كلية الصيدلة
جامعة عين شمس

اللائحة الداخلية

لبرنامج

درجة بكالوريوس الصيدلة

(فارم دي-PharmD)

طبقا لنظام الساعات المعتمدة

(2019)

المحتوى

رؤية ورسالة وأهداف كلية الصيدلة- جامعة عين شمس

الرؤيــة:

أن تكون الكلية مؤسسة تعليمية و بحثية معترف بها إقليمياً و عالمياً ومركزا للتفوق فى التعليم والبحث العلمي وخدمة المجتمع وتنمية البيئة

الرسـالة:

تهدف كلية الصيدلة جامعة عين شمس الى إعداد صيادلة ذو كفاءة عالية محلياً وإقليمياً وعالمياً يساهمون فى تطوير الصناعات الدوائية وتوكيد جودتها فى تحسين نظام الخدمات الصحية بالمجتمع وذلك عن طريق تطوير البرامج الأكاديمية الحديثة وطرق التعليم والتعلم والتوسع فى الأبحاث العلمية والتطبيقية المتميزة ودعم الأنشطة الطلابية المختلفة وتنمية قدرات أعضاء هيئة التدريس ومعاونيه والجهاز الإدارى ومواصلة التعليم الصيدلى المستمر من خلال التنمية التكنولوجية والابتكار وذلك فى ظل توكيد جودة مستمرة

أهـداف الكلية:

1. تطوير البرامج والمقررات الدراسية لمرحلتى البكالوريوس والدراسات العليا بما يلائم إحتياجات المجتمع وسوق العمل وضمان التميز الدائم ومواكبة التطورات العالمية فى هذا المجال .
2. الإرتقاء بمنظومة البحث العلمى .
3. الإرتقاء بالمنظومة الطلابية .
4. التوسع فى خدمة المجتمع والبيئة .
5. توفير وإعداد أعضاء هيئة التدريس بالمستوى الأكاديمى المتميز .
6. تطوير أداء الجهاز الإدارى .
7. تعزيز خدمات الخريجين وتلبية إحتياجات المستفيد النهائى .
8. تطوير البنية التحتية المعلوماتية للكلية .
9. تعزيز إدارة الجودة الشاملة ووضع نظام لتقييم الأداء .

الأقسام العلمية :

1- قسم الكيمياء التحليلية
2- قسم الكيمياء الصيدلية
3- قسم الادوية والسموم
4- قسم العقاقير
5- قسم الصيدلانيات والصيدلية الصناعية
6- قسم الصيدلة الاكلينيكية
7- قسم الكيمياء الحيوية
8- قسم الميكربيولوجيا والمناعة

مواد اللائحة

مادة (1):

رؤية البرنامج

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

رسالة البرنامج

إعداد صيادلة يتحلون بأخلاق المهنة و مؤهلين بأحدث المفاهيم الصيدلية والرعاية العلاجية التى تمكنهم المساهمة في تطوير الصناعات الدوائية و رفع كفاءة منظومة الرعاية الصيدلية على المستوى المحلي والإقليمي في المستشفيات و الصيدليات الاهلية من خلال تقديم الخدمات الصيدلية بمستوى مهاري محترف بالصيدليات العامة والخاصة 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

- تخريج صيدلي متميز مؤهل للعمل بالصيدليات العامة والخاصة ومصانع وشركات الأدوية ومعامل الرقابة الدوائية وتحليل الأغذية والعمل في مجال الاعلام والتسويق والبحوث والجامعات.
- التركيز على دور الصيدلي في تقديم الرعاية الصحية المناسبة للمريض بداخل المستشفيات وخارجها من خلال تثقيف وتقديم المشورة للأفراد والمجتمعات لتحسين النتائج العلاجية والحد من الإصابة بالامراض مع مراعاة أن يمارس المهنة بمسؤولياتها وسلطاتها محترماً قوانينها وأخلاقياتها، واحترام حقوق المرضى.
- إعداد صيدلى يستخدم البيانات التى تستند على الدلائل لتقديم المستحضرات الصيدلية المعاصرة والخدمات الصيدلية بالإضافة الى ان يكون متمكنا من مهارات التواصل الفعال والقيادة والإدارة وريادة الأعمال.
- تخريج صيدلى يعمل كمتعلم مدى الحياة بهدف التنمية المهنية المستدامة و يظهر القدرة على مهارات تقييم الأداء والتقييم الذاتي.
- 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 درجة بكالوريوس الصيدلة (فارم دي- PharmD) طبقا لنظام الساعات المعتمدة.

مادة (3):

التأهيل للدرجات الأكاديمية الأعلى

درجة بكالوريوس الصيدلة (فارم ديى- PharmD)هى الدرجة الجامعية الأولى فى مجال الصيدلة اللازمة للحصول على ترخيص ممارسة المهنة فى جميع المجالات الصيدلية المتاحة ، كما تؤهل الخريج للتسجيل في الدراسات العليا.

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):

البرنامج الدراسي

يعتمد البرنامج الدراسي علي التعلم عن طريق المحاضرات النظرية وحلقات النقاش والدروس العملية وورش العمل والتدريبات الميدانية و إجراء بحوث و تقديم العروض بالإضافة إلى التعاون مع المجتمع المحيط بالجامعة ويتضمن الأتي:

أولا : عدد الساعات المعتمدة 172 ساعة معتمدة ، بالإضافة إلى متطلبات الجامعة (4 ساعات معتمدة).

ثانيا : أربعة مقررات اختيارية (8 ساعات معتمدة) يتم اختيارها من القائمة المذكورة بمرفق 1. هذا بالإضافة إلى 100 ساعة تدريب صيفى فعلية يبدأ بنهاية المستوى الثالث و قبل البدء فى سنة الامتياز.

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 للطالب بتسجيل بعض المقررات بالتوازي مع متطلباتها التي لم يجتازها الطالب بنجاح إذا قل العبء الدراسي المتاح للطالب عن 12 ساعة معتمدة (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 للطالب 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 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 و على الا يزيد العبء الدراسي للطالب المتعثر عن 12 ساعة معتمدة (أنظر مادة 13) .

العبء الدراسي خلال الفصل الصيفي بحد أقصى 10 ساعات معتمدة.

ويجوز لمجلس الكلية السماح للطالب في أخر فصلين دراسيين بزيادة العبء الدراسي عن الحد الأقصى وبما لا يتجاوز عدد 3 ساعات معتمدة (يستفيد منها الطالب لمرة واحدة)، كما يجوز لمجلس الكلية السماح للطالب

المتعثر (أنظر مادة 13 - التعثرالأكاديمي) بزيادة العبء الدراسي عن الحد الأقصى خلال الفصل الصيفي وبما لا يتجاوز عدد 2 ساعة معتمدة.

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) المواظـــبة

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 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):

لغـة 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 الاولى و التدريب الميدانى المتقدم (سنة الامتياز)

أ-التدريب الميدانى الأولى:

على الطالب أن يكمل فترة تدريب ميداني أولى بإجمالي 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 وقبل البدء فى سنة الامتياز.

ب- التدريب الميدانى المتقدم (سنة الامتياز):

- على الطالب أن يكمل سنة الامتياز (سنة أكاديمية بمعنى 9 اشهر) 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.

