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 are the Required Courses?

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHEN 601</td>
<td>Principles of Pharmaceutical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>PHEN 603</td>
<td>Pharmaceutical Unit Operations: Processing of Liquid and Dispersed Phase Systems</td>
<td>3</td>
</tr>
<tr>
<td>PHEN 604</td>
<td>Validation and Regulatory Issues in the Pharmaceutical Industry</td>
<td>3</td>
</tr>
<tr>
<td>PHEN 606</td>
<td>Pharmaceutical Unit Operations: Solids Processing</td>
<td>3</td>
</tr>
</tbody>
</table>

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.
- 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 dosage forms, and the role of key operational units in drug manufacturing processes.
- Pharmaceutical Unit Operations: Solids Processing which examines methodologies, both applied and fundamental, to analyze and scale up manufacturing pharmaceutical processes involving solids processing.

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. Nevertheless the programs are strongly 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. This implies that applicants who have a science background (e.g., a chemistry or pharmacy B.S. degree) or an engineering degree in a discipline other than chemical engineering will have to take a bridge program. This bridge program consists of three 3-credit courses (PhEn500, PhEn501 and PhEn502) specifically designed to provide non-chemical engineers with the necessary prerequisites to enter the program. These bridge courses cover a variety of topics, such as differential equations, statistics and business math (PhEn500), mass balances, thermodynamics, and chemical kinetics (PhEn501), and fluid flow, heat transfer and mass transfer (PhEn502). These courses do not count toward degree credit. Some regular PhEn courses (e.g., PhEn601 and PhEn604) can be taken concurrently with the bridge program courses.

Related Degree Programs

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

Gainful Employment Disclosure
Click here (http://www.njit.edu/graduatestudies/sites/graduatestudies/files/gainfulemployment/pharmaceutical-technology-cert-gainful-employment.html) for the Gainful Employment Disclosure for this program.

Faculty Advisor: Piero Armenante (http://directory.njit.edu/PersDetails.aspx?persid=armenant)