

T6. Course Specifications (CS)

Institution: Najran University	Date: 13/02/2017
College/Department : College of Pharmacy/Pharmaceutics	

A. Course Identification and General Information

1. Course title and code: Physical Pharmacy, PHCU 231			
2. Credit hours: 3 (2+1)			
3. Program(s) in which the course is offered: Bachelor of Pharmaceutical Sciences Pharmaceutical Sciences			
4. Name of faculty member responsible for the course: Mohammad Zaki Ahmad			
5. Level/year at which this course is offered: Level 3 rd (1437-1438) Second semester.			
6. Pre-requisites for this course (if any): Math 150			
7. Co-requisites for this course (if any)			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="100"/>
b. blended (traditional and online)	<input type="checkbox"/>	What percentage?	<input type="text"/>
c. e-learning	<input type="checkbox"/>	What percentage?	<input type="text"/>
d. correspondence	<input type="checkbox"/>	What percentage?	<input type="text"/>
f. other	<input type="checkbox"/>	What percentage?	<input type="text"/>
Comments:			

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B Objectives

1. What is the main purpose for this course?

Course Objective: This course aim to teach physical concept needed in pharmacy practice and pharmaceutical preparation

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

The contents of the course was reviewed and updated by pharmaceutics staff, according to the authentic scientific websites, recent edited books and recent research publications in the pharmaceutical field.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

This course is designed to introduce the quantities and theoretical physical principles of science to pharmacy student that can be applied to pharmacy practice. Principles of chemistry, physics and mathematics are applied to pharmaceutical sciences:

The following subject will be covered:, Micromeritics, Rheology, Surface phenomenon, stability of pharmaceutical and basic reaction kinetics, Diffusion and dissolution phenomena, Buffered and isotonic solution,

1. A. Topics to be Covered (Theoretical)

List of Topics	No. of Weeks	Contact Hours
Micromeritics: Definition, general particle properties (size, shape, surface properties, density), particle size distribution curve	1	2
Micromeritics: Histogram, specific particle properties, applications of micromeritics.	1	2
Rheology: Definition, concept of viscosity, Newtonian and non-Newtonian systems (plastic, pseudoplastic and dilatant systems),	1	2
Rheology: Measurement of viscosity, types of Viscometers, kinematic viscosity, fluidity, rheograms, thixotropy and antithixotropy and applications of rheology.	2	4
Buffers and isotonic solution: Definition, types, components, buffer capacity and factors affecting it, calculation of pH and applications of buffers.	1	2
Surface and interfacial phenomenon: Surface and interfacial tension, surface free energy,	1	2
Surface tension and interfacial phenomenon: Determination of surface tension, spreading coefficient, HLB, wetting, wetting agent.	1	2
Coarse dispersion: Suspension, deflocculated suspension, flocculated suspension, theory of sedimentation, sedimentation parameter, Emulsion	2	4
Stability of pharmaceutical and basic reaction kinetics: Rates, Order, and Molecularity of Reactions. Rate Constants,	1	2
Stability of pharmaceutical and basic reaction kinetics: Half-Life, Shelf Life, and Apparent or Pseudo-order and Accelerated Stability and Stress Testing	1	2
Diffusion and dissolution phenomena: Fick's Laws of Diffusion, Drug release and dissolution, Hixson-Crowell, Noyes-Whitney, and Higuchi models of dissolution and release	2	4
Revision	1	2

1 B. Topics to be Covered (Practical)

List of Topics	No. of Weeks	Contact Hours
1. Particle size distribution and histogram	1	2
2. Flow Properties-Angle of repose method	1	2
3. Determination of Bulk density and Tapped density	1	2
4. Flow Properties-Carr's index and Hausner ratio	1	2
5. Determination of the Density of unknown liquid	1	2
6. Determination of viscosity of unknown liquid by Ostwald Viscometer	1	2
7. Determination of surface tension by drop weight method	1	2
8. Determination of surface tension by drop count method	1	2
9. Determination of CMC of given Surfactant	1	2
10. Sedimentation volume	1	2
11. Stability of suspension by sedimentation volume method	1	2
12. Stokes law	1	2
13. Preparation of buffer and different types of solution	1	2
14. Numerical problem related to practical	1	2
15. Revision	1	2

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30			30		60
Credit	2			1		3

3. Additional private study/learning hours expected for students per week.

2 hr

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table).

