Eye lashes, Eye liners ii) Kajal and Surma, Aerosol, Alcoholic Fragrance solutions, Hair Dyes, Tooth powders and Tooth pastes: i) Tooth powder in General ii) Tooth Pastes iii) Tooth Powder (Black), Toilet Soaps.

Schedule Q: List of coal tar colours permitted to be used in Cosmetics.

Paper No. V

Paper Code:SCT3.1

Schedule S: Some of the standard specification of Powder hair dyes, Skin powder, After Shave lotion, Shampoo, Skin cream and Nail polishes laid down by BIS. **(10L)**

Unit-4:Prevention of Cruelty to Animals Act.

Objectives. Definitions: Animals, Phooka or Doom Dev, Cruelty. Cruelty to animals.

Animal Welfare Board of India: Objective, Constitution and Functions. Experimentation of Animals: Committee Constitution. Role of Committee. Entry and Inspection. Prohibition of Experimentation of Animals. Offences and Penalties. **(10L)**

Reference Books

1. Drugs & Cosmetic Acts & Rules. Govt.of India Publication.
2. T.B. of Forensic pharmacy by M.Mittal
3. IP, BP, NF,USP.
4. Forensic Pharmacy by Dr. B. S. Kuchekar, A. M. Khadatare and SachinItkar

INTRODUCTORY PHARMACOLOGY & TOXICOLOGY - I

Unit-1: Scope of Pharmacology in Cosmetics, Terminologies and Definitions Routes of Administration of drugs, their advantages and disadvantages, giving special emphasis on Topical route. (10L)

Unit-2: Various processes of Absorption, Distribution, Metabolism and Excretion of drugs and the factors influencing drug absorption. (10L)

Unit-3: General mechanisms of drug action, site of drug action, types of drug action and the factors influencing Drug action. (10L)

Unit-4: Material safety data sheet (MSDS), its scope, significance during cosmetic material handling with examples. (10L)

Reference Books

1. Pharmacology and Pharmacotherapeutics By R.S. Satoskar and S.Bhandarkar
2. Essentials of Pharmacotherapeutics By F.S.K.Barar.

Practical Paper-I
Paper Code: HCP3.1

PRACTICAL –I

Cosmetic Technology-I

- 1] Introduction to Monophasic Dosage Form
- 2] Preparation of toners.
- 3] Preparation of mouthwash.
- 4) Preparation of astringents.
- 5] Preparation of Gargles.
- 6] Preparation of liniments.
- 7] Preparation of gels

Instrumental Methods of Analysis-I

- 1] Determination of λ max., absorption curve of organic dyes by Colorimeter.
- 2] Determination of concentration of organic dyes by Colorimeter and spectrophotometer.
- 3] Basic Experiment based on chromatography i.e. paper chromatography, thin layer chromatography and column chromatography

Practical Paper-II

Paper Code: HCP3.2

PRACTICAL –II

Cosmetic Engineering-I

- 1] Use on Instruments, Practice in lettering construction & uses of plain diagonal, vernier scales and scale of chords.
- 2] Projection of points, lines and planes.
- 3] Section of solids.

Cosmetic Chemistry-III

- 1] Qualitative test for proteins and amino acids.
- 2] Precipitation of proteins.
- 3] Effect of pH change on proteins: Precipitation of casein from milk.
- 4] Quantitative estimation of Glycine by Sorenson's method.
- 5] Colorimetric estimation of proteins by Biuret/Lowry's method.
- 6] Enzyme assay. Assay of amylase activity.

Paper No. VI

Paper Code: HCT 4.1

COSMETIC TECHNOLOGY – II

Unit-1: Biphasic liquid formulations:

Emulsions – Types, identification of emulsions, preparation.

Suspensions – Flocculated and non- flocculated suspensions, selection of wetting suspending and dispensing agents, preparation and stability.

(10L)

Unit-2: Preservatives- Origin of contamination, factors influencing the effectiveness of preservatives, Ideal characteristics, uses and safety aspects **(10L)**

Unit-3: Semisolid formulations: Introduction to Ointments, paste, creams, jellies, sticks, selection of ideal bases and preparation.

(10 L)

Unit-4: Solid formulations - Bulk powders, incorporation of different varieties of powders viz. dusting, compact, face and talcum. **(10 L)**

Reference Books:

1. Mithal Text Book of Pharm formulations B 11, Pilani.
2. The Pharmacopoeia of India
3. Remingtons Pharmaceutical Practices.
4. Cooper & Gun's Dispensing for Pharmaceutical Students.
5. Husa: Pharmaceutical Dispensing: mach Publishing Co.
6. Text Book of Cosmeticology – by Harry's.

