



أولاً : برامج الدبلومات المتخصصة
مقررات دبلوم (الصيدلة الإكلينيكية) (PPD-100)

Diploma Courses (Clinical Pharmacy) (PPD-100)

First Semester

الفصل الدراسي الأول

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PPD -101	Drug Interactions تفاعلات الأدوية	2 + 1	3	2	70	20	10
PPD -102	Pharmacokinetics حركية الدواء	2 + 1	3	2	70	20	10
PPD -103	Hospital Microbiology ميكروبيولوجيا المستشفيات	2 + 1	3	2	70	20	10
PPD -104	Hospital Pharmacy Practice ممارسة صيدلة المستشفيات	2 + 1	3	2	70	20	10
Total		12	12	8	280	80	40

Second Semester

الفصل الدراسي الثاني

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PPD -105	Clinical Pharmacy صيدلة إكلينيكية	2 + 1	3	2	70	20	10
PPD -106	Hospital Food Analysis تحليل أغذية المستشفيات	2 + 1	3	2	70	20	10
PPD -107	Advanced Drug Delivery Systems أنظمة متقدمة لتوصيل الدواء	1 + 0	2	---	90	---	10
PPD -108	Sterile Dosage Forms المستحضرات العقيمة	1 + 0	2	---	90	---	10
PPD -1EC	Elective course مقرر اختياري	2 + 0	3	---	90	---	10
PPD -1SE	Scientific Essay المقال العلمي	0 + 2	---	---	50	---	50
Total		12	12	4	370	40	90

Elective course (PT-1EC)

المقررات الاختيارية

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PPD -109	Microbiological Quality Control of Pharmaceuticals رقابة الجودة الميكروبيولوجية للمستحضرات الصيدلانية	2 + 0	3	---	90	---	10
PPD -110	Nanotechnology تكنولوجيا النانو	2 + 0	3	---	90	---	10
Total		2	3	---	90	---	10



محتوي مقررات دبلوم (الصيدلة الإكلينيكية)(PPD-100)

Diploma Courses Description (Clinical Pharmacy) (PPD-100)

First Semester		الفصل الدراسي الأول
PPD -101	Drug Interactions	تفاعلات الأدوية Credit Hours (2+1)
In-vivo drug interactions; Different mechanisms of in-vivo Drug interaction, In-vitro drug interactions: Drug or additives interactions with I.V. fluids, Interactions of drugs with foods, Interactions of drugs with excipients., Drugs avoided in pregnancy & lactation.		
PPD -102	Pharmacokinetics	حركية الدواء Credit Hours (2+1)
Physicochemical principles involved in the kinetics of drug absorption, distribution, biotransformation, elimination, and therapeutic response, Application of these physicochemical principles in studying and interpreting current research articles dealing with these parameters and in performing bioequivalence studies, Intravenous infusion (one compartment model & two compartment model drugs).		
PPD -103	Hospital Microbiology	ميكروبيولوجيا المستشفيات Credit Hours (2+1)
This course is designed to discuss hospital infections, Diseases of human body, hospital sterilization, Antiseptics, Disinfectants, antimicrobial chemotherapeutic agents including antibiotics. Microbial infection of the body system(URT, LRT, GUT, GIT, CVS, UTS, NST, skin and eye) and modern methods of diagnosis		
PPD -104	Hospital Pharmacy Practice	ممارسة صيدلة المستشفيات Credit Hours (2+1)
Introduction to hospital pharmacy, Functional organization and facilities of hospital pharmacy, Pharmacy and therapeutic committee, Investigational drugs., Surgical dressing and suture materials		
Second Semester		الفصل الدراسي الثاني
PPD -105	Clinical Pharmacy	صيدلة إكلينيكية Credit Hours (2+1)
Definition and concepts of clinical pharmacy, Case and patient history, Patient management approach of various toxic exposures, Clinical problems solving, Topics discussion including :(clinical drug interactions, adverse drug reactions, drug interference and clinical laboratory data).		
PPD -106	Hospital Food Analysis	تحليل أغذية المستشفيات Credit Hours (2+1)
Composition of food, proteins, carbohydrates, lipids., Sample preparation for analysis. Physicochemical methods of analysis including: density, sp. Gr, refractometry, colorimetry., Optical properties of food, Proteins in food (nitrogen determination), Fats and oils (fatty acids analysis), Carbohydrate analysis, Food additives, food colors, food preservatives and food contaminations.		
PPD -107	Advanced Drug Delivery Systems	أنظمة متقدمة لتوصيل الدواء Credit Hours (1+0)
Study at the advanced level of the physical and biological principles which apply to the design, development and evaluation of novel drug delivery systems with emphasis on carrier systems for biotechnology proteins and DNA, as well as site- specific delivery systems and the contribution of nano technology research in this area, Selected examples of modern systems such as vesicular carriers and others will be discussed.		
PPD -108	Sterile Dosage Forms	المستحضرات العقيمة Credit Hours (1+0)
Types of sterile dosage form (parenteral, infusion fluids, radiopharmaceuticals, ophthalmic solutions, solutions of irrigation and peritoneal dialysis solutions, characteristics and specifications, different methods of sterilization.		
PPD -109	Microbiological Quality Control of Pharmaceuticals	رقابة الجودة الميكروبيولوجية للمستحضرات الصيدلانية Credit Hours (2+0)
Aseptic techniques, Control of microbial growth., Physical methods of sterilization, Chemical methods of sterilization, Hospital sterilization., Sterility tests, Pyrogen testing, Reduction of level of contamination of Non sterile pharmaceutical products., Pharmaceutical compounding of injectable preparations, Methods of detection of microbial contamination, ISO specifications for pharmaceutical contamination, Quality control and validation of sterilization		
PPD -110	Nanotechnology	تكنولوجيا النانو Credit Hours (2+0)
Introduction to nanotechnology, Nano-disperse system including (nano-emulsion and nano-suspension) preparation and their application, Nano-particles (nano-crystals and polymeric nano-particles) preparation and their application, Nano-metals (silver, gold, carbon and nano-tube)		



مقررات دبلوم (التكنولوجيا الصيدلانية) (PTD-A100)

Diploma Courses (Pharmaceutical Technology) (PTD-A100)

First Semester

الفصل الدراسي الأول

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PTD -A101	Pharmaceutical Unit Operation العمليات الصيدلانية	2 + 1	3	2	70	20	10
PTD -A102	Physical Pharmacy الصيدلة الطبيعية	2 + 1	3	2	70	20	10
PTD -A103	Pharmaceutical Dosage Forms. الأشكال الصيدلانية	2 + 1	3	2	70	20	10
PTD -A104	Stability of Pharmaceutical dosage forms ثبات المستحضرات الصيدلانية	2 + 1	3	2	70	20	10
Total		12	12	8	280	80	40

Second Semester

الفصل الدراسي الثاني

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PTD -A105	GMP, Quality control and Quality Assurance الأداء التصنيعي الجيد و مراقبة وتأكيد الجودة	2 + 1	3	2	70	20	10
PTD -A106	Sterile Products المستحضرات العقيمة	2 + 1	3	2	70	20	10
PTD -A107	Pharmaceutical Administration إدارة أعمال صيدلانية	2 + 0	3	---	90	---	10
PTD -A1EC	Elective course مقرر اختياري	2 + 0	3	---	90	---	10
PTD -A1SE	Scientific Essay المقال العلمي	2	---	---	50	---	50
Total		12	12	4	370	40	90

Elective course (PTD -1EC)

المقررات الاختيارية

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PTD -A108	Advanced Drug Delivery Systems أنظمة متقدمة لتوصيل الدواء	2 + 0	3	---	90	---	10
PTD -A109	Pharmacy Laws and Legislations قوانين وتشريعات صيدلانية	2 + 0	3	---	90	---	10
Total		2	3	---	90	---	10



