كلية الصيدلة

جامعة الزقازيق

اللائحة الداخلية
كلية الصيدلة- جامعة الزقازيق

برنامج
بكالوريوس الصيدلة (فارم دى- Pharm D)

طبقا لنظام الساعات المعتمدة

٢٠١٩

.

المحتوى

الأقسام العلمية:

تتكون الكلية من الأقسام الآتية :

١.	قسم الصيدلانيات	Pharmaceutics Department
٢.	قسم العقاقير	Pharmacognosy Department
٣.	قسم الكيمياء الدوائية	Medicinal Chemistry Department
٤.	قسم علم الأدوية والسموم	Pharmacology and Toxicology Department
٥.	قسم الكيمياء التحليلية	Pharmaceutical Analytical Chemistry Department
٦.	قسم الكيمياء العضوية الصيدلية	Pharmaceutical Organic Chemistry Department
٧.	قسم الكيمياء الحيوية	Biochemistry Department
٨.	قسم الميكروبيولوجي والمناعة	Microbiology and Immunology Department
٩.	قسم الممارسة الصيدلية	Pharmacy Practice Department

مواد اللائحة

مادة (١) :

رؤية البرنامج

التميز العلمي والتطوير المستمر لخدمة المنظومة الصحية العلاجية و الصناعة الدوائية و تحقيق التنمية المستدامة من أجل الوصول لمكانة مرموقة إقليميا وعالميا في مجال الصيدلة .

رسالة البرنامج

إعداد صيادلة مؤهلين أخلاقيا ومهنياً بأحدث المفاهيم الصيدلية التي تمكنهم من المساهمة في تطوير الصناعات الدوائية ورفع كفاءة منظومة الرعاية الصحية على المستوى المحلي والإقليمي في المستشفيات و الصيدليات الأهلية ومصانع وشركات الأدوية ومعامل الرقابة الدوائية وتحليل الأغذية بالإضافة إلى العمل في مجال الإعلام والتسويق الدوائي والمشاركة بفاعلية في البحث العلمي من خلال مراكز البحوث والجامعات لخدمة المجتمع.

أهداف البرنامج

- إعداد خريجين (صيادلة) متميزين و مؤهلين للعمل بالصيدليات العامة والخاصة ومصانع وشركات الأدوية ومعامل الرقابة الدوائية وتحليل الأغذية والعمل في مجال الإعلام والتسويق والبحوث والجامعات.
- التركيز على دور الصيدلي في تقديم الرعاية الصحية المناسبة للمريض بداخل المستشفيات وخارجها وترشيد استخدام الأدوية في المستشفيات.
- دعم ممارسة المهنة بمسؤولياتها و قوانينها وأخلاقياتها، واحترام حقوق المرضى.
- تقديم البرامج الدراسية والتدريبية المتميزة لزيادة القدرة التنافسية للخريجين على المستوى الإقليمي
- تطوير طرق التدريس من خلال التعليم التفاعلي والاهتمام بالتعلم الذاتي.
- الاهتمام بمهارات التواصل الفعال والقيادة والإدارة وريادة الأعمال
- .دعم برامج التعليم الصيدلي المستمر بهدف التنمية المهنية المستدامة
- دعم منظومة البحث العلمي والمشاركة في خدمة المجتمع وتنمية البيئة

مادة (٢) :

الدرجة العلمية التي تمنح للخريجين

يمنح مجلس الجامعة بناءً على طلب مجلس كلية الصيدلة درجة بكالوريوس الصيدلة (فارم دى- Pharm D) طبقا لنظام الساعات المعتمدة.

مادة (٣) :

التأهيل للدرجات الأكاديمية الأعلى:

درجة بكالوريوس الصيدلة (فارم دى- Pharm D) هى الدرجة الجامعية الأولى فى مجال الصيدلة اللازمة للحصول على ترخيص ممارسة المهنة فى جميع المجالات الصيدلية المتاحة ، كما تؤهل الخريج للتسجيل للدراسات العليا فى أى من الأقسام العلمية فى الكلية.

مادة (٤) :

نظـام الدراســة

مدة الدراسة بالبرنامج خمس سنوات دراسية (خمس مستويات على عشر فصول دراسية) طبقا لنظام الساعات المعتمدة وسنة تدريب متقدم (امتياز) فى مواقع العمل (٥+١). بالإضافة إلى عدد ١٠٠ ساعة تدريب ميدانى فعلية فى الصيدليات الأهلية والحكومية وصيدليات المستشفيات تتم خلال الأجازات الصيفية لسنوات الدراسة بعد نهاية المستوى الثالث و قبل البدء فى سنة الامتياز.

ينقسم كل مستوى (عام دراسي) إلى فصلين دراسيين (الخريف والربيع) ومدة كل فصل دراسي خمسة عشر أسبوعا. ويجوز طرح بعض المقررات في فصل دراسي صيفي مدته من ستة إلى ثمانية أسابيع من الدراسة المكثفة.

الساعة المعتمدة هي وحدة قياس دراسية وتعادل ساعة دراسية أسبوعية نظرية أو درساً عملياً لا تقل مدته عن ساعتين أسبوعياً وتدرس على مدى فصل دراسي واحد.

مادة (٥) :

تصميم البرنامج الدراسي

يتم تصميم البرنامج الدراسي بحيث يكون التعلم عن طريق المحاضرات النظرية وحلقات النقاش والدروس العملية و ورش العمل والتدريبات الميدانية و إجراء بحوث و تقديم العروض بالإضافة إلى التعاون مع المجتمع المحيط بالجامعة.

و يتم تصميم البرنامج الدراسي بحيث:

أولا : عدد الساعات المعتمدة 172 ساعة معتمدة ، بالإضافة إلى متطلبات الجامعة ٦ ساعات معتمدة.

ثانيا : عدد المقررات الإختيارية أربعة مقررات (٨ ساعات معتمدة) يتم اختيارها من القائمة. هذا بالإضافة إلى ١٠٠ ساعة تدريب صيفى فعلي يبدأ بنهاية المستوى الثالث و قبل البدء فى سنة الامتياز.

ثالثا: المقررات الاختيارية للطالب في المستويين الآخرين يجب ان تحقق له جدارات و مهارات تساعده على التوجه المهني والتخصص. وأن يكون أحد المقررات الإختيارية فى أحدى مجالات الصيدلة الإكلينيكية.

مادة (٦) :

التسجيل

تحدد الكلية لكل مجموعة من الطلاب مرشداً أكاديمياً من أعضاء هيئة التدريس يقوم بمهام الرعاية والإرشاد ويكون مسئولاً عن الطالب في الشئون العلمية والإجتماعية والنفسية وتوجيهه في كل ما يتعلق بحياته الجامعية ويقوم بمساعدة الطلاب في اختيار المقررات من قائمة المقررات التي تطرحها الكلية في كل فصل دراسي.

وعلى كل طالب أن يقوم شخصياً بتسجيل المقررات التي يرغب في دراستها في كل فصل دراسي مع ضرورة أن يتم اختيار المقررات وعدد الساعات المعتمدة بالتشاور والاتفاق مع المرشد الأكاديمي.

ويشترط لتسجيل المقرر أن يكون الطالب قد اجتاز بنجاح متطلب التسجيل لهذا المقرر.

ويجوز لمجلس الكلية في حالات الضرورة القصوى السماح للطالب بتسجيل بعض المقررات بالتوازي مع متطلباتها التي لم يجتازها الطالب بنجاح إذا قل العبء الدراسي المتاح للطالب عن ١٢ ساعة معتمدة أو يكون

متطلب تخرج (أنظر التالي – فقرة أ – العبء الدراسي) ، على أن يتم كتابة إقرار بمعرفة ولي أمر الطالب بأنه لن يتم اعتماد نجاحه في هذا المقرر إلا بعد اجتياز متطلبه الذي سمح له بالتسجيل فيه بالتوازي.
وينبغى أن يملأ الطالب نموذج تسجيل المقررات في الأوقات المحددة حسب التقويم الجامعي المعلن لكل فصل دراسي ولا يجوز الانتظام في الدراسة إلا بعد انتهاء عملية التسجيل.
لا يسمح للطالب بالتسجيل المتأخر عن الأوقات المحددة إلا بعذر قهري يقبله عميد الكلية وعلى ألا تزيد مدة التأخير عن أسبوعين من نهاية فترة التسجيل.

أ) العـبء الدراســي :

العبء الدراسي هو عدد الساعات المعتمدة التي يقوم الطالب بتسجيلها في الفصل الدراسي الواحد ويجب مراعاة ألا يقل العبء الدراسي المسجل للطالب في أي فصل دراسي عن ١٢ ساعة معتمدة وألا يزيد عن ٢٢ ساعة معتمدة و على الا يزيد العبء الدراسي للطالب المتعثر عن ١٢ ساعة معتمدة (أنظر مادة ١٣) .
العبء الدراسي خلال الفصل الصيفي بحد أقصى ١٠ ساعات معتمدة.
ويجوز لمجلس الكلية السماح للطالب في أخر فصلين دراسيين بزيادة العبء الدراسي عن الحد الأقصى وبما لا يتجاوز عدد ٣ ساعات معتمدة (يستفيد منها الطالب لمرة واحدة).

ب) الإضافة والحذف والانسحاب :

يجوز للطالب بعد إستكمال إجراءات التسجيل أن يضيف أو يحذف إلى ساعاته المعتمدة مقرراً أو أكثر في أي فصل دراسي على أن يكون ذلك في خلال الفترات المحددة حسب التقويم الجامعي المعلن لكل فصل دراسي مع مراعاة الحد الأدنى والحد الأقصى للعبء الدراسي.
كما يجوز للطالب بعد تسجيله الإنسحاب من مقرر أو أكثر في أي فصل دراسي دون أن يعتبر راسباً في هذا المقرر وذلك إذا تقدم بطلب الانسحاب خلال الفترات المحددة حسب التقويم الجامعي المعلن لكل فصل دراسي.
ومن ينسحب بعد هذه الفترة المحددة يعتبر راسباً.

مادة (٧) :

أ) المواظــبة

على الطالب أن يواظب على حضور المحاضرات النظرية وحلقات النقاش والدروس العملية والتدريبات الميدانية و التكليفات، ولمجلس الكلية بناءً على طلب مجالس الأقسام العلمية المختصة أن يحرم الطالب من التقدم للامتحان التحريري النهائي إذا تجاوزت نسبة غيابه ٢٥% من إجمالي الساعات المعتمدة لكل مقرر.

