اللائحة الداخلية لبرنامج بكالوريوس الصيدلة (فارم دي - Pharm D)

(صيدلة اكلينيكية)

طبقا لنظام الساعات المعتمدة

(يونية - 2019)

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المحتوى

رؤية و رسالة كلية الصيدلة- جامعة كفرالشيخ

الرؤيـــــة: Vision

تتطلع كلية الصيدلة إلى الريادة في مجال التعليم الصيدلي والبحث العلمي وخدمة المجتمع علي المستوي القومي والاقليمي والدولي.

الرســـالة: Mission

تلتزم كلية الصيدلة جامعة كفر الشيخ بتخريج صيدلى يلبى احتياجات سوق العمل المحلى والإقليمى مع إجراء أبحاث علمية وتطبيقية وتقديم خدمات مجتمعية فى مختلف المجالات الصيدلية ؛ وتحرص الكلية على تقديم خدمات التعليم الصيدلى المستمر، وكذلك الأستشارات والتدريبات فى إطار القيم الأخلاقية.

الأقسام العلمية

تتكون الكلية من الأقسام الآتية:

1. قسم الكيمياء الصيدلية .
2. قسم الكيمياء التحليلية الصيدلية .
3. قسم الكيمياء الحيوية.
4. قسم الصيدلانيات والتكنولوجيا الصيدلية .
5. قسم العقاقير.
6. قسم الميكروبيولوجيا والمناعة.
7. قسم الأدوية والسموم.
8. قسم الصيدلة الإكلينيكية .

مواد اللائحة

مادة (1) :

رؤية البرنامج

التميز العلمي والتطوير المستمر لخدمة المنظومة الصحية العلاجية والوصول لمكانة مرموقة عالميا في مجال الصيدلة الإكلينيكية.

رسالة البرنامج

إعداد صيادلة مؤهلين بأحدث المفاهيم الصيدلية والطبية يمكنهم المساهمة في رفع كفاءة المنظومة العلاجية على المستوى المحلي والإقليمي من خلال التعامل مع الفريق الصحي في المستشفيات وتقديم الخدمات الصيدلية بمستوى مهاري محترف بالصيدليات العامة والخاصة 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

- التركيز على دور الصيدلي في تقديم الرعاية الصحية المناسبة للمريض بداخل المستشفيات وخارجها من خلال متابعة النظام الدوائي له ودراسة مبادئ حركية الدواء الإكلينيكية وتطبيقاتها في العلاج في الحالات المرضية المختلفة وإيجاد الأنظمة العلاجية المناسبة وذلك بالتعاون مع الطبيب المعالج مما ينتج عنه تحسين الرعاية الصحية للمرضى وتقليل مخاطر وتفاعلات الأدوية.
- تخريج صيدلي متميز مؤهل للعمل بالصيدليات العامة والخاصة وشركات الأدوية ومعامل الرقابة الدوائية وتحليل الأغذية والعمل في مجال الاعلام والتسويق والبحوث والجامعات.
- زيادة القدرة التنافسية لخريجي البرنامج على المستوى الإقليمي من خلال البرامج الدراسية والتدريبية.
- المشاركة في خدمة المجتمع وتنمية البيئة وتوفير عائد إقتصادي ملموس من خلال ترشيد إستخدام الأدوية في المستشفيات.
- الإلتزام بتحقيق معايير الجودة في التعليم الصيدلي من خلال التعليم التفاعلي والإهتمام بالتعلم الذاتي.

مادة (2) :

الدرجة العلمية التي تمنح للخريجين

يمنح مجلس الجامعة بناءً على طلب مجلس كلية الصيدلة بكالوريوس الصيدلة (فارم دي –Pharm D) (صيدلة اكلينيكية)

(Pharm D-Clinical Pharmacy) طبقا لنظام الساعات المعتمدة.

مادة (3) :

التأهيل للدرجات الأكاديمية الأعلى:

بكالوريوس الصيدلة (فارم دي – Pharm D) (الصيدلة الإكلينيكية) هى الدرجة الجامعية الأولى فى مجال الصيدلة اللازمة للحصول على ترخيص ممارسة المهنة فى جميع المجالات الصيدلية المتاحة ، كما تؤهل الخريج للتسجيل لدرجة الماجستير فى أى من الأقسام العلمية فى الكلية.

مادة (4) :

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 (5+1). بالإضافة إلى عدد 100 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 (5) :

تصميم البرنامج الدراسي

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

و تم تصميم البرنامج الدراسي كما يلي:

أولا : عدد الساعات المعتمدة 177 ساعة معتمدة (169 ساعة معتمدة اجبارية و8 ساعات معتمدة اختيارية) بالإضافة إلى مقرر حقوق الانسان بمعدل ساعة واحدة ويجوز بعد موافقة مجلس الجامعة اضافة مقررات اخرى كمتطلب جامعة بحد أقصى 6 ساعات معتمدة

ثانيا : عدد المقررات الإختيارية أربعة مقررات (**8** ساعات معتمدة) يتم اختيارها من القائمة التى تحددها الكلية. هذا بالإضافة إلى 100 ساعة فعلية تدريب صيفى يبدأ بنهاية المستوى الثالث قبل البدء فى سنة الإمتياز.

ثالثاً: تطرح الكلية المقررات الاختيارية للطالب في المستويين الأخرين في أحدي المجالات الصيدلية الدوائية (التصنيع الدوائى- الرقابة الدوائية...إلخ) بما يحقق له جدارات و مهارات تساعده على التوجه المهني والتخصص . ولمجلس الكلية وضع ضوابط طرح المقررات الاختيارية علي أن يتولي السيد أ.د/ وكيل الكلية لشئون التعليم والطلاب متابعة تنفيذ تلك الضوابط.

مادة (6) :

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 وبعد موافقة اللجنة المختصة بالاشراف على البرنامج السماح للطالب بتسجيل بعض المقررات بالتوازي مع متطلباتها التي لم يجتازها الطالب بنجاح إذا قل العبء الدراسي المتاح للطالب عن 12 ساعة معتمدة (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 على ألا تزيد مدة التأخير عن أسبوع من نهاية فترة التسجيل.

أ) العـبء الدراسـي :

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 12 ساعة معتمدة وألا يزيد عن 22 ساعة معتمدة على الا يزيد العبء الدراسي للطالب المتعثر عن 12 ساعة معتمدة.

العبء الدراسي خلال الفصل الصيفي بحد أقصى 10 ساعات معتمدة.

ويجوز لمجلس الكلية بعد موافقة اللجنة المختصة بالإشراف على البرنامج السماح للطالب في أخر فصلين دراسيين بزيادة العبء الدراسي عن الحد الأقصى وبما لا يتجاوز عدد 3 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 (7) :

أ) المواظـبة

على الطالب أن يواظب على حضور المحاضرات النظرية وحلقات النقاش والدروس العملية والتدريبات الميدانية والإكلينيكية ، ولمجلس الكلية بناءً على طلب مجالس الأقسام العلمية المختصة أن يحرم الطالب من التقدم للامتحان التحريري النهائي إذا تجاوزت نسبة غيابه 25% 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 (8) :

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 (9) :

التدريــب الميداني الأولى وسنة الأمتياز (التدريب الميدانى المتقدم)

- على الطالب أن يكمل فترة **تدريب ميدانى** فى الصيدليات الأهلية والحكومية وصيدليات المستشفيات تتم خلال الأجازات الصيفية لسنوات الدراسة بعد نهاية المستوى الثالث بواقع عدد **100 ساعة** ، بالإضافة إلى العام السادس من الدراسة اللذي يخصص للتدريب الميدانى بواقع 36 اسبوعا و تنقسم الى ست دورات تدريبية بواقع أربع دورات على الأقل داخل مستشفيات تقوم بتطبيق الممارسة الصيدلية الإكلينيكية ، وتخصص دورة واحدة للتدريب فى المجال الدوائى (التصنيع -الرقابة الدوائية- ...الخ) ،كما يوضح فى البرنامج التدريبي الذى يشمل برنامج تدريبى متكامل وممنهج بطريقة دورية تناوبية مسجلة بالساعات والمهام التدريبية وتحت إشراف دقيق من الكلية وجهة التدريب. كما **يقدم مشروع تخرج** فى تخصص معين يساهم فى تمهيد وإعداد الطالب للتوجه لهذا التخصص
- **(يتم إعداد لائحة تفصيلية خاصة ببرنامج تدريب سنة الامتياز).**

مادة (10) :

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 (11) :

نظـــام التقييـــم

تتكون الدرجة النهائية للمقرر من مجموع درجات الأعمال الفصلية(15%) والعملية(25%) والتحريرية (50%) والشفهية(10%) كما هو موضح بجداول الخطة الدراسية.

