

**Special Courses of Doctor of Philosophy Degree in  
Pharmaceutical Sciences  
Pharmaceutical Analytical Chemistry Department**

**1- Specialized Courses: (18 cr. h)**

**First Semester (9 cr. h)**

No.	Course code	Courses	Credit hours	
			L	P
1	0607801	Quality Control of Pharmaceutical Products	2	--
2	0607802	Specialized Analytical Techniques	2	--
3	0607803	Seminar I	2	--
4		Elective Course	3	--
<b>Total</b>			<b>9</b>	

**Second Semester (9 cr. h)**

No.	Course code	Courses	Credit hours	
			L	P
5	0607804	Advanced Separation	3	--
6	0607805	Chemometric and Laboratory Intelligence Methods	3	--
7	0607806	Seminar II	3	--
<b>Total</b>			<b>9</b>	

**Elective Courses**

No.	Course code	Courses	Credit hours	
			L	P
1	0601808	Advances in Nanobiotechnology	3	--
2	0604805	Microbiological Quality Control	3	--
3	0605806	Applications of Advanced Spectroscopic Methods in Pharmaceutical Chemistry Research	3	--

**Course Description of Doctor of Philosophy Degree in  
Pharmaceutical Sciences  
Pharmaceutical Analytical Chemistry Department**

**First Semester (9 cr. h)**

Course Name	Credit hours		Code No.
	L	P	
<b>Quality Control of Pharmaceutical Products</b>	2	--	0607801
<p><b>Description:</b> The course provides postgraduates with basic and advanced knowledge in the area of quality control and validation of analytical methods. Topics covered in the course include validation of analytical methods according to different international recommended guidelines such as ICH, USP and FDA, cleaning validation and stability testing. Official physico-chemical tests and methods of analysis used to check quality (identity and purity) of bulk and finished pharmaceutical products will also be covered.</p> <ul style="list-style-type: none"> <li>- <b>Pharmaceutical Analysis and Quality Control</b></li> <li>- <b>King's College, London</b></li> <li>- Link:</li> </ul> <ul style="list-style-type: none"> <li>• <a href="https://www.kcl.ac.uk">https://www.kcl.ac.uk</a></li> </ul>			

Course Name	Credit hours		Code No.
	L	P	
<b>Specialized Analytical Techniques</b>	2	--	0607802
<p><b>Description:</b> This course is concerned with specialized techniques of analysis used to solve problems and handle complex situations in various areas of applications as: clinical, environmental, toxicological, biomedical, clinical,..etc).</p> <ul style="list-style-type: none"> <li>- Specialized analytical techniques</li> <li>- Kingston University-London-UK</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Link: <a href="https://www.kingston.ac.uk/postgraduate-course/analytical-chemistry/">https://www.kingston.ac.uk/postgraduate-course/analytical-chemistry/</a></li> </ul>			

## Second Semester (9 cr. h)

Course Name	Credit hours		Code No.
	L	P	
<b>Advanced Separations</b>	3	--	0607804
<p><b>Description:</b> This course will include: multidimensional separations, CE, advanced sample preparation techniques for complex matrices including environmental, forensic and biological samples, as well as analysis of drugs in presence of their degradation products and related substances. Lab-on-Chip analysis will also be covered.</p> <ul style="list-style-type: none"><li>- <b>Advanced Separation Methods</b></li><li>- <b>Stockholm University- Sweden</b></li><li>- <b>Link:</b></li></ul> <ul style="list-style-type: none"><li>• <a href="https://www.su.se/english/search-courses-and-programmes/ka7006-1.412372">https://www.su.se/english/search-courses-and-programmes/ka7006-1.412372</a></li></ul>			

Course Name	Credit hours		Code No.
	L	P	
<b>Chemometric and Laboratory Intelligence Methods</b>	3	--	0607805
<p><b>Description:</b> This course is concerned with the basic principles and applications of most common chemometric and laboratory intelligence methods including: multivariate methods which are divided to multiple linear regression methods as classical least squares, inverse least squares and Q- matrix; and factor- based methods as principal component regression and partial least squares. This course includes also the knowledge processing and soft computing as in artificial neural networks, fuzzy language and genetic algorithms.</p> <ul style="list-style-type: none"><li>- Analytical chemistry, chemometrics</li><li>- Stockholm University- Sweden</li><li>- <b>Link:</b></li></ul> <ul style="list-style-type: none"><li>• <a href="https://www.su.se/english/search-courses-and-programmes/ka7002-1.413064">https://www.su.se/english/search-courses-and-programmes/ka7002-1.413064</a></li></ul>			