(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 والعملية والتحريرية والشفهية 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.

نظـام التقيـــيم

النسبة المئوية	عدد النقاط	الرمز	التقدير
95 فأكثر	4	A+	ممتاز
90 لأقل من 95	3.8	A	
85 لأقل من 90	3.6	A-	
82.5 لأقل من 85	3.4	B+	جيد جدا
77.5 لأقل من 82.5	3.2	B	
75 لأقل من 77.5	3	B-	
72.5 لأقل من 75	2.8	C+	جيد
67.5 لأقل من 72.5	2.6	C	
65 لأقل من 67.5	2.4	C-	
62.5 لأقل من 65	2.2	D+	مقبول
60 لأقل من 62.5	2	D	
أقل من 60	0,00	F	راسب
منسحب	-	W	منسحب
غير مكتمل	-	I*	غير مكتمل
غائب بعذر	-	Abs E**	غائب بعذر
غائب بدون عذر	-	Abs ***	غائب بدون عذر

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.

*** Abs: يحصل الطالب على هذا الرمز إذا لم يتمكن من دخول الإمتحان التحريري النهائي والشفهي (إن وجد) في الموعد السالف ذكره بدون عذر ويتحتم على الطالب التسجيل في هذا المقرر عند طرحه مرة أخرى ودراسته كاملاً ولايتعدي تقديره أعلي المقبول عند نجاحه في المقرر.

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 (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 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 .

مادة (13):

التعثر الأكاديمي

يعتبر الطالب متعثر اكاديميا إذا حصل على معدل فصلي (GPA) أقل من "2".

الطالب الذي يحصل على معدل فصلي (GPA) أقل من "2" 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 درجة بكالوريوس الصيدلة (فارم دي- PharmD)

يتطلب الحصول على درجة بكالوريوس الصيدلة (فارم دي- PharmD) طبقا لنظام الساعات المعتمدة او ما يعادله ما يلي:

أولا : دراسة واجتياز عدد الساعات المعتمدة (**172** ساعة معتمدة) موزعة على عشرة فصول دراسية وتشمل **متطلبات الكلية الإجبارية 164** ساعة معتمدة (جدول توزيع المقررات) ومتطلبات الكلية الإختيارية وتمثل عدد **8** ساعات معتمدة ، على ألا يقل المعدل التراكمي عن أثنين.

ثانيا: إجتياز 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 (أنظر مرفق رقم 1)

مادة (18):

الخطة الدراسية (مرفق 2)

مادة (19):

محتوى المقررات الدراسية (أنظر مرفق 3)

مادة (20):

تحديث المقررات الدراسية

يجوز تحديث نسبة لا تتجاوز 20% من محتوى المقررات الدراسية بناء على أقتراح مجلس القسم العلمى المختص وموافقة مجلس الكلية واعتماد مجلس الجامعة بعد إبداء المبررات اللازمة .

مادة (21):

برنامج التدريب لسنة الإمتياز:

يتم وضع برنامج مفصل للتدريب للسنة النهائية (سنة 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

Key for Course Abbreviations

MS	Mathematics
PB	Biochemistry
PC	Chemistry
PG	Pharmacognosy
PM	Microbiology and Immunology
PO	Pharmacology and Toxicology
PP	Clinical Pharmacy
PT	Pharmaceutics and Industrial Pharmacy
MD	Medical Courses
NP	Non professional

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

University Requirements:

Course Code	Course Title	Credit Hours		
		L	P/T	Total
NP 101	Information Technology	1	1	2
NP 102	Human Rights and Fighting Corruption	1	0	1
NP 203	Psychology	1	0	1

3- متطلبات الكلية

Faculty Requirements: See program curriculum (Appendix 2)

4- مقررات اختيارية

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 E12	Advanced Pharmaceutical Analysis - Spectroscopy	2	0	2
PC E13	Forensic Chemistry	2	0	2
PC E14	Bioanalytical Chemistry	2	0	2
PC E15	Applied Analytical Chemistry	1	1	2
PC E16	Computational Drug Design	1	1	2
PG E06	Alternative Medicinal Therapies	2	0	2
PG E07	Production and Manufacture of Medicinal plants	2	0	2
PG E08	Chromatography and Separation Techniques	1	1	2
PT E12	Pharmaceutical Regulatory Affairs	2	0	2
PT E13	Cosmetic Preparations and Cosmeceuticals	1	1	2
PO E08	Drug Metabolism and Transport	1	1	2
PO E09	Veterinary Pharmacology	1	1	2
PO E10	Drug Discovery and Development	1	1	2
PM E07	Gene regulation and epigenetics	2	0	2
PM E08	Antimicrobial stewardship	2	0	2
PM E09	Infection Control	2	0	2
PM E10	Bioinformatics	1	1	2
PB E05	Clinical nutrition	2	0	2
PB E06	Stem cell biology	2	0	2
PB E07	Genetics	2	0	2

L: Lecture P: Practical T: Tutorial

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

مرفق رقم 2

خاص بالمادة رقم (18) الخطة الدراسية

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		
Physical and Inorganic Chemistry	PC 101	2	1	3	Registration	20	40	75	15	150	2
Pharmaceutical Organic Chemistry I	PC 102	2	1	3	Registration	20	40	75	15	150	2
Pharmacy Orientation	PT 101	1	-	1	Registration	10	--	40	--	50	1
Medicinal Plants	PG 101	2	1	3	Registration	20	40	75	15	150	2
Medical Terminology	MD 101	1	-	1	Registration	10	--	40	--	50	1
*Information Technology	NP 101	1	1	2	Registration	15	25	60	---	100	1
Mathematics	MS 101	1	---	1	Registration	10	--	40	--	50	1
*Human Rights and Fighting Corruption	NP 102	1	---	1	Registration	10	--	40	--	50	1
Total		11	4	15						600	

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

*متطلبات الجامعة لا تضاف للمجموع ولا ساعات البرنامج.

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 I	PC 203	2	1	3	Physical and inorganic chemistry	20	40	75	15	150	2
Pharmaceutical Organic Chemistry II	PC 204	2	1	3	Pharmaceutical Organic Chemistry-I	20	40	75	15	150	2
Cell Biology	PB 201	1	1	2	Registration	15	25	50	10	100	1
Anatomy& Histology	MD 202	2	1	3	Registration	20	40	90	-	150	2
Physical Pharmacy	PT 202	2	1	3	Registration	20	40	75	15	150	2
Pharmacognosy	PG 202	2	1	3	Medicinal Plants	20	40	75	15	150	2
*Psychology	NP 203	1	-	1	Registration	10	--	40	--	50	1
Total		12	6	18						850	

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

*متطلبات الجامعة لا تضاف للمجموع ولا ساعات البرنامج.