الحد الأدنى للنجاح في أي مقرر هو 60% من مجموع درجات هذا المقرر ، ولا يكون الطالب ناجحاً في أي مقرر إلا إذا حصل على 30% من درجة الامتحان التحريري النهائي ، وتكون النسبة المئوية للدرجات النهائية والتقديرات كما هو مبين بالجدول التالي.

نظـــام التقيـــيم

النسبة المئوية	عدد النقاط	الرمز	التقدير
95 فأكثر	4	A^+	ممتاز
90 لأقل من 95	3.85	A	
85 لأقل من 90	3.7	A^-	
82.5 لأقل من 85	3.3	B^+	جيد جدا
77.5 لأقل من 82.5	3	B	
75 لأقل من 77.5	2.7	B^-	
72.5 لأقل من 75	2.3	C^+	جيد
67.5 لأقل من 72.5	2	C	
65 لأقل من 67.5	1.7	C^-	
62.5 لأقل من 65	1.3	D^+	مقبول
60 لأقل من 62.5	1	D	
أقل من 60	0.00	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) فقط في موعد أقصاه الأسبوع الثاني من 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 حساب نقاط كل مقرر على حسب المعادلة الاتية:

نقاط المقرر الدراسى(CGP)=(الدرجة - 60)x0.075+1

ب- يتم ضرب قيمة نقاط كل مقرر دراسي في عدد الساعات المعتمدة لهذا المقرر لنحصل على عدد النقاط الخاصة بكل مقرر في الفصل الدراسي.

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

د- 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:

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

مادة (12) :

الرسـوب في المقـررات

- في حالة تغيب الطالب بدون عذر يقبله مجلس الكلية عن أداء الامتحان التحريري النهائي.
- إذا حصل الطالب على أقل من 30% من درجة الامتحان التحريري النهائي.
- عدم تحقيق 60 % على الأقل من مجموع درجات المقرر.
- إذا رسب الطالب في أي مقرر إجباري في أي فصل دراسى فعليه دراسة ذات المقرروالالتزام بالمواظبة على الحضوروالامتحان 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 لجنة الإشراف.

مادة (13) :

التعثر الأكاديمي

يعتبر الطالب متعثر اكاديميا إذا حصل على معدل فصلي (GPA) أقل من "1".

الطالب الذي يحصل على معدل فصلي (GPA) أقل من "1" 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 (14) :

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 (15) :

متطلبات الحصول على بكالوريوس الصيدلة (فارم دي – Pharm D) (الصيدلة الإكلينيكية)

يتطلب الحصول على بكالوريوس الصيدلة (فارم دي – Pharm D) (الصيدلة الإكلينيكية) طبقا لنظام الساعات المعتمدة ما يلي:

أولا : دراسة واجتياز 177 ساعة معتمدة موزعة على عشرة فصول دراسية ، بالإضافة إلى متطلبات الجامعة، على ألا يقل المعدل التراكمي عن واحد.

ثانيا : اجتياز فترة تدريب ميداني أولى باجمالي عدد 100 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- 9 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 (16) :

نظام تأديب الطلاب

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

مادة (17) :

كود الأقسام ومتطلبات البرنامج الدراسي (مرفق رقم 1)

مادة (18) :

الخطة الدراسية (مرفق 2)

مادة (19) :

محتوى المقررات الدراسية (مرفق 3)

مادة (20) :

تحديث المقررات الدراسية

يجوز لمجلس الجامعة الموافقة على تحديث نسبة لا تتجاوز 20% من محتوى المقررات الدراسية بناء على أقتراح مجلس الكلية وذلك بعد موافقة اللجنة المختصة بالإشراف على البرنامج ومجلس القسم العلمي المعني وبعد إبداء المبررات اللازمة.

مادة (21) :

برنامج التدريب لسنة الإمتياز

يتم وضع برنامج مفصل للتدريب للسنة النهائية (الأمتياز) فى شكل دورات تناوبية فى ملحق به لائحة برنامج التدريب التناوبى بصورة ممنهجة تفصيلية.

مرفق 1

خاص بالمادة (17)

كود الأقسام ومتطلبات الجامعة والكلية والمقررات الإختيارية

1- كود الأقسام كود الأقسام

1-Key for Course Abbreviations

MS	Mathematics
PB	Biochemistry
PC	Pharmaceutical Chemistry
PA	Pharmaceutical Analytical Chemistry
PG	Pharmacognosy
PM	Microbiology and Immunology
PO	Pharmacology and Toxicology
PP	Pharmacy Practice/Clinical Pharmacy
PT	Pharmaceutics and Pharmaceutical Technology
MD	Medical Courses
NP	Non Pharmaceutical
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.

2- متطلبات الجامعة

2. University Requirements: As determined by each University.

3- متطابات الكلية

3. Faculty Requirements: See programme curriculum (Appendix 2)

4- مقررات اختيارية

4-Elective courses

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

Course Code	Course Title	Credit Hours		
		L	P/T	Total
PC E6	Drug Design	1	1	2
PA E5	Advanced Pharmaceutical Analysis – Spectroscopy	1	1	2
PG E7	Complementary Therapies	1	1	2
PG E8	Production and Manufacture of Medicinal Plants	1	1	2
PG E9	Chromatography and Separation Techniques	1	1	2
PT E9	Applied Industrial Pharmacy	1	1	2
PT E10	Good Manufacturing Practices	1	1	2
PM E8	Antibiotic stewardship	1	1	2
PM E9	Infection Control	1	1	2
PM E10	Bioinformatics	1	1	2
PT E11	Cosmetic Preparations	1	1	2
PO E7	Biological Standardization	1	1	2
PO E8	Veterinary Pharmacology	1	1	2
PP E15	Geriatric pharmacotherapy	1	1	2
PG E10	Processing of medicinal plants	1	1	2
PG E11	Aromatherapy and herbal cosmetics	1	1	2
PG E12	Biotechnology of medicinal plants	1	1	2
PT E12	Veterinary pharmacy	1	1	2
PP E16	Interprofessional Skills	1	1	2

PP E17	Pharmacoeconomics	1	1	2
PT E13	Advanced pharmaceutical technology	1	1	2
PT E14	Medical devices	1	1	2
PT E15	Drug Metabolism and Transport	1	1	2
PT E16	Protein Pharmaceuticals	1	1	2

L: Lecture
P: Practical
T: Tutorial

- لمجلس الكلية طرح المقررات الإختيارية من الأمثلة المذكورة بالجدول السابق في كل مستوى/فصل دراسي وذلك بعد موافقة اللجنة المختصة بالإشراف وبعد أخذ رأي مجالس الأقسام المعنية. و يمكن للكلية إضافة مقررات إختيارية أخرى يشترط موافقة مجلس الجامعة بعد إبداء المبررات اللازمة.