ب) حضور الامتحانات والتغيب عنها والإخلال بنظامها

يجب على الطالب أداء الامتحانات التحريرية النهائية في المواعيد المقررة لها حسب التقويم الجامعي المعلن لكل فصل دراسي ، ويعتبر الطالب المتغيب عن الامتحان التحريري النهائي راسبا في المقررات التي تغيب عن أداء الامتحان فيها. لا يعتبر الطالب راسبا في حالة التغيب بعذر قهري يقبله مجلس الكلية.

مادة (٨) :

لغــة الدراســة

الدراسة في البرنامج باللغة الانجليزية. ويجوز مع ذلك تدريس بعض المقررات باللغة العربية بناءً على توصية القسم العلمي المختص وموافقة مجلسي الكلية والجامعة.

مادة (٩) :

التدريــب الميداني الاولى و التدريب الميدانى المتقدم (سنة الامتياز)

أ-التدريب الميدانى الأولى :

على الطالب أن يكمل فترة تدريب ميداني أولى بإجمالي عدد ١٠٠ ساعة تدريب فعلية فى الصيدليات الأهلية والحكومية وصيدليات المستشفيات التي يقرها مجلس الكلية وذلك تحت إشراف عضو هيئة تدريس و يتم التدريب خلال الأجازات الصيفية لسنوات الدراسة بعد نهاية المستوى الثالث وقبل البدء فى سنة الامتياز.

ب- التدريب الميدانى المتقدم (سنة الامتياز):

- على الطالب أن يكمل سنة الامتياز (عام أكاديمي) بعد الانتهاء من السنوات الدراسية بالتدريب فى شركات ومصانع الأدوية البشرية والبيطرية - شركات ومصانع المستلزمات والأجهزة الطبية ومستحضرات التجميل والمكملات الغذائية والأعشاب والنباتات الطبية والمطهرات والمبيدات - شركات التوزيع ومخازن الأدوية - مراكز وهيئات الرقابة والمتابعة الدوائية المحلية والعالمية
- (MOH-CAPA-NODCAR-…;WHO, FDA, EMA..etc) - مراكز البحوث الصيدلية والطبية والإتاحة الحيوية والدراسات السريرية (CROs)- الأعلام والتسويق الدوائى..... إلخ ، بالإضافة إلى المستشفيات والصيدليات الخاصة والحكومية .ويمكن لمن يرغب فى التخصص فى المجال الأكاديمى (التدريس والبحث) قضاء فترة تدريبية فى كليات الصيدلة اومراكز البحوث . ويجب أن يشمل برنامج التدريب دورة تدريبية واحدة من دورات التدريب الإكلينيكى.

مادة (١٠) :

شروط القبول

يشترط فيمن يتقدم للالتحاق بالبرنامج أن يستوفي كافة الشروط التي يحددها المجلس الأعلى للجامعات.

يجوز قبول تحويل الطلاب المقيدين ببرنامج مماثل في إحدى كليات الصيدلة بالجامعات المصرية أو الأجنبية بشرط استيفاء الطالب لمتطلبات القبول بالكلية وتحتسب للطالب المقررات التي درسها في الكلية المحول منها وفقاً للقواعد التي يحددها مجلس الكلية.

مادة (١١) :

نظـــام التقييـــم

تتكون الدرجة النهائية للمقرر من مجموع درجات الأعمال الفصلية والعملية والتحريرية والشفهية كما هو موضح بجداول الخطة الدراسية.

الحد الأدنى للنجاح في أي مقرر هو ٦٠% من مجموع درجات هذا المقرر ، ولا يكون الطالب ناجحاً في أي مقرر إلا إذا حصل على ٣٠% من درجة الامتحان التحريري النهائي ، وتكون النسبة المئوية للدرجات النهائية والتقديرات كما هو مبين بالجدول التالي.

نظـام التقيـــيم

النسبة المئوية	عدد النقاط	الرمز	التقدير
٩٥ فأكثر	٤	A^+	ممتاز
٩٠ لأقل من ٩٥	٣،٨٥	A	
٨٥ لأقل من ٩٠	٣،٧	A^-	
٨٢،٥ لأقل من ٨٥	٣،٣	B^+	جيد جدا
٧٧،٥ لأقل من ٨٢،٥	٣	B	
٧٥ لأقل من ٧٧,٥	٢،٧	B^-	
٧٢،٥ لأقل من ٧٥	٢،٣	C^+	جيد
٦٧،٥ لأقل من ٧٢،٥	٢	C	
٦٥ لأقل من ٦٧،٥	١,٧	C^-	
٦٢،٥ لأقل من ٦٥	١،٣	D^+	مقبول
٦٠ لأقل من ٦٢،٥	١	D	
أقل من ٦٠	٠،٠٠	F	راسب
منسحب	-	W	منسحب
غير مكتمل	-	I*	غير مكتمل
غائب	-	Abs E**	غائب

I* : يحصل الطالب على هذا الرمز إذا كانت نسبة الحضور مستوفاة وتعذر عليه دخول الإمتحان التحريري النهائي والشفهي (إن وجد) لمقرر دراسي أو أكثر في ذات الفصل الدراسي لأسباب قهرية يقبلها مجلس الكلية ، وعليه أداء الإمتحان التحريري النهائي والشفهي (إن وجد) فى الفصل الدراسي التالي مع الإحتفاظ بالتقدير.

Abs E** : يحصل الطالب على هذا الرمز إذا لم يتمكن من دخول الإمتحان التحريري النهائي والشفهي (إن وجد) في الموعد السالف ذكره في الفقرة السابقة (I) لعدم زوال السبب القهري ويتحتم على الطالب التسجيل في هذا المقرر عند طرحه مرة أخرى ودراسته كاملاً مع الاحتفاظ بالتقدير.

توجد رموز أخرى للتقييم لا تقابلها نقاط – تستخدم في بعض متطلبات التخرج - وهي:

S: مستوى مرضي

U: مستوى غير مرضي

T: درجات حصل عليها طالب محول من كلية صيدلة أخرى

يتم حساب المعدل الفصلي للطالب (GPA) والمعدل التراكمي (cGPA) على النحو التالي:

أ- يتم ضرب قيمة تقدير كل مقرر دراسي (النقاط الموضحة في الجدول السابق) في عدد الساعات المعتمدة لهذا المقرر لنحصل على عدد النقاط الخاصة بكل مقرر في الفصل الدراسي.

ب- يتم جمع نقاط كافة المقررات الدراسية التي سجل فيها الطالب في الفصل الدراسي الواحد.

ج- يتم قسمة مجموع نقاط كافة المقررات الدراسية على إجمالي الساعات المعتمدة المسجلة للطالب فى الفصل الدراسى الواحد وذلك بغرض الحصول على المعدل الفصلي كما يلي:

$$\text{المعدل الفصلي (GPA)} = \frac{\text{مجموع نقاط كافة المقررات الدراسية في الفصل الدراسي الواحد}}{\text{إجمالى الساعات المعتمدة المسجلة في الفصل الدراسي الواحد}}$$

ويتم حساب المعدل التراكمي كما يلي:

$$\text{المعدل التراكمي (cGPA)} = \frac{\text{مجموع نقاط كافة المقررات الدراسية لكافة الفصول الدراسية}}{\text{إجمالى الساعات المعتمدة المسجلة لكافة الفصول الدراسية}}$$

مادة (١٢) :

الرسـوب في المقـررات

- في حالة تغيب الطالب بدون عذر يقبله مجلس الكلية عن أداء الامتحان التحريري النهائي.
- إذا حصل الطالب على أقل من ٣٠% من درجة الامتحان التحريري النهائي.
- عدم تحقيق ٦٠ % على الأقل من مجموع درجات المقرر.
- إذا رسب الطالب في أي مقرر إجباري في أي فصل دراسى فعليه دراسة ذات المقرر والامتحان فيه عند طرحه مرة أخرى ، أما إذا رسب في مقرر إختياري فبإمكانه إعادة دراسته أو دراسة مقرر إختياري آخر بديل لإكمال متطلبات التخرج ، وذلك بعد موافقة المرشد الأكاديمي واعتماد مجلس الكلية .
- يحسب للطالب التقدير D بعد رسوبه و دخوله مرة ثانية
- الفصل الدراسي الصيفي هو فصل إختياري للطالب و الكلية علي حد سواء

مادة (١٣) :

التعثر الأكاديمي

يعتبر الطالب متعثر اكاديميا إذا حصل على معدل فصلي (GPA) أقل من "١".

الطالب الذي يحصل على معدل فصلي (GPA) أقل من "١" لمدة ستة فصول دراسية متصلة أو في عشرة فصول دراسية غير متصلة يفصل من الكلية وذلك بعد العرض والموافقة من مجلس الكلية ولا يؤخذ في الإعتبار الفصول الصيفية إن وجدت.

يسمح للطالب المتعثر أن يعيد دراسة المقررات التي اجتازها بتقدير D وذلك لتحسين المعدل التراكمي وتحتسب الدرجة الأعلى التي يحصل عليها الطالب.

مادة (١٤) :

الانقطاع عن الدراسة

يعتبر الطالب منقطعاً عن الدراسة إذا لم يسجل في فصل دراسى أو انسحب من الفصل سواء ذلك بعذر أو بدون عذر.
ويجوز أن ينقطع الطالب فصلين دراسيين متتاليين أو ثلاثة فصول دراسية غير متتالية كحد أقصى بشرط الحصول على موافقة مجلس الكلية ، وفي حالة انقطاعه مدة أطول من ذلك بدون عذر يقبله مجلس الكلية ويوافق عليه مجلس الجامعة يطبق عليه النصوص الواردة باللائحة التنفيذية لقانون تنظيم الجامعات.

مادة (١٥) :

متطلبات الحصول على درجة بكالوريوس الصيدلة (فارم دى- Pharm D)

يتطلب الحصول على درجة بكالوريوس الصيدلة (فارم دى- Pharm D) طبقا لنظام الساعات المعتمدة او ما يعادله ما يلي:
أولا : دراسة واجتياز عدد الساعات المعتمدة 172ساعة معتمدة موزعة على عشرة فصول دراسية وتشمل متطلبات الكلية الإختيارية وتمثل عدد ٨ ساعات معتمدة ، على ألا يقل المعدل التراكمي عن اثنين.
ثانيا: إجتياز فترة تدريب ميداني أولى باجمالي عدد ١٠٠ ساعة تدريب فعلية فى الصيدليات الأهلية والحكومية وصيدليات المستشفيات التي يقرها مجلس الكلية وذلك تحت إشراف عضو هيئة تدريس و يتم التدريب خلال الأجازات الصيفية لسنوات الدراسة بعد نهاية المستوى الثالث وأن يكمل سنة الأمتياز (عام أكاديمى- ٩ أشهر) بعد الأنتهاء من سنوات الدراسة ، طبقا للائحة التفصيلية الخاصة ببرنامج تدريب سنة الامتياز والتى تشمل مشروع التخرج فى إحدى التخصصات المطروحة.
ثالثا : اجتياز ما قد تقرره الجامعة من متطلبات للتخرج على ألا يتضمنها حساب المعدل الفصلي أو التراكمي للطالب.

