Course Description Form

1. Course Name:
Pharmaceutical Calculations (Theoretical+ Practical)
2. Course Code:
Phind23 l2l2--
3. Semester / Year:
2nd Semester/1st year
4. Description Preparation Date:
25/2/2024
5. Available Attendance Forms:
Students' signature on attendance sheet
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours Theoretical + 2 hours Practical (60) /3 units
7. Course administrator's name
Theoretical
Name: Assist. Lec. Mohmmed Khalid Al-Shaheen Email: mohammed.khalid@uomosul.edu.iq
Practical
Name: Assist. Lec. Alaa Rakan Al-Taie Email: alaa_altaie@uomosul.edu.iq Name: Assist. Lec. Mais Salim Saadallah Email: drmais@uomosul.edu.iq
8. Course Objectives
Course Objectives Enable the students for preparing, dispensing reviewing and monitoring medication to ensure safe, effective and affordable use of medication
9. Teaching and Learning Strategies

Strategy	Lecturing Seminars Homework Quiz Practical laboratory demonstrations, experimental calculations and Lab book catalogue

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1	2+2	Relationship between strength and total quantity, dilution and concentration of liquids, dilution and concentration of solids.	Dilution and concentration	Theoretical lectures. Laboratory experiments	Paper-based exams
2	2+2	Some calculations about stock solutions	Dilution concentration; stock solution	Theoretical lectures. Laboratory demonstration.	Paper-based exams

3	2+2	How to prepare different solutions by using allegation method	Dilution concentration; allegation	Theoretical lectures. Laboratory demonstration.	Paper-based exams
4	2+2	Tutorial and practical problems	Tutorial and pract problems	Theoretical lectures. Laboratory demonstration.	Paper-based exams
5	2+2	Density vs. specific gravity, specific gravity of liquids, specific gravity of solids	Density, specific gravity specific volume	Theoretical lectures. Laboratory experiments.	Paper-based exams
6	2+2	Problems about density and specific gravity in calculation of weight and volum.	Use of specific gravity in calculati of weight and volume	Theoretical lectures. Laboratory demonstration.	Paper-based exams
7	2+2	Preparation of isotonic solutions with determination of milliequivalents, millimoles and milliosmoles	Isotonic solutions how to prepare isotonic solution a measurement of osmolarity and millimols	Theoretical lectures. Laboratory demonstration.	Paper-based exams
8	**Mid-term exam**				
9	2+2	Tutorial and practical problems	Tutorial and practi problems	Theoretical lectures. Laboratory demonstration.	Paper-based exams
10	2+2	Some calculation for administration of intravenous admixtures and parenteral solutions	Intravenous admixtures and parenteral nutritio	Theoretical lectures. Laboratory demonstration.	Paper-based exams
11	2+2	How to measurement the rate of flow for different intravenous fluids	Rate of flow of intravenous fluids	Theoretical lectures. Laboratory demonstration.	Paper-based exams
12	2+2	Practical problems	Some calculation involving "units," Mg/mg," and othe measures of potency	Theoretical lectures. Laboratory demonstration.	Paper-based exams
13	2+2	Dosage calculation based on Creatinine clearance	Some calculation associated with drug availability a pharmacokinetics	Theoretical lectures.	Paper-based exams

				Laboratory demonstration.	
14	**Students' seminars**				

11. Course Evaluation

- 20 M Theoretical assessments;
  (paper-based mid-term exam + attendance + seminar)
- 20 M practical assessment (attendance + quiz + practice+ oral-based exam)
- 60 M paper-based theoretical final exam

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  100 M total

12. Learning and Teaching Resources

Required textbooks	1. Ansel HC, Stoklosa MJ. Pharmaceutical calculations 13th edition Philadelphia, PA: Lippincott. Williams and Wilkins, 2010 2. Laboratory Manual for Practical Pharmacology adopted by the department.
Main references (sources)	1. Ansel HC, Stoklosa MJ. Pharmaceutical calculations ,10th , 13th edition Philadelphia, PA: Lippincott. Williams and Wilkins, 2010 2. Code of Ethics for Pharmacist. 3. American Pharmaceutical Association
Electronic References, Websites	https://www.pharmacist.com/