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| --- | --- | --- | --- | --- | --- | --- |
| **Study Plan No.** | **2021/2022** | | **University Specialization** | | **Bachelor of Pharmacy** | |
| **Course No.** | **0201224** | | **Course Name** | | **Pharmaceutical Dosgae Forms (1)** | |
| **Credit Hours** | **2** | | **Prerequisite**  **\*Co-requisite** | | **Pharmaceutics** | |
| **Course Type** | * **Mandatory University Requirement** | * **University Elective Requirement** | * **Faculty Mandatory Requirement** | * **Support course family requirements** | * **Mandatory Requirement** | * **Elective Requirement** |
| **Teaching Style** | * **Full Online Learning** | | * **Blended Learning** | | * **Traditional Learning** | |
| **Teaching Model** | * **1 Synchronous: 1 Asynchronous** | | * **1 Face to Face: 1 Asynchronous** | | * **2 Traditional** | |

**Faculty Member and Study Divisions Information *(to be filled in each semester by the subject instructor)***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Academic rank** | **Office No.** | **Phone No.** | **E-mail** | |
|  |  |  |  |  | |
| **Office Hours (Days/Time)** | **Sunday, Tuesday, Thursday ()** | | **Monday, Wednesday ()** | | |
| **Division number** | **Time** | **Place** | **Number of Students** | **Teaching Style** | **Approved Model** |
|  |  |  |  | **Blended Learning** | **1 Face to Face: 1 Asynchronous** |

**Brief Description**

|  |
| --- |
| Provide students with knowledge about different dosage forms, their formulations, packaging, labeling, and storage. |

**Learning Resources**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Book Information**  (Title, author, date of issue, publisher ... etc) | **Reference 1**: Aulton’s Pharmaceutics; The Design and Manufacture of Medicines, by: M.  E. Aulton. Fourth Edition. 2013. Churchill Livingstone, Elsevier. | | | |
| **Supportive Learning Resources**  (Books, databases, periodicals, software, applications, others) | **Reference 2:** Pharmaceutical Practice; by A. J. Winfield, J.A. Rees, and I. Smith. Fourth Edition.2009. Churchill Livingstone, Elsevier. | | | |
| **Supporting Websites** | - | | | |
| **The Physical Environment for Teaching** | * **Classroom** | * **Labs** | * **Virtual Educational Platform** | * **Others** |
| **Necessary Equipment and Software** | Moodle | | | |
| **Supporting People with Special Needs** | - | | | |
| **For Technical Support** | E-Learning & Open Educational Resources Center  Email: [elearning@zuj.edu.jo](mailto:elearning@zuj.edu.jo); Phone: +962 6 429 1511 ext. 425/362 | | | |

**Course learning outcomes *(****K= Knowledge, S= Skills, C= Competencies)*

|  |  |  |
| --- | --- | --- |
| **No.** | **Course Learning Outcomes** | **The Associated Program Learning Output Code** |
| **Knowledge**  **The student should be able to:** | | |
| **K1** | Identify the different dosage forms available in the pharmacy | **MK2** |
| **K2** | Recognize the best storage conditions for each dosage form | **MK2** |
| **K3** | Discuss the best packaging system for various drugs | **MK2** |
| **K4** | Outline different possible rout of administration for various drugs | **MK2** |
| **Skills**  **The student should be able to:** | | |
| **S1** | Relate the best dosage form that can secure each kind of drugs | **MS2** |
| **S2** | Predict the best container that can reserve each drug for its shelf life | **MS2** |
| **Competencies**  **The student should be able to:** | | |
| **C1** | Develop his/her professional and personal performance by continuously following-up lectures, submitting tasks on time, and staying up to date with the latest nursing implications. | **MC4** |

**Mechanisms for Direct Evaluation of Learning Outcomes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Type of Assessment / Learning Style** | **Fully Electronic Learning** | **Blended Learning** | **Traditional Learning**  **(Theory Learning)** | **Traditional Learning (Practical Learning)** |
| **Midterm Exam** | **30%** | **30%** | **30%** | **0%** |
| **Participation / Practical Applications** | **0%** | **0%** | **20%** | **50%** |
| **Asynchronous Interactive Activities** | **20%** | **20%** | **0%** | **0%** |
| **Final Exam** | **50%** | **50%** | **50%** | **50%** |

***Note 1:*** *Asynchronous interactive activities are activities, tasks, projects, assignments, research, studies, projects, and work within student groups ... etc, which the student carries out on his own, through the virtual platform without a direct encounter with the subject teacher.*

***Note 2:*** *According to the Regulations of granting Master’s degree at Al-Zaytoonah University of Jordan, 40% of final evaluation goes for the final exam, and 60% for the semester work (examinations, reports, research or any scientific activity assigned to the student).*