محتوي مقررات دبلوم (التكنولوجيا الصيدلانية)(PTD-A100)
Diploma Courses (Pharmaceutical Technology) (PT-A100)

First Semester

الفصل الدراسي الأول

PTD -A101	Pharmaceutical Unit Operation	العمليات الصيدلانية	Credit Hours (2 + 1)
Advanced concept in design, development, formulation and manufacture of pharmaceutical dosage forms. Equipment and machinery used in the pharmaceutical manufacture of different dosage forms. Unit operations: Heat transfer, evaporation, drying, crystallization, filtration and centrifugation. Size reduction, size enlargement, size analysis and separation, mixing, emulsification and homogenization.			
PTD -A102	Physical Pharmacy	الصيدلة الطبيعية	Credit Hours (2 + 1)
Thermodynamics as applied to pharmaceutical systems, solubility and distribution phenomena, complexation, kinetics, interfacial phenomena, state of matter and phase equilibrium. Buffers and buffered isotonic systems, chemical stability of drugs, theories of dissolution.			
PTD -A103	Liquid & Disperse Dosage Forms	الأشكال الصيدلانية السائلة والمعلقة	Credit Hours (2 + 1)
Pharmaceutical solutions Definition, Solutions for oral use, mouth washes, ophthalmic, gargles and nasal, Suspensions: Definition, properties of a good suspension, formulation, problems in formulation, suspending agents, preservation and official preparation. Emulsions: Definition, types, purpose of emulsification, preparation of emulsions, emulsifying agents, testing of emulsion type and application of emulsions. Colloids: definition, types, properties, compounding, stability and quality control).			
PTD -A104	Stability of Pharmaceutical dosage forms	ثبات المستحضرات الصيدلانية	Credit Hours (2 + 1)
Stability prediction by the pharmacist, stability calculations, interpretation of kinetic data, strategy of stability testing.			

Second Semester

الفصل الدراسي الثاني

PTD -A105	GMP, Quality control and Quality Assurance	الأداء التصنيعي الجيد و مراقبة وتأكيد الجودة	Credit Hours (2 + 1)
Introduction: GMP, QC, QA & technology associated with abbreviation and definitions, GAP and quality control management-laboratory performance & self inspection. Control of quality including: control of quality variations, in-process quality control, finished product control, quality control during packaging operations, concept of statistical quality control, control and assurance of finished products, testing programs and methods.			
PTD -A106	Sterile Products	المستحضرات العقيمة	Credit Hours (2 + 1)
Types of sterile dosage form (parenteral, infusion fluids, radiopharmaceuticals, ophthalmic solutions, solutions of irrigation and peritoneal dialysis solutions. Characteristics and specifications of each type. Different method of sterilization			
PTD -A107	Advanced Drug Delivery Systems	أنظمة متقدمة لتوصيل الدواء	Credit Hours (2 + 0)
Study at the advanced level of the physical and biological principles which apply to the design, development and evaluation of novel drug delivery systems with emphasis on carrier systems for biotechnology proteins and DNA, as well as site- specific delivery systems and the contribution of nano technology research in this area. Selected examples of modern systems such as vesicular carriers and others will be discussed.			
PTD -A108	Pharmaceutical Administration	إدارة أعمال صيدلانية	Credit Hours (2 + 0)
Legal forms of ownership, selecting location and positioning of pharmacy, financing and organizing pharmacy, pharmacy layout and merchandising, accounting and financial records, purchasing and inventory control, promotion and personal selling, personal relations, patient communication and consultation			
PTD -A109	Pharmacy Laws and Legislations	قوانين وتشريعات صيدلانية	Credit Hours (2 + 0)
التعريف بقانون مزاولة مهنة الصيدلة و التسجيل بنقابة الصيدلة. التعريف بجداول المواد المخدرة و قواعد صرفها. قواعد فتح المؤسسات الصيدلانية (صيدليات جديدة ، مخازن الأدوية ، مصانع الأدوية و المكاتب العلمية). تسجيل المستحضرات الصيدلانية. استيراد الأدوية و المستحضرات الصيدلانية و النباتات الطبية. أخلاقيات مهنة الصيدلة و علاقة الصيدلي بالمريض.			



مقررات دبلوم (مستحضرات التجميل)(PTD-B100)
Diploma Courses (Cosmetic Products) (PTD-B100)

First Semester

الفصل الدراسي الأول

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PTD -B101	Technology of Cosmetic Products. تكنولوجيا مستحضرات التجميل.	2 + 1	3	2	70	20	10
PTD -B102	Natural Ingredients in Cosmetics. المكونات الطبيعية في مستحضرات التجميل.	2 + 1	3	2	70	20	10
PTD -B103	Skin Histology and Medical Applications. علم أنسجة الجلد و تطبيقاته الطبية .	2 + 1	3	2	70	20	10
PTD -B104	Stability and Storage of Cosmetics. دراسة ثبات وتخزين مستحضرات التجميل	2 + 1	3	2	70	20	10
Total		12	12	8	280	80	40

Second Semester

الفصل الدراسي الثاني

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PTD -B105	Advanced Drug Delivery Systems أنظمة متقدمة لتوصيل الدواء	2 + 1	3	2	70	20	10
PTD -B106	Microbial Quality control and Quality Assurance of Cosmetics. رقابة الجودة الميكروبيولوجية لمستحضرات التجميل	2 + 1	3	2	70	20	10
PTD -B107	Pharmaceutical Evaluation of Cosmetics. تقييم مستحضرات التجميل	2 + 0	3	---	90	---	10
PTD -B1EC	Elective course مقرر اختياري	2 + 0	3	---	90	---	10
PTD -B1SE	Scientific Essay المقال العلمي	2	---	---	50	---	50
Total		12	12	4	370	40	90

Elective course (PTD -1EC)

المقررات الاختيارية

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PTD -B108	Pharmaceutical Statistics الإحصاء الصيدلي	2 + 0	3	---	90	---	10
PTD -B109	Packaging and packaging Materials. التغليف والمواد المستخدمة للتغليف.	2 + 0	3	---	90	---	10
Total		2	3	---	90	---	10



محتوي مقررات دبلوم (مستحضرات التجميل)(PTD-B100)
Diploma Courses (Cosmetic Products) (PTD-B100)

First Semester **الفصل الدراسي الأول**

PTB -C101 Technology of Cosmetic Products. **تكنولوجيا مستحضرات التجميل** **Credit Hours (2 + 1)**
Raw materials used in cosmetic productions. Sources and specifications of raw materials. Accelerated stability studies to check physical and chemical aspects of raw materials. Skin preparations: skin creams, anti-perspiring and deodorants, shaving preparation, foot preparation, insects repellents, sun screen, skin lighter and bleaches, face pack and masks, colored makeup preparation, bath preparations and skin products for babies.

PTB -C102 Natural Ingredients in Cosmetics. **المكونات الطبيعية في مستحضرات التجميل** **Credit Hours (2 + 1)**
Natural materials used in preparation of cosmetics as: oils, flavoring agents and natural coloring agents. Stability study of cosmetic products. Evaluation of the prepared cosmetic products.

PTB -C103 Skin Histology and Medical Applications. **علم أنسجة الجلد و دراسات طبية.** **Credit Hours (2 + 1)**
Anatomy, physiology and biochemistry of skin. Topical application of cosmetic products. Effect of cosmetic products on the skin. Methods of the bioavailability improvement of the cosmetic products. Drawbacks of some cosmetic products.

PTB -C104 Stability and Storage of Cosmetics. **دراسة ثبات وتخزين مستحضرات التجميل** **Credit Hours (2 + 1)**
Stability prediction by the pharmacist, stability calculations, interpretation of kinetic data, strategy of stability testing.

