اللائحة الداخلية لبرنامج
درجة بكالوريوس الصيدلة
(فارم دي - PharmD)
طبقاً لنظام الساعات المعتمدة
كلية الصيدلة ـ جامعة ٦ أكتوبر

(٢٠١٩)

الفهـــــرس

اللائحة الداخلية لبرنامج بكالوريوس الصيدلة
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رؤية الكلية

تسعي كلية الصيدلة - جامعة ٦ أكتوبر - أن تكون ذات قدرة تنافسية بين المؤسسات الأكاديمية المتميزة والمعترف بها دولياً

رسالة الكلية

تهدف كلية الصيدلة - جامعة ٦ أكتوبر - إلى إعداد خريج قادر على المنافسة محلياً وعربياً في مجالات مهنة الصيدلة المتنوعة من خلال استراتيجية تعليم وتعلم متطورة ومحدثة وبحث علمي متميز ودور واضح في المشاركة المجتمعية وتنمية البيئة، معتمدة في تنفيذ رسالتها على خبرات بشرية ذات كفاءة وتكنولوجيا المعلومات الحديثة ووحدات ذات طابع خاص في إطار من الحفاظ على القيم والأخلاقيات

الأهداف الاستراتيجية للكلية

الغاية الأولي: تطوير منظومة التعليم والتعلم وتعظيم القدرة التنافسية للكلية

١/١ تطوير البرنامج التعليمي لمواكبة متغيرات سوق العمل

٢/١ تطوير منظومة الدعم الطلابي

٣/١ تحسين الوضع التنافسي

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١/٢ تطوير البنية التحتية للكلية

٢/٢ تطوير نظام التقويم المؤسسي وإدارة نظم الجودة

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٢/٣ إنشاء برامج للدراسات العليا تواكب متطلبات سوق العمل

الغاية الرابعة: تعظيم الدور المجتمعي للكلية

١/٤ تعزيز برامج دعم الخريجين وزيادة التواصل معهم

٢/٤ تطوير وزيادة أنشطة ومجالات خدمة المجتمع وتنمية البيئة

الأقسام العلمية بالكلية

تضم الكلية ٧ أقسام علمية:

١) **قسم الصيدلانيات والصيدلة الصناعية (Pharmaceutics and Industrial Pharmacy)**

ويقوم بتدريس المقررات الأتية:

مدخل الصيدلة - صيدلة فيزيائية - أخلاقيات مهنة الصيدلة - صيدلانيات (I, II, III, IV) - صيدلة حيوية وحركية - - تكنولوجيا الصيدلة (I, II) - تشريعات صيدلية - تسويق واقتصاد دوائي - رقابة جودة وثبات الأدوية - أنظمة متقدمة لتوصيل الدواء- الممارسة الجيدة في التصنيع.

ويقوم بالإشراف على تدريس المقررات الأتية:

إدارة أعمال صيدلية وريادة الأعمال.

٢) **قسم العقاقير (Pharmacognosy)**

ويقوم بتدريس المقررات الأتية:

النباتات الطبية - عقاقير (I, II) - كيمياء عقاقير (I, II) - تصنيع النباتات الطبية - علم العقاقير التطبيقي - الطب البديل.

ويقوم بالإشراف على تدريس المقررات الأتية:

حقوق الانسان.

٣) **قسم الأدوية والسموم (Pharmacology and Toxicology)**

ويقوم بتدريس المقررات الأتية:

أدوية (I, II, III) - الإحصاء الحيوي - علم السموم - معلومات دوائية وسمية - تداخلات الأدوية.

ويقوم بالإشراف على تدريس المقررات الأتية:

المصطلحات الطبية - علم النفس - إسعاف أولي - علم التشريح والأنسجة - علم وظائف الأعضاء - فسيولوجيا الأمراض - علم الأمراض.

٤) **قسم الميكروبيولوجيا والمناعة (Microbiology and Immunology)**

ويقوم بتدريس المقررات الأتية:

ميكروبيولوجيا عامة - ميكروبيولوجيا صيدلية - ميكروبيولوجيا طبية والمناعة - الصحة العامة وعلم الفيروسات - التقنية الحيوية.

ويقوم بالإشراف على تدريس المقررات الأتية:

علم الطفيليات.

٥) **قسم الكيمياء (Chemistry)**

ويقوم بتدريس المقررات الأتية:

كيمياء عضوية صيدلية (I, II, III) - كيمياء تحليلية صيدلية (I, II, III) - تحليل آلي - كيمياء دوائية (I, II) - تصميم الادوية - رقابة جودة صيدلية.

ويقوم بالإشراف على تدريس المقررات الأتية:

الرياضيات - - تكنولوجيا المعلومات - مهارات التواصل.

٦) **قسم الكيمياء الحيوية (Biochemistry)**

ويقوم بتدريس المقررات الأتية:

- كيمياء حيوية (I, II) - كيمياء حيوية إكلينيكية.

ويقوم بالإشراف على تدريس المقررات الأتية:

الكتابة العلمية - بيولوجيا الخلية (يدرس بالإشتراك مع قسم الميكروبيولوجيا والمناعة)

٧) **قسم الصيدلة الإكلينيكية (Clinical Pharmacy)**

ويقوم بتدريس المقررات الأتية:

الصيدلة الإكلينيكية والعلاج (I, II) - صيدلة مستشفيات - حركية الدواء الإكلينيكية - الممارسة الصيدلية - الأبحاث الإكلينيكية واليقظة الدوائية .

مواد اللائحة

مادة (١):

رؤية البرنامج:

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

رسالة البرنامج:

إعداد صيادلة يتحلون بأخلاق المهنة ومؤهلين بأحدث المفاهيم الصيدلية والرعاية العلاجية التي تمكنهم من المساهمة في تطوير الصناعات الدوائية ورفع 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:

- أعداد وتخريج 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 تقديم المشورة للأفراد والمجتمعات لتحسين النتائج العلاجية والحد من الإصابة بالأمراض مع مراعاة أن يمارس المهنة بمسؤولياتها وسلطاتها محترماً قوانينها وأخلاقياتها، واحترام حقوق المرضى.
- إعداد صيدلي يستخدم البيانات التي تستند على الدلائل لتقديم المستحضرات والخدمات الصيدلية المتطورة، متمكنا من مهارات التواصل الفعال والقيادة والإدارة وريادة الأعمال.
- إعداد صيدلي له القدرة على التعلم باستمرار بهدف التنمية المهنية المستدامة من خلال مهارات التقييم الذاتي وتقييم الأداء.
- 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.
- الإلتزام بتحقيق معايير الجودة في التعليم الصيدلي من خلال التعليم التفاعلي والاهتمام بالتعلم الذاتي.

شروط القبول:

- يشترط فيمن يلتحق بالكلية للدراسة أن يكون من الطلاب الحاصلين على الثانوية العامة القسم العلمي أو ما يعادلها كما يجوز قبول طلاب غير مصريين حاصلين على الثانوية العامة المصرية أو ما يعادلها من الشهادات الأجنبية بعد أن يستوفي الشروط التي يحددها المجلس الأعلى للجامعات الخاصة.

- يجوز قبول تحويل الطلاب المقيدين في إحدى كليات الجامعات المصرية أو الأجنبية بشرط استيفاء الطالب لمتطلبات القبول بالكلية وتحتسب للطالب المقررات التي درسها بالكلية المحول منها وفقاً للقواعد التي تحددها الكلية والقواعد المقررة من المجلس الأعلى للجامعات الخاصة.

مادة (٢): الدرجة العلمية التي تمنح للخريجين:

يمنح مجلس جامعة ٦ اكتوبر بناءً على توصية مجلس كلية الصيدلة، الخريجين درجة بكالوريوس الصيدلة (فارم دي - PharmD) طبقاً لنظام الساعات المعتمدة.

مادة (٣): التأهيل للدرجات الأكاديمية الأعلى:

درجة بكالوريوس الصيدلة (فارم دي - PharmD) هي الدرجة الجامعية الأولى في مجال الصيدلة اللازمة للحصول على ترخيص ممارسة المهنة في جميع المجالات الصيدلية المتاحة، كما تؤهل الخريج للتسجيل لدرجة الماجستير في أي من الأقسام العلمية في الكلية.

مادة (٤): نظام الدراسة:

- مدة الدراسة بالبرنامج خمس سنوات دراسية (خمس مستويات على عشر فصول دراسية) طبقاً لنظام الساعات المعتمدة وسنة تدريب كاملة (إمتياز) في مواقع العمل (٥ + ١). بالإضافة إلى عدد (١٠٠) ساعة فصلية تدريب ميداني في الصيدليات الأهلية والحكومية وصيدليات المستشفيات تتم خلال الأجازات الصيفية لسنوات الدراسة بعد نهاية المستوى الثالث وقبل البدء في سنة الإمتياز.
- ينقسم كل مستوى دراسي إلى فصلين دراسيين (الخريف والربيع) ومدة كل فصل خمسة عشر أسبوعا.
- يجوز طرح بعض المقررات في فصل دراسي صيفي مدته من ستة إلى ثمانية أسابيع من الدراسة المكثفة.
- الساعات المعتمدة هي وحدة قياس دراسية وتعادل ساعة دراسية إسبوعية نظرية أو ساعتين من التدريبات المعملية في الأسبوع وتدرس على مدى فصل دراسي واحد.
- إذا لم ينه الطالب متطلبات التخرج خلال مدة أقصاها ضعف المدة المقررة (القياسية) لتخرجه في البرنامج يتم فصله نهائيا من الكلية. ويجوز لمجلس الجامعة إعطاء هؤلاء الطلاب فرصة إستثنائية وفق الشروط التالية:
  ١. أن يكون سبب التعثر مقبولاً لمجلس الجامعة.
  ٢. أن تكون المقررات الباقية للتخرج يمكن اجتيازها في مدة لا تتعدى فصلين دراسيين أساسيين.
  ٣. أن يكون هناك تحسن في أداء الطالب في الفصلين الأخيرين بحيث يكون المعدل التراكمي للفصلين الأخيرين لا يقل عن ٢ (بدون فصل الصيف).