توزيع المقررات الدراسية على الأقسام العلمية :-

1. **Pharmaceutical Chemistry (PC)**

Course	Code Number	Theoretical	Practical	Total
Pharmaceutical Organic Chemistry I	PC 101	2	1	3
Pharmaceutical Organic Chemistry II	PC 202	2	1	3
Pharmaceutical Organic Chemistry III	PC 303	2	1	3
Medicinal Chemistry I	PC 704	2	1	3
Medicinal Chemistry II	PC 805	2	1	3

2. **Pharmaceutical Analytical Chemistry(PA)**

Course	Code Number	Theoretical	Practical	Total
Pharmaceutical Analytical Chemistry I	PA 101	2	1	3
Pharmaceutical Analytical Chemistry II	PA 202	2	1	3
Instrumental Analysis	PA 303	1	1	2
Quality Control of Pharmaceuticals	PA 704	2	1	3

3. **Biochemistry (PB)**

Course	Code Number	Theoretical	Practical	Total
Cell Biology	PB 201	2	0	2

Biochemistry I	PB 302	2	1	3
Biochemistry II	PB 403	2	1	3
Clinical Biochemistry	PB 804	2	1	3
Clinical Nutrition	PB 905	1	1	2

4. **Pharmaceutics and Pharmaceutical Technology (PT)**

Course	Code Number	Theoretical	Practical	Total
Pharmacy Orientation: (1+0)	PT 101	1	0	1
Physical Pharmacy: (2+1)	PT 202	2	1	3
Pharmaceutical Dosage Forms I	PT303	2	1	3
Pharmaceutical Dosage Forms II	PT 404	2	1	3
Pharmaceutical Dosage Forms III	PT 505	2	1	3
Pharmaceutical Technology	PT 606	2	1	3
Biopharmaceutics & Pharmacokinetics	PT 707	2	1	3
Advanced Drug Delivery Systems	PT 708	2	0	2

5. **Pharmacognosy (PG)**

Course	Code Number	Theoretical	Practical	Total
Medicinal Plants	PG 101	2	1	3
Pharmacognosy I	PG 202	2	1	3
Pharmacognosy II	PG 303	2	1	3
Phytochemistry I	PG 504	2	1	3
Phytochemistry II	PG 605	2	1	3
Phytotherapy	PG 906	2	1	3

6. **Microbiology and Immunology (PM)**

Course	Code Number	Theoretical	Practical	Total
General Microbiology and Genetics	PM 401	2	1	3
Immunology	PM402	1	0	1
Pharmaceutical Microbiology	PM 503	2	1	3
Parasitology & Virology	PM 504	2	1	3
Medical Microbiology	PM 705	2	1	3
Public Health and Preventive medicine	PM 806	2	0	2
Biotechnology	PM 907	2	1	3

7. **Pharmacology and Toxicology (PO)**

Course	Code Number	Theoretical	Practical	Total
Basic Pharmacology	PO 301	2	0	2
Pharmacology I	PO 402	2	1	3
Pharmacology II	PO 503	3	3	3
Pharmacology III	PO 604	3	3	3
Drug information	PO 705	1	1	2
Basic & clinical Toxicology	PO 906	2	1	3

8. **Pharmacy Practice/Clinical Pharmacy (pp)**

Course	Code Number	Theoretical	Practical	Total
Community Pharmacy Practice	PP 501	2	1	3
Hospital Pharmacy	PP 602	2	1	3
Clinical Pharmacy Practice	PP 603	2	1	3
Management of endocrine &renal diseases	PP 804	2	1	3
Management of oncological diseases and radio pharmacy	PP 805	2	1	3
Clinical Pharmacokinetics	PP 806	2	1	3
Management of neuropsychiatry diseases	PP 907	2	1	3
Management of critical care patients	PP 008	1	1	2
PP 009 Management of dermatological, reproductive and musculoskeletal diseases	PP 009	1	0	1
Management of Pediatric diseases	PP 010	1	1	2
Management of Cardiovascular diseases	PP 011	1	1	2
Management of Gastrointestinal diseases	PP 012	2	1	3
Management of Respiratory diseases	PP 013	1	1	2
Clinical Research and Pharmacovigilance	PP 014	1	1	2

❖ **ويشرف قسم الأدوية والسموم على تدريس المواد الأتية:**

Course	Code Number	Theoretical	Practical	Total
Medical Terminology	MD 101	1	0	1
Anatomy and Histology	MD 202	2	1	3
Psychology	MD 203	1	0	1
Physiology I	MD 304	2	0	2
Physiology II	MD 405	2	0	2
Pathology and Pathophysiology	MD 406	2	0	2
First Aid and Basic Life Support (BLS)	MD 607	1	1	2

❖ **ويشرف وكيل الكلية لشئون التعليم والطلاب على تدريس المواد الأتية:**

Course	Code Number	Theoretical	Practical	Total
Mathematics	MS 101	1	0	1
Human Rights and Fighting Corruption	UR 101	1	0	1
Information Technology	NP 101	1	1	2
Scientific Writing and Communication skills	NP 402	1	0	1
Pharmaceutical Legislations and Practice ethics	NP 803	1	0	1
Marketing & Pharmacoeconomics	NP 904	1	1	2
Entrepreneurship	NP 905	1	0	1

مرفق رقم 2

خاص بالمادة رقم (18)

الخطة الدراسية **Programme Curriculum**

Table (1)

Semester (1)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./Tut	Total		Period.	Pract./Tut.	Wr.	Oral		
Pharmaceutical Analytical Chemistry I	PA 101	2	1	3	Registration	15	25	50	10	100	2
Pharmaceutical Organic Chemistry I	PC 101	2	1	3	Registration	15	25	50	10	100	2
Pharmacy Orientation	PT 101	1	-	1	Registration	15	--	85	--	100	1
Medicinal Plants	PG 101	2	1	3	Registration	15	25	50	10	100	2
Medical Terminology	MD 101	1	-	1	Registration	15	--	85	--	100	1
Information Technology	NP 101	1	1	2	Registration	15	25	60	---	100	1

Mathematics	**MS 101**	**1**	**---**	**1**	**Registration**	**10**	**--**	**85**	**--**	**100**	**1**
Human Rights and Fighting Corruption	**UR 101**	**1**	**---**	**1**	**Registration**	**15**	**--**	**85**	**--**	**100**	**1**
Total		**11**	**4**	**15**							

❍ ***Lect.*** = Lecture ***Period.*** = Periodical ***Pract./ Tut.*** = Practical / Tutorial ***Wr.*** = Written

❍ **متطلب الجامعة هي مواد نجاح ورسوب ولا يضاف للمعدل الفصلي والتراكمي للطلاب ولا يحسب ضمن الساعات الكلية للبرنامج.**

Table (2)

Semester (2)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./Tut	Total		Period.	Pract./Tut.	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	PC 202	2	1	3	Pharmaceutical Organic Chemistry-I	15	25	50	10	100	2
Cell Biology	PB 201	2	---	2	Registration	15	---	75	10	100	2
Anatomy& Histology	MD 202	2	1	3	Registration	15	25	50	10	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	MD 203	1	-	1	Registration	10	--	85	--	100	1
Total		13	5	18							

❍ ***Lect.*** = Lecture ***Period.*** = Periodical ***Pract./ Tut.*** = Practical / Tutorial ***Wr.*** = Written

❍ **مقرر Cell Biology يدرس مناصفة بين قسمي الكيمياء الحيوية والميكروبيولوجيا والمناعة.**

Table (3)

Semester (3)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./Tut	Total		Period.	Pract./Tut	Wr.	Oral		
Pharmaceutical Organic Chemistry-III	PC 303	2	1	3	Pharmaceutical Organic Chemistry-II	15	25	50	10	100	2
Instrumental Analysis	PA 303	1	1	2	Pharmaceutical Analytical Chemistry II	15	25	50	10	100	1
Biochemistry I	PB302	2	1	3	Registration	15	25	50	10	100	2
Pharmacognosy II	PG 303	2	1	3	Pharmacognosy-I	15	25	50	10	100	2
Basic Pharmacology	PO 301	2	----	2	Registration	15	25	50	10	100	2
Physiology I	MD 304	2	---	2	Registration	15	25	50	10	100	2
Pharmaceutical dosage forms I	PT 303	2	1	3	Physical pharmacy	15	25	50	10	100	2
Total		13	5	18							

❍ ***Lect.*** = Lecture ***Period.*** = Periodical ***Pract./ Tut.*** = Practical / Tutorial ***Wr.*** = Written

يمكن إضافة مقرر أو أكثر من متطلبات الجامعة للتخرج.