Second Semester **الفصل الدراسي الثاني**

PTB -C105 Advanced Drug Delivery Systems **أنظمة متقدمة لتوصيل الدواء** **Credit Hours (2 + 1)**
Study at the advanced level of the physical and biological principles which apply to the design, development and evaluation of novel drug delivery systems with emphasis on carrier systems for biotechnology proteins and DNA, as well as site- specific delivery systems and the contribution of nano technology research in this area. Selected examples of modern systems such as vesicular carriers and others will be discussed.

PTB -C106 Microbial Quality control and Quality Assurance of Cosmetics. **رقابة الجودة الميكروبيولوجية لمستحضرات التجميل** **Credit Hours (2 + 1)**
Study of microbiological quality control techniques for row material, during manufacturing of cosmetic products. Evaluation of different preservatives used in cosmetics.

PTB -C107 Pharmaceutical Evaluation of Cosmetics. **تقييم مستحضرات التجميل** **Credit Hours (2 + 0)**
Evaluation of different cosmetic products; skin irritation, eye irritation and efficacy. Animal models for assessment of systemic effect from topically applied substance, current status of predictive animal models for drug photo allergy and their correlation with humans, human experimental contact dermatitis, assessment of topical photosensitivity in human. Quality control and clinical methods in evaluating cosmetic products, tests for preservation and antioxidant.

PTB -C108 Pharmaceutical Statistics **الإحصاء الصيدلي** **Credit Hours (2 + 0)**
Introduction to statistical analysis. Measurement of central tendency. Measurement of variability (Dispersion). Measure of shape of distribution.. Hypothesis testing and Significance testing for one and two samples (parametric). Hypothesis testing and Significance testing for Non-parametric data The quality of analytical measurements Calibration methods in instrumental analysis: regression and correlation.

PTB -C109 Packaging and packaging Materials. **التغليف والمواد المستخدمة للتغليف.** **Credit Hours (2 + 0)**
Requirements of a satisfactory package, different types of containers, spoilage mechanism, climatic hazards of distribution, packaging materials, classification of polymers, technology of plastics, potential problems of plastic containers.



مقررات دبلوم (التداوي بالأعشاب)(PGD-100)

Diploma Courses (Herbal Medicine) (PGD-100)

First Semester

الفصل الدراسي الأول

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PGD -101	Herbal Remedies I. الأدوية العشبية-I	3 + 0	3	---	90	---	10
PGD -102	Quality Assurance of Natural Products توكيد الجودة للمنتجات الطبيعية	2 + 2	3	2	70	20	10
PGD -103	Medicinal Plants of Abuse النباتات الطبية المساء استخدامها	3 + 0	3	---	90	---	10
PGD -104	Aromatherapy العلاج بالمواد العطرية	2 + 0	3	---	90	---	10
Total		12	12	2	340	20	40

Second Semester

الفصل الدراسي الثاني

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PGD -105	Herbal Remedies II. الأدوية العشبية-II	2 + 0	3	--	90	--	10
PGD -106	Herbal Industry and Registration. التصنيع العشبي وتسجيله	2 + 2	3	2	70	20	10
PGD -107	Clinical Applications of Herbal Medicine. التطبيقات السريرية للتداوي بالأعشاب	2 + 0	3	---	90	---	10
PGD -1EC	Elective course مقرر اختياري	2 + 0	3	---	90	---	10
PGD -1SE	Scientific Essay المقال العلمي	2	---	---	50	---	50
Total		12	12	2	390	20	90

Elective course (PAD -1EC)

المقررات الاختيارية

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PGD -108	Biotransformation of Natural Products التحولات الحيوية للنواتج الطبيعية	2 + 0	3	---	90	---	10
PGD -109	Nutraceuticals Supplements المكملات الغذائية الصيدلانية	2 + 0	3	---	90	---	10
Total		2	3	---	90	---	10



محتوي مقررات دبلوم (التداوي بالأعشاب)(PGD-100)

Diploma Courses (Herbal Medicine) (PGD-100)

First Semester **الفصل الدراسي الأول**

PGD-101 Herbal Remedies I.	الأدوية العشبية-I	Credit Hours (٣ + 0)
Principles of herbal remedy, Herbal formulae and therapeutic use, Issues involved in dosage and formulation types.		
PGD-102 Quality Assurance of Natural Products	توكيد الجودة للمنتجات الطبيعية	Credit Hours (2 + ٢)
Specification of raw materials (identity and purity). Authentication of raw materials. Possible adulterants and contaminants, Chemical and chromatographic evaluation of raw materials.		
PGD-103 Medicinal Plants of Abuse	النباتات الطبية المساء استخدامها	Credit Hours (٣ + 0)
Types and patterns of abuse, Detection and analysis as drugs and as metabolites in biological samples		
PGD-104 Aromatherapy	العلاج بالمواد العطرية	Credit Hours (2 + 0)
Historical background, Effective application and safety guidelines, Monographs of essential oils, Conditions aided by aromatherapy.		

Second Semester **الفصل الدراسي الثاني**

PGD-105 Herbal Remedies II.	الأدوية العشبية-II	Credit Hours (2 + 0)
Herbal formulae: therapeutic use, pharmacology and quality control.		
PGD-106 Herbal Industry and Registration.	التصنيع العشبي وتسجيله	Credit Hours (2 + 2)
-Raw materials, Preparation of standardized extracts and other herbal formulations., Guidelines for registration of herbal preparations.		
PGD-107 Clinical Applications of Herbal Medicine.	التطبيقات السريرية للتداوي بالأعشاب	Credit Hours (2 + 0)
Case reports, Herb/herb, herb/food and herb/drug interactions.		
PGD-108 Biotransformation of Natural Products	التحولات الحيوية للنواتج الطبيعية	Credit Hours (2 + 0)
Biocatalysis in natural products chemistry, types of biocatalysts, biocatalysis systems, microbial models of mammalian metabolism,		
PGD-109 Nutraceuticals Supplements	المكملات الغذائية الصيدلانية	Credit Hours (2 + 0)
Market and demand, Food as medicine; Dietary supplements, Functional foods, Medicinal foods, Pharmaceuticals, Effectiveness and safety : Regulation, International sources, Bioavailability, Impact of placebo effect		



اللائحة البرامج الأكاديمية- الدراسات العليا- كلية الصيدلة جامعة المنصورة
(٢٠١٤)



مقررات دبلوم (السموم والتحليل الكيميائي الشرعي)(PHD-100)

Diploma Courses (Toxicology and Forensic Chemical Analysis) (PHD-100)

First Semester

الفصل الدراسي الأول

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PHD -101	Basic and Clinical Toxicology مبادئ السموم التشخيصية	2 + 1	3	2	70	20	10
PHD -102	Molecular and Biochemical Toxicology I السموم الجزيئية والحيوية 1	2 + 1	3	2	70	20	10
PHD -103	Forensic Toxicology السموم الشرعية	2 + 1	3	2	70	20	10
PHD -104	Target Organ Toxicology استهداف الأعضاء بالسموم	2 + 1	3	2	70	20	10
Total		12	12	8	280	80	40

Second Semester

الفصل الدراسي الثاني

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PHD -105	Molecular and Biochemical Toxicology II السموم الجزيئية والحيوية 2	2 + 1	3	2	70	20	10
PHD -106	Environmental and Occupational Toxicology السموم البيئية والمهنية	2 + 1	3	2	70	20	10
PHD -107	Drugs of Abuse الأدوية المساء استخدامها	2 + 0	3	---	90	---	10
PHD -1EC	Elective course مقرر اختياري	2 + 0	3	---	90	---	10
PHD -1SE	Scientific Essay	2	---	---	50	---	50
	المقال العلمي						
Total		12	12	4	370	40	90

Elective course (PAD -1EC)

المقررات الاختيارية

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PHD -108	Teratogenicity and Mutagenicity التشوه الجنيني والتحول الجيني	2 + 0	3	---	90	---	10
PHD -109	Toxicity Assessment تقييم السمية (يقوم بالتدريس قسم الأدوية والسموم وقسم الكيمياء التحليلية)	2 + 0	3	---	90	---	10
Total		2	3	---	90	---	10