مادة (١٦) :

نظام تأديب الطلاب

الطلاب المقيدون بالبرنامج خاضعون للنظام التأديبى المبين في قانون تنظيم الجامعات المصرية ولائحته التنفيذية.

مادة (١٧) :

كود الأقسام ومتطلبات البرنامج الدراسي (أنظر مرفق رقم ١)

مادة (١٨) :

الخطة الدراسية (مرفق ٢)

مادة (١٩) :

محتوى المقررات الدراسية (أنظر مرفق ٣)

مادة (٢٠) :

يجوز تحديث نسبة لا تتجاوز ٢٠% من محتوى المقررات الدراسية بناء على أقتراح مجلس القسم العلمى المختص وموافقة مجلس الكلية واعتماد مجلس الجامعة بعد إبداء المبررات اللازمة .

مادة (٢١):

برنامج التدريب لسنة الأمتياز

مرفق ١

خاص بالمادة (١٧)

كود الأقسام ومتطلبات الجامعة والكلية والمقررات الإختيارية

١ـ كود الأقسام

Key for Course Abbreviations

PB	Biochemistry
PA	Pharmaceutical Analytical Chemistry
PR	Pharmaceutical Organic chemistry
PC	Medicinal Chemistry
PG	Pharmacognosy
PM	Microbiology and Immunology
PO	Pharmacology and Toxicology
PP	Pharmacy Practice
PT	Pharmaceutics
MD	Medical Courses
NP	Non professional
UR	University requirements

1. The letter ‘P’ means that the courses are offered to students of Pharmacy only.
2. The first digit represents the semester number.
3. The second and third digits represent the course number.

٢- **متطلبات الجامعة** :

مقررات لا تضاف للمجموع

University requirement courses (UR)

Course code	Course title	Credit hours
UR 101	English Language I	1+0
UR 102	Human Rights and Fighting of Corruption	1+0
UR 203	Psychology	1+0
UR 204	Principle of Quality Assurance	1+0
UR 205	English Language II	1+0
UR 006	Entrepreneurship	1+0
Total		6 hrs

Non professional Courses (NP)

Course code	Course title	Credit hours	Under supervision
NP 101	**Information Technology**	**1+1**	**Pharmacy Practice**
NP 102	**Mathematics**	**1+0**	**Faculty of Science**
NP 403	**Scientific Writing and Communication Skills**	**1+1**	**Pharmacy Practice**
NP404	**Pharmaceutical Legislations and Professional Ethics**	**1+0**	**Pharmaceutics**
NP 905	**Marketing & Pharmacoeconomics**	**1+0**	**Pharmacy Practice**
Total		**7**	

3- متطلبات الكلية

Faculty Requirements: See programme curriculum (Appendix 2)

Courses of Pharmaceutical Analytical Chemistry Department

Course code	Course title	Credit hours
PA 101	Pharmaceutical Analytical Chemistry I	2+1
PA 202	Pharmaceutical Analytical Chemistry II	2+1
PA 303	Pharmaceutical Analytical Chemistry III	1+1
PA 404	Instrumental Analysis	2+1
PA 005	Quality Control of Pharmaceuticals	2+1
Total		**14 hrs**

Courses of Pharmaceutical Organic Chemistry Department

Course code	Course title	Credit hours
PR 101	Pharmaceutical Organic Chemistry I	2+1
PR 202	Pharmaceutical Organic Chemistry II	2+1
PR 303	Pharmaceutical Organic Chemistry III	2+1
PR 404	Raw materials	1+1
Total		**11 hrs**

Courses of Medicinal Chemistry Department

Course code	Course title	Credit hours
PC 501	Medicinal Chemistry I	2+1
PC 602	Medicinal Chemistry II	2+1
PC 703	Medicinal Chemistry III	2+1
PC 804	Drug Design	1+1
Total		**11 hrs**

Courses of Biochemistry Department

Course code	Course title	Credit hours
PB 201	Cell Biology	1+1
PB 402	Biochemistry I	2+1
PB 503	Biochemistry II	2+1
PB 704	Clinical Biochemistry	2+1
Total		**11 hrs**

Courses of Pharmacognosy Department

Course code	Course title	Credit hours
PG101	Medicinal Plants	2+1
PG 202	Pharmacognosy I	2+1
PG 303	Pharmacognosy II	2+1
PG 504	Phytochemistry I	2+1
PG 605	Phytochemistry II	2+1
PG 706	Applied & Forensic Pharmacognosy	1+1
PG 907	Phytotherapy and Aromatherapy	2+1
Total		**20 hrs**

Courses of Microbiology and Immunology Department

Course code	Course title	Credit hours
PM 301	General Microbiology and Immunology	2+1
PM 502	Pharmaceutical Microbiology	2+1
PM 603	Parasitology & Virology	2+1
PM 704	Medical Microbiology	2+1
PM 805	Biotechnology and Molecular Biology	2+1
PM 006	Public Health and Preventive Medicine	2+0
Total		**17 hrs**

Courses of Pharmacology and Toxicology Department

Course code	Course title	Credit hours
PO 401	Pharmacology I	2+1
PO 502	Pharmacology II	2+1
PO 603	Pharmacology III	2+1
PO 704	Pharmacology IV	1+1
PO 805	Basic & Clinical Toxicology	2+1
PO 906	Drug Information	1+0
PO 007	Biostatistics	1+0
Total		**16 hrs**

Courses of Pharmaceutics Department

Course code	Course title	Credit hours
PT 101	Pharmacy Orientation	1+0
PT 202	Physical Pharmacy	2+1
PT 303	Pharmaceutics I	2+1
PT 404	Pharmaceutics II	2+1
PT 505	Pharmaceutics III	2+1
PT 606	Pharmaceutics IV	2+1
PT 607	Biopharmaceutics and Pharmacokinetics	2+1
PT 708	Pharmaceutical Technology I	2+1
PT 809	Pharmaceutical Technology II	1+1
PT 910	Good Manufacturing Practice	1+1
PT 011	Advanced Drug Delivery System	2+0
Total		**28 hrs**

Courses of Pharmacy Practice Department

Course code	Course title	Credit hours
PP 801	Clinical Pharmacokinetics	2+1
PP 802	Hospital Pharmacy	1+1
PP 903	Clinical Pharmacy and Pharmacotherapeutics I	2+1
PP 904	Community Pharmacy Practice	2+1
PP 005	Clinical Pharmacy and Pharmacotherapeutics II	1+1
PP 006	Drug Interaction	1+1
PP 007	Clinical Research Methodology & Pharmacovigilance	1+1
Total		**17 hrs**

Medical Courses

Course code	Course title	Credit hours	Department
MD 101	Medical terminology	1+0	Pharmacology
MD 202	Anatomy and Histology*	2+1	Faculty of Medicine
MD 303	Biophysics	1+1	Biochemistry
MD 304	Physiology & Pathophysiology	2+1	Pharmacology
MD 405	Pathology	1+1	Microbiology
MD 906	First Aid and Basic Life Support**	1+0	Faculty of Medicine

*** تحت اشراف علم الادوية والسموم**

**** تحت إشراف قسم الممارسة الصيدلية**

Elective Courses **مقررات اختيارية**

The Faculty of Pharmacy offers elective courses from which the students are free to select eight credit hours.

Course Code	Course Title	Credit Hours			Prerequisite
		L	P/T	Total	
PM E 07	Gene Regulation and Epigenetic	1	1	2	General Microbiology and Immunology
PM E 08	Infection Control	1	1	2	Pharmaceutical Microbiology
PG E 08	Chromatography and Separation Techniques	1	1	2	Instrumental Analysis
PG E 09	Analysis of Food and Flavor	1	1	2	Phytochemistry II
PA E 06	Advanced Pharmaceutical Analysis – Spectroscopy	1	1	2	Instrumental Analysis
PO E 08	Veterinary Pharmacology	1	1	2	Pharmacology IV
PO E 09	Biological Standardization	1	1	2	Pharmacology III
MD E 07	Bioinformatics	1	1	2	Biotechnology &Molecular Biology
PP E 08	Oncology	1	1	2	Pharmacology IV
PP E 09	Pediatrics & Geriatric	1	1	2	Pharmacology IV
PT E 012	Cosmetic Preparations	1	1	2	Pharmaceutics III
PT E 013	Applied Industrial Pharmacy	1	1	2	Pharmaceutical Technology
PB E 05	Clinical Nutrition	1	1	2	Clinical Biochemistry

L: Lecture P: Practical T: Tutorial

- لمجلس الكلية طرح المقررات الإختيارية من الامثلة المذكورة بالجدول السابق في كل مستوى/فصل دراسي وذلك بعد إختيار الطلاب وتخطر مجالس الأقسام العلمية المختصة ويمكن للكلية إضافة مقررات إختيارية أخرى ويشترط موافقة مجلس الجامعة بعد إبداء المبررات اللازمة.