**Schedule of Simultaneous / Face-to-Face Encounters and their Topics**

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Subject** | **Learning Style\*** | **Reference \*\***  **(Pages in Course Book)** |
| **1** | **Inroduction to Pharmaceutics** | **Lecture** | **1-5** |
| **2** | **Definition of routes of drug administration**  **Definitions of different pharmaceutical dosage forms and drug delivery systems.** | **Lecture** | **1-19 Ref. 1, Ch. 1**  **211-218 Ref. 2, Ch. 21** |
| **3** | **Solutions: Advantages and disadvantages as dosage form** | **Lecture** | **395-405 Ref.1, Ch. 24**  **337-346 Ref. 2, Ch. 30** |
| **4** | **Solutions: Solvents used in the preparation of aqueous solutions, classifications, and examples.** | **Lecture** | **395-405 Ref.1, Ch. 24**  **337-346 Ref. 2, Ch. 30** |
| **5** | **Suspensions: Factors affecting sedimentation rate, types of thickening agents** | **Lecture**  *flipped learning* | **416-434 Ref. 1, Ch. 26**  **347-353 Ref. 2, Ch. 31** |
| **6** | **Suspensions: flocculated and deflocculated suspensions, preparation, and evaluation.** | **Lecture**  *flipped learning* | **416-434 Ref. 1, Ch. 26**  **347-353 Ref. 2, Ch. 31** |
| **7** | **Emulsions: Pharmaceutical applications** | **Lecture**  *flipped learning* | **435-464 Ref. 1, Ch. 27**  **356-363 Ref. 2, Ch. 32** |
| **8** | **Emulsions:Pharmaceutical applications** |  |  |
| **9** | **Emulsions:, types, surfactants and emulsifying agents**  **Midterm Exam** | **Lecture** | **435-464 Ref. 1, Ch. 27**  **356-363 Ref. 2, Ch. 32** |
| **10** | **Emulsions: Pharmaceutical applications, types, surfactants, methods of preparation and particular problems.** | **Lecture** | **435-464 Ref. 1, Ch. 27**  **356-363 Ref. 2, Ch. 32** |
| **11** | **Powders and granules: Advantages and disadvantages, applications and preparation.** | **Lecture** | **465-486 Ref. 1, Ch. 29**  **387-391 Ref. 2, Ch. 32** |
| **12** | **Packaging, storage, and stability of medicine: Definition of containers, types of contained, and primary and secondary packaging.** | **Lecture** | **504-549 Ref. 1, Ch. 33 and 34**  **393-398 Ref. 2, Ch. 36** |
| **13** | **Packaging, storage, and stability of medicine: Consideration in selecting a container, and patient pack dispensing** | **Lecture** | **811-851 Ref. 1, Ch. 47-49**  **305-313 Ref. 2, Ch. 27** |
| **14** | **Labeling of dispensed medicines: Requirements for labels, additional labels, and patient-specific labels.** | **Lecture** | **811-851 Ref. 1, Ch. 47-49**  **305-313 Ref. 2, Ch. 27** |
| **15** | **Storage of medicines and waste disposal: Why medicines need to be stored correctly, rotation and date checking of stock, waste disposal of medicines and medicines stored in the refrigerator, and maintaining records of refrigerator temperatures.** | **Lecture** | **493-499 Ref. 2, Ch. 43** |
| **16** | **Final Exam** |  |  |

*\* Learning styles: Lecture, flipped learning, learning through projects, learning through problem solving, participatory learning ... etc.*

*\*\* Reference: Pages in a book, database, recorded lecture, content on the e-learning platform, video, website ... etc.*

**Schedule of Asynchronous Interactive Activities** *(in the case of e-learning and blended learning)*

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Task / Activity** | **Reference** | **Expected Results** |
| **1** | Watch a recorded lecture | Video on the E-learning platform | Answer questions embedded in the video / Assignment |
| **2** | Watch a recorded lecture | Video on the E-learning platform | Answer questions embedded in the video / Assignment |
| **3** | Watch a recorded lecture | Video on the E-learning platform | Answer questions embedded in the video / Assignment |
| **4** | Watch a recorded lecture | Video on the E-learning platform | Answer questions embedded in the video / Assignment |
| **5** | Self-study | A selected topic | Assignment |
| **6** | Watch a recorded lecture | Video on the E-learning platform | Answer questions embedded in the video / Assignment |
| **7** | Watch a recorded lecture | Video on the E-learning platform | Answer questions embedded in the video / Assignment |
| **8** | Self-study | A selected topic | Assignment |
| **9** | **Midterm Exam** | **-** | **-** |
| **10** | Watch a recorded lecture | Video on the E-learning platform | Answer questions embedded in the video / Assignment |
| **11** | Watch a recorded lecture | Video on the E-learning platform | Answer questions embedded in the video / Assignment |
| **12** | Watch a recorded lecture | Video on the E-learning platform | Answer questions embedded in the video / Assignment |
| **13** | Self-study | A selected topic | Assignment |
| **14** | Watch a recorded lecture | Video on the E-learning platform | Answer questions embedded in the video / Assignment |
| **15** | Watch a recorded lecture | Video on the E-learning platform | Answer questions embedded in the video / Assignment |
| **16** | **Final Exam** | **-** | **-** |