Course Specification

1-Basic Information

Title:**Kinetic principles in dosage form design** Code: MPT 052
Level: Level: M. of Pharm. Sci. (Pharmaceutics) year 2
Department: **Pharmaceutics**
Unit:**2 Hour/week**
Lecture: Two hours per week Tutorial Practical:Total: 2hr/week
Year: 2015-2016

2- Aims of Course

This course aims to establish a deep and specialized knowledge of the concepts and principles of pharmacokinetics and their applications with the purpose of improving the design and evaluation of drug delivery systems, and the therapeutic management of patients.

The impact of pharmacokinetics on therapy is explored to help understand clinical variability to drug response.

3- Intended Learning Outcomes of Course(ILOs)

a- Knowledge and Understanding:
The graduate should be able to:

a8-Define basics and principles of pharmacokinetics.
a8-Define the pharmacokinetic model of a specified drug and factors affecting it.

b- Intellectual Skills:
The graduate should be able to:

b10- Illustrate how to trace drugs in different tissues and body compartments.
b2- Suggest possible solutions to overcome problems of drug absorption, metabolism, elimination and interactions with other drugs.
b12-Analyze and evaluate medications effects on patients based on their pharmacokinetics.

c- Professional and practical Skills:

The graduate should be able to:

c10- Use pharmacokinetic information to estimate drug dose and protocol of therapy.

c12-Apply equations to calculate drug concentration on different tissues and compartments.

c12- Calculate amount of drug accumulated in the body and how to eliminate it.

d- General and Transferable Skills:

The graduate should be able to:

d6-Communicate efficiently with the medical team.

d1-Use different information sources to solve medication problems.

d15- Offer advice related to therapeutic plan.

Course Contents

Topic	No. of hours	Lecture	Tutorial / Practical
Pharmacokinetic parameters after I.V. dose (plasma data)	4		
Pharmacokinetic parameters after I.V. dose (urine data)	2		
Pharmacokinetic parameters after extravascular administration, e.g. oral dose.	4		
Pharmacokinetic parameters after I.V. multiple dosing	4		
Non-linear pharmacokinetics (introduction)	2		
Characters associated with non-linearity.	2		
Saturable enzymatic elimination process.	4		
Drug elimination by capacity limited pharmacokinetics	2		
Chronopharmacokinetics	2		
Circadian rhythms and drug response	2		
Non- linear pharmacokinetics due to drug protein binding.	2		
Total	30		

4- Teaching and Learning Methods

4.1- lectures
4.2- Discussions
4.3- Reports

5- Teaching and learning methods for disables

None

6- Student Assessment

a- Student Assessment methods

6.1- Small discussions to assessknowledge and understanding

6.2- Written final exam to assess knowledge and understanding.

b- Student Assessment Schedule

No.	Assessment	week
1.	Written final exam	In June

c- Weighting of Assessments

No.	Exam.	Mark	%
1.	Mid-Term Examination		
2.	Final-Term Examination	100	100%
3.	Oral Examination		
4.	Practical Examination		
5.	Semester Work		
6-	Other types of assessment		
	Total	100	100%

7- List of References

a- Essential Books (Text Books)

- Niazi S. K., and Brown J. L. (2015). Fundamentals of Modern Bioprocessing. CRC Press.

b-Recommended Books

- ShargelL., Wu-Pong S., and . Yu A.B.C. (2012). Applied Biopharmaceutics and pharmacokinetics. 6th Edition. McGraw-Hill Companies, Inc

8- Facilities Required for Teaching and Learning

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Course Coordinator: Dr. Ayat Ahmed Abdel-MonsefAllam

Head of Department: Professor Dr. Mahmoud El-Badry

Date: 7/3/2016

University	**Assiut**	**Course Title**	**Kinetic principles in dosage form design**
Faculty	**Pharmacy**	**Course Code**	MPT 052
Department	**Pharmaceutics**		

Matrix of the Intended Learning Outcomes (ILOs) of the Course

Topic	Week	Knowledge and Understanding	Intellectual Skills	Professional and Practical Skills	General and Transferable Skills
Pharmacokinetic parameters after I.V. dose (plasma data)	1st , 2nd	a8	b10,b2, b12	c10,c12	d6,d1,d15
Pharmacokinetic parameters after I.V. dose (urine data)	3rd	a8	b10,b2, b12	c10,c12	d6,d1,d15
Pharmacokinetic parameters after extravascular administration, e.g. oral dose.	4th ,5th	a8	b10,b2, b12	c10,c12	d6,d1,d15
Pharmacokinetic parameters after I.V. multiple dosing	6th, 7th	a8	b10,b2, b12	c10,c12	d6,d1,d15
Non-linear pharmacokinetics (introduction)	8th	a8	b10,b2, b12	c10,c12	d6,d1,d15
Characters associated with non-linearity.	9th	a8	b10,b2, b12	c10,c12	d6,d1,d15
Saturable enzymatic elimination process.	10th ,11th	a8	b10,b2, b12	c10,c12	d6,d1,d15
Drug elimination by capacity limited pharmacokinetics	12th	a8	b10,b2, b12	c10,c12	d6,d1,d15
Chronopharmacokinetics	13th	a8	b10,b2, b12	c10,c12	d6,d1,d15
Circadian rhythms and drug response	14th	a8	b10,b2, b12	c10,c12	d6,d1,d15
Non- linear pharmacokinetics due to drug protein binding.	15th	a8	b10,b2, b12	c10,c12	d6,d1,d15

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