INSTRUMENTAL METHODS OF ANALYSIS- II

Unit-1: Raman Spectroscopy.- Introduction, principle, Instrumentation and applications
Polarimetry:- Introduction, optical activity, General Principles, apparatus,
application in the determination of optical rotation and specific optical rotation
of liquid and solid substances. (10L)

Unit-2: pH measurement: Definition, Determination of pH by pH indicators and by
Potentiometric method (pH meter), instrumentation and applications. (10L)

Unit-3: Refractometry – Introduction to refractive index, theory and principle of Abbe's
refractometer and its application. (10L)

Unit-4: Conductometry:- Introduction, Definition, laws of conductance, specific
conductance, equivalent conductance, molecular conductance. Principles,
instrumentation and applications of Conductometry. (10L)

Reference Books:

1. Instrumental Methods of Analysis – Dean, Willar
2. Instrumental Methods of Analysis – Ewing.
3. Quantitative Inorganic Analysis – A.I. Vogel
4. Commercial Method of Analysis – Frank Biffen.

COSMETIC ENGINEERING- II

Unit-1:Humidification and air conditioning: Definitions, wet bulb theory, determination of Humidity, Humidifiers and dehumidifiers. **(10 L)**

Unit-2: Flow of heat: Classification of heat flow processes, Fourier's law, Heat flow through cylinder, convection. Natural Convection, forced convection surface coefficients **(10L)**

Unit-3: Radiations: Black body, Emissivity, mometry, Heaters, Heat interchangers, Parallel and countercurrent Heat Exchangers, Finned tube heat changers.**(10 L)**

Unit-4: Fundamental concepts of material & energy balances:Units & Dimensions, dimensional analysis, material & energy balances for operations without chemical reactions. **(10 L)**

Reference Books:

1. Bedger&Banchero : Introduction to chemicalEngineering.
2. Mc-cabe&Smith : Unit operations in chemical Engineering.
3. Richardsaon&Couslson Vol. I &II : Chemical Engineering.
4. Hougen&Watson : Material & Energy Balances Part –I

COSMETIC CHEMISTRY – IV

Unit-1: Lipids: Sources, classification, structure of simple triglycerides. Waxes: classification, Composition, properties and importance of these properties in cosmetic formulations, uses. Fatty acids: Classification of essential fatty acids, Production method, Properties and uses of fatty acids with respect to cosmetic and pharmaceutical establishments Lanolin : composition, derivatives & uses of Lanolin . Derivatives of fatty acids: Their role in Cosmetics, Fatty Alcohols: Chemistry, types & uses. **(10 L)**

Unit-2: I) Humectants and Polyols: Choice of humectant, unusual humectants, special uses of humectants. Lanolin: Source, composition, properties, derivatives & uses.

II) Viscosity Modifiers – e.g., gum, alcohol and electrolytes, solvents etc.

(10 L)

Unit-3: Vitamins: Definition, fat soluble and water soluble Vitamins, sources, structure, Physiological & Metabolic role of Vit. A, D, E & K Importance in cosmetics & Pharmaceuticals. Structure & Sources of water soluble vitamins, B Complex & Vit. C. Their role in Cosmetic industries. **(10L)**

Unit-4: Pearls and Pearl Essence: Definitions, commercial uses, production methods, synthetic pearly substances.

Ion exchange resins and their cosmetic uses in case of purified water, Raw water, standards for water as per IP, BP, USP (with recent amendments)

(10L)

Reference Books:

1. Chemistry & Manufacture of Cosmetics by M. G. DeNavarre

Paper No. X

Paper Code: SCT 4.1

DRUGS& COSMETICS LAWS - II

Unit-1: Pharmacy Act.

Objective. Definitions: Central Council, Central Register, Medicinal Practitioner, Registered Pharmacist, Displaced Person and Repatriate. Pharmacy Council of India: Constituent, Functions, President and Vice-President of Council, Terms of Office and Causal vacancies, Staff remuneration and allowances, Executive committee. Approval of Institution: Procedure for approval of Institution. Withdrawal of approval. Central Register of Pharmacists. State Pharmacy Council and Joint State Pharmacy council constituent, President and Vice-President of State Council, Terms of Office and causal vacancies, Staff remuneration and allowances, Executive committee. Registration of Pharmacists. Offences and Penalties. **(10 L)**

Unit-2: Factory Act.

Objective. Applicability. approval, licensing and registration of factories. General duties of Occupier and manufactures. Inspecting staff and Powers of Inspectors. Certifying surgeons and duties of surgeons. Health provision. Safety provision. Welfare provision. Working hours of adult. Employment of young persons. Working hours of children. Annual leaves with wages. Offences and penalties. Cognizance of offences. **(10L)**

Unit-3: Shop & Establishment Act. Sales Promotion Act.