مرفق رقم ٢
خاص بالمادة رقم (١٨)
الخطة الدراسية

17- Programme Curriculum (6 cr. Hours of university requirements + 172 Cr hours of professional program)

Table (1)

Semester (1)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract.	Total		Period/Act.	Pract.	Wr.	Oral		
Pharmaceutical Analytical Chemistry I	PA 101	2	1	3	Registration	15	25	50	10	100	2
Pharmaceutical Organic Chemistry I	PR 101	2	1	3	Registration	15	25	50	10	100	2
Pharmacy Orientation	PT 101	1	-	1	Registration	25	--	75	---	100	1
Medicinal Plants	PG 101	2	1	3	Registration	15	25	50	10	100	2
Medical Terminology	MD 101	1	-	1	Registration	25	-	75	-	100	1
Information Technology***	NP 101	1	1	2	Registration	15	25	60	-	100	1
Mathematics	NP 102	1	---	1	Registration	25	--	75	--	100	1
English language-I	UR 101	1	---	1	Registration	25	---	75	---	pass	1
Human Rights and Fighting of Corruption	UR 102	1	---	1	Registration	25	--	75	--	pass	1
Total		12	4	16						700	

❍ ***Lect.*** = Lecture , ***Period. /Act.***= Periodical/Activity ,***Pract.*** = Practical, ***Wr.*** = Written, UR: مقررات لا تضاف للمجموع *** supervised by pharmacy practice department

Table (2)

Semester (2)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract.	Total		Period./Act.	Pract.	Wr.	Oral		
Pharmaceutical Analytical Chemistry II	PA 202	2	1	3	Pharmaceutical Analytical Chemistry I	15	25	50	10	100	2
Pharmaceutical Organic Chemistry II	PR 202	2	1	3	Pharmaceutical Organic Chemistry-I	15	25	50	10	100	2
Anatomy& Histology	MD 202	2	1	3	Registration	15	25	60	-	100	2
Physical Pharmacy	PT 202	2	1	3	Registration	15	25	50	10	100	2
Pharmacognosy I	PG 202	2	1	3	Medicinal Plants	15	25	50	10	100	2
Psychology	UR 203	1	-	1	Registration	25	-	75	-	pass	1
Cell Biology	PB 201	1	1	2	Registration	15	25	50	10	100	1
Principle of Quality	UR 204	1	-	1	Registration	25	-	75	-	pass	1
English language-II	UR 205	1	-	1	English Language-I	25	-	75	-	pass	1
Total		14	6	20						600	

❍ ***Lect.*** = Lecture ***Period/Act.***= Periodical/Activity, ***Pract.*** = Practical, ***Wr.*** = Written, UR: مقررات لا تضاف للمجموع

Table (3)

Semester (3)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract.	Total		Period/Act..	Pract.	Wr.	Oral		
Pharmaceutical Analytical Chemistry III	PA 303	1	1	2	Pharmaceutical Analytical Chemistry-II	15	25	50	10	100	1
Pharmaceutical Organic Chemistry III	PR 303	2	1	3	Pharmaceutical Organic Chemistry-II	15	25	50	10	100	2
Pharmacognosy II	PG 303	2	1	3	Pharmacognosy-I	15	25	50	10	100	2
Biophysics	MD 303	1	1	2	Registration	15	25	50	10	100	1
Physiology and Pathophysiology	MD 304	2	1	3	Registration	15	25	50	10	100	2
General Microbiology and Immunology	PM 301	2	1	3	Cell Biology	15	25	50	10	100	2
Pharmaceutics I	PT 303	2	1	3	Physical Pharmacy	15	25	50	10	100	2
Total		12	7	19						700	

❍ ***Lect.*** = Lecture, ***Period/Act.*** = Periodical /Activity, ***Pract.*** = ***P***ractical ***Wr.*** = Written

Table (4)

Semester (4)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract.	Total		Period./Act.	Pract.	Wr.	Oral		
Biochemistry I	PB 402	2	1	3	Pharmaceutical Organic Chemistry II	15	25	50	10	100	2
Instrumental Analysis	PA 404	2	1	3	Pharmaceutical Analytical Chemistry III	15	25	50	10	100	2
Pathology	MD 405	1	1	2	Anatomy &Histology	15	25	50	10	100	1
Pharmaceutics II	PT 404	2	1	3	Pharmaceutics I	15	25	50	10	100	2
Pharmacology-1	PO 401	2	1	3	Physiology	15	25	50	10	100	2
Raw material	PR 404	1	1	2	Pharmaceutical Organic Chemistry-III	15	25	50	10	100	1
Scientific Writing and Communication skills*	NP 403	1	1	2	English Language II	15	25	60	---	100	1
Pharmaceutical Legislations and Professional ethics**	NP 404	1	-	1	Registration	25	-	75	-	100	1
Total		12	7	19						800	

- ***Lect.*** = Lecture, ***Period./Act.*** = Periodical /Activity, ***Pract.*** = Practical, ***Wr.*** = Written
- * Taught by pharmacy practice department ** Taught by pharmaceutics department

Table (5)

Semester (5)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract.	Total		Period./Act.	Pract.	Wr.	Oral		
Biochemistry II	PB 503	2	1	3	Biochemistry I	15	25	50	10	100	2
Pharmaceutical Microbiology	PM 502	2	1	3	General Microbiology and Immunology	15	25	50	10	100	2
Phytochemistry I	PG 504	2	1	3	Pharmacognosy II	15	25	50	10	100	2
Pharmaceutics III	PT 505	2	1	3	Pharmaceutics II	15	25	50	10	100	2
Medicinal Chemistry I	PC 501	2	1	3	Pharmaceutical organic III	15	25	50	10	100	2
Pharmacology II	PO 502	2	1	3	Pharmacology I	15	25	50	10	100	2
Total		12	6	18						600	

❍ ***Lect.*** = Lecture, ***Period./Act.*** = Periodical/Activity, ***Pract.*** = Practical, ***Wr.*** = Written

Table (6)

Semester (6)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract.	Total		Period./Act.	Pract.	Wr.	Oral		
Parasitology and Virology	PM 603	2	1	3	General Microbiology and Immunology	15	25	50	10	100	2
Pharmaceutics IV	PT 606	2	1	3	Physical Pharmacy	15	25	50	10	100	2
Biopharmaceutics and Pharmacokinetics	PT 607	2	1	3	Pharmaceutics III	15	25	50	10	100	2
Phytochemistry II	PG 605	2	1	3	Phytochemistry-I	15	25	50	10	100	2
Pharmacology III	PO 603	2	1	3	Pharmacology-II	15	25	50	10	100	2
Medicinal Chemistry II	PC 602	2	1	3	Medicinal Chemistry - I	15	25	50	10	100	2
Total		12	6	18						600	

❍ ***Lect.*** = Lecture, ***Period/Act.*** = Periodical/Activity , ***Pract.***= Practical, ***Wr.*** = Written

Table (7)

Semester (7)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract.	Total		Period./Act.	Pract.	Wr.	Oral		
Clinical Biochemistry	PB 704	2	1	3	Biochemistry II	15	25	50	10	100	2
Medical Microbiology	PM 704	2	1	3	General Microbiology and Immunology	15	25	50	10	100	2
Pharmacology IV	PO 704	1	1	2	Pharmacology III	15	25	50	10	100	1
Applied & Forensic Pharmacognosy	PG 706	1	1	2	Phytochemistry-II	15	25	50	10	100	1
Medicinal Chemistry III	PC 703	2	1	3	Medicinal Chemistry II	15	25	50	10	100	2
Pharmaceutical Technology I	PT 708	2	1	3	Pharmaceutics IV	15	25	50	10	100	2
Elective	PE	1	1	2	Prerequisite	15	25	50	10	100	1
Total		11	7	18						700	

❍ ***Lect.*** = Lecture, ***Period./Act.*** = Periodical /Activity, ***Pract.*** = Practical, ***Wr***= Written

Table (8)

Semester (8)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract.	Total		Period./Act.	Pract.	Wr.	Oral		
Clinical Pharmacokinetics	PP 801	2	1	3	Biopharmaceutics and Pharmacokinetics	15	25	50	10	100	2
Drug Design	PC 804	1	1	2	Pharmaceutical Organic Chemistry III	15	25	50	10	100	1
Basic & Clinical Toxicology	PO 805	2	1	3	Pharmacology IV	15	25	50	10	100	2
Biotechnology & Molecular biology	PM 805	2	1	3	Pharmaceutical Microbiology	15	25	50	10	100	2
Hospital Pharmacy	PP 802	1	1	2	Pharmacology II Pharmaceutics IV	15	25	50	10	100	1
Pharmaceutical Technology II	PT 809	1	1	2	Pharmaceutical Technology I	15	25	50	10	100	1
Elective	PE ---	1	1	2	Prerequisite	15	25	50	10	100	1
Total		10	7	17						700	

❍ ***Lect.*** = Lecture , ***Period./Act.*** = Periodical/Activity, ***Pract.*** = Practical, ***Wr.*** = Written

Table (9)

Semester (9)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract.	Total		Period./Act.	Pract.	Wr.	Oral		
Clinical Pharmacy & Pharmacotherapeutics I	PP 903	2	1	3	Basic & Clinical Toxicology	15	25	50	10	100	2
Drug Information	PO 906	1	0	1	Pharmacology-III	15	25	60	---	100	1
Community Pharmacy Practice	PP 904	2	1	3	Pharmacology III	15	25	50	10	100	2
Phytotherapy and Aromatherapy	PG 907	2	1	3	Applied & Forensic Pharmacognosy	15	25	50	10	100	2
Good Manufacturing Practice	PT 910	1	1	2	Pharmaceutical technology, Quality control of pharmaceutical	15	25	50	10	100	1
Marketing & Pharmacoeconomics***	NP 905	1	--	1	Hospital Pharmacy	25	---	75	--	100	1
First Aid and Basic Life Support	MD 906	1	--	1	Basic & Clinical Toxicology	15	25	60	--	100	1
Elective	PE ---	1	1	2	Prerequisite	15	25	50	10	100	1
Total		11	5	16						800	

❍ ***Lect.*** = Lecture, ***Period./Act.*** = Periodical /Activity, ***Pract.*** = Practical, ***Wr.*** = Written *** taught by pharmacy practice department

Table (10)

Semester (10)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract.	Total		Period./Act.	Pract.	Wr.	Oral		
Quality Control of Pharmaceuticals	PA 005	2	1	3	Instrumental analysis	15	25	50	10	100	2
Advanced Drug Delivery Systems	PT 011	2	-	2	Pharmaceutics III	25	-	75	-	100	2
Public Health and Preventive Medicine	PM 006	2	-	2	Medical Microbiology	25	--	75	--	100	2
Clinical pharmacy & Pharmacotherapeutics II	PP 005	1	1	2	Clinical Pharmacy & Pharmacotherapeutics I	15	25	50	10	100	1
Drug Interaction	PP 006	1	1	2	Pharmacology-III	15	25	50	10	100	1
Clinical Research methodology & Pharmacovigilance	PP 007	1	1	2	Drug information	15	25	60	-	100	1
Biostatistics	PO 007	1	--	1	Pharmacology-III	25	-	75	-	100	1
Entrepreneurship***	UR 006	1	-	1	Principle of quality assurance	25	-	75	-	pass	1
Elective	PE	1	1	2	Prerequisite	15	25	50	10	100	1
Total		12	5	17						800	

❍ ***Lect.*** = Lecture ***Period./Act.*** = Periodical/Activity ***Pract.*** = Practical ***Wr.*** = Written *** Taught by pharmacy practice department

مرفق ٣
خاص بالمادة (١٩)
محتوى المقررات الدراسية

Course Content

PA 101 Pharmaceutical Analytical Chemistry I (2+1)

Acid base reactions (theory, pH calculations, Buffer solutions, indicators, Color determination of pH, neutralization titration curves and their applications, Nonaqueous titrations), **Preciptimetry** (theory, solubility product principle, Detection of E.P. and applications of preciptimetric reactions), **Complexometry** (theory, complexometric indicators, Titration curves and applications of complexometric reactions), **Gravimetry** (theory, contamination and purification of precipitate, applications of gravimetric analysis).