توصيف مقررات دبلوم (السموم والتحليل الكيميائي الشرعي)(PHD-100)

Diploma Courses (Toxicology and Forensic Chemical Analysis) (PHD-100)

First Semester

الفصل الدراسي الأول

PHD-101 Basic and Clinical Toxicology	مبادئ السموم التشخيصية	Credit Hours (2 + 1)
This course aims to provide the students with the fundamental concepts of basic and clinical toxicology, the knowledge of the toxic effects of a number of important therapeutic drug classes and toxins at cellular and organizational levels.		
PHD-102 Molecular and Biochemical Toxicology I	السموم الجزيئية والحيوية 1	Credit Hours (2 + 1)
This course aims to provide students with the knowledge of the biochemical, cellular, and molecular events induced by different types of toxicants, with special emphasis on dose response relationships, factors affecting toxic responses including disposition & metabolism mechanisms of foreign compounds and toxic responses of foreign compounds.		
PHD-103 Forensic Toxicology	السموم الشرعية	Credit Hours (2 + 1)
This course is designed to discuss the basic principles and procedures used in forensic toxicology. The course content addresses the practices and methods used, proper handling of specimens and quality assurance practices. Topics discussed include organic and inorganic chemical analyses of physical evidence, principles of serology and DNA analysis, identification of fresh and decomposed human remains and drug analysis.		
PHD-104 Target Organ Toxicology	استهداف الأعضاء بالسموم	Credit Hours (2 + 1)
This course approaches systemic toxicology, including developmental toxicology, adverse effects of several classes of chemicals at specific target organs, including the liver, lung and kidney, endocrine, nervous, reproductive and immune systems. The course emphasizes understanding the mechanism(s) for the adverse responses of given organs to specific agents.		

Second Semester

الفصل الدراسي الثاني

PHD-105 Molecular and Biochemical Toxicology II	السموم الجزيئية والحيوية ٢	Credit Hours (2 + 1)
This course aims to provide students with knowledge of cell cycle, theory of carcinogenesis, genetic toxicology, cell death, mitochondrial dysfunction and others. Also, provide students with complex methods used to assess molecular and cellular events induced by toxicants.		
PHD-106 Environmental and Occupational Toxicology	السموم البيئية والمهنية	Credit Hours (2 + 1)
This course is concerned with those chemical exposure situations found in our general living environment. With special focus on air, water and soil pollutants. Occupational toxicology is concerned with the exposure to chemicals, toxins and diseases found in different workplace.		
PHD-107 Drug Abuse	الأدوية المساء إستخدامها	Credit Hours (2 + 0)
This course deals with commonly abused drugs by class as anti-cholinergic drugs, dissociative drugs, opiates, psychedelic drugs, sedative-hypnotic drugs and stimulant drugs. Specific treatment of intoxication, overdose and withdrawal symptoms due to various types of intoxications.		
PHD-108 Teratogenicity and Mutagenicity	التشوه الجنيني والتحول الجيني	Credit Hours (2 + 0)
The course aims are introduction of molecular mechanisms of mutagenesis and teratogenesis-induced by different drugs, chemicals and toxicants		
PHD-109 Toxicity Assessment	تقييم السمية	Credit Hours (2 + 0)
The course deals with definition of toxicity assessment, assessment of acute and chronic toxicities (carcinogenic and non-carcinogenic-induced toxicity) and determination of safe levels of drugs and chemicals in human body as well as environment. Also, the use of analytical methods in the detection, identification, and measurement of foreign compounds (xenobiotics) in biological and other specimens which is important in the assessment of exposure following chemical incidents, therapeutic drug monitoring, and monitoring for drugs of abuse		

(يقوم بالتدريس قسم الأدوية والسموم و قسم الكيمياء التحليلية)



مقررات دبلوم (الميكروبيولوجيا والمناعة)(PMD-100)

Diploma Courses (Microbiology and Immunology) (PMD-100)

First Semester

الفصل الدراسي الأول

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PMD-101	General Bacteriology البكتريولوجيا العامة	2 + 1	3	2	70	20	10
PMD-102	General Mycology and Virology الفطريات والفيروسات العامة	2 + 1	3	2	70	20	10
PMD-103	Microbiological Quality control and Quality Assurance مراقبة وتأكيد الجودة الميكروبيولوجية	2 + 1	3	2	70	20	10
PMD-104	General Immunology المناعة	2 + 1	3	2	70	20	10
Total		12	12	8	280	80	40

Second Semester

الفصل الدراسي الثاني

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PMD-105	Biotechnology التكنولوجيا الحيوية	2 + 1	3	2	70	20	10
PMD-106	Diagnostic Microbiology الميكروبيولوجيا التشخيصية	2 + 1	3	2	70	20	10
PMD-107	Antimicrobial agents المضادات الميكروبية	2 + 0	3	---	90	---	10
PMD-1EC	Elective course مقرر اختياري	2 + 0	3	---	90	---	10
PMD-1SE	Scientific Essay المقال العلمي	2	---	---	50	---	50
Total		12	12	4	370	40	90

Elective course (PMD-1EC)

المقررات الاختيارية

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PMD-108	Environmental Microbiology الميكروبيولوجيا البيئة	2 + 0	3	---	90	---	10
PMD-109	Advanced Microbiological Laboratory Techniques التقنيات المعملية الميكروبيولوجية المتقدمة	2 + 0	3	---	90	---	10
Total		2	3	---	90	---	10



محتوي مقررات دبلوم (الميكروبيولوجيا والمناعة)(PMD-100)

Diploma Courses (Microbiology and Immunology) (PMD-100)

First Semester

الفصل الدراسي الأول

PMD-101 General Bacteriology البكتريولوجيا العامة **Credit Hours (2 + 1)**
Introduction and classification of bacteria, normal bacterial flora of the body, collection of pathological materials and isolation of pure culture, Modes of transmission of infection, Classification of different Gram positive and Gram negative cocci, Identification of bacteria, Gram positive non spore forming aerobic bacilli o Gram positive spore forming bacilli o Gram positive spore forming anaerobic bacilli, Acid fast bacteria, Spirochaetes, Enterobacteriaceae members, Rickettsiae, Chlamydiae, Mycoplasma and miscellaneous bacteria.

PMD-102 General Mycology and Virology الفطريات والفيروسات العامة **Credit Hours (2 + 1)**
Classification and reproduction of fungi, Growth requirements of fungi, Fungal diseases: Superficial mycoses, Cutaneous mycoses, Subcutaneous mycoses, Systemic mycoses due to primary pathogens, Systemic mycoses due to opportunistic pathogens, Growth requirements of viruses, Baltimore classification, dsDNA viruses (e.g. Adenoviruses, Herpesviruses, Poxviruses), ssDNA viruses (+)sense DNA (e.g. Parvoviruses), dsRNA viruses (e.g. Reoviruses), (+)ssRNA viruses (+)sense RNA (e.g. Picornaviruses, Togaviruses), (-)ssRNA viruses (-)sense RNA (e.g. Orthomyxoviruses, Rhabdoviruses, ssRNA-RT viruses (+)sense RNA with DNA intermediate in life (e.g. Retroviruses), : dsDNA-RT viruses (e.g. Hepadnaviruses)

PMD-103 Microbiological Quality control and Quality Assurance مراقبة وتأكيد الجودة الميكروبيولوجية **Credit Hours (2 + 1)**
Aseptic techniques, Control of microbial growth., Physical methods of sterilization, Chemical methods of sterilization, Hospital sterilization., Sterility tests, Pyrogen testing, Reduction of level of contamination of Non sterile pharmaceutical products., Pharmaceutical compounding of injectable preparations, Methods of detection of microbial contamination, ISO specifications for pharmaceutical contamination, Quality control and validation of sterilization

PMD-104 General Immunology المناعة **Credit Hours (2 + 1)**
Characteristics and component of Innate and adaptive immunity, The properties of antigens, antibodies, macrophages, cell-mediated immunity, Complement pathways., Cells of innate immunity, T cells and B cells, Immunoglobulins, Antigen antibody reaction and response, Diseases resulting from immunological disorders, Vaccines and immunizations, Immune disorders, a- Hypersensitivities. b- Autoimmune diseases. c- Transplantation (Tissue) rejection. d- Immunodeficiencies.