Table (4)

Semester (4)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./Tut	Total		Period.	Pract./Tut	Wr.	Oral		
Pharmacology –I	PO 402	2	1	3	Basic Pharmacology	15	25	50	10	100	2
General Microbiology and Genetics	PM 401	2	1	3	Registration	15	25	50	10	100	2
Immunology	PM 402	1	-	1	Registration	15	--	75	10	100	1
Scientific writing and Communication skills	NP 402	1	-	1	Registration	15	-	85	-	100	2
Pathology and pathophysiology	MD 406	2	--	2	Registration	15	25	50	10	100	2
Pharmaceutical Dosage Forms-II	PT 404	2	1	3	Physical Pharmacy	15	25	50	10	100	2
Biochemistry II	PB 403	2	1	3	Biochemistry I	15	25	50	10	100	2
Physiology II	MD 405	2	---	2	Physiology I	15	25	50	10	100	2
Total		14	5	18							

❍ ***Lect.*** = Lecture ***Period.*** = Periodical ***Pract./ Tut.*** = Practical / Tutorial ***Wr.*** = Written

Table (5)

Semester (5)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./Tut	Total		Period.	Pract./Tut	Wr.	Oral		
Pharmacology-II	PO 503	2	1	3	Pharmacology I	15	25	50	10	100	2
Pharmaceutical Microbiology	PM 503	2	1	3	General Microbiology & Immunology	15	25	50	10	100	2
Parasitology&Virology	PM 504	2	1	3	Registration	15	25	50	10	100	2
Pharmaceutical Dosage Forms-III	PT 505	2	1	3	Physical Pharmacy	15	25	50	10	100	2
Phytochemistry-I	PG 504	2	1	3	Registration	15	25	50	10	100	2
Community Pharmacy Practice	PP 501	2	1	3	Pharmacology –I	15	25	50	10	100	2
Total		12	6	18							

❍ ***Lect.*** = Lecture ***Period.*** = Periodical ***Pract./ Tut.*** = Practical / Tutorial ***Wr.*** = Written

Table (6)

Semester (6)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./Tut	Total		Period.	Pract./Tut	Wr.	Oral		
Pharmacology-III	PO 604	2	1	3	Pharmacology-II	15	25	50	10	100	2
Phytochemistry-II	PG 605	2	1	3	Phytochemistry-I	15	25	50	10	100	2
Pharmaceutical Technology	PT 606	2	1	3	Registration	15	25	50	10	100	2
Hospital Pharmacy	PP 602	2	1	3	Registration	15	25	50	10	100	2
Clinical Pharmacy Practice	PP 603	2	1	3	Registration	15	25	50	10	100	2
First Aid and Basic Life Support (BLS)	MD 607	1	1	2	Registration	15	25	60	---	100	1
Total		11	6	17							

❍ ***Lect.*** = Lecture ***Period.*** = Periodical ***Pract./ Tut.*** = Practical / Tutorial ***Wr.*** = Written

Table (7)

Semester (7)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./Tut	Total		Period.	Pract./Tut	Wr.	Oral		
Medicinal Chemistry-I	**PC 704**	**2**	**1**	**3**	**Pharmaceutical Organic Chemistry-II**	**15**	**25**	**50**	**10**	**100**	**2**
Drug Information	**PO 705**	**1**	**1**	**2**	**Pharmacology-III**	**15**	**25**	**50**	**10**	**100**	**1**
Advanced Drug Delivery Systems	**PT 707**	**2**	**-**	**2**	**Registration**	**15**	**--**	**75**	**10**	**100**	**2**
Biopharmaceutics and Pharmacokinetics	**PT 708**	**2**	**1**	**3**	**Pharmaceutical dosage forms III**	**15**	**25**	**50**	**10**	**100**	**2**
Medical Microbiology	**PM 705**	**2**	**1**	**3**	**Pharmaceutical Microbiology**	**15**	**25**	**50**	**10**	**100**	**2**
Quality Control of Pharmaceuticals	**PA 704**	**2**	**1**	**3**	**Pharmaceutical Analytical Chemistry-II Pharmaceutical Microbiology**	**15**	**25**	**50**	**10**	**100**	**2**
Elective course	**PE ---**	**1**	**1**	**2**	**Registration**	**15**	**25**	**50**	**10**	**100**	**1**
Total		**12**	**6**	**18**							

- يشترك قسم الميكروبيولوجيا والمناعة في تدريس مقرر Quality Control of Pharmaceuticals s مع قسم الكيمياء التحليلية الصيدلية

Table (8)

Semester (8)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./Tut	Total		Period.	Pract./Tut	Wr.	Oral		
Medicinal Chemistry-II	PC 805	2	1	3	Medicinal Chemistry I	15	25	50	10	100	2
Management of Endocrine and Renal Disorders	PP 804	2	1	3	Pharmacology III	15	25	50	10	100	2
Management of Oncological Diseases and Radiopharmacy	PP 805	2	1	3	Pharmacology III	15	25	50	10	100	2
Clinical Pharmacokinetics	PP 806	2	1	3	Biopharmaceutics and Pharmacokinetics	15	25	50	10	100	2
Clinical Biochemistry	PB 804	2	1	3	Biochemistry-II	15	25	50	10	100	2
Public Health and Preventive Medicine	PM 806	2	--	2	Medical Microbiology	15	--	75	10	100	2
Pharmacy Legislation and practice ethics	NP 803	1	--	1	Registration	15	--	85	--	100	1
Elective Course	PE ---	1	1	2	Registration	15	25	50	10	100	1
Total		14	6	20							

❍ ***Lect.*** = Lecture ***Period.*** = Periodical ***Pract./ Tut.*** = Practical / Tutorial ***Wr.*** = Written

Table (9)

Semester (9)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./Tut	Total		Period.	Pract./Tut	Wr.	Oral		
Basic & clinical Toxicology	PO 906	2	1	3	Pharmacology-III	15	25	50	10	100	2
Management of Neuropsychiatric Diseases	PP 907	2	1	3	Pharmacology-III	15	25	50	10	100	2
Biotechnology	PM 907	2	1	3	Pharmaceutical Microbiology	15	25	50	10	100	2
Phytotherapy	PG 906	2	1	3	Phytochemistry-II	15	25	50	10	100	2
Clinical Nutrition	PB 905	1	1	2	Biochemistry-II	15	25	50	10	100	1
Marketing &Pharmacoeconomics	NP 904	2	--	2	Registration	15	--	85	--	100	2
Entrepreneurship	NP 905	1	---	1	Registration	15	--	85	--	100	1
Elective Course	PE ---	1	1	2	Registration	15	25	50	10	100	1
Total		13	6	19							

❍ ***Lect.*** = Lecture ***Period.*** = Periodical ***Pract./ Tut.*** = Practical / Tutorial ***Wr.*** = Written

Table (10)

Semester (10)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./Tut	Total		Period.	Pract./Tut	Wr.	Oral		
Management of Critical Care Patients	PP 008	1	1	2	Pharmacology-III	15	25	50	10	100	1
Management of Dermatological, Reproductive and Musculoskeletal Diseases	PP 009	1	1	2	Pharmacology II	15	25	50	10	100	1
Management of Pediatric Diseases	PP 010	2	1	3	Pharmacology-III	15	25	50	10	100	2
Management of Cardiovascular Diseases	PP 011	1	1	2	Pharmacology-III	15	25	50	10	100	1
Management of Gastrointestinal Diseases	PP 012	2	1	3	Pharmacology-III	15	25	50	10	100	2
Management of Respiratory Diseases	PP 013	1	1	2	Pharmacology-III	15	25	50	10	100	1
Clinical Research and Pharmacovigilance	PP 014	1	--	1	Drug information	15	--	85	--	100	1
Elective	PE ---	1	1	2	Registration	15	25	50	10	100	1
Total		11	7	17							

مرفق 3

خاص بالمادة (19)

محتوى المقررات الدراسية

Course Content

PC 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).

PC 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.

PC 303 Pharmaceutical Organic Chemistry III (2+ 1)

This course involves: carbohydrates, amino acid & peptides, 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.