.PA 202 Pharmaceutical Analytical Chemistry II (2+1)

Redox titrations (theory, oxidation potentials, Nernest equation, redox systems, factors affecting system potential, titration curves and determination of E.P , redox reactions involving I_2, Application of redox reactions), Electrochemistry: potentiometry (electrode potential, reference electrodes, indicator electrode), conductimetry (specific, equivalent, and ionic conductance, cell constant, applications), and polarography (ILkovic equation, dropping mercury electrodes, diffusion current, applications, derivatization polarography), Introduction to statistical analysis

PA 303 Pharmaceutical Analytical Chemistry III (1+1)

Environmental analysis, the role of analytical chemistry in the monitoring of pollutants, the analysis of water, solid, and atmospheric samples, ultra–trace analysis. Fat and oil (physical properties, composition and classification, Chemical properties, Rancidity, hydrogenation and analysis of butter fat).

PA 404 Instrumental Analysis (2+1)

Spectrometric methods of analysis including UV/visible spectroscopy (principal, instrumentation, and applications in pharmaceutical analysis), flame photometry (principal and instrumentation), spectrofluorometry (principal instrumentation, factors affecting fluorescence intensity and applications in pharmaceutical analysis). Chromatography (HPLC,UPLC, and GC).

PA 005 Quality Control of Pharmaceuticals (2+1)

Quality control & quality assurance, In process control and validation, Sampling, Analysis of raw materials & pharmaceuticals using reference standard, Pharmacopial methods of stability and stability testing of drugs, Validation of analytical method , ISO and BSI

PR 101 Pharmaceutical Organic Chemistry I (2+1)

The objective of this course is to provide students with the basic knowledge in pharmaceutical organic chemistry, which will serve as fundamentals for other courses offered during subsequent semesters. This course involves Electronic structure of atom, alkanes [nomenclature, synthesis and reactions (free radical reactions)], and cycloakanes. Stereochemistry (Optical isomers, racemic modification, nomenclature of configurations). Alkenes, alkadienes and alkynes. Alkyl halides (nomenclature, preparation and chemical reactions (S_N1, S_N2, E_1, E_2). Arenes and aromatic compounds (Kekule structure, Huckel rule, Electrophilic aromatic substitution and orientation).

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PR 202 Pharmaceutical Organic Chemistry II (2+1)

This course involves different classes of organic compounds: aryl halides, Alcohols, Phenols, ethers & epoxides, aldehydes, ketones, carboxylic acid & acid derivatives, sulphonic acids, and nitrogenous compounds.

PR 303 Pharmaceutical Organic Chemistry III (2+1)

This course involves: carbohydrates, , polynuclear and heterocyclic chemistry. In addition, it provides an introduction about the use of different spectroscopic tools, including UV, infrared (IR), nuclear magnetic resonance (NMR) and mass spectrometry (MS) for the structural elucidation of organic compounds.

PR 404 Raw Materials (1+1)

This course involves the types of pharmaceutical raw materials, Functional group characteristics and roles of pharmaceutical raw materials , Active pharmaceutical ingredients (Antibiotics , Blood products , Synthetic drugs) , Peptidomimetic compounds (API) , Monocyclic aromatic compounds (API) , Carbocyclic compounds fused to benzene rings (API) , Bicyclic fused heterocycles (API), Polycyclic fused heterocycles (API) , Cross index of biological activity of pharmaceutical raw materials , Research and production of new active entities of drugs , Raw material for organic pharmaceutical industries.

PC 501 Medicinal Chemistry-1 (2+1)

This course enables the student to study various Medicinal Chemistry aspects of chemotherapeutic drugs as well as related drugs such as those combating pain and

inflammation. The following topics will be addressed: Introduction to chemotherapy, antibacterial agents, antiviral agents, antifungal agents, antiparasitic agents, and antineoplastic agents.

PC 602 Medicinal Chemistry II (2+1)

This course enables the student to study various Medicinal Chemistry aspects of the drugs acting on the central and peripheral nervous systems and related cardiovascular drugs, and diuretics. The following topics will be addressed: Medicinal Chemistry of general anaesthetics, anxiolytics, antiepileptics, antipsychotics, antidepressants, antiparkinsonism agents, anti-Alzheimer's agents, autonomic drugs, antihypertensive agents, antianginal agents, antiarrhythmic agents, antihyperlipidimic agents, and diuretics.

PC 703 Medicinal Chemistry III (2+1)

This course enables the student to study various Medicinal Chemistry aspects of drugs acting on metabolic and endocrine disorders, as well as related agents. The following topics will be addressed: hormones and related agents, antidiabetic agents, antiallergic agents, antiulcer agents, non-steroidal anti-inflammatory drugs, and opioid analgesics.

PC 804 Drug design (1+1)

This course aims to provide students with basic knowledge of the process of drug discovery and development from the identification of new target macromolecules to the introduction of new chemical entities into drug market. The following topics will be addressed: lead identification, lead optimization, and drug action at receptors, drug action on enzymes, prodrug design and applications, as well as structure-based and computer-aided drug design methods. Also drug metabolism and quantitative structure activity relationship (QSAR)

PB 201 Cell Biology (1+1)

The course aims at studying the structure and function of prokaryotic and eukaryotic cells. In this course study will include many different areas of cellular biology involving: the structure and function of cell membrane and cellular organelles - The synthesis and function of macromolecules such as DNA, RNA, and proteins - control of gene expression - cell division - apoptosis and cancer biology

PB 402 Biochemistry I (2+1)

Proteins (protein structure, biologically important peptides – fate of proteins) – Amino acids as precursors for biosynthesis of biomolecules (e.g. neurotransmitters, nucleotides, …) – Carbohydrates (glycoproteins and proteoglycans - glucose transporters) – Lipids (physiologically important lipid molecules – cholesterol and steroids – lipoprotein metabolism) – Enzymology (enzyme kinetics – regulation – enzyme inhibitors as drugs) - Hemoglobin and porphyrins (Hb derivatives and types – metabolism of Hb and regulation) – Biological oxidation and ATP synthesis.

PB 503 Biochemistry II (2+1)

Metabolism and Energy production from dietary fuels (carbohydrates, lipids and proteins) –, Integration of metabolism (Feed/fast cycle – diabetes mellitus – obesity) – Nitrogen metabolism and nitrogen balance – Hormonal regulation of metabolism and clinical correlations., Inborn errors of metabolism - Biochemistry of aging and role of Free radicals and antioxidants.

PB 704 Clinical Biochemistry (2+1)

Biochemical/pathophysiological changes and laboratory diagnostic markers for disorders of (Endocrine glands – renal function – hepatic function – gastric function – bone and mineral metabolism - plasma proteins and lipoproteins - myocardial infarction) - Electrolytes, blood gases and acid/base balance - Handling, preservation, storage and analysis of biological samples – Homeostasis and biochemical aspects of hematology and blood analysis – Urine analysis – Tumor markers - Recent diagnostic biomarkers.

PG 101 Medicinal Plants (2+1)

The aim of the course is to provide students with knowledge necessary to identify and prepare a crude drug from the farm to the firm. Students should acquire knowledge concerning dusting powders, plant cell and cell contents. In this course, the student will study: importance of natural products, preparation of natural products-derived drugs including collection, storage, preservation and adulteration. The course will introduce the students to the different classes of secondary metabolites. In addition, the course will discuss and address the variability in occurrence of pharmacologically active substances in certain official medicinal leafy plants according to their WHO monographs. The course introduces students to some botanical drugsof leaves to identify examples of these drugs in their entire and powdered forms. Student will learn about the major constituents, folk uses and clinically proven uses.

PG 202 Pharmacognosy I (2+1)

Based on the Egyptian flora and other florae of wild and cultivated medicinal plants that are used in the pharmaceutical, cosmetic and food industries in the global & Egyptian market. The course introduces students to some botanical drugs of flower, seeds, bark and wood origin. During the lectures and practical sessions, students learn to identify examples of these drugs in their entire and powdered forms. Student will learn about the major constituents, folk uses, clinically proven uses, benefits, precautions of those medicinal plants.possible herbal-drug interactions of selected examples of these drugs and to have an overview over their phytopharmaceuticals available on the market specially the Egyptian market.

PG 303 Pharmacognosy II (2+1)

After completion of the course the student should have the knowledge and skills that enable the student to differentiate between different organs of through their monographs. The course comprises the study of identification of different organs through their monographs. (fruits,herbs, Subterranean organs, unorganized drugs in addition to drugs of marine and animal origin) , including identify their active constituents and adulterants describe micro- and macro-morphological characteristics, benefits and precautions of their medicinal uses., side effects and contraindications and to have an overview over their phytopharmaceuticals available on the market specially the Egyptian market.

PG 504 Phytochemistry I (2+1)

Based on complementary medicine and Egyptian medicinal plants that can be used as natural extracts, bioactive raw materials and phytochemical standards to serve the pharmaceuticals, cosmetics and food industries in Egypt. The course aims to gain students the knowledge and skills that enable them to understand, describe and deal with the chemistry of volatile oils, resins, miscellaneous terpenoids, bitters of plant or animal origin, carbohydrates and glycosides of plant or animal origin and different techniques used for their preparation, identification and determination.

PG 605 Phytochemistry II (2+1)

In continuation with Phytochemistry I, this course aims to enable students to demonstrate the knowledge and experience that enables her/ him to understand, describe and deal with the chemistry of alkaloids, tannins and antioxidants of plant, fungi or animal origin as well as techniques for their isolation, identification and determination in their respective sources. Finally, the course focuses on the structure activity relationships (SAR) of these natural products derived compounds and their pharmacophoric features. Also, the students should become aware of different chromatographic methods used for isolation and analysis of different plant constituents and their pharmacological actions and medicinal uses.

