



Course syllabus	College of Pharmacy
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<b>Course code</b>	PHA 213	<b>Credit No.</b> 1(0-3-2)
<b>Course title</b>	Pharmaceutical Technology Laboratory 1	<b>Section</b> 11, 12, 13
<b>Semester</b>	2	<b>Academic year</b> 2024
<b>Students</b>	Pharmacy students, 2 <sup>nd</sup> year	

**Instructor(s)**

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|--|---|
| 1. Assoc.Prof.Poj Kulvanich, Ph.D.       | 2. Assoc.Prof.Sucharat Limsitthichaikoon, Ph.D. |
| 3. Assoc.Prof.Wipada Samprasit, Ph.D.    | 4. Asst.Prof.Verisa Chowjarean, Ph.D.           |
| 5. Asst.Prof.Chutima Sinsuebpol, Ph.D.   | 6. Asst.Prof.Benchawan Chamsai, Ph.D.           |
| 7. Asst.Prof.Sirima Sangkapat, Ph.D.     | 8. Asst.Prof.Narumon Changsan, Ph.D.            |
| 9. AVM. Thavisak Teruya, Ph.D.           | 10. Mallika Pongsathit, Ph.D.                   |
| 11. Nuntachai Hanpramukkun, Ph.D.        | 12. Dawlurk Raemonkorn, M.Sc. in Pharm.         |
| 13. Chitralada Vasarach, M.Sc. in Pharm. | 14. Kasitpong Thanawuth, Pharm.D.               |
| 15. Kwanchai Donthongdee, B.Sc           |   |

**Course coordinator(s)** Asst.Prof.Sirima Sangkapat, Ph.D.

Nuntachai Hanpramukkun, Ph.D. and  
Kasitpong Thanawuth, Pharm.D.

**Class hours and location** Sec 11 Thursday, 01.00 p.m. – 04.00 p.m., 4-221  
Sec 12 Friday, 09.00 a.m. – 12.00 p.m., 4-221  
Sec 13 Friday, 01.00 p.m. – 04.00 p.m., 4-221

**Pre-requisite course(s)** PHA 211 Principle of Pharmaceutical Technology

**Co-requisite course(s)** PHA 212 Pharmaceutical Technology 1

**Course description**

Application of pharmaceutical technology principles; pharmaceutical dosage forms classification, pharmaceutical calculations, physicochemical properties of powders, micromeritics, particles mixing and size reduction in the preparation of powders, granules, pills, lozenges and pellets dosage forms.

**Course learning outcomes: CLOs** When completion of this course, the students should be able to:

1. PHA213-CLO1 Use the pharmaceutical basic instrument and techniques ex. weight, measurements
2. PHA213-CLO2 Practice the pharmaceutical basic techniques ex. mixing, size reduction, filtration
3. PHA213-CLO3 Explain pharmaceutical formulation characters including their stabilities
4. PHA213-CLO4 Explain the effect of physicochemical property on powder preparations
5. PHA213-CLO5 Use suitable pharmaceutical necessity for liquid and solid dosage forms
6. PHA213-CLO6 Prepare solid dosage forms according to pharmacopeia and prescriptions

**Course outlines** (as shown in table below)

#### Methods of Instruction

1. In-class practice, demonstration and pharmaceutical basic techniques training
2. Questioning, discussion and presentation
3. The innovation is incorporated in learning activities and evaluation of this course ex. Kahoot, Socrative, Google Classroom, MS Team

#### Assessment

Learning evaluations include

- Paper examinations will cover all topics in course outlines. Weighted components of paper examination are allocated as percent content of each topic and divided into:
 

Examination 1	Final exam	15%
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- Practice examinations are allocated as percent content of each topic and divided into:
 

Integration of essential skills in pharmaceutical compounding	25%
Integration of pharmaceutical preparations	55%
- Laboratory report 2%
- Quiz / Assignment / Homework 3%
- Grading Criteria: Earning marks lower than 50% is considered as F grade.

- Student grades must be approved by the academic committee and the academic standards board of the college.