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 Analytical Chemistry II	**PC 305**	**2**	**1**	**3**	**Pharmaceutical Analytical Chemistry- I**	**20**	**40**	**75**	**15**	**150**	**2**
Pharmaceutical Organic Chemistry III	**PC 306**	**2**	**1**	**3**	**Pharmaceutical Organic Chemistry-II**	**20**	**40**	**75**	**15**	**150**	**2**
Scientific Writing	**NP 304**	**1**	**1**	**2**	**Registration**	**15**	**25**	**60**	**---**	**100**	**1**
General Microbiology and Immunology	**PM 301**	**2**	**1**	**3**	**Registration**	**20**	**40**	**75**	**15**	**150**	**2**
Physiology and Pathophysiology	**MD 303**	**2**	**1**	**3**	**Registration**	**20**	**40**	**75**	**15**	**150**	**2**
Pharmaceutics I	**PT 303**	**2**	**1**	**3**	**Physical Pharmacy**	**20**	**40**	**75**	**15**	**150**	**2**
Total		**11**	**6**	**17**						**850**	

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

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		
Biochemistry I	**PB 402**	**2**	**1**	**3**	**Registration**	**20**	**40**	**75**	**15**	**150**	**2**
Biostatistics	**PO 401**	**1**	**1**	**2**	**Registration**	**15**	**25**	**60**	**-**	**100**	**1**
Pathology	**MD 404**	**1**	**1**	**2**	**Histology**	**15**	**25**	**50**	**10**	**100**	**1**
Instrumental Analysis	**PC 407**	**2**	**1**	**3**	**Physical and Inorganic Chemistry**	**20**	**40**	**75**	**15**	**150**	**2**
Pharmaceutics II	**PT 404**	**2**	**1**	**3**	**Physical Pharmacy**	**20**	**40**	**75**	**15**	**150**	**2**
Communication skills	**NP405**	**-**	**1**	**1**	**Registration**	**10**	**15**	**25**	**---**	**50**	**1**
Pharmaceutical Microbiology	**PM 402**	**2**	**1**	**3**	**General Microbiology**	**20**	**40**	**75**	**15**	**150**	**2**
Total		**10**	**7**	**17**						**850**	

- ***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		
Biochemistry II	PB 503	2	1	3	Biochemistry-I	20	40	75	15	150	2
Community Pharmacy Practice	PP 501	2	1	3	Registration	20	40	75	15	150	2
Phytochemistry I	PG 503	2	1	3	Pharmacognosy	20	40	75	15	150	2
Pharmaceutics III	PT 505	2	1	3	Pharmaceutics I	20	40	75	15	150	2
Drug Design	PC 508	2	1	3	Pharmaceutical organic III	20	40	75	15	150	2
Pharmacology I	PO 502	2	1	3	Physiology	20	40	75	15	150	2
Total		12	6	18						900	

- ***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		
Bacteriology and Mycology	**PM 603**	**2**	**1**	**3**	**General Microbiology and Immunology**	**20**	**40**	**75**	**15**	**150**	**2**
Pharmacotherapy I	**PP602**	**2**	**1**	**3**	**Pharmacology I**	**20**	**40**	**75**	**15**	**150**	**2**
Phytochemistry II	**PG 604**	**2**	**1**	**3**	**Pharmacognosy**	**20**	**40**	**75**	**15**	**150**	**2**
Pharmaceutics IV	**PT 606**	**2**	**1**	**3**	**Pharmaceutics I**	**20**	**40**	**75**	**15**	**150**	**2**
Pharmacology II	**PO 603**	**2**	**1**	**3**	**Pharmacology-1**	**20**	**40**	**75**	**15**	**150**	**2**
Medicinal Chemistry I	**PC 609**	**2**	**1**	**3**	**Drug Design**	**20**	**40**	**75**	**15**	**150**	**2**
Pharmaceutical Legislations and Regulatory Affairs	**NP606**	**1**	**-**	**1**	**Registration**	**10**	**-**	**40**	**-**	**50**	**1**
Total		**13**	**6**	**19**						**950**	

- ***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		
Virology and Parasitology	PM 704	2	1	3	General Microbiology and Immunology	20	40	75	15	150	2
Pharmacology III	PO 704	2	1	3	Pharmacology-II	20	40	75	15	150	2
Biopharmaceutics and Pharmacokinetics	PT 707	2	1	3	Pharmaceutics III	20	40	75	15	150	2
Medicinal Chemistry II	PC 710	2	1	3	Drug Design	20	40	75	15	150	2
Drug Information	PO 705	1	1	2	Pharmacology I	15	25	50	10	100	1
Pharmaceutical Technology I	PT 708	2	1	3	Pharmaceutics III	20	40	75	15	150	2
Elective	PE(1+1) or (2+0)	1	1	2	Registration	15	25	60	---	100	1
		2	-	2		15	-	85	-		2
Total		12	6 or 7	19						950	

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

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		
Clinical Pharmacokinetics	PP 803	2	1	3	Biopharmaceutics and Pharmacokinetics	20	40	75	15	150	2
Clinical Biochemistry	PB 804	2	1	3	Biochemistry II	20	40	75	15	150	2
Basic & Clinical Toxicology	PO 806	2	1	3	Pharmacology-III	20	40	75	15	150	2
Hospital Pharmacy	PP 804	1	1	2	Pharmaceutics IV	15	25	50	10	100	1
Pharmaceutical Technology II	PT 809	2	1	3	Pharmaceutical Technology I	20	40	75	15	150	2
Pharmacotherapy II	PP 805	2	1	3	Pharmacotherapy I	20	40	75	15	150	2
Elective	PE(1+1) or (2+0)	1	1	2	Registration	15	25	60	---	100	1
		2	-	2		15	-	85	-		2
Total		12	6 or 7	19						950	

- ***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		
Biotechnology	**PM 905**	**2**	**1**	**3**	**Pharmaceutical Microbiology**	**20**	**40**	**75**	**15**	**150**	**2**
Pharmacotherapy III	**PP 906**	**2**	**1**	**3**	**Pharmacotherapy II**	**20**	**40**	**75**	**15**	**150**	**2**
Public Health	**PM 906**	**2**	**-**	**2**	**Bacteriology and Mycology**	**15**	**---**	**75**	**10**	**100**	**2**
Phytotherapy and Aromatherapy	**PG 905**	**2**	**-**	**2**	**Phytochemistry-II**	**15**	**-**	**75**	**10**	**100**	**2**
Good Manufacturing Practice	**PT 910**	**1**	**1**	**2**	**Pharmaceutical Technology II**	**15**	**25**	**50**	**10**	**100**	**1**
Marketing & Pharmacoeconomics	**NP 907**	**2**	**--**	**2**	**Registration**	**15**	**---**	**85**	**---**	**100**	**2**
Professional Ethics	**NP 908**	**1**	**--**	**1**	**Registration**	**10**	**--**	**40**	**--**	**50**	**1**
Elective	**PE (1+1) or (2+0)**	**1**	**1**	**2**	**Registration**	**15**	**25**	**60**	**---**	**100**	**1**
		2	**-**	**2**		**15**	**-**	**85**	**-**		**2**
Total		**13**	**3 or 4**	**17**						**850**	

