

Module Outline

Pharmaceutical Technology, Drug Delivery and Regulatory Aspects (90 hours)

Part I: Basics in Pharmaceutical Sciences: (in French); Pharmacie galénique: notions essentielles

Faculty. R. Gurny, F. Delie

	Contact hrs	Faculty	Title
Monday 11/01/10: 16h00 – 20h00	4	RG/FD	Introduction de l'enseignement - Le médicament, les voies d'administration, formulations conventionnelles et modulées
Tuesday 12/01/10: 16h00 – 19h00	3	RG/FD	Les Pharmacopées - Préparations liquides injectables
Wednesday 13/01/10: 16h00 – 20h00	4	RG/FD	Voie ophtalmique - Stérilisation et contrôles des préparations liquides
Thursday 14/01/10: 16h00 – 19h00	3	FD	Les émulsions et les suspensions
Friday 15/01/10: 16h00 – 19h00	3	RG	Préparations solides, Séminaire
Saturday 16/01/10: 9h00 – 12h00 13h00 – 17h00	7	RG/FD	Compression – Biopharmacie de la voie orale - Pharmacocinétique – Séminaire
Monday 18/01/10: 16h00 – 20h00	4	RG/FD	Comprimés – contrôle de qualité
Tuesday 19/01/10: 16h00 – 19h00	3	RG/FD	Comprimés enrobés – assurance de qualité
Wed 20/01/10 16h00 – 20h00	4	RG/FD	Comprimés spéciaux – Capsules Séminaire
35h			

Part II: Drug delivery concepts and polymer science (in English)

Faculty: HP Merkle, M. Moeller

	Hours	Faculty	Title
Thursday 21/01/10 16h00 – 20h00	4	HPM/MM	1. Introduction into drug delivery and targeting concepts 2. Introduction to Polymers and Biomaterials “Definitions and Classifications”, “Applications in Daily Life”
Friday 22/01/10 16h00 – 19h00	3	HPM/MM	1. Alternative routes: Systemic drug delivery by the buccal, nasal, and pulmonal routes 2. Synthesis Methods Part I: Polycondensation, Polyaddition, and examples of deriving materials in medical products
Saturday 23/01/10: 9h00 – 12h00 13h00 – 17h00	7	HPM/MM	1. Transdermal drug delivery 2. Synthesis Methods Part II: Radical, Ionic, ROP, ROMP,... and examples of deriving materials in medical product. 3. Drug formulation and delivery of therapeutic peptides and proteins 4. Analytical Methods and Polymer Processing
Monday 25/01/10: 16h00 – 20h00	4	HPM/MM	1. Nanomedicines: Current and future concepts 2. Concepts and requirements for polymers in different applications for use in humans: Biocompatibility
Tuesday 26/01/10 16h00 – 19h00	3	HPM/MM	1. Delivery concepts in gene therapy: plasmid DNA, oligonucleotides, and small interfering RNA 2. Polymers in formulations, tissue engineering and artificial organs
Wed 27/01/10 16h00 – 20h00	4	HPM/MM	1. Seminars featuring student presentations on current perspectives and trends in drug delivery and targeting 2. Seminars featuring case studies of biomedical polymer applications
	25		

Part III: Specific aspects of drug preparation in Mauritius: 30 hours:

Faculty. Mr Gérard Requin (in English)

Regulatory aspects in Mauritius; Drug distribution in Mauritius; Specific research topics in Mauritius.

1. Drug regulation in Mauritius
 - a. The Pharmacy Act 1983
 - i. The Pharmacy Board – powers and duties
 - b. Specificities of pharmaceutical trade in Mauritius
 - i. Pharmacy Licensing
 - ii. Drug scheduling
 - iii. Supervision of pharmacies
 - iv. Control of imports
 - v. Price control
 - vi. Range of products in pharmacies
 - vii. Generics v/s Branded products
 - viii. Drug promotion and drug information
 - ix. Pharmacovigilance
 - x. Hospital pharmacy
 - c. Manufacture of Pharmaceutical products
 - i. History
 - ii. Regulatory aspects
 1. Basic material requirements
 2. GMP and quality control
 3. Drug inspection
 - iii. Economic aspects
 - iv. Practical set-up and constraints
 - v. Drug production viewed from TRIPS
 - vi. Preparation of ayurvedic and other traditional medicines in Mauritius
 - vii. The future of drug production in Mauritius
 1. Industrial production
 2. Hospital-based processing
 - d. Drug distribution
 - i. Regulatory aspects
 - ii. Statistics and demography
 - iii. Specificities, advantages and limitations of the Mauritian model
 - iv. The future of drug distribution in Mauritius
 - e. Research Topics
 - i. Importance and relevance of drug research in Mauritius
 - ii. Drug utilization studies (WHO, HAI, Local NGOs, UoM students)
 - iii. Bioequivalence studies
 - iv. Pharmacogenomics applied to Mauritian context

- v. Clinical trials
 - 1. Current status of the law
 - 2. The draft Clinical Trials Bill
 - 3. Strength, weaknesses and opportunities for Mauritius in the field of drug research
 - 4. Drug testing on Animals
 - 5. Topics of current interest for drug research in Mauritius
 - a. Drug delivery systems
 - b. Drugs for children
 - c. Effective drug information
 - d. Cosmetics testing – current aspects and future development
 - e. Stability studies
 - f. Bioequivalence studies
 - g. Clinical pharmacy & Pharmacovigilance
 - h. Quality Assurance of pharmaceutical products
 - i. Clinical trials involving drugs used in the following diseases:
 - i. Diabetes
 - ii. Hypertension and other cardiovascular diseases
 - iii. Asthma
 - iv. Allergy
 - v. Dermatological conditions
 - 1. Acne
 - 2. Fungal infections
 - vi. Cancer (for which good databases exist)
 - vii. Contraception (Good records available)

Recommended Textbooks

In English:

G. S. Banker and C. Rhodes: Modern Pharmaceutics (Drugs and the Pharmaceutical Sciences) (2002), M. Dekker publisher

Martin, P. Bustamante and A.H.C. Chun: Physical Pharmacy, Lea & Febiger, 4e édition (1993)

In French:

Le Hir : Abrégé de pharmacie galénique, Masson, 8ème édition (2001).

Rossetto: Pharmacotechnie industrielle, Phi 41, imt, 1e édition (1998).

EXAMS

Final Written Exams: May 2010