Report on Guest Lecture

"Some Principles of Pharmaceutics Relevant to Project Development"

Date & Time: 17th December 2025, 11.30 am – 12.30 pm.
Venue: Golden Jubilee Digital Theatre, JSS College of Pharmacy, Mysuru,
Resource Person: Dr. Indiran Pather
Professor,
Department of Pharmaceutical Sciences, Howard University, USA

Organized by: Department of Pharmaceutics, JSS College of Pharmacy, Mysuru

Participants: PG students- Department of Pharmaceutics Department, Ph.D. Scholars, and Faculty Members

The Department of Pharmaceutics organized a guest lecture titled "Some Principles of Pharmaceutics Relevant to Project Development" on 17th December 2025 with the objective of strengthening students' understanding of core pharmaceutics concepts and their application in pharmaceutical research projects. The lecture was delivered by Dr. Indiran Pather, Professor, Department of Pharmaceutical Sciences, Howard University, USA, a renowned academician with extensive experience in formulation development, drug delivery systems, and pharmaceutical research.

The program was aimed at undergraduate, postgraduate, and research students to help them connect theoretical principles of pharmaceutics with practical aspects of project planning, execution, and regulatory considerations.

Dr. Pather commenced the lecture by emphasizing the importance of selecting pharmaceutically relevant project topics and aligning them with drug properties, therapeutic objectives, and regulatory feasibility. He highlighted that a successful project should demonstrate scientific rationale, applicability, and compliance with regulatory expectations.

He elaborated on the first pass metabolism and its impact on oral drug bioavailability. He explained how extensive hepatic metabolism can significantly reduce the systemic availability of drugs and how alternative delivery approaches can be explored in academic projects to overcome this limitation. Discussed the relationship between drug permeability and duration of action, explaining how highly permeable drugs may exhibit rapid absorption but shorter duration, whereas drugs with controlled permeability can be designed for prolonged therapeutic action. This concept was linked to formulation strategies and project outcomes.

Special emphasis was given to drugs with a narrow absorption window, particularly those absorbed primarily in the upper gastrointestinal tract. The speaker discussed formulation approaches such as gastroretentive systems and controlled-release designs, highlighting their relevance as student project topics.

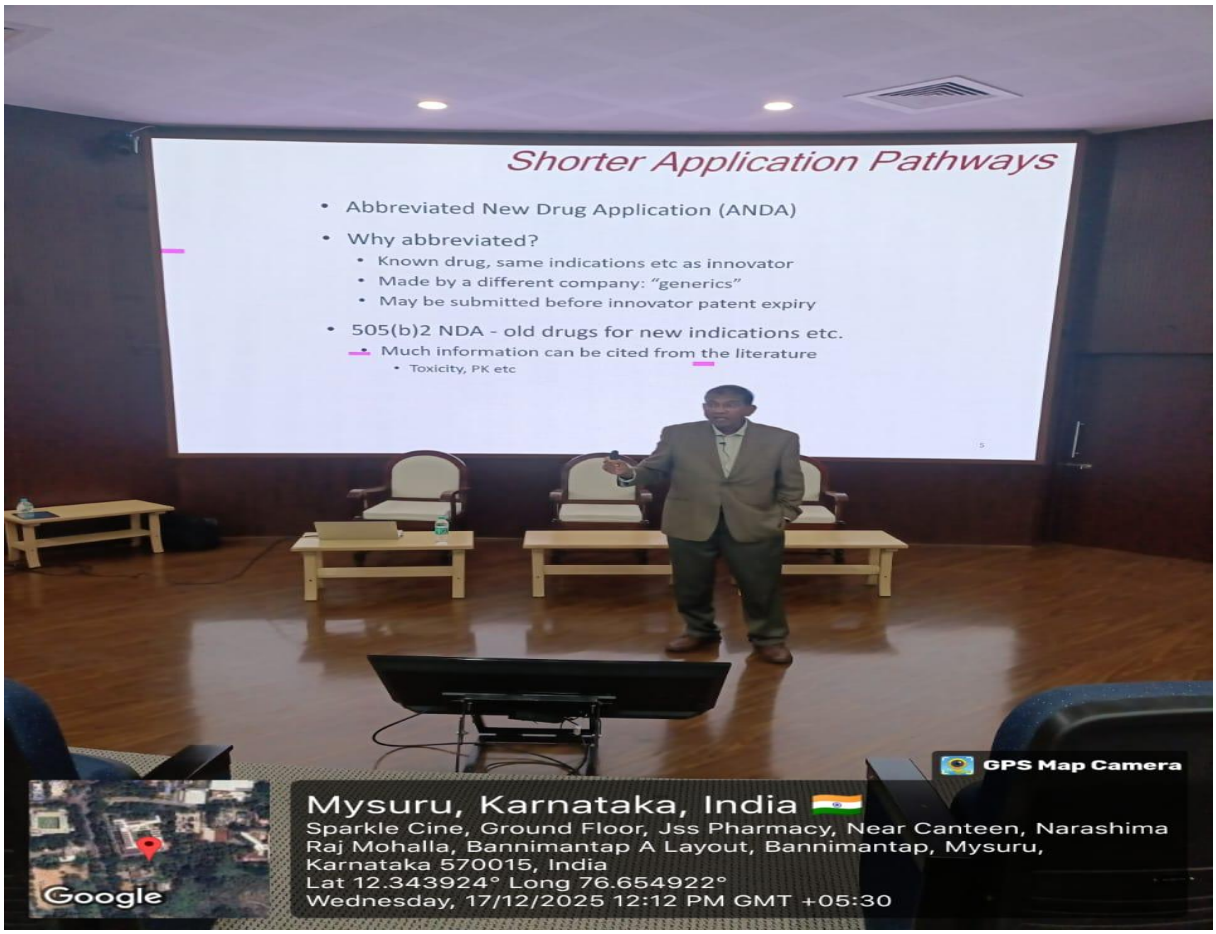
Dr. Pather provided detailed insights into several advanced drug delivery approaches relevant to project development:

Mucoadhesive Tablets for Oral Cavity Delivery:

He explained the principles of mucoadhesion, advantages of buccal and sublingual delivery, and their role in bypassing first pass metabolism. The importance of polymer selection and evaluation parameters was highlighted.

Transdermal Drug Delivery Systems:

The lecture covered the fundamentals of transdermal patches, skin permeability considerations, and advantages such as sustained drug release and improved patient compliance. Dr. Pather emphasized their suitability for formulation-based academic projects.



Ocular Drug Delivery:

Challenges associated with ocular delivery, including limited residence time and poor bioavailability, were discussed. The speaker highlighted formulation strategies to improve ocular drug retention and absorption, making it a promising area for research projects.

Regulatory and Intellectual Property Aspects

He also addressed shorter regulatory application pathways, explaining how certain formulation strategies and delivery systems can facilitate faster regulatory approval. He stressed the importance of understanding regulatory expectations while designing academic projects.

A brief but informative note on patents was included, where he explained the significance of novelty, prior art search, and intellectual property protection in pharmaceutical research. Students were encouraged to consider patentability while selecting innovative project topics.

Interaction and Discussion

The lecture concluded with an interactive question-and-answer session. Students actively participated by raising questions related to project selection, formulation challenges, regulatory considerations,

and career opportunities in pharmaceutical research. Dr. Pather provided practical guidance and encouraged students to adopt a research-oriented and innovation-driven approach.

Outcomes of the Program

The guest lecture was highly beneficial and achieved the following outcomes:

- Enhanced understanding of pharmaceutics principles relevant to project development
- Exposure to advanced drug delivery systems and regulatory perspectives
- Improved awareness of intellectual property and patent considerations
- Motivation among students to pursue quality research and innovative projects

Conclusion

The guest lecture by Dr. Indiran Pather was a valuable academic initiative by the Department of Pharmaceutics. The session effectively integrated fundamental pharmaceutics concepts with advanced drug delivery systems, regulatory pathways, and research innovation. The lecture significantly enriched the knowledge base of students and faculty and contributed to improving the quality and relevance of pharmaceutical project work.

The Department of Pharmaceutics expresses its sincere gratitude to Dr. Indiran Pather for sharing his expertise and for making the program highly informative and impactful.