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		
Quality Control of Pharmaceuticals	PC 011	2	1	3	Instrumental analysis	20	40	75	15	150	2
First Aid	MD 005	1	--	1	Pharmacology III	10	--	40	--	50	1
Drug interaction	PO 007	1	1	2	Pharmacology-III	15	25	50	10	100	1
Advanced Drug Delivery Systems	PT 011	2	-	2	Biopharmaceutics and Pharmacokinetics	15	-	75	10	100	2
Pharmacotherapy IV	PP 007	2	1	3	Pharmacotherapy III	20	40	75	15	150	2
Entrepreneurship	NP 009	1	1	2	Registration	15	25	50	10	100	1
Clinical Research, Pharmacoepidemiology and & Pharmacovigilance	PP 008	1	1	2	Pharmacology III	15	25	50	10	100	1
Elective	PE (1+1) or (2+0)	1	1	2	Registration	15	25	60	---	100	1
		2	-	2		15	-	85	-		2
Total		11	5 or 6	17						850	

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

المقررات التي تقوم الاقسام العلمية بتدريسها او الاشراف عليها

عدد الساعات المعتمدة	المقرر	القسم العلمي
3	PC 101 Physical and Inorganic Chemistry	الكيمياء التحليلية
3	PC 203 Pharmaceutical Analytical Chemistry I	
3	PC 305 Pharmaceutical Analytical Chemistry II	
3	PC 407 Instrumental Analysis	
3	PC 011 Quality Control of Pharmaceuticals	
1	*MS 101 Mathematics	
2	*NP 101 Information Technology	
1	*NP 102 Human Rights and Fighting Corruption	
2	** PC E12 Advanced Pharmaceutical Analysis - Spectroscopy	
2	**PC E13 Forensic Chemistry	
2	**PC E14 Bioanalytical Chemistry	
2	**PC E15 Applied Analytical Chemistry	
3	PC 102 Pharmaceutical Organic Chemistry I	الكيمياء الصيدلية
3	PC 204 Pharmaceutical Organic Chemistry II	
3	PC 306 Pharmaceutical Organic Chemistry III	
3	PC 508 Drug Design	
3	PC 609 Medicinal Chemistry I	
3	PC 710 Medicinal Chemistry II	
2	**PC E16 Computational Drug Design	
2	PO 401 Biostatistics	الادوية والسموم
3	PO 502 Pharmacology-I	
3	PO 603 Pharmacology-II	
3	PO 704 Pharmacology-III	

2	PO 705 Drug Information	
3	PO 806 Basic & Clinical Toxicology	
2	PO 007 Drug interaction	
1	MD 101 Medical Terminology	
2	*NP 304 Scientific Writing	
1	*NP 405 Communication skills	
2	**PO E08 Drug Metabolism and Transport	
2	**PO E09 Veterinary Pharmacology	
2	**PO E10 Drug Discovery and Development	
3	PG 101 Medicinal Plants	العقاقير
3	PG 202 Pharmacognosy	
3	PG 503 Phytochemistry I	
3	PG 604 Phytochemistry II	
2	PG 905 Phytotherapy and aromatherapy	
1	*NP 203 Psychology	
2	*NP 009 Entrepreneurship	
2	**PG E06 Alternative Medicinal Therapies	
2	**PG E07 Production and Manufacture of Medicinal plants	
2	**PG E08 Chromatography and Separation Techniques	
1	PT 101 Pharmacy Orientation	الصبدلانيات والصيدلة اصناعية
3	PT 202 Physical Pharmacy	
3	PT 303 Pharmaceutics I	
3	PT 404 Pharmaceutics II	
3	PT 505 Pharmaceutics III	
3	PT 606 Pharmaceutics IV	
3	PT 707 Biopharmaceutics and Pharmacokinetics	
3	PT 708 Pharmaceutical Technology I	
3	PT 809 Pharmaceutical Technology II	
2	PT 910 Good Manufacturing Practice	
2	PT 011 Advanced Drug Delivery Systems	

1	*NP 606Pharmaceutical Legislations and Regulatory Affairs	
2	**PT E12 Pharmaceutical Regulatory Affairs	
2	**PT E13 Cosmetic Preparations and Cosmeceuticals	
3	PP 501 Community Pharmacy Practice	الصيدلة الاكلينيكية
3	PP 602 Pharmacotherapy I	
3	PP 803 Clinical Pharmacokinetics	
2	PP 804 Hospital Pharmacy	
3	PP 805 Pharmacotherapy II	
3	PP 906 Pharmacotherapy III	
3	PP 007 Pharmacotherapy IV	
2	PP 008 Clinical research, Pharmacoepidemiology and Pharmacovigilance	
1	MD 005 First Aid	
2	*NP 907 Marketing & Pharmacoeconomics	
1	NP 908 Professional Ethics	
3	*MD 202 Anatomy& Histology	
3	PB 402 Biochemistry I	الكيمياء الحيوية
3	PB 503 Biochemistry II	
3	PB 804 Clinical Biochemistry	
2	**PB E05 Clinical nutrition	
2	**PB E06 Stem cell biology	
2	**PB E07 Genetics	
3	PM 301 General Microbiology and Immunology	الميكروبيولوجيا والمناعة
3	PM 402 Pharmaceutical Microbiology	
3	PM 603 Bacteriology and Mycology	
3	PM 704 Virology and Parasitology	
3	PM 905 Biotechnology	
2	PM 906 Public Health	
2	MD 404 Pathology	

2	**PM E07 Gene regulation and epigenetics	
2	**PM E08 Antimicrobial stewardship	
2	**PM E09 Infection Control	
2	**PM E10 Bioinformatics	

مقررات مشتركة بين الاقسام

2	PB 201Cell Biology	لكيمياء الحيوية و الميكروبيولوجيا والمناعة
3	MD 303 Physiology and Pathophysiology	الفارماكولوجي والصيدلة الاكلينيكية

*أشراف علي تدريس المقرر
** مقرر اختياري

مرفق 3

خاص بالمادة (19)

محتوى المقررات الدراسية

Course Content

PC 101 Physical and Inorganic Chemistry (2+1)

Upon successful completion of this course, the students should be able to Understand and apply the rules of using of EKB and writing scientific research, the quantum theory and its modern applications. The students should also understand and describe types of bonds, VSEPR theory and bonding theories, Describe the properties of different states of matter including supercritical fluids and liquid crystals, providing examples and/or applications, Describe the types of different solutions and their colligative properties and their modern applications, Describe and provide examples and analyze the different types of intermolecular forces present in a substance. The students should understand the principles of chemical equilibrium and describe its different applications and apply qualitative analytical tests to identify the components of inorganic salt mixtures according to a standard scheme

PC 102 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 cycloalkanes, alkenes, alkadienes, alkynes, alkyl halides (nomenclature, preparation and chemical reactions (S_N1, S_N2, E_1, E_2), alcohols, ethers and epoxides. In addition it covers stereochemistry (Optical isomerism, racemic modification and nomenclature of configurations).

PC 203 Pharmaceutical Analytical Chemistry I (2+1)

This course provides students with the knowledge of the different methods of quantitative volumetric analysis. By the end of this course the student should be able to explain the principles and the theories of the acid base, non aqueous, preciptimetric and complexometric analytical techniques. The students could implement various volumetric analytical methods for analyzing different raw materials and pharmaceutical compounds.

