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| **1** | **Course title** | **Pharmaceutical Calculations and Compounding of Dosage Forms** |
| **2** | **Course number** | **1202230** |
| **3** | **Credit hours** | **2 (theory)** |
| **Contact hours (theory, practical)** | **2 (theory)** |
| **4** | **Prerequisites/corequisites** | **Physicochemical Principles of Pharmacy** |
| **5** | **Program title** | **Pharmacy and Pharm D** |
| **6** | **Program code** |  |
| **7** | **Awarding institution** | **The University of Jordan** |
| **8** | **School** | **Pharmacy** |
| **9** | **Department** | **Pharmaceutics and Pharmaceutical Technology** |
| **10** | **Level of course** | **undergraduate** |
| **11** | **Year of study and semester (s)** | **First semester of the 2nd year** |
| **12** | **Final Qualification** | **Pharmacy and Pharm D** |
| **13** | **Other department (s) involved in teaching the course** |  |
| **14** | **Language of Instruction** | **English** |
| **15** | **Teaching methodology** | Blended Online |
| **16** | **Electronic platform(s)** | Moodle Microsoft Teams Skype Zoom  Others………… |
| **17** | **Date of production/revision** |  |

**18 Course Coordinator:**

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| Name: Dr. Dina El-Sabawi  Office number: 239  Phone number: 23360  Email: d.sabawi@ju.edu.jo |

**19 Other instructors:**

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| Name: Dr. Sharif Abdelghany  Office number:  Phone number:  Email:  Name: Dr. Mais Saleh  Office number:  Phone number:  Email: |

**20 Course Description:**

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| As stated in the approved study plan.   1. **Principles of Pharmacy Practice:**   1. Dispensing techniques (compounding and good practice).  2. Pharmaceutical calculations.  3. Packaging.  4. Storage and stability of medicines.  5. Labelling of dispensed medicines.   1. **Pharmaceutical Products:**   1. Routes of administration and dosage forms.  2. Solutions.  3. Suspensions.  4. Emulsions.  5. External preparations.  6. Suppositories and pessaries.  7. Powders and granules. |

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| **21 Course aims and outcomes:**  **A- Aims:**   1. To provide a sound base for all practical aspects of good pharmacy practice. 2. To provide the students with knowledge in pharmaceutical calculations. 3. To provide the students with knowledge concerning fundamentals of extemporaneous dispensing including techniques applied in formulae preparation, packaging, labelling, expiry date and storage conditions of such formulae. 4. To provide the students with knowledge of pharmaceutical dosage forms and the variety of excipients used in pharmaceutical systems with their functions.      1. To provide the students with knowledge on the routes of administration.   **B- Intended Learning Outcomes (ILOs):**  **Upon successful completion of this course students will be able to:**  **• Develop, integrate, and apply knowledge from the foundational sciences in Clinical sciences (learner)**   1. Recall information regarding selected physicochemical concepts, such as intermolecular forces, solubility and physicochemical properties of drug substances. 2. Explain and outline goals of extemporaneous dispensing, aspects of good pharmacy practice and related pharmaceutical calculations. 3. Describe the variety of routes of administration, pharmaceutical dosage forms and their intended use, proper labelling and packaging of medicine and suitable storage conditions. 4. Identify the appropriate technique and equipment as well as selection of suitable excipients required for good compounding of a given formula. 5. Identify any potential mistakes in prescriptions resorting to gained knowledge. 6. Examine a given formula to: define the final obtained dosage form, perform suitable calculations and apply the correct manipulative techniques.   **• Proactively investigates new knowledge, approaches or behaviour and takes steps to evaluate and improve performance (Self-learner)**   1. Seek proactively new knowledge related to selected dosage forms.   **• Exhibit behaviors and values that are consistent with the trust given to the profession by patients, other healthcare providers, and society (Professional)**   1. Demonstrate integrity by not cheating and not committing plagiarism. 2. Demonstrate respect to professors and classmates by observing active listening inside the classroom. |