Second Semester

الفصل الدراسي الثاني

PMD-105 Biotechnology التكنولوجيا الحيوية **Credit Hours (2 + 1)**
Introduction to biotechnology, Biology of industrial micro-organism, Fermentation Technology. Production of Major Pharmaceutical products, Antibiotics; Penicillin, Cephalosporins, Streptomycin production and Semi- Synthetic Antibiotics to Combat Resistant Microbes, Production of acids such as lactic acid, citric acid and gluconic acid., Enzyme Technology, Techniques of immobilization of enzymes, Factors affecting enzyme kinetics. Manipulation of living organisms to produce new products such as Hormones, vaccines and monoclonal antibodies. Production of Vaccines introduction, conventional vaccines, types of vaccines, preparation and standardization., Production of Monoclonal antibodies, Production of Hormones, Biofuels, Nanobiotechnology, Gene therapy

PMD-106 Diagnostic Microbiology الميكروبيولوجيا التشخيصية **Credit Hours (2 + 1)**
Introduction and classification of bacterial, fungal and viral flora of the body, collection of pathological materials for diagnosis of microbial diseases. Epidemiology of communicable disease. Bacterial, viral, fungal and parasitic diseases affecting the upper respiratory tracts with refer to their detection and identification, Bacterial, viral, fungal and parasitic disease affecting the lower respiratory tract with refer to their detection and identification, Bacterial, viral, fungal and parasitic diseases affecting the skin and eye with refer to their detection and identification, Bacterial, viral, fungal and parasitic diseases affecting the digestive tract with refer to their detection and identification, Bacterial, viral, fungal and parasitic diseases affecting the genito-urinary tract with reference to their detection and identification, Bacterial, viral, fungal and parasitic diseases affecting the cardiovascular system with reference to their detection and identification Bacterial, viral, fungal and parasitic diseases affecting the nervous system with reference to their detection and identification, Disease affecting vulnerable individual, Hospital infection., Microbiological warfare.



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PMD-107

Antimicrobial agents

المضادات الميكروبية

Credit Hours (2 + 0)

General characteristics of antimicrobial chemotherapeutic agents. Classification: Antibiotics, antiseptics, disinfectants and preservative. Preservation of pharmaceutical product and evaluation of preservatives, Chemical disinfectants, antiseptic and their evaluation, Antibacterial drugs, Antifungal drugs , Antiviral drugs, Resistance to antimicrobial agents, Selective toxicity of antimicrobial agents, Evaluation of antimicrobial agents, Antimicrobial combination and their evaluation

PMD-108 Environmental Microbiology

الميكروبيولوجيا البيئية

Credit Hours (2 + 0)

Microbial transformation and their impact on different environment, Soil and water as microbial environment, Edaphic factors that determine the development of living organisms in the ecosystems. Inter- relationship between microbes- predation, parasitism, symbiosis, Element cycle with refer to sulphur and nitrogen, Bioremediation, Marine microbiology, Water pollution, Waterborn diseases, Waterhealth standards, Waste water treatment, Types of m.o r in air, Air pollution, Air born disease, Sewage treatment system as microbial ecosystem.

PMD-109 Advanced Microbiological Laboratory Techniques

التقنيات المعملية الميكروبيولوجية المتقدمة

Credit Hours (2 + 0)

Introduction to molecular biology and principle of modern genetics, DNA and mRNA processing, Enzymes used in molecular biology, Construction of cDNA, and genomic libraries and CDNA library screening, Conventional and pulsed-field gel electrophoresis, Promoters and operons, Cloning vectors and Cloning strategies, Restriction mapping, Polymerase chain reaction and primers, Site-directed mutagenesis, Homologous recombination, Transfection, Expression of foreign genes in *E. coli* and eukaryotic cells, Hyperdizationand Fluorescent in situ hybridization, Single-strand conformation polymorphism, Amplified fragment length polymorphism, DNaseI footprinting, Yeast two-hybrid system and reporter strains assay, Gene targeting and gene therapy, Functional genomics and applications of DNA microarrays, Bioinformatics and Proteomics, DNA sequencing and Next generation DNA sequencing



مقررات دبلوم (كيمياء الصناعات الصيدلانية)(POD-100)

Diploma Courses (Chemistry of Pharmaceutical Industries) (POD-100)

First Semester

الفصل الدراسي الأول

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
POD -101	Advanced Organic Chemistry الكيمياء العضوية المتقدمة	2 + 1	3	2	70	20	10
POD -102	Heterocyclic Chemistry الكيمياء الحلقية الغير متجانسة	2 + 1	3	2	70	20	10
POD -103	Stereochemistry of Drugs الكيمياء الفراغية للأدوية	2 + 1	3	2	70	20	10
POD -104	Chemistry of Cosmetics and Perfumes كيمياء مستحضرات التجميل والعطور	2 + 1	3	2	70	20	10
Total		12	12	8	280	80	40

Second Semester

الفصل الدراسي الثاني

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
POD -105	Chemistry of Building Blocks for Drug Industry كيمياء المواد الأولية لصناعة الدواء	2 + 1	3	2	70	20	10
POD -106	Elucidation of Chemical Structure إثبات التركيب الكيميائي	2 + 1	3	2	70	20	10
POD -107	Chemistry of Pharmaceutical Polymers كيمياء البوليمرات الصيدلانية	2 + 0	3	---	90	---	10
POD -1EC	Elective course مقرر اختياري	2 + 0	3	---	90	---	10
POD -1SE	Scientific Essay المقال العلمي	2	---	---	50	---	50
Total		12	12	4	370	40	90

Elective course (PO-1EC)

المقررات الاختيارية

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
POD -108	Total Synthesis of Natural Products التشبيد الكامل للمركبات الطبيعية	2 + 0	3	---	90	---	10
POD -109	Computational Chemistry الكيمياء الحاسوبية	2 + 0	3	---	90	---	10
Total		2	3	---	90	---	10



محتوي مقررات دبلوم (كيمياء الصناعات الصيدلانية)(POD-100)

Diploma Courses (Chemistry of Pharmaceutical Industries) (POD-100)

First Semester

الفصل الدراسي الأول

POD-101	Advanced Organic Chemistry	الكيمياء العضوية المتقدمة	Credit Hours (2 + 1)
The course is designed to discuss some new reactions and mechanisms in organic chemistry with special emphasis on reactions related to synthesis of pharmaceutical compounds: Synthetic strategies, Target selection Retrosynthesis, Protecting groups, Enolates synthesis and reaction.			
POD-102	Heterocyclic Chemistry	الكيمياء الحلقية الغير متجانسة	Credit Hours (2 + 1)
The course covers an in-depth knowledge of the chemistry of heterocyclic compounds with particular emphasis on the synthesis, reactions, and stereochemistry of different three, four, five and six member heterocycles.			
POD-103	Stereochemistry of Drugs	الكيمياء الفراغية للأدوية	Credit Hours (2 + 1)
This course covers the theory and background to chirality and provides an overview of the effects of enantiomers at biological receptors. It also includes the use of chiral compounds as drugs, and the application of chirality as a tool in Pharm. Organic Chemistry to obtain better potency, selectivity, and duration of action of drugs through the study of the topics: Introduction, Chirality and chiral drug development, Elements of symmetry, Stereochemistry and chemical R , Conformation, isosterism, anomeric affect importance of chirality on bioactivity of pharmacologically active drugs, Stereochemistry and drug design, Resolution, Some synthetic routes for chiral drugs			
POD-104	Chemistry of Cosmetics and Perfumes	كيمياء مستحضرات التجميل والعطور	Credit Hours (2 + 1)
The course concerns with the study of the chemistry of different types of perfumes ingredients in different types of Cosmetics: Facial cosmetics, Foundation, Lipstick, Perfume, Deodorants and Antiperspirants, Aromatic Sources (Plant sources, Animal sources, other natural sources, Synthetic sources and Characteristics), Health and environmental issues (Immunological, Carcinogenicity, Pollution, Species endangerment), Safety regulation, Lists of Perfumes, Preserving Perfumes			

