Pharmaceutical Technology

Who is suited for this program?

The Certificate in Pharmaceutical Technology is designed to educate professionals and provide them with the skills required to work in the pharmaceutical field, with particular emphasis on the engineering aspects of drug manufacturing, pharmaceutical production, pharmaceutical development, and pharmaceutical operations. The students will not only be provided with an overview of the pharmaceutical industry, including information about drug discovery and development, FDA requirements, approval processes and the methodologies used by industry to comply with these regulations, drug dosage forms, and the role of key operational units in drug manufacturing processes, but they will also be presented with the fundamentals of the drug development cycle and the unit operations typically associated with drug manufacturing, including their quantitative and design aspects.

What will I learn?

- Principles of Pharmaceutical Engineering: Overview of the pharmaceutical industry.
- Pharmaceutical Unit Operations: Processing of Liquid and Dispersed Phase Systems which primarily examines engineering aspects of the pharmaceutical processes.

Elective courses include

- Pharmaceutical Facility Design: instruction in design of state-of-the art pharmaceutical facilities for both manufacturing and R&D, by identifying key functional requirements and design concepts necessary to pharmaceutical processes. Interdisciplinary training will be provided in appropriate areas of facility design.
- Principles of Pharmacokinetics and Drug Delivery, covering foundations of the related topic including drug transport and factors affecting its adsorption, distribution, metabolism, and excretion.
- Validation and Regulatory Issues in the Pharmaceutical Industry with Information about drug discovery and development, FDA regulations, approval process and methodologies used by industry to comply with these regulations, drug dose forms, and the role of key operational units in drug manufacturing processes.
- Micromechanics of particle technology processing directly connecting with pharmaceutical unit operations processing solids

Why Study Pharmaceutical Technology at NJIT?

The graduate certificate’s narrow focus allows you to dig deep into this specific topic, and start applying your knowledge sooner. You’ll learn from NJIT’s distinguished professors and instructors. The Certificate in Pharmaceutical Technology yields a stand-alone credential, which is a milestone in its own right, and it is also a springboard to the PhEn Master’s degree.

Prerequisites

An undergraduate degree in chemical engineering or mechanical engineering, with an undergraduate cumulative grade point average (GPA) of at least 3.0 on a 4.0 scale is usually required. Applicants with: (1) a science degree, (2) an engineering degree in a discipline other than chemical or mechanical engineering, or (3) a GPA below 3.0 but at least 2.8, may be conditionally admitted to the program. Conditions may involve completion of a bridge program designed on a case-by-case basis.

Both the Pharmaceutical Technology Graduate Certificate and the Pharmaceutical Engineering MS program have been designed so that people with different backgrounds can be admitted to the program. The programs are oriented toward the ENGINEERING component of "Pharmaceutical Engineering". In addition, since the pharmaceutical industry is a chemistry-based industry a chemical engineering background is the most appropriate to enter the program.

Related Degree Programs

All credits for the Pharmaceutical Technology Certificate can be applied in its entirety to the NJIT MS in Pharmaceutical Engineering (https://catalog.njit.edu/graduate/newark-college-engineering/chemical-materials-engineering/pharmaceutical-ms/).

What are the Required Courses?

Code	Title	Credits
Core Courses		**6**
PHEN 601	Principles of Pharmaceutical Engineering	3
PHEN 603	Pharmaceutical Unit Operations: Processing of Liquid and Dispersed Phase Systems	3
Electives: select two of the following		6
PHEN 602	Pharmaceutical Facility Design	3
PHEN 618	Principles of Pharmacokinetics and Drug Delivery	3

PHEN 604	Validation and Regulatory Issues in the Pharmaceutical Industry	3
CHE 714	Micromechanics of Part Tech Pr	3