A) Shop & Establishment Act: Objectives. Scope and Coverage. Main Provisions. Registration of Establishment. Opening and Closing Time. Working Hours. Closing Day. Employment of Children, Young person and Women. Health and Safety Provision. Leave and Wages. Enforcement and Inspection. Offences and Penalties. Miscellaneous.

B) Sales Promotion Act: Objective. Definitions: Establishment, Notified industry. Leave Entitlement Procedure and Compliance: Mandatory Holidays, Earned Leave, Medical Leave, Quarantine Leave, Leave At Discretion of Employer Extraordinary Leave and

Casual Leave. List of Other Welfare Acts. Mandatory procedures under the act and rules. Inspectors. Offences by companies. Cognizance of offence. (10 L)

Unit-4: Patenting in India & Abroad.

Purpose of getting patent. Role of Patent System. Types of Patents. Patentable and Non Patentable inventions. Term of patent. Essential documents with patent application. Expiry of Patent. Stages from filling to grant of a Patent. Patent infringement. Advantage of patenting. Rights of Patentee. Jurisdiction for filling patent application. Renewal fee. Patent Cooperation Treaty (PCT). (10 L)

Recommended Books:

1. Drugs & Cosmetic Acts & Rules. Govt. of India Publication.
2. T.B. of Forensic pharmacy by M. Mittal
3. IP, BP, NF, USP.
4. Forensic Pharmacy by Dr. B. S. Kuchekar, A. M. Khadatare and Sachin Itkar

INTRODUCTORY PHARMACOLOGY & TOXICOLOGY - II

Unit-1: Pharmacology of Topical drugs, Introduction. Types of Topical drugs:

- a. Protectives and absorbents
- b. Demulcents
- c. Emollients
- d. Astringents and antiperspirants-deodorants
- e. Irritants, Rubefacients and Vesicants.
- f. Sclerosing Agents.
- g. Caustics and Escharotics
- h. Keratolytics (Desquamating Agents)
- i. Cleansing preparations.
- j. Miscellaneous Dermatologic- mouth washes, gargles, sunscreens, melanizers & demelanizers. **(10L)**

Unit-2: Miscellaneous Topical Drugs – Local antinfecive agents- classification, properties, method of estimation of potency and mechanism of action of antibacterial agent, antifungal agent, ectoparasiticides **(10L)**

Unit-3: Pharmacology of Cosmeceuticals used for Antiaging, Antiwrinkle, Fairness-bleaching & Sunscreens, Antiandruff, Anti inflammatory, Anti acne/pimple, Pigmentation etc. Autocoids: Introduction to various autocoids; Histamine, its physiological role and antihistamines. **(10L)**

Unit-4: Heavy metals and metal antagonist: Symptoms and management of lead, Mercury & Arsenic poisoning. **(10L)**

Reference Books:

1. Pharmacology and Pharmacotherapeutics By R.S. Satoskar and S. Bhandarkar
2. Essentials of pharmacotherapeutics By F.S.K. Barar.

Practical Paper-III

Paper Code: HCP4.1

PRACTICAL-III

Cosmetic Technology- II

- 1) Preparation of emulsion by Dry gum method and Wet gum method
- 2) Preparation of suspension- Calamine Lotion.
- 3) Preparation of ointment bases – i) hydrocarbon ii) Absorbable iii) Water Soluble iv) Water miscible.
- 4] Preparation of paste, jelly bases and simple stick bases.
- 5] Preparation of face powders.

Instrumental Methods of Analysis- II

- 1] Experiment based on pH-Meter- pH determination of cosmetic raw material and products as per IP specification
- 2] Experiment based on Conductometer, Determination of specific conductance/ conductivity of various electrolytes, standard graph, determination of concentration of electrolytes.
- 3] Study of refractometer, determination of refractive index of cosmetic ingredients as per IP specifications.
- 4] Experiment based on polarimeter, determination of optical rotation of specific optically active substances as per IP specifications.

Practical Paper-IV

Paper Code: HCP4.2

PRACTICAL-IV

Cosmetic Engineering-II

- 1] Elementary ideas of 1st angle and 3rd angle projectors. Top view, front view and sections.
- 2] Projection of simple solids such as cones, cylinders, prisms and pyramids with different positions and groundlines.
- 3] Isometric projections of simple solids.

Cosmetic Chemistry- IV

- 1] Qualitative test for lipids.
- 2] Determination of Saponification value of fats.
- 3] Determination of Acid value of fats.
- 4] Determination of Iodine number of fats.
- 5] Estimation of Ascorbic Acid (Vit.C)
- 6] Identification test and analysis of lanolin.
- 7] Identification test and analysis of Kaolin.
- 8] Identification test and analysis of Bentonite.
- 9] Analysis of water as per IP, BP and USP.