PC 204 Pharmaceutical Organic Chemistry II (2+1)

This course involves arenes, and aromatic compounds (Kekule structure, Huckel rule, electrophilic and nucleophilic aromatic substitutions and orientations) It also covers different classes of organic compounds: Phenols, aldehydes, ketones, carboxylic acid & acid derivatives, sulphonic acids, and nitrogenous compounds.

PC 305 Pharmaceutical Analytical Chemistry II (2+1)

Upon successful completion of this course, the students should be able to professionally and independently analyze raw materials, pharmaceutical compounds and water samples by different volumetric methods (oxidation - reduction) and instrumental quantitative analytical methods (electrochemical techniques). Students should be able to apply this knowledge correctly and professionally in choice of suitable technique for analytical problem.

PC 306 Pharmaceutical Organic Chemistry III (2+1)

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

PC 407 Instrumental Analysis (2+1)

Upon successful completion of this course, the students should be able to work efficiently on different instruments using different techniques of analytical chemistry (such as molecular and atomic spectroscopy and chromatography) and apply this knowledge correctly and professionally in the choice of suitable instrument and in the analysis of different complex matrices and pharmaceutical products.

PC 508 Drug Design (2 +1)

The prime objective of this course is to introduce students to the essentials of Medicinal Chemistry, and how the biological and toxicological activities of drugs are strongly correlated to their chemical structures (Structure-activity relationship; SAR), physicochemical properties and metabolic pathways. The molecular aspects governing pharmacokinetics (ADME), pharmacodynamics, optimization of drug actions and their possible side effects in relation to their chemical structures are also covered. The course is also designed to familiarize the students with the concepts of molecular modeling including structure-based and ligand-based drug design. It also covers 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 aiming to target specific receptor and enzyme active sites. Additionally, the course addresses specific concepts of Medicinal Chemistry including molecular docking, pharmacophore generation, prodrug design, stereochemistry alterations, bioisosteric modification, drug metabolism and Quantitative Structure-activity relationship (QSAR).

PC 609 Medicinal Chemistry I (2 +1)

This course is tailored to assist the students to integrate the principles of Medicinal Chemistry, chemical structures of drugs, their structure activity relationships with the conceptual aspects of drug action at their target sites, regarding different classes of drugs affecting the autonomic nervous system (ANS), drugs acting on the cardiovascular system (CVS), central nervous system (CNS)**,** neurodegenerative disorders. Moreover, antihistamines (H1, H2 blockers and anti-ulcer PPIs), and drugs controlling pain and inflammation (NSAIDs, local anaesthetics and rheumatoid drugs) are also handled.

PC 710 Medicinal Chemistry II (2 +1)

This course is tailored to assist the students to integrate the principles of Medicinal Chemistry, chemical structures of drugs, their structure activity relationships with the conceptual aspects of drug action at their target sites, regarding classes of drugs including the endocrine-related drugs (Diabetes, thyroid), steroidal drugs. The course also handles different classes of antimicrobials and antibiotics (natural and synthetic), anticancer therapies, beside other chemotherapeutic agents including antivirals, antifungals and antiparasitics.

PC 011 Quality Control of Pharmaceuticals (2+1)

I-Good Analytical Practice and Sampling: Introduction, Sampling of pharmaceuticals and related materials, Type of sampling tools, Sampling plans.

II-Documentation

III- Validation of analytical methods according to ICH Guidelines Q2 R1. Compendial testing , Validation of analytical methods, Data elements required for assay validation. Students should be able to apply and interpret validation and bioanalytical validation parameters

IV- drug stability, stability studies and stability indicating methods, 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.

V- Official methods of analysis applied to raw materials and end products.

PB 201Cell Biology (2+0)

The course is shared between two departments, the department of Microbiology and Immunology and the department of Biochemistry. This course aims at studying cells (Prokaryotic (bacteria and archaea), Eukaryotic cells) as fundamental units of life, microscopes and their types as tools for studying cell shapes, sizes, and structures (cytoplasmic matrix, plasma membrane, cell wall, endoplasmic reticulum, Golgi apparatus, lysosomes, microbodies: peroxisomes and glyoxysomes, mitochondira, plastids, nucleus, chromosomes, ribosomes, cytoskeleton: microtubules, microfilaments, intermediate filaments, centriols, basal bodies, cilia and flagella). Regulation of gene expression (bacterial gene regulation, eukaryotic gene regulation), recombination and cross over (genetic recombination in bacteria and viruses, mechanism of homologous recombination). Cell growth and cell division (cell cycle, mitosis and meiosis), from gene to protein (transcription, protein synthesis, folding of peptides) – transport of biomolecules across membranes, Cell Signaling, intercellular communication. The cell theory and cell structure (membranous and non-membranous organelles - cell inclusions and the nucleus - macromolecules of the cell) - DNA and genetic code - Cell cycle and control of cell number – From gene to protein (transcription, protein synthesis, folding of peptides) – Transport of biomolecules across membranes - Ions and voltages – Intercellular communication -Biological oxidation, ATP synthesis cellular energetic

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) – 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 – vitamins, minerals and antioxidants Clinical correlations.

PB 503 Biochemistry II (2+1)

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 – Biosignaling – Inborn errors of metabolism –.

PB 804 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) – Clinical enzymology and 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 – Biochemistry of cancer and tumor markers - Recent diagnostic biomarkers- Advanced molecular biology techniques (conventional and real time PCR, gel electrophoresis, cloning, different blotting and sequencing techniques, DNA microarray, karyotyping and FISH technique)- Genetic diseases and gene therapy.

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 on an introduction to the natural products and taxonomy of medicinal 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. The course introduces students to some botanical drugs of different organs as leaves, flowers,….etc.

PG 202 Pharmacognosy (2+1)

The aim of the course is to provide students with the knowledge on the general subject of natural products including their sources and identification. The course introduces students to some botanical drugs of other different organs in addition to 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. Students will also be introduced to optimum nutrition and the therapeutics aspect of these drugs.

PG 503 Phytochemistry I (2+1)

Following a solid introduction on the basis of pharmacognosy, 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 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 604 Phytochemistry II (2+1)

Following a solid introduction on the basis of pharmacognosy, 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.

PG 905 Phytotherapy and aromatherapy (2+0)

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.

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, 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 physicochemical principles essential for the design and formulation of pharmaceutical products. Applications to the fundamental concepts of states of matter, phase equilibrium, buffers and 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 are also covered in this course.

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 and dispensing of drugs in pharmacy practice. It is also concerned with all formulations aspects, of liquid dosage forms including solutions (aqueous and non-aqueous), suspensions, emulsions and colloids with emphasis on the their design and development. The incompatibilities occurring during dispensing are also considered.

PT 404 Pharmaceutics II (2+1)
This course covers the basic principles of drug diffusion through the skin after topical application. Factors affecting percutaneous absorption, enhancement of skin penetration as well as transdermal drug delivery systems (TDDS) are also presented in this course. 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. Suppositories and aerosol preparations are also covered in this course.

PT 505 Pharmaceutics 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 of solid dosage forms including powders, granules, tablets, capsules and oral modified release dosage forms.

