

Macao Polytechnic Institute
School of Health Sciences and Sports
Bachelor of Science in Biomedical Technology
(Pharmacy Technology)

Module Outline

Academic Year 2021 / 2022 Semester 1

Learning Module	Pharmaceutics		Class Code	BSPT2101
Pre-requisite(s)	Nil			
Medium of Instruction	Chinese & English		Credit	4
Lecture Hours	40hrs	Lab/Practice Hours	20 hrs	Total Hours 60hrs
Instructor	Dr. Henry Tong		E-mail	henrytong@ipm.edu.mo
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Description

This learning module aims to enable students to apply the concepts of pharmaceutics in their pharmacy practice. This learning module has 38-hour lectures, 20-hour laboratory sessions, 2-hour examination and 60 teaching hours in total.

Learning Outcomes

After finishing this learning module, the students should be able to:

1. Describe theoretical backgrounds of different dosage forms, including solution dosage forms (i.e., solution, emulsion, suspension), solid dosage forms (i.e., tablet, capsule, controlled-release products), semi-solid dosage forms (i.e., cream, ointment), sterile products and aerosols.
2. Develop conventional pharmaceutical dosage forms in industrial setting under guidance.
3. Evaluate the pharmaceutical performance of conventional dosage forms according to pharmacopoeial requirements.

Content

Lectures

Date	Time	Content
2021.08.20	11:00-13:00	Introduction
2021.08.23	11:00-13:00	Pharmaceutical solution dosage forms (I)
2021.08.25	11:00-13:00	Pharmaceutical solution dosage forms (II)
2021.08.30	11:00-13:00	Pharmaceutical semi-solid dosage forms
2021.09.01	11:00-13:00	Formulations of personal care products
2021.09.06	11:00-13:00	Pharmaceutical solid dosage forms (I) & (II)
2021.09.08	11:00-13:00	Pharmaceutical solid dosage forms (III)
2021.09.13	11:00-13:00	Pharmaceutical coating technology
2021.09.15	11:00-13:00	Controlled release preparation (I)
2021.09.20	11:00-13:00	Controlled release preparation (II)
2021.09.27	11:00-13:00	Sterile products
2021.09.29	11:00-13:00	Good manufacturing practice
2021.10.06	11:00-13:00	Solid state chemistry of drugs
2021.10.13	11:00-13:00	Process-induced phase transformation
2021.10.20	11:00-13:00	Manufacture of active pharmaceutical ingredients (APIs) Process analytical technology (PAT)
2021.10.27	11:00-13:00	Pharmaceutical aerosols Particle size analysis & Micronization

2021.11.03	11:00-13:00	Drug nanoparticle engineering
2021.11.10	11:00-13:00	Laboratory reports discussion
2021.11.24	11:00-13:00	Examination revision
2021.12.06	11:00-13:00	Final examination (2-hour)

Experiments

Date	Time	Content
2021.10.11	14:30-18:30	Experiment 1 – Influence of excipients on the quality of pharmaceutical suspensions
2021.10.18	14:30-18:30	Experiment 2 – Influence of operating parameters on student self-prepared 3% hydroquinone toner & cream
2021.10.25	14:30-18:30	Experiment 3 – Wet granulation process for manufacturing paracetamol tablets
2021.11.08	14:30-18:30	Experiment 4 – Dissolution and disintegration tests for paracetamol tablets
2021.11.22	14:30-18:30	Experiment 5 – Modernization of traditional Chinese medicine prescription in cosmetic whitening

Teaching Method

Lectures, tutorials, videos, case studies

Attendance

Attendance requirements are governed by the “Academic Regulations Governing Bachelor’s degree programmes of Macao Polytechnic Institute”. Students are not eligible to attend the final examination and re-sit examination, moreover, an “F” will be given as the final grade to students who have less than the stated attendance for the enrolled learning module.

Assessment

Item	Description	Percentage	Submission Date
Lab 1	Practical Report	10%	2 weeks after the experiment
Lab 2	Practical Report	10%	2 weeks after the experiment
Lab 3	Practical Report	10%	2 weeks after the experiment
Lab 4	Practical Report	10%	2 weeks after the experiment
Lab 5	Practical Report	10%	2 weeks after the experiment
Final Exam		50%	2021.01.08

Any student attaining less than 35% in the final examination, regardless of the score achieved in the course work and tests, shall be required to take the supplementary examination.

Teaching Material(s)

- M. E. Aulton. (2013) Aulton's Pharmaceutics: The Design and Manufacture of Medicines (4th edition). Churchill Livingstone, Edinburgh, U.K.