مادة (٥): تصميم البرنامج الدراسي:

- الدراسة في الكلية باللغة الإنجليزية ويجوز مع ذلك تدريس بعض المقررات باللغة العربية بناءاً على توصية القسم المختص وموافقة مجلس الكلية ومجلس الجامعة.
- صمم البرنامج الدراسي بحيث يكون التعلم عن طريق المحاضرات النظرية وحلقات النقاش والدروس العملية والإكلينيكية وورش العمل والتدريبات الميدانية وإجراء بحوث وتقديم العروض بالإضافة إلى التعاون مع المجتمع المحيط بالجامعة.
- يجوز تدريس المناهج الدراسية إلكترونياً بنظام التعليم عن بعد وعقد الإمتحانات إلكترونياً.
- يجوز لمجلس الجامعة بعد أخذ رأي مجلس الكلية المختص وحسب طبيعة المقررات الدراسية للمقرر، تدريس مقرر أو أكثر بنمط التعليم الهجين عن بعد على أن يتم عرض ذلك على مجلس شئون التعليم والطلاب بالجامعة للموافقة عليه ورفعه لمجلس الجامعة لإعتماده.
- البرنامج الدراسي:

✓ **أولاً**: يدرس ويجتاز الطالب مقررات دراسية يصل مجموع ساعاتها إلى (١٨١) ساعة مقسمة كالتالي:

- (١٦٧) ساعة معتمدة مقررات كلية إجبارية.
- (٥) ساعة معتمدة مقررات جامعة إجبارية.
- (٨) ساعة معتمدة مقررات كلية اختيارية يحددها ويعتمدها مجلس الكلية ويجوز له تغييرها وتحديثها لمواكبة التطورات العلمية الحديثة بعد إحاطة لجنة القطاع.
- (١) ساعة غير معتمدة.

✓ **ثانياً:** (١٠٠) ساعة تدريب صيفي يبدأ بنهاية المستوى الثالث.

- المقررات الاختيارية يفضّل أن تحقق للطالب جدارات ومهارات تساعده على التوجه المهني والتخصص. ويفضل أن يكون أحد المقررات الاختيارية في إحدى المجالات الصيدلة الإكلينيكية.

مادة (٦): التسجيل والإرشاد الأكاديمي:

- تحدد الكلية مرشداً أكاديمياً لكل طالب يقوم بمهام الرعاية والإرشاد العلمي ويكون مسئولاً عن الطالب في الشئون العلمية والاجتماعية والنفسية وتوجيهه في كل ما يتعلق بحياته الجامعية ويقوم بمساعدة الطالب في إختيار المقررات من قائمة المقررات التي تطرحها الكلية في كل فصل دراسي.
- على كل طالب أن يقوم شخصياً بتسجيل المقررات التي يرغب في دراستها في كل فصل دراسي بالتشاور مع المرشد الأكاديمي.
- يشترط لتسجيل المقررات أن يكون الطالب قد اجتاز بنجاح متطلب هذا المقرر.
- لا يجوز الانتظام في الدراسة إلا بعد إنتهاء عملية التسجيل طبقاً للتقويم الجامعي.

أ- العبء الدراسي:

- العبء الدراسي هو عدد الساعات المعتمدة التي يقوم الطالب بتسجيلها في الفصل الدراسي، ويجب مراعاة ألا يزيد عن ٢٠ ساعة (عشرون ساعة معتمدة). ويجوز زيادة الحد الأقصى إلى ٢٢ ساعة للطلاب الحاصلين على معدل تراكمي أعلى من ٣,٥ وذلك بعد موافقة المشرف الأكاديمي ومجلس الكلية مع مراعاة متطلبات تسجيل كل مقرر.
- العبء الدراسي خلال فصل الصيف لا يزيد عن ٩ ساعات معتمدة.

- يتم تحديد العبء الدراسي للطالب في أي فصل دراسي (باستثناء فصل الصيف) بناءً على التقدير التراكمي (CGPA) وليس على التقدير الفصلي (GPA) للفصل الدراسي السابق.

ب- الإضافة والحذف والإنسحاب:

- يجوز للطالب بعد إكمال إجراءات التسجيل أن يحذف أو يضيف إلى ساعاته المعتمدة مقرراً أو أكثر على أن يكون ذلك في خلال الفترات المحددة للحذف والإضافة في كل فصل مع مراعاة الحد الأدنى والحد الأقصى للعبء الدراسي.
- يجوز للطالب بعد تسجيله الإنسحاب من مقرر أو أكثر في أي فصل دراسي دون أن يعتبر راسباً في هذا المقرر وذلك إذا تقدم بطلب الإنسحاب في الاوقات المعلنة طبقا للتقويم الجامعي ومن ينسحب بعد هذا الميعاد يعتبر راسباً إلا إذا تقدم بعذر يقبله مجلس الكلية.

مادة (٧): التدريب:

أ) التدريـب الميداني الأولى:

- على الطالب أن يكمل فترة تدريب ميداني أولى بإجمالي عدد (١٠٠) ساعة تدريب فعلية في الصيدليات الأهلية والحكومية وصيدليات المستشفيات التي يقرها مجلس الكلية وذلك تحت إشراف عضو هيئة تدريس ويتم التدريب خلال الأجازات الصيفية لسنوات الدراسة بعد نهاية المستوى الثالث وقبل بدء سنة الإمتياز.

ب) سنة الامتياز (التدريب الميداني المتقدم):

- على الطالب أن يكمل سنة الامتياز (سنة أكاديمية ٩ أشهر) بعد الانتهاء من السنوات الدراسية بالتدريب في شركات ومصانع الأدوية البشرية والبيطرية والمستلزمات 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 الدوائي..... إلخ، بالإضافة إلى المستشفيات والصيدليات الخاصة والحكومية. ويمكن لمن يرغب في التخصص في المجال الأكاديمي (التدريس والبحث) قضاء فترة تدريبية في كليات الصيدلة ومراكز البحوث. ويجب أن يشمل برنامج التدريب دورة تدريبية واحدة من دورات التدريب الإكلينيكي.

مادة (٨): المواظبة:

- على الطالب أن يواظب على حضور المحاضرات النظرية والدروس العملية ولمجلس الكلية بناءاً على طلب مجالس الأقسام المختصة أن يحرم الطالب من حضور الامتحان النظري النهائي إذا تجاوزت نسبة غيابه ٢٥% من إجمالي الساعات المعتمدة لكل مقرر وفي هذه الحالة يعتبر الطالب محروماً (Dn).

مادة (٩): نظام التقييم:

الدرجة النهائية للمقرر هي مجموع درجات الأعمال الفصلية والعملية والنظرية والشفهية كما هو موضح بجداول البرنامج الدراسي.

- توزع الدرجة النهائية للمقرر على النحو التالي:

أعمال فصليه	١٥ درجة	
الامتحان العملي	٢٥ درجة	(إن وجد)
الامتحان الشفهي	١٠ درجة	(إن وجد)
الامتحان النظري النهائي	٥٠ درجة	

* في حالة عدم وجود إمتحان شفهي للمقرر تضم درجته إلى درجة الاعمال الفصلية أي تصبح درجة الأعمال الفصلية ٢٥ درجه.
* في حالة وجود مادة نظرية بدون دروس عملية تضم درجة العملي إلى درجة الامتحان النظري النهائي لتصبح درجة الامتحان النظري ٧٥ درجة.
* الحد الأدنى للنجاح في أي مقرر هو٦٠ درجة ولا يكون الطالب ناجحاً في أي مقرر إلا إذا حصل على ٣٠% من درجة الإمتحان النظري النهائي.

* ويوضح الجدول التالي النسبة المئوية للدرجات النهائية والرموز:

النسبة المئوية	الرمز	عدد النقاط	التقدير
٩٠ فأكثر	A	٤	ممتاز
٨٥ لأقل من ٩٠	A^-	٣,٧	
٨٠ لأقل من ٨٥	B^+	٣,٣	جيد جدا
٧٥ لأقل من ٨٠	B	٣	
٧٠ لأقل من ٧٥	B^-	٢,٧	جيد
٦٥ لأقل من ٧٠	C^+	٢,٣	
٦٠ لأقل من ٦٥	C	٢	مقبول
أقل من ٦٠	F	٠	راسب
--	Ab	-	غائب
--	W	-	منسحب
--	Ds	-	تأديب
--	Dn	-	محروم

- إنتقال الطالب للمستويات الأعلى يتم بعد إجتيازه لكامل ساعات المستوى الأقل.

المعدل الفصلي (GPA) والمعدل التراكمي(cGPA)

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

١- يتم ضرب نقاط التقدير (في الجدول) في عدد الساعات المعتمدة للمقرر الواحد لنحصل على عدد النقاط الخاصة بكل مقرر.

٢- يتم جمع نقاط كل المقررات الدراسية التي سجل فيها الطالب وقسمتها على إجمالي الساعات المسجلة في الفصل.

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

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

مرتبة الشرف:

يمنح الخريج الذي يحصل على تقدير تراكمي cGPA أكبر من أو يساوى ٣,٥ مرتبة الشرف (Honor Degree) ويتم اثبات ذلك في شهادة تخرجه شريطة:

١- ألا يكون الطالب قد رسب في أي مقرر طوال فترة دراسته بالكلية أو في أي كلية أخرى.
٢- أن يكون الطالب قد أكمل متطلبات التخرج في مدة أقصاها متوسط المدة بين الحد الادنى والحد الأقصى للبقاء في الكلية.
٣- أن يكون الطالب قد درس بالكلية ما لا يقل عن ٦٠% من متطلبات التخرج.
٤- ألا يكون الطالب قد وقعت عليه أي عقوبة تأديبية طوال فترة دراسته بالكلية.

