**Course Description**

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| **Faculty** | **Pharmacy** |
| **Department**  | Pharmaceutics and Pharmaceutical Technology | **Level** | 7 |
| **Course**  | pharmaceutics technology | **Code** | 1701304 | **Prerequisite** | 1701302 |
| **Credit hours** | 2 | **Theoretical**  | 2 | **Practical** | 1701305 |
| **Coordinator** |  | **Email** |  |
| **Teachers** | * Dr. areegawadalah
 | **Emails** |  |
| **Lecture Time** |  | **Place** |  | **Attendance mode** | Face to face  |
| **Semester**  |  | **Preparation date**  |  | **Modification Date** |  |

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|  **Abstracted Course Description**  |
| The course provides an overview of solid dosage forms tablet capsules supposotires powder (coated tablets, hard gelatin capsules and soft-gels), in addition to liquid and semisolid dosage forms. It covers dosage form design, rational uses, formulation, production, performance and stability evaluation of these dosage forms. |
| **Course Goals** |
| 1. To recognize the manufacturing process and formulation of coatings for solid dosage forms 2. To recognize the applications, formulation and manufacture of hard and soft gelatin capsules. 3. To recognize the applications, manufacturing process and formulation of suspensions and emulsions.4. To recognize the preformulation and formulation of small volume parenterals. |

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| **CILOs** |
| **Knowledge** |
|  A.1 Gain knowledge related to the basis of the formulation of solid dosage formsA.2 Describe pharmaceutical equipment and apparatus used in the pharmaceutical production of solid dosage forms. A.3 Understand the basis and techniques of the quality control of the solid pharmaceutical preparations |
| **Skills** |
| . B.1 Perform analysis and interpretation of data related to formulation, production and quality control testing of solid dosage forms in addition to preformulationB.2 Be able to select suitable formulation approaches and production techniques for solid dosage formsB.3 Identify and solve problems arising in the pharmaceutical preparation of solid dosage forms |
| **Competencies** |
| C.1 Be able to suggest coating formulations with the necessary calculationsC.2 Be able to suggest remedies for coating problemsC.3Characterize various pharmaceutical dosage forms |
| **Learning Methods** |
| * Lectures
* Oral discussion
* Assignment
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| **Evaluation Tools** |
| **Exams****Quiz**  |
| **Week** | **Topics** | **Learning methods** | **Evaluation tool** | **ILOs** | **Hours** |
| **1.** | Vision and Mission of Faculty of Pharmacy Course Syllabus Granulation: Definition and reasons for granulation | Textbook and handouts | QUIZ | **A 1,2** | **3** |
| **2.** | Methods of granulation Mechanisms of granulation Pharmaceutical Granulation Equipmen | **A1,3** | **3** |
| **3.** | Tablets and Compaction: Introduction Biopharmaceutics classification system Quality attributes of tablets | Textbook and handouts | Exam | **A2,3** | **3** |
| **4.** | Tablet manufacturing | Textbook and handouts | Assignment  | **B1,2** | **3** |
| **5.** | Tablet excipients | **B2,3** | **3** |
| **6.** | Tablet types | Textbook and handouts | Quiz | **B1,3** | **3** |
| **7.** | Exam – 1 | Textbook and handouts | Exam |  | **3** |
| **8.** | Extended release tablets | Textbook and handouts | **A1** | **3** |
| **9.** | Coating of Tablets and Multiparticulates: Definition, Types and reasons of coating Film coating | Textbook and handouts | Exam | **A2** | **3** |
| **10.** | Hard Gelatin Capsules: Introduction Raw materials and process aids Manufacture | Textbook and handouts | **B2,3** | **3** |
| **11.** | Capsule filiing Lecture Formulation | Textbook and handouts | Exam  | **B3,1** | **3** |
| **12.** | Exam 2 | Textbook and handouts | **A1** | **3** |
| **13.** | 4Soft Gelatin Capsules: Lecture Description of soft gels Rationale foe selection of softgel as dosage form Manufacture Formulation | Textbook and handouts | Exam | **C2** | **3** |
| **14.** | Preformulation: Characteerization of physicochemical properties of drugsIn Vitro- In Vivo Correlation: Importance of Dissolution in IVIVC | Textbook and handouts | **A2** | **3** |
| **15.** | Final exam  | Textbook and handouts | Exam |  | **2** |