PC 704 Medicinal Chemistry I (2+1)

This course is tailored to assist the students to gain the drugs affecting the autonomic nervous system (ANS), drugs acting on the cardiovascular system (CVS), CNS**.** The course handles different classes of antibiotics and antimicrobials (natural and

synthetic), beside other synthetic chemotherapeutic agents (including antivirals, antifungals and antiparasitics). Additionally, various anticancer therapies, steroidal hormones and related drugs are also covered.

PC 805 Medicinal Chemistry II (2+ 1)

The course is tailored to assist the students to gain the drugs affecting neurodegenerative disorders. Moreover, endocrine-related drugs (Diabetes, thyroid and calcium-regulating agents), antihistamines (H1, H2 blockers and anti-ulcer PPIs), drugs controlling pain and inflammation (NSAIDs, local anaesthetics and rheumatoid drugs) are also handled.

PC E6 Drug Design (1+1)

The prime objective of this course is to prepare the students for professional practice by understanding the essentials of Medicinal Chemistry, and how the drugs, biological and toxicological activities are strongly correlated to their chemical structures (Structure-activity relationship; SAR), physicochemical properties and metabolic pathways. Focusing on the molecular aspects governing drugs' pharmacokinetics (ADME), pharmacodynamics, optimization of drug action, possible side effects, in addition to understanding drug interactions are targeted. The course is also designed to familiarize the students with drug design and molecular modelling covering structure-based and ligand-based drug design. This also includes the process of drug discovery and development from target identification until approval of a new drug. Much concern is given to lead structure identification, optimization and targeting certain receptors and enzymes active sites. Additionally, the course addresses the study of molecular docking, pharmacophore generation, and molecular modifications including prodrug design, stereochemistry alterations, isosteric replacement, drug metabolism and Quantitative Structure-activity relationship (QSAR).

PA 101 Pharmaceutical Analytical Chemistry I (2+1)

Chemical Kinetics, rate of reaction, first Order reaction, rate law , Second order and third order of reaction, molecularity , Theories of reaction rate, activation energy and catalysis , Photochemistry, absorbed energy and quantum yield.

Introduction to qualitative and quantitative inorganic chemistry, acid-base theory, titration curve and buffer solutions. Precipitimetry factors affecting precipitate formation and pharmaceutical application.

PA 202 Pharmaceutical Analytical Chemistry II (2+1)

Complexometric titrations and oxidation-reduction titrations (electrical properties of redox systems, Nernest equation factors affecting oxidation potential, redox titration curves, pharmaceutical application on redox reaction), Electrochemistry (potentiometry, conductometry; and polarography).

PA 303 Instrumental Analysis (2+1)

Spectroscopic methods of analysis which include uv/vis spectroscopy, principal, instrumentation, factors affecting absorption and applications in pharmaceutical analysis. Fluorimetric methods, principal instrumentation, factors affecting fluorescence intensity and applications in pharmaceutical analysis. Atomic spectroscopy; principal and instrumentation.
Chromatographic methods for analytical chemistry which includes: TLC, gel chromatography, column chromatography, HPLC, UPLC, TLC, gas chromatography, capillary electrophoresis.

PA 704 Quality Control of Pharmaceuticals (2+1)

The course is shared with departments: Microbiology & Chemistry :
I- Quality control & quality assurance of pharmaceuticals .
The **course** has to be designed for **quality control**
microbiology professionals, **quality assurance** or regulatory affairs personnel who have responsibility for the performance of Bioburden, Endotoxin & Sterility Testing or for data review, pharmacists performing sterile compounding.Principles, methods and procedures of different quality control tests used for evaluation of safety, potency and palatability of pharmaceutical products of small and large molecules drugs (biologicals) including herbal drugs have to be taught. The standard pharmacopeial methods and procedures as well as international guidelines as WHO, EMA, TGA should be discussed.
II-Good Analytical Practice and Sampling: Introduction, Sampling of pharmaceuticals and related materials, Type of sampling tools, Sampling plans.
III-Documentation
IV- Validation of analytical methods according to ICH Guidelines Q2 R1. Compendial testing , Validation of analytical methods, Data elements required for assay validation.
V- drug stability, stability studies and stability indicating methods Drug stability, Stability testing , Forced degradation studies , stability indicating assay methods for drugs according to ICH Q1 R2 Guidelines. Stress conditions for drug degradation

according to ICH Q1 R2 Guidelines. Factors affecting drug degradation, Drug expiration, Drug withdrawal from the market. Pharmaceutical regulations according to FDA & EMA (European medicine agency) and ISO and BSI. Drug-excipient interactions and adduct formation; analytical techniques used to detect drug-excipient compatibility, mechanism of drug-excipient interactions, examples.
VI- Official methods of analysis applied to raw materials and end products.

PA E5 Advanced Pharmaceutical Analysis – Spectroscopy(1+1)

Advances spectroscopic methods of analysis which include Mass spectroscopy, principal, instrumentation, factors affecting absorption and applications in pharmaceutical analysis. LC –MSMS, Ion trap MS and QTOF high resolution Mass spectrometry.

Advanced chromatographic methods for analytical chemistry which includes: capillary electrophoresis, Miceller electrokinetic chromatography, high performance capillary electrophoresis, capillary isotachophoresis and capillary electrochromatography.

PB 201 Cell Biology (2 + 0) يدرس هذا المقرر مناصفة بين قسمي الميكروبيولوجيا والمناعة والكيمياء الحيوية

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 synthesis and function of macromolecules such as DNA, RNA, and proteins; control of gene expression; membrane and organelle structure and function; bioenergetics; and cellular communication, transformation; transport, receptors, and cell signaling; the cytoskeleton, the extracellular matrix, and movements of Microbial cells.

PB 302 Biochemistry I (2 + 1)

Structure of proteins – Biologically active peptides – Protein turnover – Amino acids as precursors for biosynthesis of biomolecules (e.g. neurotransmitters –nucleotides, …) – Structurally and physiologically important lipids – Lipoprotein metabolism – Carbohydrates and connective tissue – Enzymes (theories of enzyme action – enzyme kinetics – inhibition and regulation of enzyme activity – clinical correlations) – ATP synthesis from reduced metabolites (electron transport chain – inhibitors – uncouplers) – Hemoglobin and myoglobin (structure – synthesis and metabolism – clinical correlations).

PB 403 Biochemistry II (2 + 1)

Mobilization of body stores of glycogen and fats -Metabolism and tissue utilization of glucose, amino acids, and fatty acids – Regulation of blood glucose level and

clinical correlations – Feed/fast cycle – Nitrogen metabolism and nitrogen balance – Inborn errors of metabolism – Second messengers and signal transduction – Biochemistry of cancer - Biochemistry of aging – Food biochemistry (milk – probiotics) – Oxidative stress and body defense mechanisms.

PB 804 Clinical Biochemistry (2 + 1)

Organ function and laboratory diagnostic tests (liver – kidney – heart – pancreas – bone) – Plasma proteins and albumin/globulin ratio – Types and lab differentiation of hyperlipidemia - Examples of different diseases (case study – interpretation of analytical data) - Handling, preservation, storage and analysis of biological samples - Abnormalities of urine analysis – Blood analysis and complete blood count – Tumor markers – Endocrinology (classification of hormones - mechanisms of action – dysfunction) - Electrolytes, blood gases and acid-base balance - Recent diagnostic biomarkers.

PB 905 Clinical Nutrition (1+1)

Measures of healthy life-style – Macronutrients and calculation of calories – Basal metabolic rate (BMR) - R**commended daily allowance (RDA) –** Nutritional requirement for pediatrics and geriatrics - Vitamins and minerals (role in metabolism – clinical significance) – Gut microbiota and human health – Enteral and parenteral nutrition - Dietary care for patients with obesity, diabetes mellitus, cardiovascular, renal and hepatic disorders – Dietary care for cancer patients - Dietary care for sports` men - Dietary care for pregnant and lactating women – Nutrigenomics.

PT 101 Pharmacy Orientation: (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 solubility, dissolution, partition coefficient, surface

and interfacial phenomena, surface active agents, adsorption and its application in pharmacy and rheological behaviour of dosage forms

PT303 Pharmaceutical Dosage Forms 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 Pharmaceutical Dosage Forms 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) and cosmetic products.

