Graduate and postgraduate education of Pharmacy professionals

Pécs

April 26, 2017.
Role of pharmacists in the healthcare systems

Community Pharmacy

Clinical Pharmacy

Regulatory Pharmacy

Pharmaceutical care

Management of drug therapy
Role of pharmacists in the pharmaceutical industry

- Research and development
- Manufacture and quality assurance
- Drug information
- Patent applications and drug registration
- Clinical trials and post-marketing surveillance
- Sales and marketing
- Management
The Pharmacy Curriculum

- The Pécs University School of Pharmacy offers educational program leading to a Master of Pharmacy (Pharm.D.) degree.
- The Pharm.D. degree enables students to obtain a license to practice pharmacy in Hungary and the European Union. To become a registered pharmacist outside the EU might require passing the country’s National Board Exam.
- Completion of the 10 semester curriculum requires completion of courses of 300 credit value, fulfill the 6 month practice and sitting for and passing the National Board Exam.
Structure of education

- According to the governmental decree of 18/2016. (VIII. 5.) the education is built of three educational moduls:
  - a.) basic modul: 65-90 credit
  - b.) biologic and medicinal modul: 50-85 credit
  - c.) pharmacy related modul 105-150 credit

- Students should acquire 300 credits to obtain Master of Pharmacy (Pharm.D.) degree.

- Credits have to be collected according to the following scheme:
  - Compulsory subjects 240 credits (80 %)
  - Diplome thesis 10 credits (3.3 %)
  - Facultative subjects 15 credits (5 %)
  - Elective subjects 35 credits (11.7 %)
Distribution of moduls at UP (Compulsory subjects)

- Basic Modul: 65; 24%
- Biol and Med related Modul: 116; 42%
- Pharmacy related Modul: 70; 25%
- Pharmacy Practice: 24; 9%
List of Compulsory Subjects – *Basic modul* (not complete list)

- General Chemistry
- Inorganic Chemistry
- Analytical Chemistry
- Physical Chemistry
- Colloid Chemistry
- Mathematics
- Organic Chemistry
- Informatics
List of Compulsory Subjects – *Biologic and Medicinal modul* (not complete list)

- Medical Biology
- Botany
- Anatomy
- Physiology
- Microbiology
- Pathophysiology
- Public Health
List of Compulsory Subjects *Pharmacy-related subjects* (not complete list)

- Pharmacognosy
- Pharmaceutical Chemistry
- Pharmaceutical Technology
- Biopharmacy
- Pharmaceutical Biotechnology
- Pharmacology
- Toxicology
- Pharmacy Practice
Faculties involved in Pharmacy education

- **Faculty of Medicine**
  - School of General Medicine

- **Faculty of Science**
  - School of Chemistry
Departments involved in Pharmacy education (not complete list)

- Faculty of Science
  - Department of Physical Chemistry
  - Department of Analytical Chemistry

- Faculty of Medicine, School of General Medicine
  - Department of Biophysics
  - Department of Anatomy
  - Department of Microbiology
  - Department of Physiology
  - Department Pathophysiology
Departments involved in Pharmacy education - Faculty of Pharmacy

- Department of Pharmacognosy
- Department of Pharmaceutical Biology
- Department of Pharmaceutical Technology and Biopharmacy
- Department of Pharmaceutical Chemistry
- Department of Pharmacy Practice
- Department of Pharmacology
- Department of Pharmaceutical Biotechnology
Departments of Faculty of Pharmacy
Educational activities – Faculty of Pharmacy

- Gradual pharmacy education
- TDK (Students’ Research)
- Continuing pharmacy education (Postgraduate education)
- PhD School
- Postgraduate specialization
The postgraduate specialization in pharmacy exists in Hungary since 1972. The legislation has changed several times. The last change was in 2015.

Relevant legislation:

Az egészségügyi felsőfokú szakirányú szakképzési rendszerről, a Rezidens Támogatási Program ösztöndíjairól, valamint a fiatal szakorvosok támogatásáról szóló 162/2015. (VI. 30.) Korm. rendelet

Az egészségügyi felsőfokú szakirányú szakmai képzés részletes szabályairól szóló 16/2010. (IV. 15.) EüM rendelet

Az egészségügyi felsőfokú szakirányú szakképesítés megszerzéséről szóló 22/2012. (IX. 14.) EMMI rendelet
### 3 SPECIALIZATIONS (1-3) and 20 Qualifications

