Course specification
2018- 2019
Faculty of Pharmacy
Mansoura University

المستوى الخامس	Industrial Pharmacy-2

University: Mansoura
Faculty : Pharmacy
Department : Pharmaceutics
Course title:

Program on which the course is given	B. Pharm (credit hours program)
Academic Level	Fifth Level, semester one
Date of course specification approval	4/9/2017

1- Basic Information : Course data :

Course title:	Industrial Pharmacy-2	**Code:**	PT518
Specialization:	**pharmaceutical sciences**		
Prerequisite:			
Teaching Hours:	**Lecture: 1**	**Practical:**	1
Number of units: (credit hours)	2		

2- Course Aims:

1. Know the unit operation and unit processes.
2. Understand the different details of quality principles, quality parameters and Good Manufacturing Practice Elements (GMP).
3. Understand the different theories and principles of some unit operations (size analysis, size separation, size reduction, size enlargement, mixing and emulsification).
4. Know quality control tests of some dosage forms.

Intended learning outcomes (ILO_S):

a- Knowledge and understanding

At the end of this course the student should be able to:

a1	Recall the principles of various instruments and techniques including manufacturing, packaging, labeling and storing processes in pharmaceutical industry.
a2	Distinguish appropriate good manufacturing practice (GMP) and Quality Control (QC) criteria to aseptic and sterile production facilities and other pharmaceutical industry.

a3	Identify the principles of quality assurance (QA) in education and of quality assurance of pharmaceutical processes and products.

b- Intellectual skills

At the end of this course the student should be able to:

b1	Recommend good manufacturing practice (GMP), good laboratory practice (GLP), good clinical practice (GCP) and good safety practice (GSP) guidelines in pharmaceutical technology, pharmaceutical research and pharmacy practice.

c- Professional and practical skills

At the end of this course the student should be able to:

c1	Manage pharmaceutical instruments and equipment safely and efficiently and solve commonly encountered problems in pharmaceutical manufacturing processes.

d- General and transferable skills

At the end of this course the student should be able to:

d1	Plan strategies to fulfill workplace pharmaceutical needs.

3- Contents:-

Week No	Topics	No.of hours	Lecture	Practical
1.	Particle size analysis	1	1	-
2.	Particle size analysis	1	1	-
3.	Particle size separation	1	1	-
4.	Mixing	1	1	-
5.	Mixing	1	1	-
6.	Emulsification & homogenization	1	1	-
7.	**Mid-term**			
8.	Particle size reduction	1	1	-
9.	Particle size reduction	1	1	-
10.	Particle size enlargement	1	1	-
11.	GMP	1	1	-
12.	GMP	1	1	-
13.	GMP	1	1	-

	Week 15 Final written & oral			
	Practical Topics			
1	Introduction	2		1
2	Sieving	2		1
3	Microscopy	2		1
4	Introduction of powder flow properties + powder flow rate.	2		1
5	Angle of repose.	2		1
6	Problems	2		1
7.	**Mid-term**			
8	Carr's index & Hausner ratio.	2		1
9	Quality control of suppository	2		1
10	Quality control of suppository	2		1
11	Problems	2		1
12	Revision	2		1
13	**Practical Exam**			

4- Teaching and learning Methods :

4.1	**Lectures using white board and data show.**
4.2	**Assignment**
4.3	**Discussion session**

5- Student Assessment:

a- Assessment methods:

1-Written exam	**To assess understanding, intellectual, professional**
2-Oral	**To assess Knowledge, understanding, intellectual skills, general skills and confidence**
3-Quizzes	**To assess Knowledge, understanding and intellectual skills**

b- Assessment schedule

Assessment 1	**Mid-term**	**7th week**
Assessment 2	**Practical**	**13th week**
Assessment 3	**Oral**	**15th week**
Assessment 4	**Written**	**15th week**

c- Weighting of assessments

1	Mid-term examination	10 %
2	Practical examination	25 %
3	Final-term examination	50 %
4	Oral examination	15 %
Total		100%

6 - List of References

N0.	Reference	type
1	course notes	course notes
2	1- The theory and practice of industrial pharmacy 2nd Ed., lea & Febiger, Philadelphia, (2002). 2- Handbook of Pharmaceutical Manufacturing Formulations 2nd Ed.,, Sarfaraz K. Niazi (2009) 3- QUALITY, Pharmaceutical Engineering Series, Kate McCormick, Butterworth-Heinemann, London, (2002).	Books
3	http://www.pharmaceutical technology.com http://www.sciencedirect.com http://www.pubmed.com http://www.google.com	Web sites

7- Matrix of knowledge and skills of the course

No	Course contents	Study Week	ILOS			
			Knowledge & understanding	Intellectual skills	Professional and practical skills	General & transferable skills
1.	Particle size analysis	2	a1	b1	c1	d1
2.	Particle size separation	1	a1	b1	c1	d1
3.	Mixing	2	a1	b1	c1	d1
4.	Emulsification & homogenization	1	a1	b1	c1	d1
5.	Particle size reduction	2	a1	b1	c1	d1
6.	Particle size enlargement	1	a1	b1	c1	d1
7.	GMP	3	a1,a3	b1		d1

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