RKUNIVERSITY

SYLLABUS

Course Title	**PHARMACEUTICAL TECHNOLOGY I**
Course Code	PH506
Course Credit	Lecture : 3
	Practical : 3
	Tutorial : 0
	Total : 6

Course Objectives

On the completion of the course, students will be able to:

- Understand the basic concepts of formulation, labeling, packing of different types of pharmaceutical dosage forms.
- Students should be able to formulate and evaluate semisolid, cosmetic and sterile products.

Detailed Syllabus

Sr. No.	Name of Chapter & Details	Hours Allotted
	Section-I	
1	**Semisolid dosage forms:** Definition, advantages and disadvantages, types, mechanisms of drug penetration through skin, factors influencing penetration, semisolid	**10**

	bases selection and ideal requirements of bases, formulation and formulation ingredients, manufacturing procedure, evaluation, labelling, packaging and storage requirements of following semisolids dosage form: Gels, ointments, suppositories, pessaries, poultice and plasters other I.P. semi solid products.	
2	**Fundamentals of cosmetic products:** Fundamentals of cosmetic science, structure and functions of skin and hair, brief introduction to cosmaceuticals.	**02**
3	**Cosmetic preparations:** Definition, advantages and disadvantages, formulation, preparation, labelling, packaging and storage requirements of following cosmetic products. **Cosmetics for skin:** Sunscreen, moisturizers, cold cream, vanishing cream, cleansing cream, foundation cream, moisturising cream, rouge, lather shaving products etc. **Cosmetics for hair:** Shampoo, conditioners etc. **Dentifrice cosmetic:** Tooth gels, tooth paste etc. **Manicure preparations:** Nail polish, lipsticks, eye lashes, mascara, baby care products, compact face powder etc.	**10**
	Section-II	
4	**Pharmaceutical aerosols:** Definition, propellants, general formulation of aerosols, containers, manufacturing (cold filling and pressure filling technique) and packaging methods, Inhalaer, metered dose inhaler, pharmaceutical applications,	**05**

	evaluation of aerosol.	
5	**Sterile dosage forms:** Definitions, advantages, disadvantages, Ideal requirements, aseptically prepared and terminally sterilized products, formulation, Water for injection: Preparation, Storage and quality control. containers and closures, Design and requirements for production area- Aseptic techniques, Clean Room classification, manufacturing process, methods of filling including form fill and seal technology, methods of sealing, sources of contamination and methods of prevention, evaluation of sterile dosage forms, Labelling requirements, Parentral suspensions and emulsion, Prefilled syringes, Total parentral nutrients, Freeze dried products, and sterile I.P. Products.	**15**
6	Opthalmic preparations: Eye drops, Eye lotion, and other opthalmic products.	**03**

Pharmaceutical Technology I (Practical)

1. Formulation and evaluation of cold cream.
2. Formulation and evaluation of vanishing cream.
3. Formulation and evaluation of foundation cream/cleansing cream.
4. Formulation and evaluation of simple ointment IP preparation..
5. Formulation and evaluation of non staining iodine ointment.
6. To find out displacement value of medicament/cocoa butter using suppositories mould.
7. Formulation and evaluation of suppositories.
8. Formulation and evaluation of eye drops.
9. Formulation and evaluation of eye lotion.
10. Formulation and evaluation of gel preparation.
11. Formulation and evaluation of lather shaving cream
12. Formulation and evaluation of lipstic preparation.

13. Formulation and evaluation of tooth paste.
14. Formulation and evaluation of calcium gluconate injection.
15. Formulation and evaluation of dextrose injection.
16. Formulation and evaluation of NaCl injection.
17. Formulation and evaluation of dextrose saline injection.
18. Perform pharmacopoeial test for given sample of glass vial / ampoule.
19. Other practicals covering syllabus aspects.

Instructional Method and Pedagogy:

- Lectures will be conducted with the aid of multi-media projector, black board, OHP etc.
- Assignments based on course content will be given to the students at the end of each unit/topic and will be evaluated at regular interval.
- Surprise tests/Quizzes/Seminar/Tutorials will be conducted.
- The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures.

Students Learning Outcomes:

- By the end of this course, the student should have a good understanding of basic process which are used in different stage during preparation of pharmaceutical formulation.
- Students should be able to know formulation, labeling, and packing of different types of pharmaceutical products.

Text Books:

1. Dispensing for pharmaceutical students" by Copper and Gunn by S.J.Carter, 12th Edn. CBS Publishers.

2. The Theory and Practice of Industrial Pharmacy by L Lachman, H Lieberman and J Kanig.
3. Pharmaceutical Dosage Forms and Drug Delivery Systems by Ansel & others.
4. Handbook Of Cosmetics by Mithal B.M., Vallabh publication.
5. Cosmetics Formulation Manufactoring & Quality Control by Sharma , Vandana Pub.Delhi.

Reference Books:

1. The Science & Practice of Pharmacy: A. G. Remington; Lippincott, Philadelphia.
2. Cosmetics by Poucher.
3. Pharmaceutical Dosage Forms: Tablets: Vol.1, Vol. 2 and Vol.3, Ed. by Lieberman, Leon Lachman and Joseph B. Schwartz, Marcel Dekker Inc., New York.
4. Pharmaceutical Dosage Forms: Parenteral Medication: Vol.1, Vol. 2 and Vol.3, Ed. by Lieberman, Leon Lachman and Joseph B. Schwartz, Marcel Dekker Inc.,New York.
5. Modern Pharmaceutics by Gilbert S. Banker and Christopher T. Rhodes, Marcel Dekker, Inc., New York.
6. Pharmaceutics: The Science of Dosage Form Design by Michael E. Aulton.

Additional Resources

- Soft copies of pharmaceutical technology books are available on http://www.pharmatext.org, www.pharmacyebooks.com, and in www.pharmamirror.com.
- Latest information regarding pharmaceutical technology are available on http://www.pharmainfo.net
- Study materials of pharmaceutical technology are available on mypharmaguide.com, pharmatutor.com, authorstream.com, slideworld.com and in scribd.com.
- Review articles published in international journal covering syllabus aspect.