**22. Topic Outline and Schedule:**

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| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Week** | **Lecture** | **Topic** | **Teaching Methods/platform** | **Evaluation Methods\*** | **References** | | 1, 2 | 1.1 | Dispensing  techniques | Synchronous (MS Teams) |  | Pharmaceutical Practice, 4th edition and 5th edition. | | 1.2 | Asynchronous (Moodle) |  | | 1.3 | Asynchronous (Moodle) |  | | 1.4 | Asynchronous (Moodle) |  | | 2, 3, 4 | 2.1 | Pharmaceutical  Calculations | Synchronous (MS Teams) |  | | 2.2 | Asynchronous (Moodle) |  | | 2.3 | Asynchronous (Moodle) |  | | 2.4 | Synchronous (MS Teams) |  | | 2.5 | Asynchronous (Moodle) |  | | 2.6 | Asynchronous (Moodle) |  | | 4, 5 | 3.1 | Packaging, Storage and Stability | Synchronous (MS Teams) |  | | 3.2 | Asynchronous (Moodle) |  | | 3.3 | Asynchronous (Moodle) |  | | 3.4 | Synchronous (MS Teams) |  | | 6 | 4.1 | Routs of Administration | Asynchronous (Moodle) |  | | 4.2 | Synchronous (MS Teams) |  | | 7, 8 | 5.1 | Solutions | Asynchronous (Moodle) |  | | 5.2 | Asynchronous (Moodle) |  | | 5.3 | Synchronous (MS Teams) |  | | 8, 9 | 6.1 | Suspensions | Asynchronous (Moodle) |  | | 6.2 | Asynchronous (Moodle) |  | | 6.3 | Synchronous (MS Teams) |  | | 9, 10 | 7.1 | Emulsions | Asynchronous (Moodle) |  | | 7.2 | Synchronous (MS Teams) |  | | 7.3 | Asynchronous (Moodle) |  | | 7.4 | Synchronous (MS Teams) |  | | 10, 11 | 8.1 | Suppositories | Asynchronous (Moodle) |  | | 8.2 | Synchronous (MS Teams) |  | | 12 | 9.1 | External preparations | Asynchronous (Moodle) |  | |  | | | | | |

\* **Evaluation methods include: Assignment, Quiz and Exams.**

**23. Evaluation Methods:**

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| Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Evaluation Activity** | **Mark** | **Topic(s)** | **Period (Week)** | **Platform** | | Quiz | 10 | Topics 1 and 2 | Week four | Moodle | | Midterm Exam | 30 | Topics 1, 2, 3 and 4 | School timetable | - | | Assignment | 10 | Topics 5, 6, 7, 8 and 9 | Week eight | Moodle | | Final Exam | 50 | All topics | School timetable | - | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |

**24 Course Requirements (e.g: students should have a computer, internet connection, webcam, account on a specific software/platform…etc):**

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| Computer, internet connection, account on MS teams. |

1. **Course Policies:**

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| 1. Attendance policies:   Attendance: Mandatory.  First warning – with 4 absences.  Last warning – with 5 absences.  Failing the course – with more than 6 absences.  B- Absences from exams and submitting assignments on time:  If a medical report that is approved from the University’s Students Clinic is submitted or  A crucial excuse is documented, the student will be allowed to sit a compensatory exam.  C- Health and safety procedures:  The course is taught online (distant learning). Due to current situation of Corona pandemic, safety measures should be taken when conducting Midterm and Final exams on campus.    D- Honesty policy regarding cheating, plagiarism, misbehavior:  The participation, the commitment of cheating will lead to applying all following penalties together  1) Failing the course.  2) Failing all courses taken concurrently with that particular course.  3) Not allowed to register for the next semester. The summer semester is not considered as a semester.  E- Grading policy:  Grading system adopted by The University of Jordan.  F- Available university services that support achievement in the course:  Computer labs and internet connection. |
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**26 References:**

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| 1. Required book(s), assigned reading and audio-visuals: 2. Pharmaceutical Practice, A.J. Winfield, J.A. Rees and I.Smith. 4th edition, 2009. Published by Churchill Livingstone.   2. Pharmaceutical Practice, A.J. Winfield and R.M.E. Richards. 3rd edition, 2004. Published by Churchill Livingstone.   1. Pharmaceutics: the science of dosage form design, Aulton M.E. 2nd edition, 2002. Published by Churchill Livingstone.   B- Recommended books, materials and media: |

**27 Additional information:**

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Name of Course Coordinator: Dr. Dina El-Sabawi. Signature: ------------------ Date: October 12th, 2020

Head of Curriculum Committee/Department: ---------------------------- Signature: --------------------------

Head of Department: ------------------------------------------------------------ Signature: -----------------------

Head of Curriculum Committee/Faculty: ---------------------------------------- Signature: -------------------

Dean: ---------------------------------------------------------- Signature: -------------------------------------------