مادة (١٠): الرسوب والإعادة في المقررات:

- يعتبر الطالب راسب في الحالات الاتية:
  - ✓ تغيبه عن الإمتحان التحريري النهائي.
  - ✓ إذا حصل على أقل من ٣٠% من درجة الامتحان التحريري النهائي.
  - ✓ عدم تحقيق ٦٠% على الأقل من مجموع درجات المقرر.
  - ✓ العقوبات القانونية بما فيها الحرمان والإخلال بنظام الإمتحانات والغش فيها.
- إذا رسب الطالب في أي مقرر إجباري يجب عليه إعادة دراسته والإمتحان فيه، ولا تحتسب ساعات الرسوب في المعدل التراكمي ويحصل على التقدير الأخير إذا نجح في الإعادة الأولي وذلك بحد أقصي (١٨) ساعة.
- في حالة نجاح الطالب في المقرر بعد الإعادة أكثر من مرة يحصل الطالب على تقدير (C).
- أما إذا رسب في مقرر إختياري فبإمكانه إعادة دراسته أو دراسة مقرر إختياري آخر بديل.
- **تحسين درجة المقرر**: يمكن للطالب إعادة دراسة مقرر نجح فيه سابقاً لتحسين درجته وذلك لمرة واحدة للمقرر وتحسب الدرجة الأعلى في المعدل التراكمي دون تغيير في عدد الساعات المسجلة أو المجتازة.

مادة (١١): الإنقطاع عن الدراسة:

- يعتبر الطالب منقطعاً عن الدراسة إذا لم يسجل في فصل دراسي أو انسحب من الفصل بدون عذر.
- يجوز أن ينقطع الطالب عن الدراسة بشرط الحصول على موافقة مجلس الكلية ويفصل من الجامعة في حالة إنقطاعه بدون عذر يقبله مجلس الكلية ويوافق عليه مجلس الجامعة.

مادة (١٢): التعثر الأكاديمي والإنذار الأكاديمي:

- ينذر الطالب أكاديمياً إذا حصل على معدل تراكمي أقل من (٢) في أي فصل دراسي باستثناء الفصل الدراسي الأول لالتحاقه بالجامعة والفصل الصيفي.
- يجب على الطالب تحسين مستواه الدراسي بما يحقق رفع معدله التراكمي إلى (٢) فأعلي.
- يسمح للطالب المنذر أكاديمياً تسجيل (١٢) ساعة معتمدة كحد أقصي وبما لا يتعارض مع ما ورد في اللائحة الداخلية للكلية.
- يتولى المرشد الأكاديمي تحديد العبء الدراسي المناسب للطالب ومتابعة تقدمه الدراسي أثناء الفصل الدراسي واتخاذ ما يلزم لإرشاده لإزالة أسباب الإنذار الأكاديمي.
- يتفادى الطالب التعرض للفصل من الكلية أو الجامعة إذا حصل في الفصل الأول والفصل الثاني التاليين للإنذار على معدل GPA (٢) في كل منهما.
- يخطر الطالب بوضعه على الإنذار الأكاديمي بخطاب مسجل على عنوان إقامته المسجل بملفه موضحاً فيه موقفه الأكاديمي وما يجب عليه أن يفعله بالتشاور مع مرشده الأكاديمي.
- الطالب الذي يحصل على معدل تراكمي (cGPA) أقل من "٢" لمدة أربعة فصول دراسية متصلة أو في ثمانية فصول دراسية غير متصلة يفصل من الكلية.

مادة (١٣): الفصل من الكلية:

١. يفصل الطالب من الكلية إذا أخفق في رفع الإنذار الأكاديمي خلال المدة المحددة لذلك ويستثني من ذلك الطالب المقيد في المستوي الأخير.
٢. يشترط للاستمرار في الدراسة ألا يقل عدد الساعات المعتمدة التي اجتازها الطالب خلال الفصول الدراسية الاربعة الاولى عن ٣٦ ساعة معتمدة (أو لا يجوز أن يبقى الطالب في المستوى الأول أكثر من عامين دراسيين متتاليين). ومن يعجز عن تحقيق هذا الشرط يفصل من الكلية لعدم صلاحيته للاستمرار في الدراسة بها.
٣. يجوز للطالب المفصول من الكلية إنتقاله إلى كلية أخري وفقاً لشروط الانتقال المعمول بها، وإذا لم يتم قبوله حسب شروط الانتقال يفصل من الجامعة.

مادة (١٤): نظام التأديب للطالب:

الطلاب المقيدين بالبرنامج خاضعين للنظام التأديبي المبين في قانون تنظيم الجامعات المصرية قانون رقم ٤٩ لعام ١٩٧٢ والقوانين المكملة له واللائحة الداخلية للجامعة.

مادة (١٥): متطلبات الحصول على درجة بكالوريوس الصيدلة (فارم دي - PharmD):

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

أولاً: دراسة واجتياز (١٨١) ساعة على ألا يقل المعدل التراكمي عن (٢):

- (١٨٠) ساعة معتمدة وتشمل متطلبات الكلية والجامعة الإجبارية والاختيارية
- (١) ساعة غير معتمدة.

ثانياً: اجتياز ما قد تقرره الجامعة من متطلبات للتخرج على ألا يتضمنها حساب المعدل الفصلي أو التراكمي للطالب.

ثالثاً: اجتياز فترة تدريب ميداني أولى (١٠٠) ساعة تدريب فعلية في الصيدليات الأهلية والحكومية وصيدليات المستشفيات التي يقرها مجلس الكلية وذلك تحت إشراف عضو هيئة تدريس خلال الأجازات الصيفية لسنوات الدراسة بعد نهاية المستوى الثالث وقبل البدء في سنة الامتياز.

رابعا: اجتياز سنة الامتياز (سنة أكاديمية ٩ أشهر) بعد الانتهاء من السنوات الدراسية طبقاً للائحة التفصيلية الخاصة ببرنامج تدريب سنة الإمتياز والتي تشمل مشروع التخرج في أحد التخصصات المطروحة للتسجيل.

مادة (١٦): برنامج التدريب لسنة الامتياز:

يتم وضع برنامج مفصل للتدريب للسنة النهائية (سنة الامتياز) في شكل دورات تناوبية في ملحق به لائحة برنامج التدريب التناوبي بصورة ممنهجة تفصيلية.

مادة (١٧): أكواد الأقسام ومتطلبات البرنامج الدراسي:

نظام التكويد:

* يتكون كود المقرر من كود القسم التابع له ثم يليه ثلاثة أرقام: الرقم الأول من اليسار يدل على المستوى الدراسي والرقم الثاني والثالث يدل على ترتيبها داخل القسم العلمي.
* بالنسبة إلى المقررات الدراسية الخاصة بمتطلبات الجامعة تم إعطائها رقم مختلف عن باقي المقررات.
* المقررات الاختيارية تتكون من الرمز الكودي تبعاً للقسم ثم يليه ثلاثة أرقام: الرقم الأول من اليسار يبدأ برقم (٦) والرقم الثاني والثالث يدل على ترتيبها تبعاً للمقررات الاختيارية داخل القسم العلمي.

١- أكواد الأقسام / متطلبات الجامعة

Keys for Course Abbreviations / Departments

University required subjects / Departments	Abbreviations
Information Technology	ITC
Communication skills	COM
Human Rights and Fighting Corruption	HUM
Psychology	SOC
First Aid	FAD
Mathematics	MAT
Pharmaceutics and Industrial Pharmacy	PHT
Pharmacognosy	PHG
Pharmacology and Toxicology	PHL
Microbiology and Immunology	MIC
Chemistry	PHC
Biochemistry	BIO
Clinical Pharmacy	PHP

٢- متطلبات الجامعة

University Requirements:

Course Code	Course Name	Credit hours		
		L	P/T	Total
ITC 100	Information Technology	1	1	2
SOC 100	Psychology	1	-	1
HUM 100	Human Rights and Fighting Corruption *	1	-	1
MAT 100	Mathematics	1	-	1
COM 100	Communication Skills	1	-	1

*** N.C (Non-credit Pass) course**

٣- متطلبات الكلية (Faculty Requirements)

Faculty of Pharmacy Departments:

1) Pharmaceutics and Industrial Pharmacy:

Course Code	Course Name	Credit hours		
		L	P/T	Total
PHT 101	Pharmacy Orientation	2	-	2
PHT 102	Physical Pharmacy	2	1	3
PHT 103	Professional Ethics	1	-	1
PHT 204	Pharmaceutics I	2	1	3
PHT 205	Pharmaceutics II	2	1	3
PHT 306	Pharmaceutics III	2	1	3
PHT 307	Biopharmaceutics & Pharmacokinetics	2	1	3
PHT 308	Pharmaceutics IV	2	-	2
PHT 309	Pharmaceutical Legislations & Regulatory Affairs	1	-	1
PHT 410	Pharmaceutical Technology I	2	1	3
PHT 411	Entrepreneurship and Pharmacy Administration	1	-	1
PHT 512	Pharmaceutical Technology II	2	1	3
PHT 513	Quality Control & Stability of Dosage Forms	2	1	3
PHT 514	Advanced Drug Delivery Systems	2	1	3
PHT 515	Marketing & Pharmacoeconomics	2	-	2
PHT 516	Good Manufacturing Practice	1	-	1

2) Pharmacognosy:

Course Code	Course Name	Credit hours		
		L	P/T	Total
HUM 100	Human Rights and Fighting Corruption * (U)	1	-	1
PHG 101	Medicinal Plants	2	1	3
PHG 102	Pharmacognosy I	2	1	3
PHG 203	Pharmacognosy II	2	1	3
PHG 304	Phytochemistry I	2	1	3
PHG 305	Phytochemistry II	2	1	3
PHG 406	Applied & Forensic Pharmacognosy	2	1	3
PHG 507	Phytotherapy and Herbal Medicine	2	1	3
PHG 508	Processing of Medicinal Plants	2	1	3