Second Semester

الفصل الدراسي الثاني

POD-105	Chemistry of Building Blocks for Drug Industry	كيمياء المواد الأولية لصناعة الدواء	Credit Hours (2 + 1)
This course aims to provide students with an understanding of the synthesis of building blocks for drug discovery and development. It covers the basic principles of simple chemical reactions to furnish: A) Mono-Functional Building Blocks: Amidines, Amine oxides, Azides Aziridines, Azo and Azoxy Compounds, Benzoines, Bis amides, Borones, Carbamates and Carbodiimides, Carbonate and Cyanates, Dialdehydes Diazo Compounds, Diazonium Salts, Dicyano Compounds, Dihalides and Polyhalides, Diketones Disulfides, Dithioacetals, Dithiols Epoxides, Episulfides Hemi acetals and amins, Hydroperoxides, Hydroxamix acids Imines, Imides and ureides, Inorganic esters, Isocyanates, Isocyanides, Iso thiocyanate and Iso thiuronium salts, Ketenes Lactans and Lactones Nitriles, Nitrile Oxides, Nitrones Ortho Esters, Oximes and Oxime Ethers, Ozonides, Phosphines, Phosphonates, Phosphoranes, Quinones Sulfinic acids and esters, Sulforium Salts Sulfonyl azides and Halides, Sulfides and Sulfoxides, Ureas and Thioureas, Ureides, Urethares Xathates and Ylides B) Bi-Functional Building Blocks: Acetoxy sulfides and ketones, Amidals and Amins and Amido ketones, Amino acid and esters, Amino carbonyl compounds, Ethers, Thiols, Azido Amides, Cyanamides and Cyanoamines, Cyano Carbonyl Compounds, Hydrins, 1,2-, 1,3-, 1,4-, 1,5- Dicarboxylic Compounds, Gem-, 1,2-, 1,3- Diols, Enol Carbamates, Ethers, thioethers, esters, Silyl Enol Ethers, Haloamines and N-Haloamines and amides, Halo Carbonyl Compounds, Halo Ethers, Acetals, Hydrines, Sulfides, Sulfoxides and Sulfones, Hydroxy aldehyds, ketones, amines, amides, esters, ethers, nitrites, Sulfonic acids, thiols and thioethers, Imino Esters and Nitriles, Ketenimines, Keto acids, aldehydes and esters, Monoesters of Dicarboxylic acids, Thio amids and Carbamates, Thio cyanates, Thioethers, thio acids thioesters and Thio ureas, Unsaturated Alcohols and Phenols, Unsaturated Carbonyl Compounds, Unsaturated Ethers and Thioethers, Unsaturated Nitriles, Nitro, Ethers compounds, Vinyl Ethers, halides, Acyloins, Allenes, Enamines, Enynes			



C) Building Blocks for Drug synthesis :

Phenyl alkyl amines, Aromatic, aliphatic compounds, Substituted aromatics, Sulfonamides, Semisynthetic β -lactam antibiotics

إثبات التركيب الكيميائي

POD-106 Elucidation of Chemical Structure

Credit Hours (2 + 1)

The course concerns with the study of the principles and techniques of NMR, MS, IR, UV and their application in identification and characterization of organic compounds. The main objective of this course is to assist in developing the ability of the students to interpret spectra and to use the obtained information in structure elucidation.

POD-107 Chemistry of Pharmaceutical Polymers

كيمياء البوليمرات الصيدلانية

Credit Hours (2 + 0)

The course covers an in-depth knowledge of the chemistry of pharmaceutical polymers with particular emphasis on the synthesis, Molecular structure of polymers , Conformational structure and morphologies, Chain polymerization, Reactivity and chemical modification of polymers, Macromolecular synthesis, Natural and artificial polymers. Linear and artificial polymers. Linear synthesis of polymers, Three dimensional synthetic polymers

POD-108 Total Synthesis of Natural Products

التشبيد الكامل للمركبات الطبيعية

Credit Hours (2 + 0)

The course covers an in-depth knowledge of the chemistry of Natural Products with particular emphasis on Target selection, Retrosynthesis, Strategic bonds in rings, Asymmetric Synthesis, Multi-step Synthesis, Selected synthetic strategies.

POD-109 Computational Chemistry

الكيمياء الحاسوبية

Credit Hours (2 + 0)

This course covers the theory and background to computational chemistry and provides an overview of force fields and molecular representations of matter, Energy Minimization and related analysis techniques, Searching for Better Structures, Reaction Modeling, Reaction Pathways.



مقررات دبلوم (رقابة الجودة والتحليل الدوائي) (PAD-100)

Diploma Courses (Quality Control and Drug Analysis) (PAD-100)

First Semester

الفصل الدراسي الأول

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PAD -101	Spectrometry القياسات الطيفية	2 + 1	3	2	70	20	10
PAD -102	Quality Control of drugs الرقابة النوعية للأدوية	2 + 1	3	2	70	20	10
PAD -103	Stability of Pharmaceutical Dosage Forms ثبات المستحضرات الصيدلانية المختلفة	2 + 1	3	2	70	20	10
PAD -104	Microbiological Quality Control الرقابة المبكر وبيولوجية	2 + 1	3	2	70	20	10
Total		12	12	8	280	80	40

Second Semester

الفصل الدراسي الثاني

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PAD -105	Separation Technique تقنيات الفصل	2 + 1	3	2	70	20	10
PAD -106	Electrochemistry الكيمياء الكهربية	2 + 1	3	2	70	20	10
PAD -107	Quality Assurance تأكيد الجودة	2 + 0	3	---	90	---	10
PAD -1EC	Elective course مقرر اختياري	2 + 0	3	---	90	---	10
PAD -1SE	Scientific Essay المقال العلمي	2	---	---	50	---	50
Total		12	12	4	370	40	90

Elective course (PA-1EC)

المقررات الاختيارية

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PAD -108	Food, Nutraceuticals and Cosmetics Analysis تحليل الأغذية والمكملات الغذائية و مستحضرات التجميل	2 + 0	3	---	90	---	10
PAD -109	Microbiological QC & QA-II مراقبة وتأكيد الجودة الميكروبيولوجية	2 + 0	3	---	90	---	10
PAD -110	Statistics and Biostatistics الإحصاء والإحصاء الحيوي	2 + 0	3	---	90	---	10
PAD -112	Physical Chemistry كيمياء طبيعية	2 + 0	3	---	90	---	10
Total		2	3	---	90	---	10



توصيف مقررات دبلوم (رقابة الجودة والتحليل الدوائي)(PAD-100)

Diploma Courses (Quality Control and Drug Analysis) (PAD-100)