Second, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes.

Third, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	Memorize the basic understanding of the physical pharmacy and student should be able to define and outline the various physicochemical properties of the drug substances.	(1). Lecture (2). Assignments	(1). MCQ exam (2). Observation cards in labs
2.0	Cognitive Skills		
2.1	The Students will be practically able to measure some physical properties (as viscosity, density, pH Flow properties, solubility, stability etc)	Practical Classes	(1). Practical examination
2.2	Evaluate roles of physicochemical properties of drug substance on the design and formulation of pharmaceutical dosage forms.		
3.0	Interpersonal Skills & Responsibility		
3.1	By interactive laboratory practices the students will judge the practical data	Practical Classes	(1). Practical examination (2). Evaluation of observation book

تعليق عليه [T1]: Final Written Exam

تعليق عليه [T2]: Lecture

تعليق عليه [T3]: Final Written Exam

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3.2			
4.0	Communication, Information Technology, Numerical		
4.1	Demonstrate the practical skills in operation of scientific instruments as well as efficient use of media and technology	(1). Practical class (2). Calculation based on numerical example	(1). Monitoring the ability of the student to respond to questions in the lectures. (2). Test based on the numerical problems
4.2	Demonstrate and interpret the results according to his knowledge and skills, and the available references		
5.0	Psychomotor		
5.1	Show the ability to use different Pharmaceutical instruments in the Lab to prepare and monitor different pharmaceutical preparations.	Laboratory work	Practical examination
5.2	Show the ability to handle different types of instruments to measure physical properties of the chemicals.	Laboratory work	Practical examination

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	First Quiz	4	5%
2	Midterm Theoretical Exam	8	20%
3	Second Quiz	10	5%
4	Attendance, and observation	14	10%
5	Practical Exam	15	20%
6	Final Written Exam	16	40%

عليه تعليق [T4]:
هذا الأسبوع مفروض أن يكون به تدريس

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D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

1. Office hour : (2 hour per week + appointment with student)

E Learning Resources

1. List Required Textbooks

- a. Martin's Physical Pharmacy and Pharmaceutical Sciences, Ed., Sinko, PJ, 5th ed., Lippincott Williams & Wilkins, Philadelphia.
- b. Physical Pharmacy, David Attwood and Alexander T. Florence. Pharmaceutical Press, 3rd edition, USA

2. List Essential References Materials (Journals, Reports, etc.)

- (a). Pharmaceutics- The Science of Dosage Form Design, M.E. Aulton, 6th edition, 2015, Elsevier Publication, USA

3. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

<https://sdl.edu.sa/SDLPortal/ar/Publishers.aspx>

4. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

- (a). A lecture hall containing at least 25 seats for student
- (b). A laboratory containing at least 25 seats for the student.

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2. Computing resources (AV, data show, Smart Board, software, etc.)
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G. Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
<ul style="list-style-type: none"> ➤ Course evaluation by students ➤ Faculty student general meeting
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor
<ul style="list-style-type: none"> • Peer consultation on teaching • Group discussions
3 Processes for Improvement of Teaching
<ul style="list-style-type: none"> • Taking Courses presented by experts on the teaching methodologies • Periodical departmental revisions on its methods of teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
<ul style="list-style-type: none"> ➤ Comparing ppt with exam, Random rechecking of exams.

عليه تعليق [T5]:

- Course Report and suggested improvement Plan
- Evaluation of course Portfolio and Conducting trend analysis

[T6]: تعليق عليه

- Monitoring and Evaluating the strategies of teaching
- Monitoring and Evaluating the strategies of -Measuring the Achievement of the Course Intended Learning Outcomes

[T7]: تعليق عليه

- الجزء رقم 5 في نموذج 2015 غير موجود:
- 5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

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Name of Instructor: Mohammad Zaki Ahmad

Signature: 

Date Report Completed: 13/02/2017

Name of Course Instructor _____

Program Coordinator: _____

استكمل البيانات: [T8] تعليق عليه

Signature: _____ Date Received: _____