Enclosure-IX

Sarvodaya Kelavani Samaj managed,

Shri Manibhai Virani and Smt. Navalben Virani Science College

(Autonomous)

(Affiliated to Saurashtra University, Rajkot)

Re-Accredited at 'A' Level by NAAC

STAR college Scheme & Status by MST-DBT

UGC- College with Potential for Excellence (CPE)

UGC-DDU KAUSHAL Kendra

GAAA –Grade A-1 by KCG, Government of Gujarat

GPCB-Government of Gujarat approved Environment Audit Center

Nodal Center for capacity building by GSBTM

Syllabi for the Courses of

DSE-Core offered to M.Sc. IC

Semester - III

SEMESTER – III		
Course Code	**Course Title**	**Course Credit and hrs**
18MCHDC302	**DSE –Core-1 Pharmaceutical Technology**	**4 Credits - 4hrs / wk**

Course Description:

This course focuses on several topics in pharmaceutical technology will contain: Various types of drug formulations such as tablet, capsules, sterile dosage form, cosmetology and cosmetic preparations and liquid dosage forms.

Course Purpose:

- Understand & write formulations and evaluations methods for various types tablets & capsules
- Illustrate requirement for preparation of sterile dosages & liquid dosage forms
- Understand and Describe cosmeticology and their preparations

Course Outcomes: Upon completion of this course, the learner will be able to		
CO No.	**CO Statement**	**Blooms taxonomy Level (K_1 to K_6)**
CO_1	Discuss the fundamental principles for dosage form design, drug release and drug delivery.	K1, K2
CO_2	Classify different dosage forms and apply principles of pharmaceutical science in formulation and dispensing the various dosage forms	K2, K3
CO_3	Apply the engineering principles for formulation of solutions, suspensions and emulsions, granules and tablets	K3
CO_4	Formulate the dosage forms for a given API based on its properties	K3, K4
CO_5	Develop a formulation process for a given API	K4, K5

Course Content

Module-I. Tablet: **(12Hrs.)**

(a) Definition, Advantages and disadvantages, Introduction to types of tablets**,** formulation of different types of tablets; excipients, granulation techniques, machinery for large scale granulation and compression, physics of tablet making, In process controls, processing problems and remedies,

(b) Evaluation (Pharmacopoeial and nonpharmacopoeial test) and equipments. Introduction of mouth dissolving tablets, buccal tablets, floating tablets, tablets of colon drug delivery, matrix tablets.

(c) Coating of Tablets: Objectives, types of coating, film forming materials, formulations of coating solution, equipments for coating, coating process, evaluation of coated tablets , coating defects.

Module-II. Capsules : **(12 Hrs)**

Hard Capsules:

Definitions, Advantages, disadvantages, Ideal requirements, Production of Hard capsules (Gelatin and non-gelatin e.g. vegetable), Capsule storage, size of capsules, formulation and methods of capsule filling, problems and remedies, quality control.

Soft Gelatin Capsules:

Formulation of shell and capsule coat, and quality control.

Module-III. Sterile Dosage Forms (12 Hrs.)

Definitions, Advantages, Disadvantages, Ideal requirements and Formulation of sterile dosage forms, Water for injection-Preparation, Design and requirements for production area- Aseptic techniques, sources of contamination and methods of prevention, design of aseptic area, laminar flow benches, containers and closures, methods of filling including form fill and seal technology. Evaluation of sterile dosage forms.

Module-IV. Cosmeticology and Cosmetic Preparations (12 Hrs.)

Fundamentals of cosmetic science, formulation, preparation and packaging of cosmetics for skin - Sunscreen, moisturizers, cold cream, and vanishing cream, hair - Shampoo and conditioners, dentifrice- powders, gels, paste and manicure preparations like- nail polish, lipsticks, eye lashes, baby care products, shaving cream, hygienic products.

Module-V. Liquid Dosage Forms (12 Hrs.)

Introduction, advantages and disadvantages, types of additives used vehicles, stabilizers, preservatives, suspending agents, emulsifying agents, solubilizers, colors, flavors, etc.

Suggested laboratory experiments:

- Note: Included in DSE core practical

Pedagogic tools:

- Chalk and Board, Power point presentation, models
- LCD and Videos.

Text books

Reference Books:

1. The Theory and Practice of Industrial Pharmacy by L Lachman, H Lieberman. (4th Edition edition, 2014) (ISBN: 9788123922898).
2. Kanig. Gennaro, Alfonso R., Remington: The Science and Practice of Pharmacy, Vol-I & II, Lippincott Williams & Wilkins, New York. 21st Revised edition edition (1 May 2005) (ISBN: 9780781746731).
3. Pharmaceutical Dosage Forms and Drug Delivery Systems by Ansel (10^{th} edition, 2013) (ISBN: 9781451188769).
4. Pharmaceutics: The Science of Dosage Form Design by Michael E. Aulton (2^{nd} edition, 2001) (ISBN: 9780443055171).

Laboratory Manual/ Book

- Not applicable

Suggested reading / E-resources

Suggested MOOCs

Methods of assessing the Course Outcomes

- Continuous Internal Assessment (CIA)
- Semester End Evaluation (SEE)

Component of CIA

Sr. No	CIA Component	Content	Duration	Marks	Total Marks
1	Test-I	Two Modules	1.5 hrs	5 (Set for 30)	20
	Test-II	All modules	3 hrs	15 (Set for 60)	
2	Assignment	-	-	10 (Mark on 20)	20
3	Class Activity	-	-	10	
Total					**40**