


Philadelphia University	 <b>PHILADELPHIA UNIVERSITY</b> THE WAY TO THE FUTURE	Approved Date: 10/2022
Faculty: Pharmacy		Issue: 1
Department: -		Credit Hours: 1
Academic Year: 2022/2023		<b>Course Syllabus</b>

### Course Information

Course No.	Course Title	Corequisite	
0520425	Pharmaceutical technology Practical	Pharmaceutical technology (0520424)	
Course Type		Class Time	Room No.
<input type="checkbox"/> University Requirement <input type="checkbox"/> Faculty Requirement <input type="checkbox"/> Major Requirement <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Compulsory			5503

### Instructure Information

Name	Office No.	Phone No.	Office Hours	E-mail

### Course Delivery Method

<input type="checkbox"/> Blended <input type="checkbox"/> Online <input checked="" type="checkbox"/> Physical			
Learning Model			
Percentage	Synchronous	Asynchronous	Physical
			100%

### Course Description

This course complements the theoretical material of industrial and pharmaceutical technology courses. The course is designed to give the student a detailed knowledge concerning powders used in pharmaceutical formulations including: powder mixing, milling, characterization of flowability, compressibility and particle size analysis. Also the course covers the granulation of powders as one of the main prerequisite steps for tablet compression. Quality control of some solid dosage forms are also covered in the course. The process of tablet film coating and problems encountered during the process is also included

## Course Learning Outcomes

Number	Outcome	Corresponding Program Outcomes	Corresponding Competencies
<b>Knowledge</b>			
<b>K1</b>	<b>Gain knowledge to operate equipments and techniques used in formulation and compression of solid dosage forms</b>	<b>K<sub>P</sub> 1 &amp; K<sub>P</sub> 6</b>	<b>C<sub>1</sub>, C<sub>6</sub></b>
<b>K2</b>	<b>Gain knowledge related to the application and interpretation of quality control tests of solid dosage forms</b>	<b>K<sub>P</sub> 1 &amp; K<sub>P</sub> 6</b>	<b>C<sub>1</sub>, C<sub>6</sub></b>
<b>Skills</b>			
<b>S1</b>	<b>Practice operating equipments and techniques related to the formulation, production and quality control of solid dosage forms</b>	<b>S<sub>P</sub> 2</b>	<b>C<sub>8</sub></b>
<b>S2</b>	<b>To be able to adapt and accommodate team working</b>	<b>S<sub>P</sub> 6 S<sub>P</sub>8</b>	<b>C<sub>12</sub>, C<sub>14</sub></b>
<b>S3</b>	<b>To be able to identify problems encountered during granulation , tablet compression and coating procedures.</b>	<b>S<sub>P</sub> 2</b>	<b>C<sub>8</sub></b>
<b>S4</b>	<b>To be able to represent , analyze and interpret collected data and extract relevant information from related resources as needed</b>	<b>S<sub>P</sub> 6</b>	<b>C<sub>12</sub></b>

## Learning Resources

<b>Course Textbook</b>	<b>Manual of pharmaceutical technology practical from the UniversityBookshop.</b>
<b>Supporting References</b>	1. Aulton's Pharmaceutics : the Design and Manufacture of Medicines, Edit.: Michael E.aulton and KevinM.G.Taylor.Pub.: Churchill Livingstone, 4 <sup>th</sup> edition 2013 ISBN: 978-0-7020-4290 2. Electronic database of practical courses 3. British pharmacopoeia edition 2015 ISBN : 978-011-3229-888 4. The United States Pharmacopeia: USP 29 The National Formulary: NF 24 by authority of the United States Pharmacopeial Convention (2005)
<b>Supporting Websites</b>	<a href="https://www.pharmacopoeia.com/">https://www.pharmacopoeia.com/</a> <a href="https://www.usp.org/">https://www.usp.org/</a>
<b>Teaching Environment</b>	<input type="checkbox"/> Classroom <input checked="" type="checkbox"/> laboratory <input type="checkbox"/> Learning Platform <input type="checkbox"/> Other