First Semester

الفصل الدراسي الأول

Course Code	Course Title	Subject	Credit Hours (2 + 1)
PAD-101	Spectrometry	القياسات الطيفية	Credit Hours (2 + 1)
This course include: Absorption and emission spectroscopy, Ultraviolet visible and near infrared spectrometry instrumentation, Qualitative & quantitative methods., Fluorescence and phosphorescence spectrophotometry, Flame emission and atomic absorption spectroscopy, Infrared spectrometry., Nuclear magnetic resonance spectroscopy and mass spectrometry. Practical-Application on selected pharmaceuticals from the Egyptian market			
PAD-102	Quality Control of drugs	الرقابة النوعية للأدوية	Credit Hours (2 + 1)
Definition and terminology, Impurities, Sampling, Documentation, Writing and reading quality control report, Official methods of analysis, Stability- indicating methods of analysis, Stability of drugs			
PAD-103	Stability of Pharmaceutical Dosage Forms	ثبات للمستحضرات الصيدلانية المختلفة	Credit Hours (2 + 1)
Stability prediction by the pharmacist, stability calculations, interpretation of kinetic data, hydrolysis and other acyltransfers oxidation, strategy and tactics of stability testing. Reaction kinetics and drug stability, complexation and bioavailability, Practical course will be application on the theoretical studies and applied on certain products and dosage forms from the Egyptian market.			
PAD-104	Microbiological Quality Control	الرقابة الميكروبيولوجية	Credit Hours (2 + 1)
Microbiological Quality Control and Assurance of Non Sterile Preparations Good manufacturing practice, methods of Cultivation and Identification of Bacteria ,Fungi and Viruses , limits and tests for Microbial Contamination of non Sterile pharmaceutical Preparations, A-Air during manufacture B- Water for batching C-Raw Material and 4- Ingredients , Evaluation of preservatives Included Inside the non Sterile pharmaceutical Preparations , Microbiological Evaluation of some active Ingredients other than preservatives			

Second Semester

الفصل الدراسي الثاني

Course Code	Course Title	Subject	Credit Hours (2 + 1)
PAD-105	Separation Technique	تقنيات الفصل	Credit Hours (2 + 1)
HPLC: General introduction including: detectors, columns and injectors, The mobile phase: Separation processes, Techniques: Analytical, micro, preparative HPLC. Derivatization, ion- pairing and gradient HPLC. Developing an HPLC procedure. System suitability and validation parameters as compendial requirement for HPLC analysis. Data handling in HPLC. Application of HPLC in pharmaceutical analysis and forensic medicine., Trouble shooting and maintenance of HPLC chromatograph. Gas chromatography: Introduction, stationary phases and support materials, installing, conditioning and maintaining columns, use of retention indices, split and split-less injectors ,inlet systems large-volume injectors, cold on-column injector, and purge- and – trap injection, solid injection, gas pressure and flow control, detector systems and quantitative determination and applications. Capillary electrophoresis: Introduction to capillary electrophoresis, modes of capillary electrophoresis, instrumentation, analytical methods (quantification and validation), general application to drug analysis.			
PAD-106	Electrochemistry	الكيمياء الكهربائية	Credit Hours (2 + 1)
Potentiometry; Electrode potential, Types of electrodes; Application, Voltammetry; Polarography and its application, Stripping voltammetry and its classification and application.			
PAD-107	Quality Assurance	تأكيد الجودة	Credit Hours (2 + 0)
Introduction: GMP, GLP, QC, QA & technology associated with abbreviation and definitions, GAP and quality control management-laboratory performance & self inspection.-Control of quality variations, in-process quality control, finished product control, quality control during packaging operations, concept of statistical quality control, control and assurance of finished products, testing programs and methods. GMP and Quality control: raw materials, buildings, equipment, personnel, master and patch formula record, packaging and laboratory control. -Pharmacy legislations.			
PAD-108	Food, Nutraceuticals and Cosmetics Analysis	تحليل الأغذية والمكملات الغذائية و مستحضرات التجميل	Credit Hours (2 + 0)
Chemistry and composition of nutraceuticals and cosmetic analysis of nutraceuticals nutrients, baby food and cosmetics with emphasis on their methods of evaluation and their composition types of sutures and surgical dressings and with emphasis on their methods types of evaluation or analysis			



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PAD-109

Microbiological QC & QA-II

مراقبة وتأكد الجودة الميكروبيولوجية

Credit Hours (2 + 0)

Microbiological Quality Control and Assurance of Sterile Preparations Aseptic Techiques , Methods of Sterilization , Sterility tests , pyrogen testing , Microbial Endotoxin , pahogenicity and safety tests of vaccines , Microbial Toxins, Toxioids , Specific antitoxic Sera Immunoblins and Immunological and Microbial diagnostics tests , Microbiological Quality Control test of whole , blood constituents or derivatives including all safety , Microbiological Evaluation of active constituents of Sterile pharmaceutical Preparations .



مقررات دبلوم (تصميم الأدوية)(PDD-100)
Diploma Courses (Drug Design) (PDD-100)

First Semester

الفصل الدراسي الأول

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PDD -101	Principles of Drug Design أساسيات تصميم الدواء	2 + 1	3	2	70	20	10
PDD -102	Drug Targeting تهديد الدواء	2 + 1	3	2	70	20	10
PDD-103	Drug Metabolism الأيض الدوائي	2 + 1	3	2	70	20	10
PDD -104	Drug Regulations قواعد ترخيص الدواء	2 + 1	3	2	70	20	10
Total		12	12	8	280	80	40

Second Semester

الفصل الدراسي الثاني

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PDD -105	Drug Quality Control الرقابة النوعية للأدوية	2 + 1	3	2	70	20	10
PDD -106	Drug Synthesis تشبيد الأدوية	2 + 1	3	2	70	20	10
PDD -107	Advanced Topics in Drug Design موضوعات متقدمة في تصميم الأدوية	2 + 0	3	---	90	---	10
PDD -1EC	Elective course مقرر اختياري	2 + 0	3	---	90	---	10
PDD -1SE	Scientific Essay المقال العلمي	2	---	---	50	---	50
Total		12	12	4	370	40	90

Elective course (PD-1EC)

المقررات الاختيارية

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PDD -108	Drug Interactions تفاعلات الأدوية	2 + 0	3	---	90	---	10
PDD -109	Elucidation of Chemical Structure إثبات التركيب الكيميائي	2 + 0	3	---	90	---	10
Total		2	3	---	90	---	10



توصيف مقررات دبلوم (تصميم الأدوية)(PDD-100)
Diploma Courses (Drug Design) (PDD-100)

First Semester

الفصل الدراسي الأول

PDD-101 Principles of Drug Design	أساسيات تصميم الدواء	Credit Hours (2 + 1)
This course aims to provide students with an understanding of the process of drug discovery and development. It covers the basic principles of how new drugs are discovered with emphasis on lead identification, lead optimization, as well as structure-based drug design methods.		
PDD-102 Drug Targeting	تهديف الدواء	Credit Hours (2 + 1)
The course discusses the structures of different targets as lipid, carbohydrates, proteins, enzymes and nucleic acids, and describes different intermolecular bonding forces involved in drug–target interactions. It also includes some recent approaches in drug targeting.		
PDD-103 Drug Metabolism	الأيض الدوائي	Credit Hours (2 + 1)
The course concerns with the study of the basic principles of the chemical aspects of drug metabolism, as well as the role of drug metabolism in the design of prodrugs, drug delivery systems and soft drug formulations.		
PDD-104 Drug Regulations	قواعد ترخيص الدواء	Credit Hours (2 + 1)
This course is designed to provide knowledge on the process of getting a drug approved by regulatory authorities. The course will also help students to propose search engines and official websites that would facilitate searching for and collecting data on newly approved drugs.		