*** N.C (Non-credit Pass) course**
(U) University Requirements

3) Pharmacology and Toxicology:

Course Code	Course Name	Credit hours		
		L	P/T	Total
ENG 101	Medical Terminology	2	-	2
SOC 100	Psychology (U)	1	-	1
FAD 100	First Aid	1	1	2
PHL 101	Anatomy& Histology	2	1	3
PHL 202	Physiology	2	-	2
PHL 203	Pathophysiology	2	-	2
PHL 204	Pathology	2	-	2
PHL 205	Biostatistics	1	-	1
PHL 306	Pharmacology I	2	1	3
PHL 307	Pharmacology II	2	1	3
PHL 408	Pharmacology III	2	1	3
PHL 409	Basic & Clinical Toxicology	2	1	3
PHL 410	Drug and Poison Information	2	1	3
PHL 511	Drug interaction	2	-	2

(U) **University Requirements**

4) Microbiology and Immunology:

Course Code	Course Name	Credit hours		
		L	P/T	Total
MIC 201	General Microbiology	2	1	3
MIC 302	Pharmaceutical Microbiology	2	1	3
MIC 303	Parasitology	1	-	1
MIC 304	Medical Microbiology & Immunology	2	1	3
MIC 405	Public Health and Virology	2	-	2
MIC 506	Biotechnology	2	1	3

5) Chemistry:

Course Code	Course Name	Credit hours		
		L	P/T	Total
ITC 100	Information Technology (U)	1	1	2
MAT 100	Mathematics (U)	1	-	1
COM 100	Communication Skills (U)	1	-	1
PHC101	Pharmaceutical Analytical Chemistry I	2	1	3
PHC 102	Pharmaceutical Organic Chemistry I	2	1	3
PHC 103	Pharmaceutical Analytical Chemistry II	2	1	3
PHC 104	Pharmaceutical Organic Chemistry II	2	1	3
PHC 205	Pharmaceutical Analytical Chemistry III	2	1	3
PHC 206	Pharmaceutical Organic Chemistry III	2	1	3
PHC 207	Instrumental Analysis	2	1	3
PHC 308	Medicinal Chemistry I	2	1	3
PHC 409	Medicinal Chemistry II	2	1	3
PHC 410	Drug Design	1	1	2
PHC 511	Pharmaceuticals Quality Control	2	1	3

(U) **University Requirements**

6) Biochemistry:

Course Code	Course Name	Credit hours		
		L	P/T	Total
ENG 202	Scientific Writing	2	-	2
BIO 101	Cell Biology	1	1	2
BIO 202	Biochemistry I	2	1	3
BIO 303	Biochemistry II	2	1	3
BIO 404	Clinical Biochemistry	2	1	3

7) Clinical Pharmacy:

Course Code	Course Name	Credit hours		
		L	P/T	Total
PHP 401	Hospital Pharmacy	1	1	2
PHP 402	Clinical Pharmacokinetics	2	1	3
PHP 403	Community Pharmacy Practice	2	1	3
PHP 504	Clinical pharmacy & Pharmacotherapeutics I	2	1	3
PHP 505	Clinical Pharmacy & Pharmacotherapeutics II	2	-	2
PHP 506	Clinical Research, Pharmacoepidemiology & Pharmacovigilance	1	1	2

٤- مقررات اختيارية (Elective Courses)

Pre-requisite	Course Code	Course Name	Total hours		
			L	P/T	Total
Pharmaceutics I, II	PHT 600	Cosmetics and Cosmeceutical	1	1	2
Pharmaceutics I, II	PHT 601	Good Pharmacy Practice and Veterinary Dosage Forms	1	1	2
Phytochemistry II	PHG 600	Aromatherapy and Natural Cosmetics	1	1	2
Phytochemistry II	PHG 601	Nutraceuticals and Food supplements	1	1	2
Phytochemistry II	PHG 602	Applied Chromatography	1	1	2
Pharmacology II	PHL 600	Biological Standardization	1	1	2
Pharmacology III	PHL 601	Management of Dermatological Diseases	1	1	2
Pharmacology III	PHL 602	Clinical Oncology	1	1	2
Public Health	MIC 600	Environmental Microbiology	1	1	2
Medical Microbiology and Immunology	MIC 601	Diagnostic Microbiology	1	1	2
Medical Microbiology and Immunology	MIC 602	Antimicrobial stewardship	1	1	2
Medical Microbiology and Immunology Pharmacology II	MIC 603	Pharmacogenomics	1	1	2
Instrumental Analysis	PHC 600	Applied Analysis	1	1	2
Drug Design	PHC 601	Computer Aided Drug Design	1	1	2
Instrumental Analysis Pharmaceutical Organic Chemistry III	PHC 602	Advanced Instrumental Analysis	1	1	2
Biochemistry II	BIO 600	Clinical Nutrition	1	1	2
Biochemistry I	BIO 601	Gene Regulation and Epigenetics	1	1	2
Pharmacology II	PHP 600	Pharmacotherapy	1	1	2
Clinical pharmacy & Pharmacotherapeutics I	PHP 601	Clinical Pharmacy Practice	1	1	2
Pharmacology II	PHP 602	Management of Cardiovascular Diseases	1	1	2
Pharmacology III	PHP 603	Management of Gastrointestinal Diseases	1	1	2

- لمجلس الكلية الحق في طرح مقررات إختيارية جديدة بعد أخذ رأي مجالس الأقسام العلمية المختصة وإحاطة لجنة القطاع.
- لمجلس الكلية الحق في إضافة مقررات اختيارية أخرى بعد إبداء المبررات اللازمة لمواكبة متطلبات سوق العمل وإحاطة لجنة القطاع.

مادة (١٨): تحديث محتوى المقررات الدراسية:

يجوز تحديث محتوى المقررات الدراسية بنسبة لا تتجاوز (٢٠ %) من محتوى المقررات الدراسية بناءً على اقتراح مجلس القسم العلمي المختص وموافقة مجلس الكلية واعتماد مجلس الجامعة وذلك بعد إبداء المبررات اللازمة.

Programme Curriculum مادة (١٩): الخطة الدراسية

Level 1, Fall Semester (1):

No.	Course Code	Course Title	Credit Hours			Prerequisite	Marks of Exams					Final Exam Hours
			L	P/T	Total		Period.	P/T	Wr.	Oral	Total	
1	ITC 100	**Information Technology**	1	1	2	Registration	25	25	50	-	100	1
2	ENG 101	**Medical Terminology**	2	-	2	Registration	25	-	75	-	100	2
3	PHT 101	**Pharmacy Orientation**	2	-	2	Registration	15	-	75	10	100	2
4	PHC 101	**Pharmaceutical Analytical Chemistry I**	2	1	3	Registration	15	25	50	10	100	2
5	PHC 102	**Pharmaceutical Organic Chemistry I**	2	1	3	Registration	15	25	50	10	100	2
6	PHG 101	**Medicinal Plants**	2	1	3	Registration	15	25	50	10	100	2
7	PHL 101	**Anatomy & Histology**	2	1	3	Registration	25	25	50	-	100	2
Total			**13**	**5**	**18**						**600**	

Level 1, Spring Semester (2):

No.	Course Code	Course Title	Credit Hours			Prerequisite	Marks of Exams					Final Exam Hours
			L	P/T	Total		Period.	P/T	Wr.	Oral	Total	
1	SOC 100	**Psychology**	1	-	1	Registration	25	-	75	-	100	1
2	HUM 100	**Human Rights and Fighting Corruption ***	1	-	1	Registration	25	-	75	-	--	1
3	PHC 103	**Pharmaceutical Analytical Chemistry II**	2	1	3	Pharmaceutical Analytical Chemistry I	15	25	50	10	100	2
4	PHC 104	**Pharmaceutical Organic Chemistry II**	2	1	3	Pharmaceutical Organic Chemistry I	15	25	50	10	100	2
5	PHG 102	**Pharmacognosy I**	2	1	3	Medicinal Plants	15	25	50	10	100	2
6	BIO 101	**Cell Biology**	1	1	2	Registration	25	25	50	-	100	1
7	PHT 102	**Physical Pharmacy**	2	1	3	Registration	15	25	50	10	100	2
8	PHT 103	**Professional Ethics**	1	-	1	Registration	25	-	75	-	100	1
9	MAT 100	**Mathematics**	1	-	1	Registration	25	-	75	-	100	1
Total			**13**	**5**	**18**						**800**	

*** N.C (Non-credit Pass) course**

L = Lecture ***P/ T*** = Practical / Tutorial ***Period.*** = Periodical ***Wr.*** = Written

Level 2, Fall Semester (3):

No.	Course Code	Course Title	Credit Hours			Prerequisite	Marks of Exams					Final Exam Hours
			L	P/T	Total		Period.	P/T	Wr.	Oral	Total	
1	PHC 205	**Pharmaceutical Analytical Chemistry III**	2	1	3	Pharmaceutical Analytical Chemistry II	15	25	50	10	100	2
2	PHC 206	**Pharmaceutical Organic Chemistry III**	2	1	3	Pharmaceutical Organic Chemistry II	15	25	50	10	100	2
3	PHG 203	**Pharmacognosy II**	2	1	3	Medicinal Plants	15	25	50	10	100	2
4	PHL 202	**Physiology**	2	-	2	Anatomy& Histology	25	-	75	-	100	2
5	PHL 203	**Pathophysiology**	2	-	2	Anatomy& Histology	25	-	75	-	100	2
6	PHT 204	**Pharmaceutics I**	2	1	3	Pharmacy Orientation Physical Pharmacy	15	25	50	10	100	2
7	ENG 202	**Scientific Writing**	2	-	2	Medical Terminology	25	-	75	-	100	2
Total			**14**	**4**	**18**						**700**	

Level 2, Spring Semester (4):