## Meetings and Subjects Time Table

<b>Week</b>	<b>Topic</b>	<b>Learning Method*</b>	<b>Task</b>	<b>Learning Material</b>
<b>1</b>	<b>Vision and Mission of faculty of pharmacy</b> <b>Course Syllabus</b> <b>Introduction to safety rules</b>	<b>lecture</b>		<b>Vision and Mission of Faculty of Pharmacy Course Syllabus</b>  <b>Manual</b>
<b>2</b>	<b>Particle size analysis</b>	<b>Flipped class</b> <b>Problem solving based learning</b>	<b>Report</b>	<b>Manual</b>
<b>3</b>	<b>Size reduction.</b>	<b>Flipped class</b> <b>Problem solving based learning</b>	<b>Report</b>	<b>Manual</b>
<b>4</b>	<b>Solid- solid mixing</b>	<b>Flipped class</b> <b>Problem solving based learning</b>	<b>Report</b>	<b>Manual</b>
<b>5</b>	<b>Characterization of flow properties of powders &amp; Improvement of powder flow</b>	<b>Flipped class</b> <b>Problem solving based learning</b>	<b>Report</b> <b>Homework</b>	<b>Manual</b>
<b>6</b>	<b>Granulation &amp; Tablet production</b>	<b>Flipped class</b> <b>Problem solving based learning</b>	<b>Report</b> <b>Out of class Assignment</b>	<b>Manual</b>
<b>7</b>	<b>Quality control of tablets part 1 : Uniformity of weight B.P. Disintegration test B.P Uniformity of thickness Friability, crushing strength</b>	<b>Flipped class</b> <b>Problem solving based learning</b>	<b>Report</b> <b>Homework</b>	<b>Manual</b>
<b>8</b>	<b>Lab off due to mid exam</b>			
<b>9</b>	<b>Quality control of tablets part 2 : Uniformity of content test BP Uniformity of dosage units USP of Acetaminophen tablets</b>	<b>Flipped class</b> <b>Problem solving based learning</b>	<b>Report</b>	<b>Manual</b>

10	Dissolution test of paracetamol 500 mg tablets USP Determination of dissolution profile of immediate release paracetamol tablets Quality control of capsules :indomethacin 25 mg capsules Dissolution test USP	Flipped class Problem solving based learning	Report  Homework	Manual
11	Film coating of tablets	Flipped class Problem solving based learning	Out of class Assignment	Manual
12	Practical examination			
13	Final examination			

\*Includes: lecture, flipped Class, project based learning, problem solving based learning, collaboration learning.

### Course Contributing to Learner Skill Development

Using Technology
<ul style="list-style-type: none"> <li>Using Excel to construct tables and plots</li> <li>Operating equipments used in manufacturing of solid dosage forms , tablet press and quality control testing</li> </ul>
Communication Skills
<ul style="list-style-type: none"> <li>Writing Reports</li> <li>Team working</li> </ul>
Application of Concept Learnt
Practical application of unit operations in formulation of solid dosage forms, granulation ,tablet compaction and quality control testing

### Assessment Methods and Grade Distribution

Assessment Methods	Grade	Assessment Time (Week No.)	Course Outcomes to be Assessed
Reports & out class assignments	% 30	Week 2-7 Week 9-11	K1 & K2 S1 ,S2 , S3 & S4
Quizzes	% 20	Week 3,week 4 week 6, week 9	K1 & K2 S1 , S3 & S4
Practical examination	% 10	Week 12	S1 , S3 & S4
Final Exam	% 40	Week 13	K1 & K2 S1 , S3 & S4
<b>Total</b>	<b>%100</b>		

\* Include: quizzes, in-class and out of class assignment, presentations, reports, videotaped assignment, group or individual project.

