



INTEGRAL UNIVERSITY

FACULTY OF PHARMACY



NOVEL DRUG CARRIER SYSTEM (PHV-E6)

Drug carrier systems are utilized for improvement of properties of drug molecules. Novel drug carriers are developed by utilization of concepts related to pharmaceutical nanotechnology. It involves modifications and control of nanomaterials in a way useful for drug delivery applications. One of the main benefits of nanotechnology is that it improves the material's surface properties, which allows enhanced interaction with biological systems. This property is responsible for the increase in solubility, bioavailability, targeting potential and overall improvement in dosage form effectiveness.

Working at the nanoscale gives pharmaceutical scientists, the opportunity to apply the unique physical and chemical properties of materials. Nanotechnologists must evaluate the various types and specific dimensions of nanoformulations to apply in different diseased conditions. The applications of nanotechnology are endless. It goes from medical devices and drugs to improve therapeutic effectiveness of different therapeutic strategies.

Keeping this in view, the current online course is designed to give the learners foundational coursework on novel drug carrier system for both undergraduate and postgraduate level programs. With this course, the enrolled candidates shall receive conceptual knowledge on basic and advanced aspects of novel drug carrier systems with specific emphasis on nanoparticles, liposomes, gene delivery etc.

This course is created by expert instructors of Faculty of Pharmacy, Integral University who will help you understand basic concepts, design, methodologies, regulatory considerations and applications associated with novel drug carrier systems.

Upon successful completion of the course, each candidate shall receive a certificate.

This is an online course. Lectures shall be conducted during weekends, on Saturdays and Sundays.

Course Platform	: ILI-LMS
Conduct of sessions	: Online - Google Meet
Duration	: 30 hours
Course Commencement	: 01-04-2023
End of Course	: 31-05-2023

Key USPs

- An extensive course focused on explaining the terms and terminologies used in pharmaceutical nanotechnology with emphasis on novel drug carrier systems.
- Specially designed for science graduates with flexible deadlines and access to course content from anywhere.
- Avail quizzes to learn and enhance your skills related to pharmaceutical nanotechnology.

Learning outcomes

- Understand basic concepts used during development of novel drug carrier systems.
- Discuss different aspects of pharmaceutical nanotechnology.
- Analyze problems related to targeted drug delivery systems.
- Explain regulatory considerations related to nanotechnology-based products.
- Apply controlled release concepts in designing of novel drug carrier systems.

Coordinators of the Course

Dr. Juber Akhtar, Professor, Faculty of Pharmacy (jakhtar@iul.ac.in)

Dr. Abdul Hafeez, Associate Professor, Faculty of Pharmacy (abdulhafeez@iul.ac.in)

Name of Instructors

1. Mr. Mohd. Shariq, Assistant Professor, Faculty of Pharmacy, Integral University, Lucknow.
2. Mr. Ahtesham Ahmad, Assistant Professor, Faculty of Pharmacy, Integral University, Lucknow.
3. Mr. Abdur Rahman, Lecturer, Faculty of Pharmacy, Integral University, Lucknow.
4. Ms. Aditya Singh, Lecturer, Faculty of Pharmacy, Integral University, Lucknow.
5. Ms. Arzoo Khanam, Lecturer, Faculty of Pharmacy, Integral University, Lucknow.

Course Outline

Module 1, Number of Lectures- 06

- Introduction to novel drug carriers and pharmaceutical nanotechnology
- Basic aspects of controlled release drug delivery systems
- Fundamentals of targeted drug delivery systems

Module 2, Number of Lectures- 06

- Biological process involved in drug targeting
- Types of novel drug carrier systems
- Classification and properties of materials used in development of nanoformulations

Module 3, Number of Lectures- 06

- Types of nanoparticles
- Methods for the preparation of nanoparticles
- Applications of nanoparticles in drug delivery

Module 4, Number of Lectures- 06

- Liposomes and their applications in drug delivery
- Nanotechnology based gene delivery

Module 5, Number of Lectures- 06

- Regulatory aspects of nanotechnology based products
- Ethical issues, challenges and future perspectives