PT 505 Pharmaceutical Dosage Forms III: (2+1)

The course introduces the students to the 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 . It also describes the principles and techniques involved in the formulation, and manufacturing of solid dosage forms including powders, granules, tablets, capsules and suppositories.

PT 606 Pharmaceutical Technology : (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, distillation, filtration, centrifugation, crystallization, extraction, size reduction, size separation, size analysis and size enlargement. It focuses on the application of these unit operations in pharmaceutical industry with emphasis on the equipment and machines used during the production of different dosage forms.

PT 707 Biopharmaceutics & Pharmacokinetics: (2+1)

The course is concerned with the exploration and examination of the physicochemical properties of drugs in the physiological environment and their impact on product performance. It explores the principles of biopharmaceutics and strategies for enhancing drug delivery and bioavailability .Also it introduces the students to basic pharmacokinetic parameters and mathematical aspects. General principles of pharmacokinetic models are presented as they pertain to the process of absorption, distribution and elimination of drugs in humans and the significance of these processes in drug therapy. Topics also emphasize linear and nonlinear metabolic clearance kinetics, drug-drug interaction mechanisms and kinetics, in vitro-in vivo predictions, pharmacogenetics and other sources of inter-individual variability.

PT 708 Advanced Drug Delivery Systems: (2+0)

A continued study of pharmaceutical dosage forms with emphasis on novel and targeted drug delivery systems. Discussions focusing on transforming proteins, genes, and other biotechnology driven compounds into therapeutic products including the role of molecular modeling and new drug therapies in fabricating rational drug delivery systems are included.
The course covers targeted nanocarrier-based delivery Systems and other advanced therapy medicinal products such as gene therapy medicinal products (GTMPs), somatic cell therapy medicinal products (sCTMPs), and tissue-engineered products (TEPs). In addition to formulation aspects of biotechnology derived pharmaceuticals, it also covers the application of polymers and excipients to solve problems/issues concerning the optimization of absorption, selective transport, and targeting
.

PT E9 Applied Industrial pharmacy(1+1)

Size reduction, size separation, size enlargements, filtration, centrifugation emulsification, Refrigeration, distillation and extraction. Packaging materials.

PPT E10 Good manufacturing practice(1+1)

Good manufacturing practice GMP (introduction, starting materials, personal, building and facilities, complaints and product recalls, packaging and labeling operations).Pharmaceutical process validation, sanitation and hygiene.

PT E11Cosmetic Preparations مستحضرات التجميل(1+1)

Definition, classification, anti-dandruff preparations, fragrance preparations, nail lacquers, skin care products (emollients and tanning), antiperspirants and deodorants preparations, shampoo, dentifrices preparations, eye, make-up preparations, acne preparations, hair dyes preparations, rouge preparations, lipstick preparations and quality control tests and evaluation of cosmetic preparations.

PT E12Veterinary pharmacy(1+1)

The variances between common human versus animal pharmaceutical dosing, formulation of veterinary dosage forms (liquid, solid and semi-solid), formulation of veterinary parenteral dosage forms, quality control of veterinary dosage forms.

PT E13 Advanced pharmaceutical technology (1+1)

Introduction to Unit Operations & Unit Processes. Materials for plant constructions, Heat transfer, evaporation, drying, Mixing and crystallization. Intra-plant transportation.

PT E14 Medical devices (1+1)

Types of medical devices, manufacture and packaging of different medical devices, regulations and validation processes of medical device , methods of sterilization of medical devices.

PT E15 Drug metabolism and transport (1+1)

Factors affecting drug elimination, pharmacokinetics models, pharmacokinetics following I.V administration, pharmacokinetics following oral dosage forms, kinetics of drug clearance, transport of drug throughout the body fluids.

PT E16 Protein pharmaceuticals (1+1)

Mechanisms of protein degradation, stability of pharmaceutical macromolecules during handling and storage, solubility behaviour of polypeptides, formulation of novel dosage forms for delivery of protein pharmaceuticals.

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 cytology, physiology

and medicinal leafy plants. 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.

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 leaves, 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.

PG 303 Pharmacognosy II (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, fruits, subterreans, herbs, unorganized drugs of marine and animal 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.

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 the students the knowledge and experience those enable them to understand, describe and deal with the chemistry and Pharmaceutical uses of volatile oils, resins and resin combinations, carbohydrates, glycosides, and bitters of plant or animals as well as techniques for their, isolation, identification and determination from their respective sources.Clinical applications will be correlated with various clinical analyses.

PG 605 Phytochemistry II (2+1)

The course aims to enable students to demonstrate knowledge of basic concepts of chemistry and bioactivities of alkaloids, tannins and antioxidants as well as chromatographic techniques for their isolation and identification. The course emphasizes on drugs with valuable use in the Egyptian and worldwide markets, such as anti-cancer agents, drugs affecting CNS, drugs ameliorating liver diseases and anti-inflammatory agents. Finally, the course focuses on the structure activity relationships (SAR) of these natural products derived compounds and their pharmacophoric features. Clinical applications will be correlated with various clinical analyses.

PG 906 Phytotherapy (2+1)

The course aims to enable students to attain the systematic approach for herbal prescribing through a comparative study of both traditional and scientifically based uses of herbal drugs in the treatment of various clinical disorders. The course provides clinical pharmacy students with review of the available information on how botanicals may normalize an altered function. Approval by World Health Organization (WHO), German Federal Institute for Drugs and Medical Devices (Commission E) is the base for selection of the studied herbs. The herbal drugs treated in combined way relative to pharmacognosy, pharmacology and toxicology. Special concern is given to the possible mode of action of the herbal drugs based on experimental and clinical pharmacological studies.
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.

PG E7 Complementry therapy (1+1)

This course aims to introduce different alternative medicine systems around the world such as traditional Chinese medicine (TCM), Ayurveda and Graco-Arabic (Unani) medicine, also it will allow the students to learn how to evaluate different practices to treat different ailments in such systems using evidence based approaches.

PG E8 Production and manufacture of medicinal plants (1+1)

This course aims to guide the students through different instructions, procedures and guidelines to extract and prepare different phytochemical classes for therapeutic, food or poultry purposes, also it will emphasize on methods of quality control of raw materials and proper methods for storage after production.

PG E9 Chromatography and separation techniques (1+1)

This course will shed the light on different applications of chromatographic techniques in isolation and standardization of natural products such as Flash column chromatography, High performance column chromatography, High speed counter current chromatography and gas chromatography, special types of separation techniques such as size exclusion, ion exchange and affinity chromatography will be also addressed.

PG E10 Processing of medicinal plants (1+1)

This course will introduce different methods for processing of medicinal plants such as collecting, drying and storage with special emphasis on medicinal crops cultivated in Egypt.

PG E11 Aromatherapy and herbal cosmetics (1+1)

This course will discuss the modern use of aromatherapy in management of different ailments, also it will address methods for integrating herbal products in the production of cosmetics.

PG E12 Biotechnology of Medicinal plants (1+1)

This course will emphasize on biotechnology tools used for enhancement of propagation and cultivation of medicinal plants and how these tools could be used for manipulation of bioactive secondary metabolites to keep up with industrial demands.

PM 401 General Microbiology and Genetics (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.

PM 402 Immunology (1+0)

The course provides students concepts of medical immunology, with an emphasis onHost 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 503 Pharmaceutical Microbiology (2+1)

This course is designed to provide student with basic, practical and professional knowledge on antimicrobial agents, either antibiotics or non-antibiotics. Different sterilization methods and their application scope will be studied in this course.

PM 504 Parasitology & Virology (2 +1)

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.
The other part of the course provides students with the essential knowledge to recognize the epidemiology, mechanisms of pathogenesis, clinical picture, methods of laboratory diagnosis, treatment, prevention and control measures of RNA and DNA viral infections in humans.

PM 705 Medical Microbiology (2+1)

To educate students about the basic features of general bacteriology, virology and mycology.

- To familiarize students with the common infections and diseases of medical importance, their microbial causes, as well as laboratory diagnosis, treatment, prevention and control of such diseases.