## Alignment of Course Outcomes with Learning and Assessment Methods

Number	Learning Outcomes	Corresponding competencies	Learning Method*	Assessment Method**
<b>Knowledge</b>				
<b>K1</b>	Gain knowledge to operate equipments used in formulation and compression of solid dosage forms	C <sub>1</sub> , C <sub>6</sub>	Flipped class  Problem solving based learning	Reports Quizzes Final Exam Outclass assignments
<b>K2</b>	Gain knowledge related to the application and interpretation of quality control tests of solid dosage forms	C <sub>1</sub> , C <sub>6</sub>	Flipped class  Problem solving based learning	Reports Quizzes Final Exam Out-class Assignments
<b>Skills</b>				
<b>S1</b>	Practice operating equipments and techniques related to the formulation, production and quality control of solid dosage forms	C <sub>8</sub>	Flipped class  Problem solving based learning	Practical exam Final exam Quizzes
<b>S2</b>	To be able to adapt and accommodate team working	C <sub>12</sub> , C <sub>14</sub>	Flipped class  Problem solving based learning	Evaluation of group collaboration during experiment
<b>S3</b>	To be able to identify problems encountered during granulation, tablet compression and coating procedures.	C <sub>8</sub>	Flipped class  Problem solving based learning	Outclass assignments Homeworks Final exam Quizzes
<b>S4</b>	To be able to represent, analyze and interpret collected data and extract relevant information from related resources as needed	C <sub>12</sub> , C <sub>15</sub>		Reports Quizzes Final Exam Out-class Assignments

\*Include: lecture, flipped class, project based learning, problem solving based learning, collaboration learning.

\*\* Include: quizzes, in-class and out of class assignments, presentations, reports, videotaped assignments, group or individual projects.

## Course Polices

Policy	Policy Requirements
<p style="text-align: center;"><b>Passing Grade</b></p>	<p style="text-align: center;"><b>The minimum pass for the course is (50%) and the minimum final mark is (35%).</b></p>
<p style="text-align: center;"><b>Missing Exams</b></p>	<ul style="list-style-type: none"> <li>• <b>Anyone absent from a declared semester exam without a sick or compulsive excuse accepted by the dean of the college that proposes the course, a zero mark shall be placed on that exam and calculated in his final mark.</b></li> <li>• <b>Anyone absent from a declared semester exam with a sick or compulsive excuse accepted by the dean of the college that proposes the course must submit proof of his excuse within a week from the date of the excuse's disappearance, and in this case, the subject teacher must hold a compensation exam for the student.</b></li> <li>• <b>Anyone absent from a final exam with a sick excuse or a compulsive excuse accepted by the dean of the college that proposes the material must submit proof of his excuse within three days from the date of holding that exam.</b></li> </ul>
<p style="text-align: center;"><b>Attendance</b></p>	<p><b>The student is not allowed to be absent more than (15%) of the total hours prescribed for the course, which equates to six lecture days (n t) and seven lectures (days). If the student misses more than (15%) of the total hours prescribed for the course without a satisfactory or compulsive excuse accepted by the dean of the faculty, he is prohibited from taking the final exam and his result in that subject is considered (zero), but if the absence is due to illness or a compulsive excuse accepted by the dean of the college that The article is introduced, it is considered withdrawn from that article, and the provisions of withdrawal shall apply to it.</b></p>
<p style="text-align: center;"><b>Academic Integrity</b></p>	<p><b>Philadelphia University pays special attention to the issue of academic integrity, and the penalties stipulated in the university's instructions are applied to those who are proven to have committed an act that violates academic integrity, such as cheating, plagiarism (academic theft), collusion, intellectual property rights.</b></p>

**Program Learning Outcomes to be Assessed in this Course**

<b>Number</b>	<b>Learning Outcome</b>	<b>Course Title</b>	<b>Assessment Method</b>	<b>Targeted Performance level</b>

**Description of Program learning Outcomes Assessment Method**

<b>Number</b>	<b>Detailed Description of Assessment</b>

**Assessment Rubric of the Program Learning Outcomes**

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