

Subject Code: MPH201T	Subject Title: MOLECULAR PHARMACEUTICS (NANO TECH AND TARGETED DDS)
Pre-requisite Subject	- NONE -

Scope: This course is designed to impart knowledge on the area of advances in novel drug delivery systems.

Objectives:

Upon the completion of the course student shall be able to

- The various approaches for development of novel drug delivery systems.
- The criteria for selection of drugs and polymers for the development of NTDS
- The formulation and evaluation of novel drug delivery systems.

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)		
Lecture	Tutorial	Practical	Credit	Theory (T)		Total Marks
				University Assessment	Continuous Assessment	
						Theory
4	NA	NA	4	75	25	100

Subject Contents			
Sr. No.	Topic	Total Hours	Weight (%)
1	Targeted Drug Delivery Systems: Concepts, Events and biological process involved in drug targeting. Tumor targeting and Brain specific delivery.	12	20
2	Targeting Methods: introduction preparation and evaluation. Nano Particles & Liposomes: Types, preparation and evaluation.	12	20
3	Micro Capsules / Micro Spheres: Types, preparation and evaluation, Monoclonal Antibodies: preparation and application, Preparation and application of Niosomes, Aquasomes, Phytosomes, Electrosomes.	12	20
4	Pulmonary Drug Delivery Systems : Aerosols, propellents, Containers Types, preparation and evaluation, Intra Nasal Route Delivery systems; Types, preparation and evaluation.	12	20
5	Nucleic acid based therapeutic delivery system: Gene therapy, introduction (<i>ex-vivo</i> & <i>in-vivo</i> gene therapy). Potential target diseases for gene therapy (inherited disorder and cancer). Gene expression systems (viral and nonviral gene transfer). Liposomal gene delivery systems. Biodistribution and Pharmacokinetics. Knowledge of therapeutic antisense molecules and aptamers as drugs of future.	12	20

Recommended Books: (Latest Editions)

1. Y W. Chien, Novel Drug Delivery Systems, 2nd edition, revised and expanded, Marcel Dekker, Inc., New York, 1992.
2. S.P.Vyas and R.K.Khar, Controlled Drug Delivery - concepts and advances, VallabhPrakashan, New Delhi, First edition 2002.
3. N.K. Jain, Controlled and Novel Drug Delivery, CBS Publishers & Distributors, NewDelhi, First edition 1997 (reprint in 2001).