PG 706Applied & Forensic Pharmacognosy (1+1)

The course aims to provide pharmacy students with sufficient knowledge concerning quality control from herbal aspects,Sampling, structural, physical and analytical standards, purity, safety and adulteration of drugs and their detection. It also covers the modern chromatographic techniques employed for the evaluation of natural product and their products. It also provide the student with basic knowledge about the application of plant biotechnology for the production of pharmaceutically active materials.The course also include an overview on forensic pharmacognosy including plants and their natural products that constitute health hazards, or intended for criminal uses to produce, abortion, loss of mental control, hallucination, heart arrest.. Also it includes the study of drug dependents, narcotics, analgesics psych energetics, euphoric. Mycotoxin as a serious threat to general health and safety of community, contamination of food material with poisonous fungi.

PG 907 Phytotherapy and Aromatherapy (2+1)

Upon successful completion of this course, the students should be able to know guidelines for prescribing herbal medicinal drugs on the basis of the pharmacological properties of these drugs including therapeutic uses, mechanism of action, dosage, adverse reactions, contraindications & drug interactions. The course also allows students understand pharmacotherapeutic principles applied to the treatment of different diseases, pharmacovigilance and rational use of drugs. Also the student should understand the basis of complementary and alternative medicine with emphasis on herbal remedies, nutritional supplements, homeopathies, aromatherapy & their effect on maintaining optimum health and prevention of chronic diseases.It includes studying of medicinal plants portfolios in relation to Phytopharmaceuticals in Egyptian Market.

PM 301 General Microbiology and Immunology (2+1)

The course provides students with a combination of laboratory and theoretical experience exploring the general aspects of microbiology. It includes knowledge of microorganisms, their morphology, diversity, cell structure and function, cultural characteristics, growth, metabolism, role of microorganisms in infectious diseases and microbial pathogenesis. It also clarifies different mechanisms of transport across bacterial cell membrane, metabolic pathways and physiology of bacteria. The course also covers the principles of genetic characters including DNA and RNA structures, replication, different forms of mutation and mutagenic agents. It also explores the basic concepts microbial growth, cultivation and reproduction. Moreover it introduces the modern concepts of medical immunology, with an emphasis on Host parasite relationship, Non-specific and specific immunity, Mechanism of protective immunity. Molecular and cellular immunology, including antigen and antibody structure, function and reaction between them, effector mechanisms, complement, and cell mediated immunity. Active and passive immunization. Hypersensitivity and in vitro antigen antibody reactions, Immuno-deficiency disorders, Autoimmunity and auto-immune disease, organ transplantation.

PM 502 Pharmaceutical Microbiology (2+1)

This course describes in detail the physical and chemical methods of bacterial eradication and how to effectively control microbial growth in the field of pharmaceutical industry / hospitals. It further describes the means of preservation of pharmaceutical products, as well as cosmetics, followed by the proper tests of quality control and sterility assurance. Sterilization: sterilization indicators, sterility testing, aseptic area, the microbiological quality of pharmaceuticals. Validation of sterilization process. Moreover, it explains the different groups of antimicrobials, their mechanism of action and resistance of microbes to biocides. Microbiological evaluation of antiseptics, disinfectants and preservatives. Antibiotics, classification and mechanism of action. Antiviral and antifungal agents, different classes of antibiotics including the new categories and new approaches to overcome bacterial resistance & antibiotics clinical abuse.

PM 603 Parasitology and virology (2 +1)

Part of this course will focus on parasitic infections of humans with knowledge concerning biological, epidemiological and ecological aspects of parasites causing diseases to humans. It concerns with different parasitological related diseases in in Egypt causing serious health problems.

This part of the course will discuss medical helminthology, protozoology and entomology concerning their morphological features, life cycle, pathogenesis, clinical manifestations, different diagnostic techniques, the most recent lines of treatment and prevention with control strategy for each parasitic infection. Moreover, it also cover laboratory diagnosis of human parasitic infections. Virology (general properties of viruses, structure, function, terminology & morphology of viruses, of infection methods of viral cultivation, Recognition of virus replication, virus replication cycle. Outcomes of host cells by viruses, virus classification, methods of inactivation of viruses, diagnosis of viral infection, immune response to viral infection, chemotherapy and prevention of viral diseases, DNA-viruses, RNA viruses).

PM 704 Medical Microbiology (2+1)

The course aims at studying microorganisms causing infectious disease in human beings. The infectious diseases, their etiology and clinical manifestation, routes of transmission, treatment and techniques in detection and identification of pathogenic infections caused by Gram positive cocci & bacilli, Gram negative cocci & bacilli and mycobacteria will be studied. the course also study Gram-negative unusual bacteria (rods), Miscellaneous fastidious gram-negative rods, Obligate anaerobic gram-negative bacteria. Mycology (importance, Morphology and reproduction of fungi, pathogenic fungi including superficial, subcutaneous, systemic and opportunistic mycotic infections).

PM 805 Biotechnology& Molecular Biology (2+1)

The course aims to provide students with fundamentals, scope and applications in biotechnology through studying fermentation technology, upstream, downstream, scaling up and down processes, use of molecular techniques for production of recombinant products and other major biotechnological products, biotransformation, bioremediation, bioleaching, bioinsecticides, biosurfactants and biopolymer production.

PM 006 Public Health (2+0)

This course aims at understanding all scientific disciplines required for health education and promotion directed to the community health. How epidemiology acts as the bases of public health actions will be taught. Detailed scientific information and practices programs will be provided for control of communicable, non-communicable diseases, improving mental, social, environmental, occupational, geriatric and family health, use of sufficient and balanced food and nutrition, supplying safe drinking water, treating and disposing wastes and proper intervention during disasters

PO 401 Pharmacology-I (2+1)

Introduction, Pharmacokinetics: Pharmacodynamics: Aspects of Pharmacotherapy; Adverse Drug Effects Autonomic Nervous System , Cholinergic System and Drugs, Anticholinergic Drugs and Drugs Acting on Autonomic Ganglia , Adrenergic System Drugs , Antiadrenergic Drugs (Adrenergic Receptor Antagonists) and Drugs for Glaucoma , Skeletal Muscle Relaxants and Local Anaesthetics, Relevant Physiology of Urine Formation . , Diuretics, Antidiuretics, Cardiac Electrophysiological Considerations, Drugs Affecting Renin-Angiotensin System and Plasma Kinins, Antihypertensive Drugs, Cardiac Glycosides and Drugs for Heart Failure. , Antiarrhythmic Drugs , Antianginal and Other Anti-ischaemic Drugs.

PO 502 Pharmacology II (2+1)

This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology disease processes regarding, General Anaesthetics, Sedative-Hypnotics, Antiepileptic Drugs , Antiparkinsonian Drugs , Drugs Used in Mental Illness: Antipsychotic and Antimanic Drugs , Antidepressant and Antianxiety Drugs , Opioid Analgesics and Antagonists , CNS Stimulants and Cognition Enhancers. Histamine and Antihistaminic , 5-Hydroxytryptamine, its Antagonists and Drug Therapy of Migraine, Prostaglandins, Leukotrienes (Eicosanoids) and Platelet Activating Factor , Nonsteroidal Anti-inflammatory Drugs and Antipyretic-Analgesics , Antirheumatoid and Antigout Drugs, Drugs for Cough and Bronchial Asthma, Haematinics and Erythropoietin , Drugs Affecting Coagulation, Bleeding and Thrombosis, Hypolipidaemic Drugs and Plasma Expanders, Drugs for Peptic Ulcer , Drugs for Emesis, Reflux and Digestive Disorders , Drugs for Constipation and Diarrhoea, Anticancer Drugs.

PO 603 Pharmacology III (2+1)

This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology disease processes regarding , Introduction to endocrine hormones, Thyroid Hormone and Thyroid Inhibitors , parathyroid hormone and bone mineral hemostasis regulators and Drugs Affecting Calcium Balance, adrenal Corticosteroids, Insulin, Oral Hypoglycaemic Drugs and Glucagon , Androgens and Drugs for Erectile Dysfunction, Estrogens, Progestins and Contraceptives , Anterior Pituitary Hormones , Oxytocin and Other Drugs Acting on Uterus.

PO 704 Pharmacology IV (1+1)

This course study Antimicrobial Drugs General Considerations. Sulfonamides, Cotrimoxazole and Quinolones, Beta-Lactam Antibiotics, Tetracyclines and Chloramphenicol (Broad-Spectrum Antibiotics), Aminoglycoside Antibiotics, Macrolide, Lincosamide, Glycopeptide and Other Antibacterial Antibiotics; Urinary Antiseptics , Antitubercular Drugs, Antifungal Drugs, Antiviral Drugs, Antimalarial Drug , Antiamoebic and Other Antiprotozoal Drugs, Anthelmintic Drugs.

PO 805 Basic & Clinical Toxicology (2+1)

This course provides basics and concepts of toxicology including the mechanism of toxicity, target organ and treatment of toxicity. Toxic groups including heavy metals, toxic gases, animal, plant and marine poisons, pesticides and radiation hazards are covered. Environmental, occupational, reproductive and genetic toxicology as well as drug abuse are included. Postmortem sampling for detection of poisons, methods of detection, interpretation of results and writing of a report are also covered.

PO 906 Drug Information (1+0)

This course introduces the student to the concept and need of drug information, types of drug information resources (primary, secondary and tertiary literature), computerized and online drug information, literature evaluation and critical appraisal, retrieval of information. Drug information centers (function, structure, service, and documentation), systematic approach to answering queries, and communicating the response. Ethical and legal issues in providing drug information, evidence-based medicine recommendations to support medication-use practices.

PO 007 Biostatistics (1+0)

This course provides basic concepts of biostatistics and data analysis. It includes introduction to descriptive and inferential statistics, interpretation of estimates, confidence intervals and significance tests, elementary concepts of probability and sampling; binomial and normal distribution, basic concepts of hypothesis testing, estimation and confidence intervals, t-test and chi-square test, linear regression theory and the analysis of variance.

PT 101 Pharmacy Orientations (1+0)

This is a course to acquaint the beginning pharmacy student with the multiple aspects of the profession of pharmacy, including the mission of pharmacy, role of pharmacist in society and pharmacy careers, classification of medications, interpretation of prescriptions and medication orders, general dispensing procedure and factors affecting drug dosage, sources of drugs, different dosage forms and various routes of administration. In addition to the history of pharmacy practice in various civilizations.

