Beni-Suef University
Faculty of Pharmacy
Quality Assurance Unit

جامعــة بنى ســويف
كليــة الصيدلــة
وحدة ضمان الجودة

Five-year research plan for the Department of Pharmaceutics and Industrial Pharmacy– Faculty of Pharmacy – Beni-Suef University

(2026-2030)

Vision

The Department of Pharmaceutics aspires to achieve excellence in pharmaceutical research and education through innovation in drug delivery systems, formulation science, and biopharmaceutics, contributing to the advancement of healthcare and sustainable pharmaceutical development at the national and international levels.

Mission

The mission of the Department of Pharmaceutics is to conduct high-quality scientific research and postgraduate training that supports the development, optimization, and evaluation of pharmaceutical dosage forms. The department aims to integrate advanced technologies, experimental design, and pharmacokinetic modeling to enhance drug efficacy, safety, and patient compliance, while addressing current and future challenges in pharmaceutical sciences.

Research Plan – Department of Pharmaceutics

Special Field	Research Branch / Topic	Expanded Aims	Key Words
Advanced Drug Delivery Systems	Gene delivery systems for treatment of diseases	To design, develop, and evaluate advanced gene delivery systems capable of safely transporting genetic material to specific target cells. The research aims to enhance transfection efficiency, improve therapeutic outcomes, reduce systemic toxicity, and overcome biological barriers associated with gene therapy.	Gene delivery, vectors, nanocarriers
Advanced Drug Delivery Systems	Stem cell–based therapeutic systems	To investigate pharmaceutical and formulation approaches for stem cell–based therapies, focusing on stability, delivery, and targeting. The research aims to improve the therapeutic effectiveness of stem cells in the treatment of acute and chronic diseases while maintaining cell viability and safety.	Stem cells, regenerative medicine
Nanotechnology and Drug Targeting	Drug targeting using nanotechnology-based carriers	To develop nanotechnology-based drug carriers that enable site-specific drug delivery, enhance drug accumulation at the target site, improve pharmacokinetic profiles, and minimize adverse effects through controlled and	Drug targeting, nanotechnology

targeted release mechanisms.

Dosage Form Design	Formulation and evaluation of dosage forms	To formulate and evaluate conventional and novel pharmaceutical dosage forms using suitable excipients and technologies, ensuring optimal drug stability, efficacy, patient compliance, and compliance with quality control standards.	Formulation, dosage forms
Biopharmaceutics and Modeling	PBPK modeling for drug release optimization	To apply physiologically-based pharmacokinetic models to predict drug absorption, distribution, metabolism, and excretion. The aim is to optimize drug release profiles and support rational dosage form design based on biological relevance.	PBPK models, pharmacokinetics
Biopharmaceutics and Modeling	In vitro–in vivo correlation (IVIVC) development	To establish reliable in vitro–in vivo correlation models that allow prediction of in vivo drug absorption and performance based on in vitro data, thereby reducing the need for extensive in vivo studies.	IVIVC, drug absorption
Pharmaceutical Stability	Drug degradation kinetics and stability studies	To study solid-state and liquid-state degradation kinetics and thermodynamic behavior of drugs, with the aim of improving formulation stability, determining shelf life, and ensuring product quality during storage.	Stability, degradation kinetics

Pulmonary Drug Delivery	Aerosol lung deposition studies	To evaluate aerosol performance and lung deposition characteristics of inhalation dosage forms in different patient populations, aiming to optimize inhaler design and improve therapeutic outcomes in pulmonary diseases.	Aerosols, inhalation therapy

رئيس القسم

أ.د/ رشا محمد خرشوم