No.	Course Code	Course Title	Credit Hours			Prerequisite	Marks of Exams					Final Exam Hours
			L	P/T	Total		Period.	P/T	Wr.	Oral	Total	
1	COM 100	**Communication Skills**	1	-	1	Registration	25	-	75	-	100	1
2	FAD 100	**First Aid**	1	1	2	Registration	25	25	50	-	100	1
3	BIO 202	**Biochemistry I**	2	1	3	Cell biology	15	25	50	10	100	2
4	MIC 201	**General Microbiology**	2	1	3	Cell biology	15	25	50	10	100	2
5	PHC 207	**Instrumental Analysis**	2	1	3	Pharmaceutical Analytical Chemistry III	15	25	50	10	100	2
6	PHL 204	**Pathology**	2	-	2	Pathophysiology	25	-	75	-	100	2
7	PHT 205	**Pharmaceutics II**	2	1	3	Pharmacy Orientation Physical Pharmacy	15	25	50	10	100	2
8	PHL 205	**Biostatistics**	1	-	1	Registration	25	-	75	-	100	1
Total			**13**	**5**	**18**						**800**	

L = Lecture ***P/ T*** = Practical / Tutorial ***Period.*** = Periodical ***Wr.*** = Written

Level 3, Fall Semester (5):

No.	Course Code	Course Title	Credit Hours			Prerequisite	Marks of Exams					Final Exam Hours
			L	P/T	Total		Period.	P/T	Wr.	Oral	Total	
1	BIO 303	**Biochemistry II**	2	1	3	Biochemistry I	15	25	50	10	100	2
2	MIC 302	**Pharmaceutical Microbiology**	2	1	3	General Microbiology	15	25	50	10	100	2
3	PHG 304	**Phytochemistry I**	2	1	3	Pharmacognosy I, II	15	25	50	10	100	2
4	PHT 306	**Pharmaceutics III**	2	1	3	Pharmacy Orientation Physical Pharmacy	15	25	50	10	100	2
5	MIC 303	**Parasitology**	1	-	1	Registration	25	-	75	-	100	1
6	PHL 306	**Pharmacology I**	2	1	3	Physiology	15	25	50	10	100	2
7	EL	**Elective course**	1	1	2	According to course	15	25	50	10	100	2
Total			**12**	**6**	**18**						**600**	

Level 3, Spring Semester (6):

No.	Course Code	Course Title	Credit Hours			Prerequisite	Marks of Exams					Final Exam Hours
			L	P/T	Total		Period.	P/T	Wr.	Oral	Total	
1	PHT 307	**Biopharmaceutics & Pharmacokinetics**	2	1	3	Pharmaceutics I	15	25	50	10	100	2
2	PHG 305	**Phytochemistry II**	2	1	3	Phytochemistry I	15	25	50	10	100	2
3	PHT 308	**Pharmaceutics IV**	2	-	2	Pharmaceutical Microbiology Pharmaceutics I	15	-	75	10	100	2
4	PHL 307	**Pharmacology II**	2	1	3	Pharmacology I	15	25	50	10	100	2
5	PHC 308	**Medicinal Chemistry I**	2	1	3	Pharmaceutical organic III Pharmacology I	15	25	50	10	100	2
6	MIC 304	**Medical Microbiology & Immunology**	2	1	3	Pharmaceutical Microbiology	15	25	50	10	100	2
7	PHT 309	**Pharmaceutical Legislations & Regulatory Affairs**	1	-	1	Registration	25	-	75	-	100	1
Total			**13**	**5**	**18**						**700**	

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Level 4, Fall Semester (7):

No.	Course Code	Course Title	Credit Hours			Prerequisite	Marks of Exams					Final Exam Hours
			L	P/T	Total		Period.	P/T	Wr.	Oral	Total	
1	PHL 408	**Pharmacology III**	2	1	3	Pharmacology I	15	25	50	10	100	2
2	PHG 406	**Applied & Forensic Pharmacognosy**	2	1	3	Instrumental Analysis Phytochemistry II	15	25	50	10	100	2
3	PHL 409	**Basic & Clinical Toxicology**	2	1	3	Pharmacology I	15	25	50	10	100	2
4	BIO 404	**Clinical Biochemistry**	2	1	3	Biochemistry II	15	25	50	10	100	2
5	PHC 409	**Medicinal Chemistry II**	2	1	3	Medicinal Chemistry I	15	25	50	10	100	2
6	PHT 410	**Pharmaceutical Technology I**	2	1	3	Pharmaceutics I	15	25	50	10	100	2
Total			**12**	**6**	**18**						**600**	

Level 4, Spring Semester (8):

No.	Course Code	Course Title	Credit Hours			Prerequisite	Marks of Exams					Final Exam Hours
			L	P/T	Total		Period.	P/T	Wr.	Oral	Total	
1	PHP 401	**Hospital Pharmacy**	1	1	2	Pharmacology II Pharmaceutics IV	15	25	50	10	100	1
2	PHP 402	**Clinical Pharmacokinetics**	2	1	3	Biopharmaceutics & Pharmacokinetics	15	25	50	10	100	2
3	PHC 410	**Drug Design**	1	1	2	Medicinal Chemistry II	15	25	50	10	100	1
4	PHL 410	**Drug and Poison Information**	2	1	3	Basic & Clinical Toxicology	15	25	50	10	100	2
5	MIC 405	**Public Health and Virology**	2	-	2	Medical Microbiology& Immunology	15	-	75	10	100	2
6	PHT 411	**Entrepreneurship and Pharmacy Administration**	1	-	1	Communication skills	25	-	75	-	100	1
7	PHP 403	**Community Pharmacy Practice**	2	1	3	Pharmacology I	15	25	50	10	100	2
8	EL	**Elective course**	1	1	2	According to course	15	25	50	10	100	2
Total			**12**	**6**	**18**						**700**	

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Level 5, Fall Semester (9):

No.	Course Code	Course Title	Credit Hours			Prerequisite	Marks of Exams					Final Exam Hours
			L	P/T	Total		Period.	P/T	Wr.	Oral	Total	
1	PHT 515	**Marketing & Pharmacoeconomics**	2	-	2	Communication skills	25	-	75	-	100	2
2	PHP 504	**Clinical pharmacy & Pharmacotherapeutics I**	2	1	3	Clinical Biochemistry Pharmacology II Pathology	15	25	50	10	100	2
3	MIC 506	**Biotechnology**	2	1	3	Medical Microbiology & Immunology Phytochemistry II	15	25	50	10	100	2
4	PHG 507	**Phytotherapy and Herbal Medicine**	2	1	3	Phytochemistry II	15	25	50	10	100	2
5	PHT 512	**Pharmaceutical Technology II**	2	1	3	Pharmaceutics III	15	25	50	10	100	2
6	PHC 511	**Pharmaceuticals Quality Control**	2	1	3	Instrumental Analysis Pharmaceutical Microbiology	15	25	50	10	100	2
7	EL	**Elective course**	1	1	2	According to course	15	25	50	10	100	2
Total			**13**	**6**	**19**						**700**	

Level 5, Spring Semester (10):

No.	Course Code	Course Title	Credit Hours			Prerequisite	Marks of Exams					Final Exam Hours
			L	P/T	Total		Period.	P/T	Wr.	Oral	Total	
1	PHT 513	**Quality Control & Stability of Dosage Forms**	2	1	3	Pharmaceutics I, II, III	15	25	50	10	100	2
2	PHT 516	**Good Manufacturing Practice**	1	-	1	Pharmaceutical Technology I, II	15	-	75	10	100	1
3	PHG 508	**Processing of Medicinal Plants**	2	1	3	Phytochemistry II	15	25	50	10	100	2
4	PHP 505	**Clinical Pharmacy & Pharmacotherapeutics II**	2	-	2	Pharmacology III	15	-	75	10	100	2
5	PHT 514	**Advanced Drug Delivery Systems**	2	1	3	Pharmaceutics I, II,III	15	25	50	10	100	2
6	PHP 506	**Clinical Research, Pharmacoepidemiology & Pharmacovigilance**	1	1	2	Clinical Pharmacy & Pharmacotherapeutics I	15	25	50	10	100	1
7	PHL 511	**Drug Interaction**	2	-	2	Pharmacology II	15	-	75	10	100	2
8	EL	**Elective course**	1	1	2	According to course	15	25	50	10	100	2
Total			**13**	**5**	**18**						**800**	

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محتوى المقررات الدراسية
Course Content

University Requirements

ITC 100 - 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.

SOC 100 - 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.

HUM 100 - Human Rights and Fighting Corruption (1+0) (Non-credit Pass)
يغطي هذا المقرر الموضوعات التالية: حقوق الإنسان في القانون الجنائي، المواثيق الدولية المتعلقة بحماية حقوق الإنسان، الحقوق الاقتصادية والاجتماعية والثقافية للإنسان، حقوق المرأة والطفل وذوي الاحتياجات الخاصة، الحقوق المدنية والسياسية للإنسان. نقل الاعضاء والعقوبات القانونية.
This course covers the following topics: human rights in criminal law, international conventions on the protection of human rights, economic, social and cultural rights of human beings, rights of women, children and people with special needs, civil and political rights to human beings. Transfer of organs and legal sanctions.

MAT 100 - 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.

COM 100 - Communication skills (1+0)
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

Pharmaceutics and Industrial Pharmacy

PHT 101 - Pharmacy Orientation (2+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

PHT 102 - Physical Pharmacy (2+1)
This course provides students with knowledge of physiccchemical 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

PHT 103 - 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.