Second Semester

الفصل الدراسي الثاني

PDD-105 Drug Quality Control	الرقابة النوعية للأدوية	Credit Hours (2 + 1)
This course provides an orientation to the drug development process and a description about concept and scope of quality control process. All the major techniques used in the analysis of pharmaceuticals and the stability of drugs are widely introduced.		
PDD-106 Drug Synthesis	تشبيد الأدوية	Credit Hours (2 + 1)
This course explores the array of chemical reactions and strategies for the synthesis of a range of drugs.		
PDD-107 Advanced Topics in Drug Design	موضوعات متقدمة في تصميم الأدوية	Credit Hours (2 + 0)
This course covers, in depth, the chemical and biological considerations applied in the design of specific and selected drugs of versatile pharmacological activity.		
PDD-108 Drug Interactions	تفاعلات الأدوية	Credit Hours (2 + 0)
This course describes the drug interactions that occur when the efficacy or toxicity of a medication is changed by co-administration of another substance such as drug, food or herbal product. The course reviews the most significant drug interactions from a medicinal chemistry perspective.		
PDD-109 Elucidation of Chemical Structure	إثبات التركيب الكيميائي	Credit Hours (2 + 0)
The course concerns with the study of the principles and techniques of NMR, MS, IR, UV and their application in identification and characterization of organic compounds. The main objective of this course is to assist in developing the ability of the students to interpret spectra and to use the obtained information in structure elucidation.		



اللائحة البرامج الأكاديمية- الدراسات العليا- كلية الصيدلة جامعة المنصورة
(٢٠١٤)



مقررات دبلوم (الكيمياء الحيوية)(PBD-100)
Diploma Courses (Biochemistry) (PBD-100)

First Semester

الفصل الدراسي الأول

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PBD -101	Biochemistry (I) كيمياء حيوية (١)	2 + 1	3	2	70	20	10
PBD -102	Physiology and Pathology الفيولوجي والباثولوجي	2 + 1	3	2	70	20	10
PBD -103	Biochemistry Laboratory Techniques التقنيات المعملية للكيمياء الحيوية	2 + 1	3	2	70	20	10
PBD -104	Clinical Biochemistry(I) كيمياء حيوية إكلينيكية (١)	2 + 1	3	2	70	20	10
Total		12	12	8	280	80	40

Second Semester

الفصل الدراسي الثاني

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PBD -105	Chemistry and Diseases of Blood كيمياء الدم وأمراضه	2 + 1	3	2	70	20	10
PBD -106	Biochemistry(II) كيمياء حيوية (٢)	2 + 1	3	2	70	20	10
PBD -107	Clinical Biochemistry (II) كيمياء حيوية إكلينيكية (2)	2 + 0	3	---	90	---	10
PBD -1EC	Elective course مقرر اختياري	2 + 0	3	---	90	---	10
PBD -1SE	Scientific Essay المقال العلمي	2	---	---	50	---	50
Total		12	12	4	370	40	90

Elective course (PDD-1EC)

المقررات الاختيارية

Code No	Course Title	Credit Hours	Exam. Hours		Exam. Marks		
			Written	Practical	Written	Practical	Oral
PBD -108	Oncology and Tumor Markers الأورام ودلالاتها	2 + 0	3	---	90	---	10
PBD -109	Biotechnology التكنولوجيا الحيوية	2 + 0	3	---	90	---	10
Total		2	3	---	90	---	10



محتوي مقررات دبلوم (الكيمياء الحيوية)(PBD-100)
Diploma Courses (Biochemistry) (PBD-100)

First Semester		الفصل الدراسي الأول
PBD-101 Biochemistry (I)	كيمياء حيوية (١)	Credit Hours (2 + 1)
Biochemical functions of sub-cellular organelles and biomembranes. Chemistry of lipids. Chemistry of carbohydrates. Chemistry of amino acids and proteins. Enzymes. Vitamins. Minerals. Nucleotides and nucleic acids. Body fluids: blood, breast milk, cerebrospinal fluid, semen, urine.		
PBD-102 Physiology and Pathology	الفسيولوجي والباثولوجي	Credit Hours (2 + 1)
Kidney: Nephron, Glomerular filtration rate, Tubular reabsorption and secretion, Plasma clearance, Homeostatic function of kidney in regulation of H ⁺ concentration. Liver: General function, Bile pigment metabolism, Bile salts. Endocrinology: Mechanism of hormone action, Assessment of hormone function. Pancreas (function and disorders) and Reproduction. Introduction to pathology; recent advances. Inflammation: mechanisms and effects. Cell adaptation, injury, and cellular aging. Genetic disorders. Neoplasia: carcinogenesis and lab. Diagnosis. Liver disease. Major endocrine disorders; diabetes. Renal diseases: nephritis, renal failure.		
PBD-103 Biochemistry Laboratory Techniques	التقنيات المعملية للكيمياء الحيوية	Credit Hours (2 + 1)
Introduction to Molecular Biology Laboratory, Using the Computer and Internet for Research in Biochemistry, General Laboratory Procedures: accurate measurements, pH metery and sample storage, Centrifugation Techniques in Biochemistry/Molecular Biology, Purification and Analysis of Biomolecules by Chromatography, Characterization of Proteins and Nucleic Acids by Electrophoresis, Spectroscopic Analysis of Biomolecules, Immuno-techniques: ELISA, Immunohistochemistry, Molecular Biology I: Structures and Analysis of Nucleic Acids, Molecular Biology II: Recombinant DNA, Molecular Cloning and Enzymology Protein Production, Purification, and Characterization		
PBD-104 Clinical Biochemistry (I)	كيمياء حيوية إكلينيكية (١)	Credit Hours (2 + 1)
Interpreting and using laboratory data. Disturbances of Water. Sodium and potassium balance. Acid-base balance. Oxygen transport. Respiratory disorders. Diagnostic enzymology. Disorders of minerals, trace elements and vitamins metabolism. Cancer associated biochemical abnormalities. Porphyrins, hemoproteins, bile pigments and jaundice. Hepatobiliary disorders.		
Second Semester		الفصل الدراسي الثاني
PBD-105 Chemistry and Diseases of Blood	كيمياء الدم وأمراضه	Credit Hours (2 + 1)
Introduction to blood Blood groups, Blood cells, Hematopoiesis, Disorders of Erythrocytes, Disorders of Leukocytes, Hemostasis, Disorders of Platelets, Bleeding disorders, Thrombosis, Some blood diseases		
PBD-106 Biochemistry (II)	كيمياء حيوية (٢)	Credit Hours (2 + 1)
Respiration and Biological oxidation. Oxidative stress and antioxidants. Digestion and absorption of food components and biotransformation. Carbohydrate metabolism. Lipid metabolism. Protein metabolism. Inter-relationship between carbohydrate, lipid and protein metabolism		
PBD-107 Clinical Biochemistry (II)	كيمياء حيوية إكلينيكية (2)	Credit Hours (2 + 0)
Liver diseases and liver function tests. Renal diseases and kidney function tests. Disorders of carbohydrate metabolism. Disorders of amino acids and protein metabolism. Disorders of lipid metabolism. Cardiovascular disorders. Gastrointestinal and pancreatic disorders. Disorders of nucleic acids, purine and pyrimidine metabolism.		
PBD-108 Oncology and Tumor Markers	الأورام ودلالاتها	Credit Hours (2 + 0)
Cancer biology. The ideal tumor marker and its purpose.Types of tumor markers: Oncofetal proteins, Hormones, Enzymes, Tumor-associated antigens, Special proteins, Tissue-bound receptors, Genes and Miscellaneous markers. Biological factors that affect serum concentrations of tumor markers.,Tumor markers use and relation with tumors.		
PBD-109 Biotechnology	التكنولوجيا الحيوية	Credit Hours (2 + 0)
Introduction and historical review of biotechnology, Nucleic acids (DNA & RNA): Chemical structure, Gene expression (Replication, transcription and their regulation) and Protein synthesis and regulation, Biophysical and biochemical techniques for analysis and identification of nucleic acids and proteins: electrophoresis (nucleic acids and proteins), blotting techniques (Western, Eastern and Northern blotting), immunoassays, ELISA, ... etc.), Recombinant DNA technology, Applications of recombinant DNA in pharmaceutical industry and medicine. Current FDA approved biotechnology drugs such as human insulin, growth hormones and interferons.		