PT 202 Physical Pharmacy (2+1)

This course provides students with knowledge of physical and chemical principles essential for the design and formulation of pharmaceutical products. Students are introduced to the fundamental concepts of states of matter, Phase equilibrium, colligative properties, isotonicity , buffer, solubility, dissolution, partition coefficient, surface and interfacial phenomena, surface active agents, adsorption and its application in pharmacy and rheological behavior of dosage form. . Kinetics of drug decomposition including rate and order of the reaction, determination of the half-life, expiry date and shelf-life by different methods, stability testing, and in-vitro possible drug/excipients interactions.

PT 303 Pharmaceutics I (2+1)

This course is a study of the system of weights, measures, mathematical expertise and pharmaceutical calculations requisite to the compounding, dispensing, and utilization of drugs in pharmacy practice. It is also concerned with all manufacturing formulations aspects, packaging, storage and stability of liquid dosage forms including solutions (aqueous and non-aqueous), suspensions, emulsions and colloids with emphasis on the technology and pharmaceutical rationale fundamental to their design and development. The incompatibilities occurring during dispensing are also considered.

PT 404 Pharmaceutics II (2+1)

This course covers the structure and function of the skin, target area of treatment after topical application to skin, basic principles of diffusion through membranes and factors affecting percutaneous absorption, enhancement of skin penetration, transdermal drug delivery systems (TDDS). It also describes the principles and techniques involved in the formulation and manufacturing of traditional dermatological semisolid dosage forms (creams, ointments, gels and pastes).

PT 505 Pharmaceutics III (2+1)

The course introduces the students to describe the principles and techniques involved in the formulation, manufacturing and quality control test of solid dosage forms including powders, granules, tablets, capsules and suppositories.

PT 606 Pharmaceutics IV (2+1)

This course will cover sterile dosage forms including principles of formulation, development, sterilization, packaging and quality control testing of parenteral, ophthalmic, aerosol and implant .

PT 607 Biopharmaceutics and Pharmacokinetics (2+1)

This course aims to provide students with an understanding of the relation between the physicochemical properties of the drug and its fate in the body. The course explores the principles of biopharmaceutics and strategies for enhancing drug delivery and bioavailability. Integration of knowledge gained from other courses is emphasized to design and assure the quality of drug products. Students will also be introduced to the principles of pharmacokinetics (absorption, distribution, metabolism and elimination). The concepts of bioequivalence, biowaivers and in vitro-in vivo correlations (IVIVC's) will be discussed along with different models of drug disposition. The course prepares students for their evolving role in utilizing pharmacokinetics to guide formulation, dosage-regimen design and optimizing drug usage.

PT 708 Pharmaceutical Technology I (2+1)

The course provides students with an introduction to industrial pharmacy. It deals with the principles of various unit operations such as heat transfer, evaporation, drying, filtration, centrifugation, crystallization, extraction and distillation, size reduction, size separation, size analysis and size enlargement.

PT 809 Pharmaceutical Technology II (1+1)

This course aims to provide students with an understanding of packaging materials of pharmaceutical dosage forms. Solid , semisolid and liquid mixing . Emulsification process. Preformulation studies that focus on the physicochemical properties of a new drug candidate that could affect the drug performance and the development of a dosage form.

PT 910 Good Manufacturing Practice (1+1)

This course involves the principles of the Current Good Manufacturing Practices (cGMP). It exposes students to all aspects of validation, calibration, inspection and the requirements for manufacturing facilities. It also provides students with a review of the process engineering, technology transfer,

personnel management, training and hygiene, premises and contamination control, documentation and auditing, process deviation with emphasis on risk management, complaint handling and product recall theory.

PT 011 Advanced Drug Delivery Systems (2+0)

This course will provide an in-depth overview of the newest strategies and achievements in the drug delivery and targeting field. Comparison of the delayed, sustained and controlled release, osmosis and matrix delivery systems..etc. Particular emphasis will be given to the delivery of macromolecules, including vaccines, proteins and therapeutic agent using different delivery systems (liposomes, niosomes, microemulsion, nanoparticles..etc) and the various routes (oral and nonoral) application.

PP 801 Clinical Pharmacokinetics (2+1)

This course provides basic principles of pharmacokinetics and their application to the clinical setting. Single Intravenous bolus and oral kinetics, IV infusion, multiple IV bolus, short infusion &oral dosing, linear & non-linear pharmacokinetics, compartmental and non-compartmental pharmacokinetics, pharmacokinetic parameters including: clearance, volume of distribution, half-life, elimination rate constant, bioavailability and bioequivalence. Sources of variability in pharmacokinetics, dosage regimen and dosage adjustment in children, obese, elderly patients and chronic disease states. Therapeutic drug monitoring and pharmacogenomics approaches.

PP 802 Hospital Pharmacy (1+1)

The course aims to introduce students to hospital pharmacy organization, structure, management and related activities on both technical and administrative levels in accordance with national and international established guidelines. Administrative services include: the pharmacy, the pharmacy and therapeutic committee and policy making, the hospital formulary, medication purchasing, distribution and dispensing systems. The pharmaceutical (technical) services include: preparation of Intravenous (IV) admixtures, total parenteral nutrition (TPN) fluids, renal dialysis fluids, dispensing and safe handling of radiopharmaceuticals, cytotoxic drugs, and medical gases.

PP 903 Clinical Pharmacy & Pharmacotherapeutics I (2+1)

The course gives an introduction about definition and concepts of clinical pharmacy and pharmaceutical care, and qualifications of a clinical pharmacist. In addition, therapeutic planning, drug-related problems, interpretation of clinical laboratory data and physical examination will be covered. Principles of management and education of special populations (geriatric, pediatric, renal and hepatic patients, obesity &pregnancy& lactation). The course also introduces the student to the principles of management and supportive care of oncological diseases, blood disorders and nutritional deficiencies.

PP 904 Community Pharmacy Practice (2+1)

The course provides students with competencies and knowledge for the provision of quality pharmaceutical care in a community pharmacy setting aiming at improving use of medicines and therapeutic outcomes. The course covers differentiation between minor and major ailments and responding to minor ailments with over-the-counter products regarding upper respiratory tract, gastrointestinal and musculosketal symptoms, as well as skin, eyes, and ears, woman health and childhood symptoms . It also provides concepts of patient assessment, counseling, and monitoring in community pharmacy and introduces students to pharmaceutical care services for chronic-diseased outpatients such as diabetic and high cholesterol patients.

PP 005 Clinical Pharmacy & Pharmacotherapeutics II (1+1)

The course introduces the student to the principles of pharmacotherapeutics & management of the common disease states (e.g. cardiovascular diseases, gastrointestinal diseases, respiratory diseases, endocrine diseases, obstetrics and gynecology, rheumatic diseases, renal diseases, CNS diseases).

PP 006 Drug interaction (1+1)

The course is shared between 2 departments: Pharmacology & Pharmacy Practice. This course provides the knowledge and skills enabling them to develop professional competencies in the recognition and discussion of the pharmacological aspects of drug-drug, drug-chemical, drug-herb or drug-food interactions and their clinical significance as well as the application of that knowledge to minimize the risk and outcome of interactions. It covers different types of drug interaction including pharmaceutical interactions, pharmacokinetic interactions, pharmacodynamic interactions, herbal & food drug interactions, alcohol and smoking drug interactions, CNS drug interactions, interactions of cardiovascular acting drugs, interactions of anticoagulants, interactions of anti-infectives, interactions of antihistaminics& immune-based therapies, interactions of hormones, and drug-disease interactions. The course is designed to familiarize students with the major types of drug interactions (Pharmacokinetic, pharmacodynamic and pharmacogentic interactions) in the clinical setting, in addition to drug food and drug disease interactions. The course compromises digitalis drug interactions, anticoagulants, hypoglycemic interactions, antineoplastic drug interactions, antihypertensive interactions and anticonvulsant Interactions. Students will be expected to determine whether a given interaction is clinically significant or required pharmacist intervention, make rational, scientifically recommendations for management of drug interactions.

PP 007 Clinical Research methodology & Pharmacovigilance (1+1)

This course introduces the student to the basic principles of research methodology: design experiments, analyze data, evaluate results, report findings, and write a scientific manuscript, in addition to, ethical

guidelines in drug research. This course also provides the student's with understanding of pharmacovigilance importance, concept, processes, systems, global safety standards and regulations and reporting systems.

NP 101 Information Technology (1+1)

This course tends to provide students of all university's faculties with a brief introduction to the world of computers and the concept of information technology including: number systems and data representation, computer system components: hardware & software, storage and input/output systems, Operating systems and Utility Systems, software applications. Also it gives an overview about computer networks and internet: data communication, transmission modes, transmission media, computer networks, internet protocol, and internet services. It practices some computer applications in the laboratory such as Internet Access, word processing, excel and power point. It gives students a practical experience on developing projects related to the specialty of each faculty.

NP102 Mathematics (1+0)

This course provides an essential guide to the mathematical concepts, techniques, and calculations, a student in the pharmaceutical sciences is likely to encounter. It includes definition of Number, Variable, Function, composition of functions, different types of functions. Definition of Limits of one variable functions, continuity, differentiability and applications of these concepts. Definition of the definite and indefinite integrals. The fundamental theorem of calculus and applications of definite integral. Determined the area arc length, volumes and surfaces of revolutions. Differentiation and integrations of exponential, logarithmic, trigonometric and transcendental functions. Techniques of integrations, trigonometric and transcendental functions. Techniques of integrations. Matrix Algebra and system of linear equations

NP 403 Scientific writing &Communication skills (1+1)

The course will help students develop necessary written and oral communication and presentation skills to improve inter- and intra-professional collaboration and communication with patients and other health care providers.

NP 404 Pharmaceutical Legislations and Professional ethics (1+0)

A detailed presentation of law that governs and affects the practice of pharmacy, legal principles for non-controlled and controlled prescriptions, opening new pharmacies, opening medical stores, opening factories, opening scientific offices, medicine registration, pharmacies and medicine stores management. Pharmacist duties and responsibilities, pharmacist-patient relationship, patient's rights and ethical principles and moral rules. Professional ethics provides general principles and history of pharmacy

ethics, general principles of medical ethics, conflicts of interests and its management pharmacists relationship with society and family, ethics in disaster , research ethics and animal ethics.

NP 905 Marketing & Pharmacoeconomics (1+0)

The objective of this course is to introduce students to the concepts of pharmaceutical marketing environment including the importance of customer satisfaction, 4 Ps of marketing namely: product, price, place and promotion as well as Pharmaceutical product marketing mix. Marketing strategy, market segmentation, situational analysis, concepts of positioning, targeting, profiling, product life cycle, new product development, portfolio management, advertising, distribution and pricing strategies. The course also gives a focus about the importance of pharmacoeconomics, types of costs, methods of pharmacoeconomics analysis as well as evaluation of the quality of published pharmacoeconomics data.