PT 606 Pharmaceutics IV (2+1)
This course involves principles of formulation, development of pharmaceutical sterile drug products. Principles for calculation and manipulation of parenterals, ophthalmic preparations, vaccines and blood products are emphasized. The course also covers the basic principles of formulation, packaging and applications of radiopharmaceuticals in pharmacy and medicine.

PT 707 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 including drug absorption, distribution, metabolism and excretion. The course explores the principles of biopharmaceutics and strategies for enhancing drug delivery and bioavailability while covering the concepts of bioequivalence, biowaivers and *in vitro-in vivo* correlations (IVIVC's). Students will also be introduced to the principles of basics pharmacokinetics including IV bolus, extravascular drug administration, multiple dose administration, compartmental models and linear/non-linear pharmacokinetics.

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 including heat transfer, evaporation, drying, distillation, filtration, centrifugation, crystallization and extraction. 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 809 Pharmaceutical Technology II (2+1)

This course is a continuation of the study of the various unit operations in pharmaceutical industry with emphasis on size reduction, size separation, size analysis and size enlargement involved in the process development, scale-up and manufacturing of pharmaceutical drug products in industry. In addition to the container/closure systems, some of the packaging processing methods are covered. Moreover, the vision about designing a quality product and its manufacturing process to consistently deliver the intended performance of the product to meet patient needs is discussed by applying Quality-by-Design principles.

PT 910 Good Manufacturing Practice (2+0)

This course involves the principles of the Current Good Manufacturing Practices (cGMP). It exposes students to all aspects of validation, inspection and 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)

The course aims to provide students with insights and competencies related to the principles of pharmaceutical pre-formulation as a gateway to dosage forms design and formulation. Emphasis is placed on developing delivery systems based on the physical and chemical properties of the drug substance and the intended use of the drug product. The course also introduces the students to the design and development of novel and targeted systems for the delivery of small and macromolecular bioactives. It also covers the application of polymers and excipients to solve problems/issues concerning the optimization of absorption, selective transport, and targeting.

PM 301 General Microbiology and Immunology (2+1)

The course will provide students with a combination of laboratory and theoretical experience exploring the general aspects of microbiology. It includes the general characters of microorganisms, their morphology, diversity, cell/particle structure, growth and cultural characteristics. 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. Moreover it introduces the advanced concepts of medical immunology, with an emphasis on host parasite relationship, non-specific and specific immunity, mechanism of immune response, molecular and cellular immunology, including antigen, antibody structure and function, their interactions, effector mechanisms, complement, cell mediated immunity, active and passive immunization, aberration of immune system including hyperactivation and hypersensitivity, immuno-deficiency disorders, autoimmunity and auto-immune diseases, organ transplantation, cancer immunotherapy and serological reactions..

PM 402 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. Different sterilization methods and their validation, aseptic area and sterility testing will be covered in this course. The course will include different classes of antimicrobial agents (antibiotics and their new categories and members, antituberculosis drugs, antiviral and antifungal agents, antiseptics,

disinfectants, preservatives), their mechanism of action, microbial resistance and new approaches to overcome bacterial resistance, antibiotics clinical misuse, evaluation methods of antimicrobial agents, quality control and sterility assurance. Also it describes the 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.

PM 603 Bacteriology and Mycology (2+1)

The course aims at studying bacteria and fungi causing infections to human beings. Different bacterial categories including Gram positive cocci and bacilli, Gram negative cocci and bacilli, mycobacteria, chlamydiae, rickettsiae, spirochetes, mycoplasma, ureaplasma, bacteroides, superfacial, cutaneous, subcutanoeas, systemic and opportunistic fungal pathogens will be covered in the course. Routes of transmission, diseases, clinical manifestation, pathogenesis, diagnosis, treatment, prevention and control for each pathogen will be studied.

PM 704 Virology and Parasitology (2 +1)

Part of this course will 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. Different viral categories such as herpes viruses, papovaviruses adenoviruses, picornaviruses, arboviruses, myxoviruses, coronaviruses, reoviridae, retroviridae and hepatitis viruses will be covered in this part. The other part of the course focuses on parasitic infections of humans. It concerns with different parasitological related diseases in in Egypt causing serious health problems, discussing medical helminthology, protozoology and entomology, 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.

PM 905 Biotechnology (2+1)

The course aims at providing students with fundamentals, scope and applications of biotechnology. Fermentation industries including isolation, preservation of industrial microorganisms, types and construction of fermenters, fermentation modes, microbial culture media for industrial purposes, different culturing methods for mass growth of microorganisms, upstream, downstream, scaling up and down processes, preparation and conducting a formation process, use of molecular techniques for production of recombinant products like therapeutic proteins, vaccines, major biotechnological products such as production of biomass, antibiotics, amino acids, organic acids, biosensor, biotransformation, bioremediation, bioleaching, bioinsecticides, biosurfactants and biopolymer production will be studied in this course.

PM 906 Public Health (2+0)

This course aims at understanding all scientific disciplines required for health education and promotion directed to the community health, preventive medicine levels, public health indicators. How epidemiology acts as the bases of public health actions will be taught, epidemiologic triangle,

epidemiological studies, role of epidemiologist. Detailed scientific information and practices programs will be provided for control of communicable diseases, nosocomial infections, immunization and immunobiologic agents, different types, compositions, uses, of vaccines (stand alone and combined vaccines), control of 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 Biostatistics (1+1)

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.

PO 502 Pharmacology-I (2+1)

The general principles of pharmacology are presented; such as pharmacokinetics,
pharmacodynamics, receptor theory, drug interaction and principle of therapeutics

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

PO 603 Pharmacology-II (2+1)

This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology disease processes regarding drugs acting on cardiovascular systems, central nervous system, gastro-intestinal tract, pulmonary systems and hematologic disorders. Antihyperlipidemic drugs are also included.

PO 704 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. The anti-inflammatory, analgesics as well as gout treatments are also included.

PO 705 Drug Information (1+1)

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. It also aims at providing the students with the professional skills required to effectively and accurately answer medication- related questions in a systematic and evidence based approach.

PO 806 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 007 Drug interaction (1+1)

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.

MD 101 Medical Terminology (1+0)

Introduction to medical and pharmaceutical terminologies, medical abbreviations, medical idioms, suffixes and prefixes, medical terms pertaining to major body systems.

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 Physiology and Pathophysiology (2+1)

Introduction to body water, homeostasis, transport of materials, nervous systems, neuron structure and function (reflex arc), cardiovascular system, blood, respiratory cycle, gastrointestinal, reproductive, and renal systems, endocrine glands and body temperature regulation. Introduction to pathophysiology, cell injury, inflammation and immune response, autonomic nervous system in health and disease, endocrine disorders, pancreatic disorders, fluid and electrolyte imbalance, vascular and haematological disorders, disease of urinary, pulmonary and digestive systems.

MD 404 Pathology (1+1)

The aim of pathology course is to provide students with information and practical work to get knowledge and skills about physical changes affecting body organs and system due to disease. 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 clinical manifestations and complications to be able to determine the most likely diagnosis of the disease. The main themes of this course will include cell Injury, and cellular adaptations (etiology, factors

affecting the outcome of cell injury, pathogenesis of cell injury, reversible cell injury, irreversible cell injury, morphology of reversible cell injury, irreversible cell injury (cell death), changes after cell death, adaptive disorders); amyloidosis and pathology of infectious diseases; inflammation and healing; circulatory disturbances (hyperaemia, congestion, haemorrhage, shock, thrombosis, embolism, ischaemia, infarction); neoplasia; haematopoietic system and bone marrow disorders.