PHT 204 - Pharmaceutics I (2+1)
This course is a study of the system of weights, measures, mathematical expertise and pharmaceutical calculations requisite to the compounding, dispensing, and utilization of drugs in pharmacy practice. It is also concerned with all manufacturing formulations aspects, packaging, storage and stability of liquid dosage forms including solutions (aqueous and non-aqueous), suspensions, emulsions and colloids with emphasis on the technology and pharmaceutical rationale fundamental to their design and development. The incompatibilities occurring during dispensing are also considered

PHT 205 - Pharmaceutics II (2+1)
This course covers the structure and function of the skin, target area of treatment after topical application to skin, basic principles of diffusion through membranes and factors affecting percutaneous absorption, enhancement of skin penetration, transdermal drug delivery systems (TDDS). It also describes the principles and techniques involved in the formulation and manufacturing of traditional dermatological semisolid dosage forms (creams, ointments, gels and pastes) and cosmetic products

PHT 306 - Pharmaceutics III (2+1)
The course covers the following: Powders, particle size and their analysis, micromeritics, angle of repose, porosity, void, and bulk volume, particle size reduction, blending powders, medicated powders, bulk and divided powders, granules and effervescent granulated salts. In addition to an overview of capsules, hard gelatin capsules, capsule sizes, preparation, filling, developing the formulation, capsule sealing, cleaning and polishing capsules, soft gelatin capsules, their use, preparation and containers for dispensing capsules. The course comprises also tablets types, excipients, wet granulation, dry granulation, direct compression tableting and tablet coating, suppositories and pessaries, their types and methods of preparation, other solid dosage forms for oral administration and novel drug delivery systems.

PHT 307 - Biopharmaceutics & Pharmacokinetics (2+1)
This course aims to provide students with an understanding of the relation between the physicochemical properties of the drug and its fate in the body. The course explores the principles of biopharmaceutics and strategies for enhancing drug delivery and bioavailability. Integration of knowledge gained from other courses is emphasized to design and assure the quality of drug products. Students will also be introduced to the principles of pharmacokinetics (absorption, distribution, metabolism and elimination). The concepts of bioequivalence, biowaivers and *in vitro-in vivo* correlations (IVIVC's) will be discussed along with different models of drug disposition. The course prepares students for their evolving role in utilizing pharmacokinetics to guide formulation, dosage-regimen design and optimizing drug usage.

PHT 308 - Pharmaceutics IV (2+0)
This course involves principles of formulation, development, sterilization, packaging and quality control testing 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, sterilization, packaging and applications of radiopharmaceuticals in pharmacy and medicine. An in depth study on the formulation, manufacturing, quality control testing and applications of aerosols and other inhalation products is also accentuated.

PHT 309 - 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.

PHT 410 - Pharmaceutical Technology I (2+1)
The course provides students with an introduction to industrial pharmacy. It deals with the principles of various unit operations such as heat transfer, evaporation, drying, 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.

PHT 411 - Entrepreneurship and Pharmacy Administration (1+0)
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.

PHT 512 - 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 (conventional / advanced nanotechnology based). 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.

PHT 513 - Quality Control & Stability of Dosage Form (2+1)
Quality control and evaluation tests of raw materials and different dosage form (solid, semi solid, liquid …... etc.). Also 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.

PHT 514 -Advanced Drug Delivery Systems (2+1)
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 formulations 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 formulation principles and applications of novel and targeted drug delivery systems by transforming proteins, genes, and other biotechnology driven compounds into therapeutic products. 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.

PHT 515 - Marketing & Pharmacoeconomics (2+0)
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.
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.

PHT 516 - Good Manufacturing Practice (1+0)
This course involves the principles of the Current Good Manufacturing Practices (cGMP). It exposes students to all aspects of validation, calibration, inspection and the requirements for manufacturing facilities. It also provides students with a review of the process engineering, technology transfer, personnel management, training and hygiene, premises and contamination control, documentation and auditing, process deviation with emphasis on risk management, complaint handling and product recall theory.

Pharmacognosy

PHG 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 and their taxonomy. 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.

PHG 102 - 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 and to have an overview over their phytopharmaceuticals available on the market specially the Egyptian market.

PHG 203 - Pharmacognosy II (2+1)
After completion of the course the student should have the knowledge and skills that enable the student to differentiate between different organs of through their monographs. The course comprises the study of identification of different organs through their monographs. (fruits,herbs, Subterranean organs, unorganized drugs in addition to drugs of marine and animal origin) , including identify their active constituents and adulterants describe micro- and macro-morphological characteristics, benefits and precautions of their medicinal uses., side effects and contraindications and to have an overview over their phytopharmaceuticals available on the market specially the Egyptian market.

PHG 304 - Phytochemistry I (2+1)
Based on complementary medicine and Egyptian medicinal plants that can be used as natural extracts, bioactive raw materials and phytochemical standards to serve the pharmaceuticals, cosmetics and food industries in Egypt. The course aims to gain students the knowledge and skills that enable them to understand, describe and deal with the chemistry of volatile oils, resins, miscellaneous terpenoids, bitters of plant or animal origin, carbohydrates and glycosides of plant or animal origin and different techniques used for their preparation, identification and determination. Also, the students should become aware of different chromatographic methods used for isolation and analysis of different plant constituents and their pharmacological actions and medicinal uses.

PHG 305 - Phytochemistry II (2+1)
In continuation with Pharmacognosy I, this course aims to enable students to demonstrate the knowledge and experience that enables her/ him to understand, describe and deal with the chemistry of alkaloids, tannins glycosides 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.

PHG 406 - Applied & Forensic Pharmacognosy (2+1)
The course aims to provide pharmacy students with sufficient knowledge concerning quality control from herbal aspects, sampling, structural, physical and analytical standards, purity, safety and adulteration of drugs and their detection. It also covers the modern chromatographic techniques employed for the evaluation of natural product and their products.
The course also include an overview on forensic pharmacognosy including plants and their natural products that constitute health hazards, or intended for criminal uses to produce, abortion, loss of mental control, hallucination, heart arrest. Also it includes the study of drug dependents, narcotics, analgesics psych energetics, euphoric. Mycotoxin as a serious threat to general health and safety of community, contamination of food material with poisonous fungi.

PHG 507 - Phytotherapy and Herbal Medicine (2+1)
Upon successful completion of this course, the students should be able to know guidelines for prescribing herbal medicinal drugs on the basis of the pharmacological properties of these drugs including therapeutic uses, mechanism of action, dosage, adverse reactions, contraindications & drug interactions. The course also allows students understand pharmacotherapeutic principles applied to the treatment of different diseases, pharmacovigilance and rational use of drugs. Also the student should understand the basis of complementary and alternative medicine with emphasis on herbal remedies, nutritional supplements, homeopathies, aromatherapy & their effect on maintaining optimum health and prevention of chronic diseases.It includes studying of medicinal plants portfolios in relation to phytopharmaceuticals in Egyptian Market.

PHG 508 - Processing of Medicinal Plants (2+1)
The course aims to ensure that pharmacy students gain expertise the methods involved in processing of Egyptian medicinal plants that are used in extracting natural extracts, active raw materials and standards to serve the pharmaceutical, cosmetic and food industries in Egypt, through their flow chart of processing including drying, comminution and extraction of them, as well as purification, concentration, drying & standardization of the extracts.

Pharmacology and Toxicology

ENG 101 - Medical Terminology (2+0)
Introduction to medical and pharmaceutical terminologies, medical abbreviations, medical idioms, suffixes and prefixes, medical terms pertaining to major body systems.

FAD 100 - First Aid (1+1)
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.

PHL 101 - Anatomy & Histology (2+1)
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.
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.

PHL 202 - Physiology (2+0)
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.

PHL 203 - Pathophysiology (2+0)
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.

PHL 204 - Pathology (2+0)
The main aim of Pathology course is to provide the second year student with knowledge and skills for common diseases affecting body organs and system. It helps the student to understand the causes (etiology) of disease, the mechanisms of its development (pathogenesis) and the associated alterations of structure (morphologic changes) and function (clinical manifestations and complications) to be able to determine the most likely diagnosis of the disease.

PHL 205 - Biostatistics (1+0)
This course provides basic concepts of biostatistics and data analysis.
It includes introduction to descriptive and inferential statistics, interpretation of estimates, confidence intervals and significance tests, elementary concepts of probability and sampling; binomial and normal distribution, basic concepts of hypothesis testing, estimation and confidence intervals, t-test and chi-square test, linear regression theory and the analysis of variance.

PHL 306 - 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.

PHL 307 - 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.

PHL 408 - 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.

PHL 409 - 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 are included. Postmortem sampling for detection of poisons, methods of detection, interpretation of results and writing of a report are also covered.

PHL 410 - Drug and Poison Information (2+1)
The course is designed to provide students with an overview of the management of poisoning and overdose and introduce evolving trends in the care of these patients. In addition, the 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.

PHL 511 - Drug Interaction (2+0)

The course is shared between 2 departments: Pharmacology & Pharmacy Practice

This course provides the knowledge and skills enabling them to develop professional competencies in the recognition and discussion of the pharmacological aspects of drug-drug, drug-chemical, drug-herb or drug-food interactions and their clinical significance as well as the application of that knowledge to minimize the risk and outcome of interactions.

It covers different types of drug interaction including pharmaceutical interactions, pharmacokinetic interactions, pharmacodynamic interactions, herbal & food drug interactions, alcohol and smoking drug interactions, CNS drug interactions, interactions of cardiovascular acting drugs, interactions of anticoagulants, interactions of anti-infectives, interactions of antihistaminics & immune-based therapies, interactions of hormones, and drug-disease interactions.

The course is designed to familiarize students with the major types of drug interactions (Pharmacokinetic, pharmacodynamic and pharmacogentic interactions) in the clinical setting, in addition to drug food and drug disease interactions. The course compromises digitalis drug interactions, anticoagulants, hypoglycemic interactions, antineoplastic drug interactions, antihypertensive interactions and anticonvulsant Interactions. Students will be expected to determine whether a given interaction is clinically significant or required pharmacist intervention, make rational, scientifically recommendations for management of drug interactions.

Microbiology and Immunology

MIC 201 - General Microbiology (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.