<table>
<thead>
<tr>
<th>1. Drug supply system pharmacy specialist</th>
<th>2. Hospital and clinical pharmacy specialist</th>
<th>3. Industrial pharmacist</th>
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<tbody>
<tr>
<td>Pharmacy management (36mo)</td>
<td>Hospital and clinical pharmacy (36mo)</td>
<td>Pharmaceutical technology (36mo)</td>
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<tr>
<td>Pharmaceutical care (36mo)</td>
<td>Clinical laboratory pharmacy (58mo)</td>
<td>Drug analysis (36mo)</td>
</tr>
<tr>
<td>Compounding (36mo)</td>
<td>Clinical microbiological laboratory pharmacy (60mo)</td>
<td>Quality assurance (36mo)</td>
</tr>
<tr>
<td>Pharmacy quality assurance (36mo)</td>
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<td>Non clinical and clinical drug development, pharmacology (36mo)</td>
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<tr>
<td>Phytotherapy (36mo)</td>
<td></td>
<td>Drug authorization (36mo)</td>
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<tr>
<td>Pharmacy administration (36mo)</td>
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<td>Pharmacovigilance (36mo)</td>
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<tr>
<td>Pharmacology, pharmacotherapy (48mo)</td>
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<td>Drug research (Lead development) and pharmaceutical chemistry (36mo)</td>
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<td></td>
<td></td>
<td>Development and manufacturing of herbal products and pharmacognosy (36mo)</td>
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<td>Development and manufacturing of biological products and pharmaceutical-biotechnology (36mo)</td>
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<td></td>
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<td>Radiopharmacy (36mo)</td>
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The structure of the postgraduate specialization in pharmacy in the University of Pécs (UP)

- **Theoretical part:**
  - 12-24 month **core training with lectures** once a month
  - After the core training the specialist pharmacist candidates should complete an individual assignment
  - 24-36 month **professional practice interval under the supervision of Department of Pharmaceutics (University of Pécs)**
    - Written closing exam
    - Thesis
    - Predegree certificate
    - Exam

- **Practice:** 36-60 month practice in accredited workplace (depending on the qualifications)
State funded training / Places financed by the government: app. 2-5 person / year (Pécs)
Fee paying training: app. 25-30 person / year (Pécs)

<table>
<thead>
<tr>
<th>2016-2017. academic year</th>
<th>Qualifications</th>
<th>Number of people</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; year</td>
<td>Pharmacy management</td>
<td>9</td>
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<tr>
<td></td>
<td>Hospital and clinical pharmacy</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Pharmaceutical care</td>
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<td></td>
<td>Pharmaceutical technology</td>
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<tr>
<td></td>
<td>Pharmacology, pharmacotherapy</td>
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<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; year</td>
<td>Pharmacy management</td>
<td>18</td>
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<td>Hospital and clinical pharmacy</td>
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<td></td>
<td>Pharmacology, pharmacotherapy</td>
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<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt; year</td>
<td>Pharmacy management</td>
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<td></td>
<td>Hospital and clinical pharmacy</td>
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<tr>
<td></td>
<td>Pharmaceutical care</td>
<td>2</td>
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<tr>
<td></td>
<td><strong>TOTAL:</strong></td>
<td><strong>53</strong></td>
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</table>
## Postgraduate specialization in pharmacy: graduated specialist pharmacists 2008-2016

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Number of people</th>
<th>% (100 % = 132)</th>
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</thead>
<tbody>
<tr>
<td>Pharmaceutical technology</td>
<td>3</td>
<td>2,27 %</td>
</tr>
<tr>
<td>Quality assurance</td>
<td>2</td>
<td>1,52 %</td>
</tr>
<tr>
<td>Pharmacology, pharmacotherapy</td>
<td>37</td>
<td>28,03%</td>
</tr>
<tr>
<td>Pharmaceutical care</td>
<td>6</td>
<td>4,55%</td>
</tr>
<tr>
<td>Phytotherapy</td>
<td>2</td>
<td>1,52%</td>
</tr>
<tr>
<td>Pharmacy management</td>
<td>54</td>
<td>40,91%</td>
</tr>
<tr>
<td>Hospital and clinical pharmacy</td>
<td>11</td>
<td>8,33%</td>
</tr>
<tr>
<td>Clinical laboratory pharmacy</td>
<td>1</td>
<td>0,76%</td>
</tr>
<tr>
<td>Radiopharmacy</td>
<td>1</td>
<td>0,76%</td>
</tr>
</tbody>
</table>
- In 2017, approximately 400 hospital/clinical pharmacists are working at hospitals in Hungary.
- To the appointment for Chief Pharmacist Hospital and clinical pharmacy specialisation is required.
- If Hungary wants to get closer to the EU average:
  + 150-250 more hospitals, clinical pharmacist would be required
- If we „would like” larger clinical pharmacist-centric hospital care (similar to the practice of UK, Scotland, Spain, Netherlands, Ireland, etc.):
  + 400-450 more hospitals, clinical pharmacist would be required
Welcome to our School of Pharmacy!
Thank you for your kind attention!