MD 005 First Aid (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.

PP 501 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. It also provides concepts of patient assessment, counselling, and monitoring in community pharmacy and in outpatient care settings and introduces students to pharmaceutical care services for chronic-diseased outpatients and to psychosocial aspects in patient care. In addition, the course provides the students with competencies to promote the public health role of pharmacist including health promotion and disease prevention

PP 602 Pharmacotherapy I (2+1)

This Pharmacotherapy course provides the students with an understanding of the most important cardiovascular diseases and provides information on the etiology, clinical signs and symptoms, investigations and principles of treatment of disease important to pharmacists in their development of patient-oriented practice. In addition, it provides pharmaceutical care for patients with pulmonary disorders and enables the students to design and implement a pharmaceutical care plan for the management of the most important pulmonary disorders and provides information on the etiology, clinical signs and symptoms, investigations and principles of treatment of disease important to pharmacists in their development of patient-oriented practice.

PP 803 Clinical Pharmacokinetics (2+1)

Students will learn about the principles of clinical pharmacokinetics, excretion, and binding of drugs and different factors that could affect drugs pharmacokinetics. Student will learn how to integrate these principles into the process of monitoring, evaluating and adjusting dosing for patients through critical thinking and problem-solving exercises that relate to drug dosing and monitoring functions that are commonly performed by pharmacists in clinical practice.

PP 804 Hospital Pharmacy (1+1)

The course aims to introduces 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 805 Pharmacotherapy II (2+1)

The course provides the students with an understanding of the most important renal diseases and provides information on the etiology, clinical signs and symptoms, investigations and principles of treatment of disease important to pharmacists to design and implement a pharmaceutical care plan for the management of renal disease. Also the pharmacotherapy of infectious diseases course provides the students with an understanding of the most important infectious diseases and provides information on the etiology, clinical signs and symptoms, investigations and principles of treatment of disease important to pharmacists in their development of patient-oriented practice. And to enhance the rationale drug use which is the appropriate, effective, safe and economic use of drug

PP 906 Pharmacotherapy III (2+1)

This course includes the pathophysiology, etiology, clinical signs and symptoms, diagnosis, investigations, the design and implementation of pharmaceutical care plans in different endocrinologic disorders. The course also focuses on the most common neuropsychiatric disorders with emphasis on the different treatment options available. The student will be able to apply principles of clinical pharmacy in optimizing drug therapy, detecting drug interaction and educating the patients about different aspects of neuropsychiatric disorders.

PP 007 Pharmacotherapy IV (2+1)

The student will learn the epidemiology and etiology of different disease related to the bone, GIT and cancer. The course will include different pharmacologic and non-pharmacologic treatment options available. The student will learn how to select the cost-effective evidence-based treatment, provide supportive care needed and design a pharmaceutical care plan for the patients.

PP 008 Clinical research, Pharmacoepidemiology 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 addresses a range of study designs and analytic techniques for observational studies on the utilization, safety, and effectiveness of pharmaceuticals. Students will develop an understanding of how to plan, implement, analyse, and criticize pharmacoepidemiological studies. This course also provides the student's with understanding of pharmacovigilance importance, concept, processes, systems, global safety standards and regulations and reporting systems

MS 101 Mathematics (1+0)

Functions and graphs, limits and continuity, differentiation, exponential, logarithmic, and trigonometric functions, integration, basic differential equations, functions of several variables and problems related to them, probability and random variables, and hypothesis testing.

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 and power point. It gives students a practical experience on developing projects related to the specialty of each faculty.

NP 102 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 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.

NP 304 Scientific Writing (1 + 1)

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.

NP 405 Communication skills (0+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 606 Pharmaceutical Legislations and Regulatory Affairs (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 907 Marketing & Pharmacoeconomics (2 + 0)

Pharmacoeconomics

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 908 Professional Ethics (1 + 0)

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, medication error, research ethics and animal ethics.

NP 009 Entrepreneurship (1+1)

This course is designed to enhance a student's knowledge in leadership, business, and financial skills in pharmacy practice while learning the traits of an entrepreneur, current topics in entrepreneurship with a specific focus on pharmacy practice and patient care programs. This course will teach the participants a comprehensive set of critical skills needed to develop a profitable business project. This course is designed to provide the students the personal and business tools including risk-taking, strategic planning, marketing, competitiveness, and social responsibility to make the transition from the academic environment to the daily practice of pharmacy now and in the future, with an emphasis on entrepreneurship.

Elective Courses

PC E12 Advanced pharmaceutical analysis – spectroscopy (2+0)

Upon successful completion of this course, the students should be able to explain the principles and theories of different advanced spectroscopic techniques (UV-VIS spectroscopy, spectrofluorimetry, flame spectroscopy, IR, Mass spectrometry,…). Students should be willing to apply this knowledge correctly and professionally in solving different analytical problem.

PC E13 Forensic Chemistry (2+0)

This course approaches the challenges, methods and analyses of forensic science from a fundamental, chemical perspective. Suggested topics include preliminary, microscopic, elemental, thermal, instrumental analysis and their applications, forensic analysis of fingerprints, drugs, narcotics, arson, paper, fibers, firearms gunshot residue and blood samples

PC E14 Bioanalytical Chemistry (2+0)

Upon successful completion of this course, the students should have knowledge about different stages of drug discovery, difference between generic and innovator drugs, bioavailability and bioequivalence. Also, students should have knowledge about biovalidation parameters at different regulatory guidelines as ICH, FDA and pharmacopeias and use this knowledge for analysis of drugs in real biological samples.

PC E15 Applied Analytical Chemistry (1+1)

This course provides details on the development and validation of analytical methods for cosmetic products such as products for sun protection, skin bronzing, general colouring agents, hair dyes, preservatives, perfumes, surfactants, nanomaterials , 'green' cosmetic ingredients and main chemical contaminants. It includes the official methods for cosmetic product analysis and explains how to access the corresponding documents including sample preparation, analytical techniques to be used. The course also approaches different aspects of oil and milk analysis including (classifications and compositions, physical examination and chemical examination). In addition, the course deals with detection of adultration of different food samples.

PC E13 Computational Drug Design (1+1)

The course addresses detailed concepts of computational drug design and application in drug discovery including structure based and ligand based drug design, molecular docking, pharmacophore generation, homology modelling, Two dimensional and Three dimensional Quantitative Structure-activity relationship (2D-QSAR, 3D-QSAR).

PG E06 Alternative Medicinal Therapies (2+0)

This course explores the major domains of Alternative Medicinal Therapies. The course focuses on alternative therapeutic systems including herbal medicine, aromatherapy, acupuncture, homeopathy, dietary, energy therapies, and mind-body medicine. Students will also learn to evaluate the safety and efficacy of Alternative Therapy practices through studying their theories and principles.