MIC 302 - Pharmaceutical Microbiology (2+1)
This course describes in detail the physical and chemical methods of bacterial eradication and how to effectively control microbial growth in the field of pharmaceutical industry / hospitals. It further describes the means of preservation of pharmaceutical products, as well as cosmetics, followed by the proper tests of quality control and sterility assurance. Sterilization, sterilization indicators, sterility testing, aseptic area, the microbiological quality of pharmaceuticals. Validation of sterilization process. Moreover, it explains the different groups of antimicrobials, their mechanism of action and resistance of microbes to biocides. Microbiological evaluation of antiseptics, disinfectants and preservatives. Antibiotics, classification and mechanism of action, Antiviral and antifungal agents, different classes of antibiotics including the new categories and new approaches to overcome bacterial resistance & antibiotics clinical abuse.

MIC 303 - Parasitology (1+0)
Part of this course will focus on parasitic infections of humans with knowledge concerning biological, epidemiological and ecological aspects of parasites causing diseases to humans. It concerns with different parasitological related diseases in in Egypt causing serious health problems.
This part of the course will discuss medical helminthology, protozoology and entomology concerning their morphological features, life cycle, pathogenesis, clinical manifestations, different diagnostic techniques, the most recent lines of treatment and prevention with control strategy for each parasitic infection.

MIC 304 - Medical Microbiology and Immunology (2+1)
The course aims at studying microorganisms causing infectious disease in human beings.The infectious diseases, their etiology and clinical manifestation, routes of transmission, treatment and techniques in detection and identification of pathogenic microorganismscaused by Gram positive cocci & bacilli, Gram negative cocci& bacilli and mycobacteria of major significance to public health will be studied.
Moreover it introduces the modern 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.

MIC 405 - Public Health and Virology (2+0)

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

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.

MIC 506 - Biotechnology (2+1)

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

The course includes also study of plant biotechnology as a useful source for drug production. This part provides students with fundamental techniques of plant tissue cultures, nutritional requirements of plant cell cultures, initiation and maintenance of callus and suspension cultures, secondary metabolic products (phytopharmaceuticals) from plant cell cultures, effects of cultural practices on production of secondary metabolites, biogenesis of phytopharmaceuticals, biotransformation using plant cell cultures, organogenesis and regeneration in vitro, and micropropagation.

Chemistry

PHC 101 - Pharmaceutical Analytical Chemistry I (2+1)
Calculations with chemical formulas and equations. Chemical Kinetics, rate of reaction, first Order reaction, rate law, Second order and third order of reaction, Chemical equilibrium, quantum yield.
Introduction to general chemistry, Types of chemical reactions - calculations of concentrations of substances. Analysis of anions - Analysis of cations - Analysis of mixture of anions and cations. Gravimetry

PHC 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 cycloakanes. Stereochemistry (Optical isomers, racemic modification, nomenclature of configurations). Alkenes, alkadienes and alkynes. Alkyl halides (nomenclature, preparation and chemical reactions (SN1, SN2, E1, E2), Alcohols.

PHC 103 - Pharmaceutical Analytical Chemistry II (2+1)
Acid-Base theory, titration curves, indicators, applications. Titrations in non aqueous media, classification of solvents, theory, applications. Precipitimetric titrations: solubility product principle, titration curves, Mohr's method. volhard's method, Fajans' method, pharmaceutical application. Complexometric reactions, theory, reaction with EDTA, indicators, applications.

PHC 104 - Pharmaceutical Organic Chemistry II (2+1)
This course involves different classes of organic compounds: Arenes and aromatic compounds (Kekule structure, Huckel rule, Electrophilic aromatic substitution and orientation).aryl halides, Phenols, ethers & epoxides, aldehydes, ketones, carboxylic acid & acid derivatives, sulphonic acids, nitrogenous compounds and polynuclear compounds.

PHC 205 - Pharmaceutical Analytical Chemistry III (2+1)
Redox titations, theory, oxidation potentials, Nernest equation, titration curves, redox indicators, selected oxidants and reductants, applications of redox titrations. Electrochemical methods, Potentiometry, electrode potential, reference electrodes, indicator electrode, applications. Conductomertric titration: ionic conductance, definition of cell constant, conductance, applications. Voltammetry, different modes, applications.

PHC 206 - Pharmaceutical Organic Chemistry III (2+1)
This course involves: carbohydrates, amino acid & peptides, and heterocyclic chemistry. In addition, it provides an introduction about the use of different spectroscopic tools, including infrared (IR), nuclear magnetic resonance (NMR) and mass spectrometry (MS) for the structural elucidation of organic compounds.

PHC 207 - 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 spectroscopys (absorption, fluorescence and inductive coupling plasma); principal and instrumentation. Chromatographic methods for analytical chemistry which includes: TLC, gel chromatography, column chromatography, HPLC, UPLC, TLC, gas chromatography, capillary electrophoresis.

PHC 308 - Medicinal Chemistry I (2+1)
This course is tailored to assist the students to gain the different classes of antibiotics and antimicrobials (natural and synthetic), beside other synthetic chemotherapeutic agents (including antivirals, antifungals and antiparasitics). Additionally, various anticancer therapies, antihistamines (H1, H2 blockers and anti-ulcer PPIs) are also covered.

PHC 409 - Medicinal Chemistry II (2+1)
The course is tailored to assist the students to gain the drugs affecting neurodegenerative disorders, the autonomic nervous system (ANS), drugs acting on the cardiovascular system (CVS), CNS**.** Additionally, steroidal hormones and related drugs are also covered. Moreover, endocrine-related drugs (Diabetes, thyroid and calcium-regulating agents), drugs controlling pain and inflammation (NSAIDs, local anaesthetics and rheumatoid drugs) are also handled. In addition to local anaesthetic drugs.

PHC 410 - 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 patient-directed clinical care, the molecular aspects governing drugs' pharmacokinetics (ADME), pharmacodynamics, optimization of drug action, possible side effects, in addition to understanding drug interactions are targeted. In terms of chemistry, SAR, mechanism of action and side effects. 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).

PHC 511 - Pharmaceuticals Quality Control (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.

Biochemistry

ENG 202 - Scientific Writing (2+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.

BIO 101 - Cell Biology (1+1)
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 - From gene to protein (transcription, protein synthesis - Transport of biomolecules across membranes - Ions and voltages - Intercellular communication.

BIO 202 - 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, …) - Lipids (physiologically important lipid molecules - cholesterol and steroids - lipoprotein metabolism) - Enzymology (enzyme kinetics - regulation - enzyme inhibitors as drugs) - Hemoglobin and porphyrins (Hb derivatives and types- metabolism of Hb and regulation)

BIO 303 - Biochemistry II (2+1)
Biological oxidation and ATP synthesis . 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 - Biochemical aspects of hematology and blood analysis - Urine analysis.

BIO 404 - 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 - Tumor markers - Recent diagnostic biomarkers.

Clinical Pharmacy

PHP 401 - 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, and dispensing and safe handling of cytotoxic drugs.

PHP 402 - Clinical Pharmacokinetics (2+1)
This course provides basic principles of pharmacokinetics and their application to the clinical setting. Single Intravenous bolus and oral kinetics, IV infusion, multiple IV bolus, short infusion &oral dosing, non-linear pharmacokinetics, pharmacokinetic models. Sources of variability in pharmacokinetics, dosage regimen and dosage adjustment in children, obese, elderly patients and chronic disease states. Therapeutic drug monitoring and pharmacogenomics approaches.

PHP 403 - 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 activities

PHP 504 - Clinical pharmacy & Pharmacotherapeutics I (2+1)
Definition and concepts of clinical pharmacy and pharmaceutical care, and qualification to become a clinical pharmacy. Patient history, medication reconciliation, therapeutic planning and drug-related problems. Interpretation of clinical laboratory data and physical examination. Providing Medication Therapy management services. Principles of special care populations (geriatric, pediatric, renal and hepatic patients, obesity & pregnancy & lactation). The course also introduces the student to the principles of management and supportive care of oncological diseases, blood disorders and nutritional deficiencies.

PHP 505 - Clinical pharmacy & Pharmacotherapeutics II (2+0)
The course introduces the student to the principles of pharmacotherapeutics & management of the common disease states (e.g. cardiovascular diseases, gastrointestinal diseases, respiratory diseases, endocrine diseases, obstetrics and gynecology, rheumatic diseases, renal diseases, CNS diseases).

PHP 506 - Clinical Research, Pharmacoepidemiology & 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.

Elective Courses

PHT 600 - Cosmetics and Cosmeceutical (1+1)
This course provides the student with advanced informations about a number of cosmetics and cosmeceutical products including formulation aspects, proper use and safety, in addition to minor dermatological problems and examples of OTC products. The course includes; baby care products, foot care products, fragrance and perfumes in cosmetics, decorative cosmetics, oral and dental care products, dermatological problems, feminine hygiene products and antiperspirants and deodorants.

PHT 601 - Good Pharmacy Practice and Veterinary Dosage Forms (1+1)
This course includes introduction to pharmacy practice and competencies related to pharmacy market. Concept, tools, categories of evidence-based pharmacy (EBP), also concept of guidelines (definition, the quality of guidelines). Continuing Professional Development (CPD) includes CPD definition, CPD cycle, Personal development planning and SMART objective. Focusing on new pharmacy carriers' opportunities and entrepreneur, including registration of pharmaceuticals, carrier development centers, pharmaceutical formulation of cosmetic products according to national regulation guidelines, marketing, industry, drug information center and pharmacovigilance center. Skills needed for pharmacist in managing community pharmacy (strategic planning, financial strategy and planning, problem solving, marketing), Programs (mobile programs) used community pharmacy. Extemporaneous Medicine Preparations (EMP), refers to the preparation of small quantities of a medicine from its constituent ingredients, risk management, Alternatives to extemporaneous preparation. Para pharmaceuticals and medical accessories used in pharmacy. Veterinary pharmacy career and its importance, Different veterinary dosage forms, Parenteral veterinary drug dosage form, Topical Veterinary Dosage Forms, compounding of veterinary Pharmaceutical preparation, Risks associated with compounded therapies for animals, Challenges and considerations in Veterinary Compounding.

