

Course Detailed Description – Procedures of the Course Plan Committee /Faculty of Pharmacy	QF02/0408–2.1E
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Department	Pharmacy
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<b>Course Name</b>	Pharmaceutical Technology	<b>Course No.</b>	٠٢٠١٥٤١
Prerequisite	Industrial Pharmacy	Credit Hours	3
Number & date of course plan approval	2010-2011	Brief Description	See form QF02/0409

<b>Course Objective</b>	Provide students with knowledge about design, manufacturing and quality control of pharmaceutical preparations.
<b>Intended Learning Outcomes</b>	<p>Upon completion of this course the students will be able to</p> <ol style="list-style-type: none"> <li>1. Know and understand some important technical terminology regarding dosage form design and manufacturing.</li> <li>2. Know the importance of tablets as solid dosage forms, understand the mechanisms by which the machines work in tableting, know the additives used in tablet formulation, methods used to prepare tablets, understand technical problems associated with tableting and recognize methods used to evaluate tablets.</li> <li>3. Know importance of tablet coating, differentiate between different types of coating, understand the problems associated with tablet coating.</li> <li>4. Know the importance of capsules as solid dosage forms, differentiate between hard and soft gelatin capsules, understand methods used in capsules filling.</li> <li>5. Understand the importance of sustained release dosage forms, pharmaceutical aerosols, nasal drug delivery and their manufacture, evaluation and uses.</li> <li>6. Define and know the importance of nanotechnology science</li> </ol>
<b>Course Topics</b>	<ol style="list-style-type: none"> <li>1. This course aims to familiarize the students with solid pharmaceutical dosage forms, and to employ the different unit operations in the preparation and manufacturing of these dosage forms including coated and uncoated tablets, hard gelatin capsules, soft gelatin capsules, sustained release preparations and pharmaceutical aerosols.</li> <li>2. Their manufacture, evaluation and uses will be thoroughly discussed.</li> <li>3. Nanotechnology science is also introduced.</li> </ol>
<b>Text Books</b>	<ol style="list-style-type: none"> <li>1. Alton's Pharmaceutics; The Design and Manufacture of Medicines, by: M. E. Aulton. Third Edition. 2013. Churchill Livingstone.</li> <li>2. Modern Pharmaceutics, vol.2, Applications and advances, A.T. Florence and J. Siepmann, 5<sup>th</sup> edn., 2009, Informa healthcare</li> </ol>

<b>References</b>	1-The Theory and Practice of Industrial Pharmacy, by: Leon Lachman, Herbert A. Lieberman and Hoseph L. Kanig. Third Edition. 1986. 2- United States Pharmacopiea, 2010. 3- British Pharmacopiea, 2010. 4- Remingtons; Pharmaceutical Sciences, 2006. 5- Website(s): <a href="http://www.alzaytoonah.edu.jo/pharmacy/resources.html">http://www.alzaytoonah.edu.jo/pharmacy/resources.html</a>				
<b>Grade Determination</b>	1 <sup>st</sup> Exam = 25% 2 <sup>nd</sup> Exam = 25% Final Exam = 50%	Practical Course Grade Determination	Course Work = 50% (Reports, Term Papers, Quizes) Final Exam = 50%		
<b>Course Outline</b>					
<b>Week</b>	<b>Hours</b>	<b>Subjects</b>		<b>Chapters in Textbook</b>	<b>Notes</b>
1	1 1 1	<b>Introduction, Industrial pharmacy terminology</b>		1 <sup>ST</sup>	
2	1 1 1	<b>Tablets:</b> Introduction and definition, properties of compressed tablets, tablets presses and compression cycle, Methods of tableting: direct compression, dry granulation, wet granulation and special procedures, forms of compressed tablets		2 <sup>nd</sup>	
3	1 1 1	<b>Tablets:</b> Technical problems during tableting, tablets additives (excipient)		3 <sup>th</sup>	
4	1 1 1	<b>Tablets:</b> quality attributes and methods of tablet evaluation <b>Sustained Release Dosage Forms:</b> Introduction and definition, methods of changing the availability rate, formulation and manufacture		4 <sup>th</sup>	
5	1 1 1	<b>Sustained Release Dosage Forms:</b> types of sustained and controlled release dosage forms		5 <sup>th</sup>	
6	1 1 1	<b>Tablet Coating:</b> Introduction and definition, advantages of coating process, sugar coating (equipments and steps in sugar coating)		6 <sup>th</sup>	
7	1 1 1	<b>Tablet Coating:</b> Film coating (advantages, materials, process, film defects), other types of coating		7 <sup>th</sup>	
8	1 1 1	<b>Capsules:</b> Introduction and definition, Hard gelatin capsule: manufacture, sizes and storage		8 <sup>th</sup>	
9	1 1 1	<b>Capsules:</b> Hard gelatin capsule filling, locking and sealing, imprinting, evaluation of capsules		9 <sup>th</sup>	



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10	1 1 1	<b>Capsules:</b> formulation	10 <sup>th</sup>	
<b>Week</b>	<b>Hours</b>			<b>Notes</b>
11	1 1 1	<b>Capsules:</b> Soft gelatin capsule; introduction and definition, pharmaceutical applications	11 <sup>th</sup>	
12	1 1 1	<b>Capsules:</b> Soft gelatin capsule; methods of manufacturing, nature of capsule shell, nature of capsule content	12 <sup>th</sup>	
13	1 1 1	<b>Pharmaceutical aerosols:</b> pulmonary drug delivery using aerosols	37 <sup>th</sup>	
14	1 1 1	<b>Nasal drug delivery:</b> advantages, types and formulations	38 <sup>th</sup>	
15	1 1 1	<b>Introduction to Nanotechnology</b>		

Approved by Dept. Chair		Date of Approval	
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**Extra Information:** (Updated every semester and filled by course instructor)

<b>Course Instructor</b>	<b>Dr. Nouf Mahmoud</b>
<b>Office No.</b>	<b>228</b>
<b>Extension</b>	<b>312</b>
<b>Email</b>	<b>nouf.mahmoud@zuj.edu.jo</b>
<b>Office hours</b>	<b>11-12 (Mon, Tue) 12-2 (Sun, Tue, Thu)</b>