PG E07 Production and manufacturing of medicinal plants (2+0)

The aim of the course is to provide students with the knowledge on the differences between wild and cultivated plants. Students will also be introduced to constraints facing the production, manufacturing and marketing of medicinal plants. Students will acquire knowledge on the general methods of large scale commercial cultivation and genetic improvements; in addition to solutions to industrial problems. The course will introduce the students to the guidelines of different quality control procedures and evaluations required during production of medicinal plants. During the lectures, the students will learn to identify examples of medicinal plants and their methods of production.

PG E08 Chromatography and separation techniques (1+1)

this course aims to enable students to demonstrate the knowledge and experience that enables her/ him to understand, describe different chromatographic tools used in the separation of complex natural extracts from plant, microbial, marine and other biological sources as well as the purification of individual compounds prior to their analysis. Throughout the course the student should earn the required knowledge and experience to differentiate between the different chromatographic tools and choose the best tool for each sample type. Moreover, the course includes the use of different chromatographic methods in the qualitative and quantitative analysis of extracts from natural sources using conventional and most recent methods.

PT E12 Pharmaceutical Regulatory Affairs (2+0):

This course will provide a basic comprehensive overview of regulatory requirements and considerations for opening new pharmacies, medical stores, factories and scientific offices. Insight into regulations surrounding medicinal and specialized pharmaceutical products registration, pharmacies and medicine stores management will also be given. The course will involve also information on all major regulatory authorities such as the US FDA, EMA,….. *etc*. Focus will also be given to key requirements for developing generics, clinical trial applications, and new product marketing applications.

PT E13 Cosmetic preparations and cosmeceuticals (1+1):

This course aims at providing students information about formulation, manufacturing and analysis of various cosmetic and cosmeceutical preparations. Focus will be placed on suitable ingredients and their properties, laboratory procedures and testing methods. Composition of products and the ways they interact with the skin will be covered in this course.

PO E08 Drug Metabolism and Transport (1+1)

The course aims at the study of the metabolism and transport of drugs and drug metabolites. Topics include biotransformation pathways as well as transport proteins. Students will gain knowledge about the relationship between drug metabolism, drug transport, and the factors that stimulate or inhibit the metabolic processes. Students will also learn about metabolism and transport in different body organs, in addition to, methods for evaluating drug metabolism and transport, and scale-up of drug metabolism and membrane transport data.

PO E09 Veterinary Pharmacology (1+1)

The course focuses on veterinary pharmacology, the pharmacodynamics and pharmacokinetics of veterinary drugs. Students will gain knowledge about the drugs commonly used in veterinary medicine, accurately mention the actions and uses of pharmacologically active drug classes and explain the mechanisms of action of the different members of each class act. Students will also learn about regulations which govern veterinary drugs in Egypt.

PO E10 Drug discovery and development (1+1)

In this course students will learn about the steps that a pharmaceutical company goes through to discover a new therapeutic drug. Students will gain knowledge about the various drug discovery tools and methods that are used for finding, identifying and designing a new drug as well as the major aspects of the drug discovery process, starting with target selection, to compound screening to designing lead candidates in addition to the use animal models.

PM E07 Gene regulation and epigenetics (2+0)

This course will give an introduction to the fundamentals of epigenetic control. It will examine epigenetic phenomena that are manifestations of epigenetic control in several organisms and the interplay between epigenetic control and the environment. The course will emphasis how epigenetic regulates gene expression and heritable phenotypes without changes in the underlying DNA sequence.

PM E08 Antimicrobial stewardship (2+0)

This course will equip pharmacists with knowledge and tools to improve the use of these essential medications in health care practices. By the end of this course, participants should be able to understand core competencies of antimicrobial stewardship and how they can be applied to common clinical scenarios. The course will include the principles of antimicrobial prescribing, antimicrobial resistance, antibiotic allergies, urinary tract infections, community-acquired respiratory tract infections, skin and soft tissue infections, bloodstream infections, antimicrobial surgical prophylaxis, acute pharyngitis in adolescents and adults, acute infectious diarrhea, ventilator-associated pneumonia, acute otitis media

PM E09 Infection control (2+0)

This course aims to equip and update allied healthcare professionals on infection control principles and practices to enable them to function effectively as healthcare professionals in their respective clinical areas. The course will include basic microbiology & immunology, overview and principles of epidemiology, evidence-based infection control principles and practices, emerging and re-emerging infections, prevention & control of common healthcare associated infections, components of an effective infection control program, role of infection control committee, professionals and link officers, multi drug resistant organism, sterilization and disinfection.

PM E10 Bioinformatics (1+1)

The course aims to know all the gene sequences in many organisms and to understand all the genes' functions in all these organisms, and how all the genes interact locally to produce a phenotype, and how they interact globally to explain the similarities and differences observed in the great diversity of life. Bioinformatics fuses biology with mathematics (especially statistics) and computer science (algorithms and their implementations to: find genes within a genomic sequence, align sequences in databases to determine the degree of matching, predict the structure and function of gene products,

describe the interactions between genes and gene products at a global level within the cell and between organisms, postulate phylogenetic relationships for sequences, DNA and protein structures, characterization of genomic DNA, genome organization in bacteria, yeasts, & humans, sequences alignments, polymorphisms & gene mapping, genome sequencing, web and internet sites for comparing and identifying protein domains

PB E05 Clinical Nutrition (2+0)

Measures of healthy life-style – Macronutrients and calculation of calories – Basal metabolic rate (BMR) - Recommended daily allowance (RDA) – Nutritional requirement for pediatrics and geriatrics - Vitamins and minerals (role in metabolism – clinical significance) – Gut microbiota , probiotics 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.

PB E06 Stem cell biology (2+0)

The course aims to study: the general concepts of stem cell biology (what are stem cells, factors affecting the fate of stem cells), different types of stem cells (embryonic, mesenchymal, and cancer stem cells), induced pluripotent stem cells and mechanisms underlying their differentiation, umbilical cord blood versus umbilical cord tissue, potential uses and clinical/therapeutic application of stem cells, future prospectives for stem cell research and regenerative medicine.

PB E07 Genetics (2+0)

The course aims to study: Mendelian/transmission genetics, population and quantitative genetics, types of mutations and gene repair, chromosomal aberrations and different genetic diseases, advanced molecular biology techniques, mechanisms of gene regulation and epigenetic control of gene expression, chromatin modifications implicated in gene silencing and activation, the role of non-coding RNA, and cancer epigenetics.

فريق إعداد ومراجعة اللائحة الداخلية لبرنامج درجة بكالوريوس الصيدلة

(فارم دي-PharmD) طبقا لنظام الساعات المعتمدة (2019)

تحت رعاية واشراف

ا.د/ مها فاروق عبد الغني

عميد كلية الصيدلة

اشراف اكاديمى

ا.د/ أماني أسامة كامل

وكيل الكلية لشئون خدمة المجتمع وتنمة البيئة

اشراف عام

ا.د/ محمود عبد المجيد يس

وكيل الكلية لشئون التعليم والطلاب

الاتصالات وتجميع المادة والتنسيق

ا/ حسن فتحي محمد مدير مكتب عميد الكلية

ا/ شيماء أمين النوبي مكتب عميد الكلية