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| **Plan of Course Evaluation** |
| **Evaluation Tools** | **Mark** | **ILOs** |
| **A1** | **A2** | **A3** | **B1** | **B2** | **B3** | **C1** | **C2** | **C3** |
| **First Exam (Mid-term)**  | **30%** | \* | \* |  | \* |  |  |  |  |  |
| **Second Exam (If available)** |  |  |  |  |  |  |  |  |  |  |
| **Final Exam** | **50%** |  |  |  | \* | \* |  |  |  |  |
| **Activities** | **20%** |  |
| **Activities Evaluation** | Homework/Tasks | 10% |  | \* |  |  | \* | \* |  |  |  |
| Case Study  |  |  |  |  |  |  |  |  |  |  |
| Discussion and Interactions |  |  |  |  |  |  |  |  |  |  |
| Group Activities |  |  |  |  |  |  |  |  |  |  |
| Laboratory Exams |  |  |  |  |  |  |  |  |  |  |
| Presentations |  |  |  |  |  |  |  |  |  |  |
| Quizzes | 10% |  | \* | \* | \* |  |  |  |  |  |
| Others |  |  |  |  |  |  |  |  |  |  |
| **Total** | 100% |  |  |  |  |  |  |  |  |  |

 **Components**  |
| **Book** | **Martin’s Physical Pharmacy and Pharmaceutical Sciences****Modern Pharmaceutics****Merck Index: An Encyclopedia of Chemicals, Drugs, & Biologicals****The Theory and Practice of Industrial Pharmacy****Physical Pharmacy: Physical Chemical Principles in the Pharmaceutical Sciences****Handbook of Pharmaceutical Excipients****Remington: The Science and Practice of Pharmacy** |
| **References** | 1. 1. Martin’s Physical Pharmacy and Pharmaceutical Sciences By : Patrick J. Sinko, Lippincott Williams & Wilkins , 2006, 5th Edition 2. Modern Pharmaceutics by Gilbert S. Banker (Editor), Christopher T. Rhodes (Editor) 4th edition (June 15, 2002), Marcel Dekker; ISBN: ISBN: 0824706749 3. Merck Index: An Encyclopedia of Chemicals, Drugs, & Biologicals by Merck, Co, Maryadele J. Oneil (Editor), Ann Smith (Editor) 13th edition (October 2001), Merck & Co; ISBN: 0911910131 4. The Theory and Practice of Industrial Pharmacy by Leon Lachman, Herbert A. Lieberman, Joseph L. Kanig. 3rd edition (August 1986), Lea & Febiger; ISBN: 0812109775 5. Physical Pharmacy: Physical Chemical Principles in the Pharmaceutical Sciences by Alfred Martin, Pilar Bustamante, A.H.C. Chun (Illustrator) 622 pages 4th edition (January 15, 1993), Lea & Febiger; ISBN: Supporting References Page 3 of7 0812114388 6. Handbook of Pharmaceutical Excipients by Arthur H. Kibbe (Editor), Ainley Wade, Paul J. Weller 665 pages 3rd edition Vol 3 (January 15, 2000), Amer. Pharmaceutical Assoc.; ISBN: 091733096X 7. Remington: The Science and Practice of Pharmacy by Alfonso R. Gennaro (Editor) 20th edition (December 15, 2000), Lippincott, Williams & Wilkins; ISBN: 0683306472
 |
| **Recommended Readings** |  |
| **Electronic materials** |  |
| **Other websites** |  |

**Subject Coordinator:**

**Head of Curriculum Committee:**

**Department Head:**

**Faculty Dean:**

**Last update date:**