MD 101 Medical Terminology (1+0)

Introduction, The digestive system, The integumentary system, The muscular and skeletal systems, The endocrine system, The nervous system, Cardiovascular system, Lymphatic system& immunology , The eye and the ear, The reproductive system, The respiratory system, Radiology and nuclear medicine.

MD 202 Anatomy& Histology (2+1)

Histology:

Cytology, various tissues (epithelial, connective, muscular, and nervous), heart, blood vessels, lymphatic organs, skin and its appendages, systems (digestive and associated glands, respiratory, urinary, reproductive, and central nervous system), endocrine glands, and eye.

Anatomy :

Introduction to skeletal, muscular, and articular systems, fascia, nervous, cardiovascular, and lymphatic systems, digestive, respiratory, and urogenital systems, endocrine glands. Cytology: blood, liver, spleen, lung, kidney, lymph node, cardiac muscle, aorta, stomach, and intestine.

MD 303 Biophysics (1+1):

This course aims at studying different biophysical theories and their applications. It will include: Transport across the cell membrane - Ion channels - Types of receptors, cellular communication and cell signaling - Membrane potential and action potential, conduction across membrane of different cell types and applications - Principle of measuring blood pressure - The quantum model of the atom, radiation types, applications and hazards - Laser technology types, applications and hazards

MD 304 Physiology and patho-physiology (2+1)

Cell physiology, Neuromuscular and synaptic transmission, PNS physiology, Autonomic Nervous System physiology, Central Nervous System physiology, Cardiovascular System physiology, Endocrine physiology, Renal physiology, Respiratory physiology, The lymphatic system and immunity, GIT Physiology. Pathophysiology of Diabetes, Pathophysiology of Hypertension, Pathophysiology of Heart failure, Pathophysiology of Hepatitis, Pathophysiology of Inflammation, Pathophysiology of Psychosis, Pathophysiology of Asthma, Pathophysiology of Parkinsonism, Pathophysiology of Alzheimer disease.

MD 405 Pathology (1+1)

The main aim of Pathology course is to provide the student with knowledge and skills for common diseases affecting body organs and system. It helps the student to understand the causes (etiology) of disease, the mechanisms of its development (pathogenesis) and the associated alterations of structure (morphologic changes) and function (clinical manifestations and complications) to be able to determine the most likely diagnosis of the disease.

MD 906 First Aid and Basic life support (1+0)

The course covers topics of basic life support and medical emergency of different situations including bleeding, shock, poisoning, bone fractures, soft tissue injuries, rescue and transportation. It includes: introduction to first aid ABCs, medical emergencies, effect of temperature, transportation of an injured casualty & first aid kit, respiratory emergencies, fractures and dislocations, bleeding and surgical emergencies, burns and scalds, animal bites or stings and poisoning.

UR 101 English 1(1+0):

This is an English for General Purposes course which revises the students' fundamental knowledge of the English language in the following areas: grammar, reading, writing, listening, and speaking.

UR 102 Human Rights and Fighting Corruption (1+0)

The course provides an introduction to basic human rights philosophy, principles, instruments and institutions, and also an overview of current issues and debates in the medical and pharmaceutical field with focus on the problems specific to our country. This course also aims to explore some aspects of the diverse and increasingly complex body of international law of human rights that has both national and international application.

يغطي هذا المقرر الموضوعات التالية: حقوق الإنسان في القانون الجنائي، حق الإنسان فى تغيير جنسيته أو التخلي عن إحدى جنسياته، المواثيق الدولية المتعلقة بحماية حقوق الإنسان، علاقة العولمة والتنمية بالحقوق الاقتصادية

والاجتماعية والثقافية، الحقوق الاقتصادية والاجتماعية والثقافية للإنسان، حقوق الإنسان فى الشريعة الإسلامية، حقوق المرأة في قانوني العمل والتأمين الاجتماعي، حقوق الإنسان في التقاضي، الحقوق المدنية والسياسية للإنسان

UR 203 Psychology (1+0)

The course introduces different principles, theories and vocabulary of psychology as a science. The course also aims to provide students with basic concepts of social psychology, medical sociology and interpersonal communication which relate to the pharmacy practice system that involves patients, pharmacists, physicians, nurses and other health care professionals.

UR 204 Principle of Quality Assurance (1+0)

The course gives an introduction about quality including definition, origin, importance and types. Definition of accreditation, importance and types. Basic concepts of quality in education: program, course, intended learning outcomes and competency. Team skills, quality tools and continuous improvement.

UR 205 English language II (1+0)

This is English for Specific Purpose course which provides students the language, information, and skills needed for their studies and careers. This course aims to teach the fundamentals of effective scientific writing. It covers methods of paraphrasing, common mistakes in scientific writing, different writing styles, how to write a scientific report, proposal and manuscript.

UR 006 Entrepreneurship (1+0)

This course provides the students with an in-depth understanding of key concepts in entrepreneurship and business development. The goal of the course is to provide students with ‘hands-on’ experience in starting a business or new service, owing and running their own business; It will cover the entrepreneurial mind and different types of entrepreneurs. The course addresses the entrepreneurial process and techniques applied to business development - new business formation, business growth and sustainability.

مرفق ٤

(المقررات الاختيارية) Elective courses

PM E 07 Gene regulation and epigenetic (1+1)

This course studies the introduction to and definition of epigenetic control of gene expression, and its importance in normal development. It also discusses the molecular mechanisms for regulating gene expression and the new techniques used to modulate gene expression. Class will discuss the mechanisms of epigenetic regulation, including DNA methylation and post-translational modification of histones, and the roles of chromatin-assembly modifying complexes, non-coding RNAs and nuclear organization.

PG E 08 Chromatography and Separation Techniques (1+1)

The course aims to provide the pharmacy students with knowledge about the methods of chromatographic separation; applications and uses of the different chromatographic techniques in the isolation, identification, qualitative and quantitative analysis of active constituents from medicinal plants in standardization and quality control of herbal drugs. The course involves introduction, terminology, classification and modes of chromatographic separations. The course also covers in details the following topics: adsorption chromatography, column chromatography, thin layer chromatography, chromatotron, partition chromatography, DCCC, Paper chromatography, Gas chromatography, HPLC, UPLC, Ion exchange chromatography, Gel chromatography and affinity, supercritical fluid chromatography and electrophoresis.

PA E 06 Advanced Pharmaceutical Analysis - Spectroscopy (1+1)

Basic concepts of advanced spectroscopic techniques including Fourier Transform Infra-red (FTIR), Near Infra-red (NIR), and Raman spectroscopy. Applications of the studied techniques in pharmaceutical analysis.

PM E 08 Infection control (1+1)

This course aims to ensure that the students are well prepared to direct the infection control services and to develop and supervise infection control programs in different health care facilities. Also, this course will provide students with knowledge about basic guidelines of infection control that make them able to work within the hospital team and in the integrated programs of quality management.

PO E 08 Veterinary pharmacology (1+1)

This course is concerned with the action of drugs on the tissues of domesticated animals, and the fate of these drugs in those species. It will provide the scientific bases for the art of veterinary therapeutics. It

emphasizes the study of pharmacodynamics, pharmacokinetics, and pharmacotherapy. It will include brief account on chemotherapy, toxicology, posology, metrology and the role of pharmacy in collection, preparation, standardization and dispensing of drugs and pharmacology in concern to patient animals.

PG E 09 Analysis of food and flavors (1+1)

The course will enable students to deal with modern techniques used in the process of food and flavor analysis. It will provide brief notes on food and flavor chemistry, different flowsheets as well as recent advances in qualitative and quantitative analysis of food and flavor contents based on their nature including sample preparation, microextraction techniques and headspace analysis. The course will cover challenges of analyzing food, food additives and flavor, safety and allowed limits of flavor and additives in edible and pharmaceutical preparations.

MD E 07 Bioinformatics (1+1)

This course study the introduction to bioinformatics, genomic sequences, sequence alignment, BLAST, Advanced BLAST, multiple sequence alignment, molecular phylogeny introduction and evolution, mRNA and gene expression introduction, differential expression intro, normalization, visualization/clustering, gene pattern, statistics for differential expression, multiple testing, functional interpretation of array data, characterizing eukaryotic genomes, human variation and disease, linking genes and disease, sequence variation, phenologs, comparative genomics, personalized medicine, multiple testing.

PO E 09 Biological Standardization (1+1)

This course study pharmacological screening and standardization, drug approval process, and design of clinical studies.

PP E 08 Oncology (1+1)

The course focuses on therapeutic management and supportive care of the oncology patient including epidemiology of cancer including various causative factors, introduction to chemotherapy, supportive care, long term effects, complementary and alternative medicine, and palliative care.

PT E 012 Cosmetic Preparations (1+1)

This course will provide definition and concepts, classification of skin types, hair structure and color, skin care products, shaving preparations, hygiene products, bath preparations, baby cosmetics, hair preparations, make-up preparations, fragrance preparations, antiperspirants and deodorants, Sunscreens and Sunblock, skin whitening products, anti-aging Products, quality control tests of cosmetic products.

PP E 09 Pediatrics & Geriatric (1+1)

The course is divided into two parts, part I: Nutritional requirements in neonates and infants, nutritional disorders, neonatology, infectious diseases in pediatrics, congenital heart diseases, endocrine, neurological, haematologic, renal, and respiratory disorders, pediatric emergencies. Part II: general principles of aging and geriatric assessment skills, followed by the pharmacotherapy of disease states and syndromes common in the elderly population, including pressure sores, constipation, cardiovascular disease, diabetes, malnutrition, delirium, behavioral and psychological complications of dementia, and aspects of dying.

PT E 013 Applied Industrial Pharmacy (1+1)

Industrial Pharmacy is a discipline which includes manufacturing, development and distribution of drug products manufacturing and skills required to pursue a position in formulation development, process development, manufacturing or quality control.

PB E 05 Clinical nutrition (1+1)

Types and function of nutrients (macro and micronutrients) in the body, Nutrients requirements and needs (RDI) , Concepts of balanced diet, Food pyramids and health plate, Energy expenditure, Nutrition in pediatric , geriatric, pregnancy, and lactation, Nutritional assessments, Main nutritional disorders, Parental nutrition, Food allergy, Drug food interaction, Life style related disease and dietary management, Nutritional managements of cancer, anemia, kidney, and liver disease, Social health problems as smoking, alcoholism,-----etc.