PM 806 Public Health and Preventive medicine (2+0)

The course introduces students to the global public health and the Sustainable Development Goals (SDGs). It also includes the fundamentals of epidemiology, communicable and non-communicable diseases and their control with special emphasis on antibiotic resistance and antibiotic stewardship as well as emerging pathogens. The course also covers nutritional health, occupational medicine and women's, children's and adolescent's health and the relationship between the environment and public health. It is anticipated that students will achieve an understanding of the optimal environmental conditions for improved public health such as air, food and water purity and sanitary water disposal. The ability to understand and evaluate the biological and chemical basis for health threats emanating from the environment is also gained.

PM 907 Biotechnology (2+1)

The biotechnology subject is crucial for pharmacy students. It mainly aims to provide sufficient foundation for the student on how to learn the concept of the biotechnology, its main components, optimization of fermentation, bioconversion biodegradation and bioremediation – gene therapy and genetic engineering. It simply puts the student on the track of the hot topic and the coming near future of the pharmaceutical industries.

PM E8 Antibiotic Stewardship (1+1)

Principles of antimicrobial use, optimal management of common infections, essential functions of ASP, antimicrobial stewardship interventions in the inpatient setting, convincing the C-Suite, quantifying antimicrobial use and its effects. Advanced ASP activities, antimicrobial stewardship in cancer and hematopoietic cell transplant patients, antimicrobial stewardship in long-term care, antimicrobial stewardship at the end of life. Expanding stewardship into the small community hospital setting and antimicrobial resistance from a global perspective.

PM E9 Infection Control (1+1)

Disinfection and sterilization, prevention of multi-drug resistant organism (MDRO) in healthcare setting. Specimen collection, the importance of hand hygiene. hospital

laundry&waste management. Prevention of urinary tract infection, prevention of surgical site infection, nosocomial pneumonia and prevention of catheter associated blood stream infection. Isolation precautions and use of personal protective equipment (PPE). Healthcare worker immunization program and management of occupational exposure.

PM E10 Bioinformatics (1+1)

Introduction to bioinformatics & online resources, working with single sequences (nucleotide & protein), sequence comparison & similarity searching, protein structures. RNA structures, SNPs and haplotypes, phylogenetics & comparative genomics, data manipulation and presentation.

MD 101 Medical Terminology (1 + 0)

To ensure that the students have the necessary competency enabling them to recognize, analyze, synthesize, and apply medical terms as well as universally approved abbreviations related to the health profession, medical and paramedical. This course deals with basic components of medical terms (roots, prefixes, suffixes, and linking or combining vowels) and how does the medical terminology work by combining these basic components. The course also includes commonly used prefixes, and roots of body system, as well as the commonly used medical abbreviations

MD 202 Anatomy and Histology (2 +1)

The aim of the course is to provide the students with competency concerning the appropriate functions of cells, tissues, organs and body system. The course also enables the student to integrate physiological data and mechanisms with ongoing taught sciences: anatomy and histology. Histology part includes cytology, epithelium, C.T., blood, muscle, vascular, lymphatic, respiratory, gastrointestinal and endocrine systems. Anatomy part includes introduction to human anatomy, tissues of the body, skeletal system, articular system, muscular system, digestive system, cardiovascular, respiratory system, lymphatic system, urinary system, genital system, nervous and endocrine systems.

MD 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.

MD 304 Physiology I (2 + 0)

To ensure that the students have the necessary knowledge & skills enabling them to develop professional competency in the recognition & discussion of different physiological aspects of the major body organs and system pertinent to this course and in the application of such competencies in the specialist areas. This course cover the physiological function of different organs including physiology of body fluids, blood, nerve and muscle, central nervous system, special senses, autonomic nervous system, defense mechanisms.

MD 405 Physiology II (2 + 0)

To ensure that the students have the necessary knowledge & skills enabling them to develop professional competency in the recognition & discussion of different physiological aspects of the major body organs and system pertinent to this course and in the application of such competencies in the specialist areas. This course cover the physiological function of different organs including Physiology of cardiovascular, respiratory, excretory, endocrine and digestive systems; organic and energy metabolism; exercise and environmental stress are also included.

MD 406 Pathology and Pathophysiology (2 + 0)

The study of biochemical, structural and functional changes in cells, tissues and organs, which are caused by diseases.
The basic concepts of pathophysiology at the cellular level related to injury, the self-defense mechanism, mutation, and cellular proliferation, and the pathological factors that influence the disease process. Clinical manifestations associated with the diseased organ(s).

MD 607 First Aid and Basic Life Support (BLS) (1 + 1)

After completing the course, the student should be able to know how to deal with medical emergency based on the different courses. It includes: introduction & accidents, 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.

PO 301 Basic Pharmacology (2 + 0)

This course provides the principles underlying the actions of drugs; including pharmacokinetics, drug-receptor interactions, and drug metabolism. It explores the fundamental mechanism of drug action emphasizing the modulation of interactions between endogenous ligands and targets. Key target types include receptors, enzymes, transporter proteins, ion channels and nucleic acids. Key concepts include enzyme action, regulation, inhibition and signal transduction. In addition, the course provides the basic principles of drug absorption, distribution, metabolism and excretion.

PO 402 Pharmacology I (2 + 1)

This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology to disease processes regarding the autonomic, neuromuscular, autacoids and cardiovascular systems.

PO 503 Pharmacology II (2 + 1)

This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology disease processes regarding drugs acting on central nervous system, gastro-intestinal and pulmonary systems. The anti-inflammatory, analgesics as well as gout treatments are also within the scope of the course.

PO 604 Pharmacology III (2 + 1)

This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology disease processes regarding drugs acting on endocrine system. Chemotherapeutic drugs including antimicrobials, anticancer and immunosuppressant are within the scope of the course. Stem cell therapy is also included.

PO 705 Drug information (1+1)

This course includes an advanced application of the science of drug information in terms of: its practice within the drug information centers and various clinical sites. The course will focus on Drug information and poison information centers, different drug information resources, use of the internet for drug and research information, evaluating information on the web. The classification of study design and clinical trials, data presentation, and basic statistical concepts are detailed. Basics of pharmacoeconomic literature are described.

PO 906 Basic & clinical Toxicology (2 + 1)

To ensure that the students have the necessary knowledge & skills, as well as comprehensive understanding of the basics of toxicology enabling them to have detailed knowledge and to develop professional competence in the recognition, solving, and discussion of different toxicological cases. It includes: 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 E7 Biological standardization (1+1)

General introduction, Screening of para-sympathomimetics, Screening of muscarinic receptor blockers and neuromuscular blockers, Screening and bioassay of histamine, serotonin and antihistaminics, Screening and bioassay of cardiac glycosides, Screening and bioassay of antihypertensive drugs, Screening and bioassay of analgesics & antiinflammatory drugs, Screening and bioassay of tranquillizers and anticonvulsant, Screening and bioassay of local, anesthetics and anti-bilharzial drugs, Screening and bioassay of drugs acting on, gastrointestinal tract, Pharmacology of hormones and Bioassay of hormones

PO E8 Veterinary pharmacology (1+1)

The course deals with the pharmacology of veterinary drugs focusing on drug used in treating zoonotic disease as well as poultry disease . the course will also provide students with sufficient knowledge about antiparasitic agent.

PP 501 Community Pharmacy Practice (2+1)

This course includes the study of the clinical situations that can be handled by the pharmacist in the community pharmacy (referral or using OTC medications) including upper respiratory tract, gastrointestinal, and musculosketal symptoms, skin, eyes, and ears, and childhood symptoms

PP 602 Hospital Pharmacy (2+1)

Organization and structure of a hospital pharmacy, hospital pharmacy facilities and services (inpatient and outpatient services), transfer of care, patient’s medication

record, and rational medication use, hospital formulary, pharmacy and therapeutic committee, I.V. admixtures and incompatibilities, parenteral nutrition, handling of cytotoxic drugs, therapeutic drug monitoring, patient counselling and safety, and risk management.