PHG 600 - Aroma Therapy and Natural Cosmetics (1+1)
This course qualifies the student to practice the aromatherapy and to provide him/her with a basic knowledge of selected essential oils used in aromatherapy and the skills required to apply aromatherapy treatments. It also aimed to give the students basic knowledge about the use of herbal material for preparation of natural cosmetic products suitable for different uses of human being.

PHG 601 - Nutraceuticals and Food Supplements (1+1)
Supplements, characterizing their major components and their role in health-promotion. The course also provides an insight on the essential phytochemical & nutritional classes necessary for pertaining a healthy lifestyle and mitigating some chronic illnesses.

PHG 602 - Applied Chromatography (1+1)
Basic principle for Chromatography Application, Clinical Diagnosis: Application of Ion Chromatography in Pharmaceutical and Drug Analysis, Chromatographic Techniques in Drug Discovery and Development, HPLC and Biological Samples, Chromatographic analysis of foods and Vegetable oils, Industrial applications of chromatography and Forensic and agriculture application of Chromatography.

PHL 600 - Biological Standardization (1+1)
This course covers screening and bioassay of drugs, requirements for a good bioassay, sympathomimetic drugs, antagonists of adrenergic activity, parasympathomimetic drugs, anti-cholinesterases, atropine like drugs, neuromuscular blockers, histamine and anti-histaminics, serotonin, cardiac glycosides, anti-arrhythmic drugs, antihypertensive drugs, narcotic and non-narcotic analgesics, neuroleptic drugs, local anesthetics, anti-inflammatory and anti-parkinsonian drugs.

PHL 601 - Management of Dermatological Diseases (1+1)
After completing the course, the student should be able to understand major concepts of pharmaceutical care of the major skin diseases and reproductive disease states, their pathophysiology, and the therapeutic skills in their management. The course includes introduction about dermatology, structure, development and function of the skin, in addition to acne vulgaris, alopecia, vitiligo, psoriasis, bacterial skin infections, fungal skin infections and viral skin infections.

PHL 602 - Clinical Oncology (1+1)
This course includes the scientific basis underlying the principles of cancer pharmacology, practice of clinical oncology and the development, evaluation and implementation of new treatments. The course will focus in the etiology of cancer, causative agents, stages of malignant transformation and cancer staging. In addition to different treatment modalities including surgery, radiation and drug therapy either on disseminated cancer or as adjuvant therapy. The concept of individualized antimetastatic therapy will be also included as well as the significance of palliative care including hospital and home care. This will be supported by a thorough knowledge of cancer biology and pathology, drug development and research methodologies.

MIC 600 - Environmental Microbiology (1+1)
On completion of this course students will be able to get a good knowledge on the impact of microbial strains of environmental significance in the field of applied environmental microbiology.
The aim of the course is to provide the students with skills, practice in collecting, culturing of environmental samples and its analysis techniques also the advanced molecular microbiology methods for environmental diagnosis.
During the course, the students will study different methods of microbial ecology including culture dependent analysis and culture independent analysis of microbial communities (environmental metagenomics, metatranscriptomics and metaproteomics of microbial communities), different abiotic factors (non-living or physico-chemical factors like air, soil, water) and biotic factors (microorganisms interacting with the surrounding environment) biogeochemical cycles (carbon cycle, nitrogen cycle, phosphorous and sulfur cycles), different potential applications of environmentally isolated microorganisms (biodegradation and bioremediation of xenobiotcis, microbial biofilm formation and its role in wastewater treatment).

MIC 601 - Diagnostic Microbiology (1+1)
On completion of this course students will be able to get a good knowledge on the impact of microbial studies in the field of infectious disease, the advanced medical knowledge, skills, medical training and practice in the field of diagnostic microbiology methods.
During the course, the students will study principles and practice of laboratory techniques for diagnosis of infectious diseases caused by different microorganisms, collection, safe methods for transportation &storage of samples, laboratory techniques including microscopic examination, isolation and identification of pathogenic agents, antigen & antibody detection, nucleic acid-based detection methods, anti-microbial susceptibility testing, laboratory safety, quality control, quality assurance, quality development ethics of laboratory personnel and writing of microbiological report.

MIC 602 - Antimicrobial stewardship (1+1)
On completion of this course students will be able to get a good knowledge about antimicrobial stewardship program & miscellaneous approach to optimize antimicrobial use.
The aim of this course is to study different methods to improve patient outcome, appropriate and effective use of antimicrobials, antibiotic resistance and its global impact, the relationship between antibiotic resistance and prescribing, methods to minimize unintended consequences such as C. difficile infections, how to maintain cost-effectiveness of therapy, understanding the value of behaviour change science to improve antibiotic prescribing& examples of successful antibiotic stewardship from across the global.

MIC 603 - Pharmacogenomics (1+1)
This Course introduces students to the relationship between pharmacology and genomics which depends on molecular basis of disease and individual responses to drugs and other therapeutics, also personalized precision medicine and the 'new biology' fields such as genomics and other big data 'omics', bioinformatics and systems biology that are transforming health care and medicine; the transition from traditional pharmacogenetics to modern pharmacogenomics; current and emerging technologies including modern genotyping technologies such as polymerase chain reaction (PCR), microarrays and next-generation sequencing. The course helps students build their knowledge and understanding of these new fields and develop professional evidence-based approaches to keep apace of these fast-moving areas into the future. Moreover, this course provides students to interpret the influence of genomics and other factors such as environment and lifestyle on individual pharmacokinetics and pharmacodynamics, including drug targets.

PHC 600 - Applied Analysis (1+1)
The course intends to permit the students to apply the qualitative and quantitative principles of analytical chemistry to life issue such as food and water analysis to ensure purity and validity of these compounds. By the end of the course, the student can practice and demonstrate professional competence in application of applied chemistry in the field of lipids and water.

PHC 601 - Computer Aided Drug Design (1+1)
This course includes the following: Introduction, Molecular Modeling and Computer-Aided Drug Design, Protein, Nucleic Acid Structure and Modeling, Rational Drug Design from Enzyme Inhibitors, Molecular Modeling Laboratory, Design and Delivery of Nucleic Acid Drugs and Quantitative Structure Activity Relationships

PHC 602 - Advanced Instrumental Analysis (1+1)
The course includes some advanced instrumental methods of analysis. By the end of the course, the student should have the necessary knowledge about working principle, instrument build up, main component functionality in order to verify their field application. Techniques include: Advanced Infrared (IR) Spectroscopy, Advanced Nuclear Magnetic Resonance (NMR), Advanced Mass spectrometry (MS), Advanced applications of UV-Visible spectrophotometry, Polarimetry and Refractometry.

BIO 600 - Clinical Nutrition (1+1)
This course is designed to provide the student with understanding of the fundamentals of nutrition and how these fundamentals relate to the promotion and maintenance of optimal health. It emphasizes the practical application of the current principles of nutrition and diet therapy in the prevention and management of different disease states. This includes the relationship between excessive and/or inadequate nutrients intakes and the development of disease (CVD, renal diseases, cancer, bone diseases and GIT disorders), as well as distinguishing and assessing the different body indices and measures, proposing an appropriate nutritional supportive treatment for different patients, counseling the patients and health care professionals about the proper and safe use of medicines and possible interactions with other drugs and monitoring the appropriate patient parameters e.g. serum levels, lab tests, patient response to evaluate the patient prognosis .

BIO 601 - Gene Regulation and Epigenetics (1+1)
This course is designed to introduce students to the concept of epigenetics and how it regulates gene expression and heritable phenotypes without changes in the underlying DNA sequence. The course will provide a mechanistic overview of several topics including DNA methylation, histone modifications, chromatin remodeling, and non-coding RNAs, as well as the key players that regulate these processes. The course will also cover molecular techniques and model organisms used commonly in epigenetics research. Students will apply their knowledge to understand the epigenetic basis of various developmental disorders, the natural aging process, environmental exposures, and relevant human diseases such as tumorigenesis, obesity, neurological disorders, and infections.

PHP 600 - Pharmacotherapy (1+1)
This course includes the scientific basis required knowledge related to the etiology, clinical features and pharmacotherapy of different diseases in terms of therapeutic goals, treatment plan based on approved updated guidelines., monitoring of therapeutic outcomes as well as patient counseling, patient education and safe and effective drug therapy interventions. The connotation of clinical trials and evidence-based guidelines will also be included as well as rational adverse effects and contraindications of different drugs for patients with different diseases.

PHP 601 - Clinical Pharmacy Practice (1+1)
This course covers pharmaceutical care (reviewing and dispensing prescription, medication orders, communication skills, patient counseling), over-the-counter (OTC) agents (otic, dental, ophthalmic agents, dermatological agents, weight control, sleep aids, smoking-cessation aids agents for fever, pain, cough, cold, allergic rhinitis, constipation, diarrhea, hemorrhoids, heartburn, menstrual, vaginal, and contraceptive agents), nutritional supplements.

PHP 602 - Management of Cardiovascular Diseases (1+1)
This course includes the scientific basis required knowledge related to the etiology, clinical features and pharmacotherapy of cardiovascular diseases in terms of therapeutic goals, treatment plan for cardiovascular disorders based on approved updated guidelines., monitoring of therapeutic outcomes as well as patient counseling, patient education and safe and effective drug therapy interventions. The connotation of clinical trials and evidence-based guidelines will also be included as well as rational adverse effects and contraindications of different drugs for patients with cardiovascular diseases.

PHP 603 - Management of Gastrointestinal Diseases (1+1)
After completing the course, the student should be able to understand major concepts of pharmaceutical care of the gastrointestinal tract, their pathophysiology, and the therapeutic skills in their management. The course includes peptic ulcer, duodenal ulcer, gastrointestinal reflux disease, diarrhea, constipation, inflammatory bowel diseases, irritable bowel syndrome, pancreatitis, nausea and vomiting and upper GIT bleeding.