**Note** Class attendance is not less than 80% of all class sessions.

#### **Required texts and references**

1. Sinko P.J. Martin's physical pharmacy and pharmaceutical sciences: physical chemical and biopharmaceutical principles in the pharmaceutical sciences. 5<sup>th</sup> ed. Philadelphia: Lippincott Williams and Wilkins; 2006.

#### **Special materials and data**

1. Allen LV, Popovich NG, Ansel HC, editors. Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems. 10<sup>th</sup> ed. Philadelphia: Lippincott Williams and Wilkins; 2013.
2. Troy DB, editors. Remington: the science and practice of pharmacy. 21<sup>st</sup> ed. Philadelphia: Lippincott Williams and Wilkins; 2006.

#### **Suggested materials and data**

1. The United States Pharmacopeia, 40<sup>th</sup> ed. and The National Formulary, 35<sup>th</sup> ed. Asian edition. Rockville MD: USP Convention; 2017.

### Course outline

**Course code/ Course title** PHA 213 **Credit No.** 1(0-3-2)  
 Pharmaceutical Technology Laboratory 1  
**Semester** 2 **Academic year** 2024  
**Class hours and location** Sec 11 Thursday, 01.00 p.m. – 04.00 p.m., 4-221  
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No.	Day	Topics	Instructor(s)
1	9, 10 Jan 2025	Introduction to course  Lab Safety Consideration & Fingerprint registration	Asst.Prof.Sirima Sangkapat, Ph.D.  Kwanchai Donthongdee, B.Sc.
2	16, 17 Jan 2025	I. Pharmacy prescription II. Pharmaceutical reference searching	Asst.Prof.Benchawan Chamsai, Ph.D. and Staffs Assoc.Prof.Wipada Samprasit, Ph.D. and Staffs
3	23, 24 Jan 2025	Essential skills in pharmaceutical compounding (I) - Weighing - Tritulation & Levigation - Miscellaneous	Assoc.Prof.Sucharat Limsitthichaikoon, Ph.D. and Staffs
4	30, 31 Jan 2025	Essential skills in pharmaceutical compounding (II) - Measurements - Filtration - Miscellaneous	Chitralada Vasarach, M.Sc. in Pharm. and Staffs
5	6, 7 Feb 2025	Integration of essential skills in pharmaceutical compounding (I)	Asst.Prof.Sirima Sangkapat, Ph.D. and Staffs
6	13, 14 Feb 2025	Integration of essential skills in pharmaceutical compounding (II)	Asst.Prof.Sirima Sangkapat, Ph.D. and Staffs

No.	Day	Topics	Instructor(s)
7	20, 21 Feb 2025	Integration of essential skills in pharmaceutical compounding (III)	Pharmaceutical Technology Staffs
Midterm exam, 24 February - 7 March 2025			
8	13, 14 Mar 2025	Size reduction, mixing and physicochemical properties of powder	Assoc.Prof.Wipada Samprasit, Ph.D. and Staffs
9	20, 21 Mar 2025	Particle size distribution I - Sieve analysis and Andreasen apparatus Particle size distribution II - Particle size distribution calculation	Asst.Prof.Verisa Chowjarean, Ph.D.  Dawlurk Raemonkorn, M.Sc. in Pharm. and Staffs
10	27, 28 Mar 2025	Micromeritics - Derived properties of powder	AVM. Thavisak Teruya, Ph.D. and Staffs
11	3, 4 Apr 2025	Powder & granule preparations	Asst.Prof.Verisa Chowjarean, Ph.D. and Staffs
12	10, 11 Apr 2025	Integration of pharmaceutical preparations (I) : Case study (Powder & granule preparations)	Kasitpong Thanawuth, Pharm.D. and Staffs
13	17, 18 Apr 2025	Self-study	Asst.Prof.Sirima Sangkapat, Ph.D. and Staffs
14	24, 25 Apr 2025	I. Lozenge, pastille and pills preparations  II. Integration of pharmaceutical preparations (II) : Case study (Powder & granule preparations)  ***หัวข้อ I. มีสอบข้อเขียน	Asst.Prof.Sirima Sangkapat, Ph.D. and Staffs
15	1, 2 May 2025	Integration of pharmaceutical preparations (II): Powders and granules formulation	Pharmaceutical Technology Staffs
Final exam, 6 -16 May 2025 (No. 8 - 14)			