PP 603 Clinical Pharmacy Practice (2+1)

This course includes the definition and concepts of clinical pharmacy and pharmaceutical care, case history and case presentation, medication history taking, clinical problem solving, and therapeutic planning, clinical rounding and assessment of patient compliance. Principles of special care populations (geriatric, pediatric, pregnancy, and lactation). Drug-related problems and drug interactions . Interpretation of clinical laboratory data and physical examination.

PP 804 Management of endocrine &renal diseases (2+1)

This course includes the Pathophysiology, causes, clinical presentation, diagnosis and application of pharmaceutical care plans in different endocrinologic disorders (Diabetes, thyroid disorder, caushing syndrome,...) and different renal disorders and related fluid and electrolyte disturbances (acute and chronic renal failure, uremic syndrome, kidney stones, ..). The course develops the students' ability to design, monitor, refine safe and cost-effective treatment plans and provide appropriate information to patient, caregivers, and health professionals.

PP 805 Management of oncological diseases and radio pharmacy (2+1)

Cancer aetiology, risk factors, cancer staging and grading, diagnosis, prognosis, optimizing chemotherapeutic regimens, different types of tumours (solid and hematologic) and their management, toxicities of chemotherapy, supportive treatment, pharmaceutical care and patient's support measures. This course also includes studying radioactive isotopes which process medical applications and precautions of their usage.

PP 806 Clinical Pharmacokinetics (2+1)

Introduction to clinical pharmacokinetics and its applications, pharmacokinetics, non-compartmental pharmacokinetics and moment analysis. Drug distribution and drug clearance mechanisms, IV infusion kinetics and kinetics following extra-vascular dosing, metabolite kinetics, multiple dose kinetics, non-linear pharmacokinetics, dosage regimen design, dosage individualization of drugs of narrow therapeutic index especially in patients with compromised renal and hepatic function.

PP 907 Management of neuropsychiatry diseases (2+1)

This course aims to provide the student with the knowledge in, pathophysiology, clinical interpretation, pharmacotherapy and management of neuropsychiatric diseases (e. .g mental health disorders, schizophrenia, depression, anxiety, seizure disorders, parkinsonism, migraines, dementia and Alzheimer's disease). Sedative and hypnotics, general anesthetics, opioid analgesics and non steroidal anti-inflammatory drugs.

PP 008 Management of critical care patients (1+1)

This course aims to provide the student with the knowledge in, pathophysiology, clinical interpretation, pharmacotherapy and management of critical care illness (e.g. medical and surgical crises, trauma patients, supportive care, ICU infections, burns, neuro-critical care, cardiovascular critical care, sepsis, septic shock, pain and analgesia, bleeding disorders and anticoagulation, nutritional support and therapy, hemodynamic monitoring, fluid and electrolyte disorders).

PP 009 Management of dermatological, reproductive and musculoskeletal diseases (1+1)

Skin structure and function, primary and secondary lesions. Most popular skin diseases: infective and non-infective types and their differentiation. Sexually transmitted diseases, male infertility, and women health. Musculoskeletal disorders are also included.

PP 010 Management of Pediatric diseases (1+1)

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.

PP 011 Management of Cardiovascular diseases (1+1)

Main diseases affecting the cardiovascular system, symptoms, prognosis, pharmacological and non-pharmacological management, patient counseling and monitoring of dyslipidaemias, hypertension, coronary artery disease, acute coronary syndromes, heart failure, dysrhythmias, thromboembolic disorders, and stroke.

PP 012 Management of Gastrointestinal diseases (2+1)

Hepatic disorders including viral hepatitis, pancreatitis, gastrointestinal bleeding, peptic ulcer, gastro-esophageal reflux disease, inflammatory bowel diseases and irritable bowel syndrome as well as gastrointestinal symptoms including nausea, vomiting, constipation, and diarrhea.

PP 013 Management of Respiratory diseases (1+1)

Epidemiology, aetiology, pathophysiology, clinical manifestation, investigations, treatment, monitoring, and patient counseling of bronchial asthma, chronic obstructive pulmonary disease, pulmonary hypertension, cystic fibrosis, upper and lower respiratory tract infections, and drug-induced respiratory problems.

PP 014 Clinical Research and Pharmacovigilance (1+1)

This course introduces the student to the basic principles of clinical research, design of research studies, types of research studies, clinical trials, statistical presentation of research data and 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.

PP E15 geriatric pharmacotherapy (1+1)

The critical issues of aging, and the importance of team-based health care for geriatric in long term care facilities.The Geriatrics course is designed to provide students with the knowledge, skills, and experience to recognize and approach common problems in older adults in inpatient and outpatient settings as well as in the nursing home.

PP E16 Interprofessional skills (1+1)

Elements of collaborative practice include responsibility, accountability, coordination, communication, cooperation, assertiveness, autonomy, and mutual trust and respect. It is this partnership that creates an interprofessional team designed to work on common goals to improve patient outcomes.

PP E17 Pharmacoeconomics (1+1)

This course is designed to provide understanding of the role of economics in health care systems, and the skills required to apply economic analysis to the evaluation of products. Discussion of the different types of pharmacoeconomics.

MS 101 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 101 Information Technology (1+1)

This course tends to provide students 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 and power point. It gives students a practical experience on developing projects related to the specialty.

UR 101 Human Rights and Fighting Corruption (1 + 0)

يغطي هذا المقرر الموضوعات التالية: حقوق الإنسان في القانون الجنائى, حق الإنسان فى تغيير جنسيته أو التخلى عن إحدى جنسياته, المواثيق الدولية المتعلقة بحماية حقوق الإنسان, علاقة العولمة والتنمية بالحقوق الاقتصادية والاجتماعية والثقافية, الحقوق الاقتصاديةوالاجتماعيةوالثقافية للإنسان, حقوق الإنسان فى الشريعة الإسلامية, حقوق المرأةفى قانونى العمل والتأمين الاجتماعى, حقوق الإنسان فى التقاضى, الحقوق المدنية والسياسية للإنسان

NP 402 Scientific Writing and Communication skills (1 + 0)

This course is designed to introduce students to the principles of good scientific writing, to be familiar with basic structure of scientific reports and research articles. It covers methods of paraphrasing, common mistakes in scientific writing, different writing styles, how to write a scientific report, proposal and manuscript, appropriate use of tables and figures in data presentation and evaluation of literature and information sources. In addition it 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. The course will also deal with the underlying attitudes, which form an interpersonal skills. It focuses on concept and meaning of communication; verbal and non verbal communication (body and vocal language); active listening skills; communication

styles and presentation skills. Communication skills in diverse pharmacy practice setting will be discussed

NP 803 Pharmaceutical Legislations and Practice ethics (1 + 0)

A detailed presentation of law that governs and affects the practice of pharmacy, legal principles for non-controlled and controlled prescriptions, OTC drug requirements, 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.

NP 904 Marketing & Pharmacoeconomics (1 + 1)

the basic concepts of health economics, learning basic terms of health economics and understand key principles. Topics cover the economic mechanisms of health care markets as market failures, and government intervention. The course covers the key components of health care financing, and some methods of how to contain health care expenditure. Alongside the major definitions in health technology assessment, students should have an overview about different types of economic evaluation, budget impact analysis and their uses. Moreover, students should get familiar with different methods of pricing among which value-based pricing.

Marketing

The objective of this course is to introduce students to the concepts, analyses, and activities that comprise marketing management, and to provide practice in assessing and solving marketing problems. The course is also a foundation for advanced electives in Marketing as well as other business/social disciplines. Topics include marketing strategy, customer behavior, segmentation, market research, product management, pricing, promotion, sales force management and competitive analysis.

NP 905 Entrepreneurship (1 + 0)

This course outlines the process of designing, launching and running a new business, which is often initially a small business. The people who create these businesses are called entrepreneurs. Entrepreneurship has been described as the "capacity and willingness to develop, organize and manage a business venture along with any of its risks in order to make a profit. While definitions of entrepreneurship typically focus on the launching and running of businesses, due to the high risks involved in launching a start-up, a significant proportion of start-up businesses have to close due to "lack of funding, bad business decisions, an economic crisis, lack of market demand, or a combination of all of these>