اللائحة الداخلية

لبرنامج

بكالوريوس الصيدلة (فارم دي- PharmD)

(صيدلة اكلينيكية)

طبقا لنظام الساعات المعتمدة

كلية الصيدلة – جامعة المنصورة

(يونية - ٢٠١٩)

المحتوى

رؤيــة كلية الصيدلة – جامعة المنصورة

الريادة والتميز فى التعليم والبحث العلمى وخدمة المجتمع محلياً ودولياً فى كافة المجالات الصيدلانية.

رسالة كلية الصيدلة – جامعة المنصورة

تلتزم كلية الصيدلة جامعة المنصورة بالإرتقاء والتطوير المستمر لبرامجها الدراسية والبحث العلمى وخدمة المجتمع لتخريج صيادلة متميزين لتلبية إحتياجات سوق العمل وإعداد باحثين على مستوى تنافسى دولى فى إطار المعايير الأكاديمية والقيم المجتمعية.

الاهداف الاستراتيجية لكلية الصيدلة – جامعة المنصورة

١. **التطوير المستمر للبرامج الدراسية و المستوي المهني للخريجيين**
٢. **الارتقاء بالبحث العلمي**
٣. **توسيع المشاركة المجتمعية و تعظيم المردود منها.**
٤. **الإلتزام بجودة الأداء الاكاديمي و الإداري**

الأقسام العلمية

عدد الاقسام العلمية بكلية الصيدلة – جامعة المنصورة (٩) كما يلي:

١. **قسم الصيدلانيات - Pharmaceutics Department (PT)**
٢. **قسم العقاقير - Pharmacognosy Department (PG)**
٣. **قسم الممارسة الصيدلية - Pharmacy Practice Department (PP)**
٤. **قسم الأدوية و السموم - Pharmacology and Toxicology Department (PO)**
٥. **قسم الميكروبيولوجي و المناعة - Microbiology and Immunology Department (PM)**
٦. **قسم الكيمياء العضوية الصيدلية - Pharmaceutical Organic Chemistry Department (PC)**
٧. **قسم الكيمياء التحليلية الصيدلية - Pharmaceutical Analytical Chemistry Department (PC)**
٨. **قسم الكيمياء الدوائية- Medicinal Chemistry Department (PC)**
٩. **قسم الكيمياء الحيوية - Biochemistry Department (PB)**

مواد اللائحة

مادة (١) :

رؤية البرنامج:

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

رسالة البرنامج:

إعداد صيادلة مؤهلين بأحدث المفاهيم الصيدلية والطبية يمكنهم المساهمة في رفع كفاءة المنظومة العلاجية على المستوى المحلي والإقليمي من خلال التعامل مع الفريق الصحي في المستشفيات وتقديم الخدمات الصيدلية بمستوى مهاري محترف بالصيدليات العامة والخاصة وشركات الأدوية ومعامل الرقابة الدوائية وتحليل الأغذية بالإضافة إلى العمل في مجال الإعلام والتسويق الدوائي والمشاركة بفاعلية في البحث العلمي من خلال مراكز البحوث والجامعات لخدمة المجتمع.

أهداف البرنامج:

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

مادة (٢) :

الدرجة العلمية التي تمنح للخريجين

يمنح مجلس الجامعة بناءً على طلب مجلس كلية الصيدلة درجة بكالوريوس الصيدلة (فارم دي- PharmD) (صيدلة اكلينيكية) طبقا لنظام الساعات المعتمدة.

مادة (٣) :

التأهيل للدرجات الأكاديمية الأعلى:

درجة بكالوريوس الصيدلة (فارم دي- PharmD) (صيدلة اكلينيكية) هى الدرجة الجامعية الأولى فى مجال الصيدلة اللازمة للحصول على ترخيص ممارسة المهنة فى جميع المجالات الصيدلية المتاحة، كما تؤهل الخريج للتسجيل لدرجة الماجستير فى أى من الأقسام العلمية فى الكلية:

اولا: الدبلومات:

١- الصيدلة الإكلينيكية (برنامج نوعى).
٢- التغذية الإكلينكية (برنامج نوعى).
٣- التكنولوجيا الصيدلية.
٤- مستحضرات التجميل.
٥- التداوي بالأعشاب.
٦- السموم والتحليل الكيميائي الشرعي.
٧- الميكروبيولوجي والمناعة.
٨- كيمياء الصناعات الصيدلية.
٩- تصميم الأدوية.
١٠- رقابة الجودة والتحليل الدوائي.
١١- الكيمياء الحيوية.

ثانيا: الماجستير :

١. درجة الماجستير في العلوم الصيدلية.

ثالثا: الماجستير المهني في:

١. المناعة والطب التجددى بنظام الساعات المعتمدة باللغتين الفرنسية والانجليزية (ماجستير مهني).
٢. الرقابة النوعية والتحليل الدوائي.

رابعا: الدكتوراه:

درجة دكتور الفلسفة في العلوم الصيدلية

خامسا: درجة دكتور الصيدلة في الصيدلة الاكلينيكية Pharm D (درجة مهنية).

مادة (٤) :

نظـام الدراسـة

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

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

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

مادة (٥) :

تصميم البرنامج الدراسي

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

تصميم البرنامج الدراسي بحيث:

أولا : يدرس الطالب ١٨٢ساعة معتمدة موزعة على خمس أعوام أكاديمية على ألا يقل المعدل التراكمي للطالب وقت التخرج عن واحد (١) وتشمل:

١. **متطلبات الكلية الإجبارية و تمثل ١٦٨ ساعة معتمدة (جدول توزيع المقررات)**
٢. **متطلبات الكلية الإختيارية وتمثل ٨ ساعات معتمدة،**
٣. **متطلبات الجامعة و تمثل ٦ ساعات معتمدة على ألا يتضمنها حساب المعدل الفصلي أو التراكمي للطالب.**

ثانيا: الا يقل عدد المقررات الإختيارية التي يدرسها الطالب عن أربع مقررات (٨ ساعات معتمدة) يتم اختيارها من القائمة التى تحددها الكلية. المقررات الاختيارية للطالب في المستويين الآخرين تحقق له جدارات ومهارات تساعده على التوجيه المهني والتخصص، علي ان يكون احد المقررات الاختيارية في احد المجالات الصيدلية الدوائية مثل التصنيع الدوائي او الرقابة الدوائية ....الخ

ثالثا: اجتياز فترة تدريب ميداني أولى باجمالي عدد ١٠٠ ساعة تدريب فعلية فى الصيدليات الأهلية والحكومية وصيدليات المستشفيات التي يقرها مجلس الكلية وذلك تحت إشراف عضو هيئة تدريس و يتم التدريب خلال الأجازات الصيفية لسنوات الدراسة بعد نهاية المستوى الثالث.

رابعا: اجتياز سنة الأمتياز (عام أكاديمى- ٩ أشهر) بعد الأنتهاء من سنوات الدراسة الأكاديمية، طبقا للائحة التفصيلية الخاصة ببرنامج تدريب سنة الإمتياز والتى تشمل مشروع التخرج فى إحدى التخصصات المطروحة.

خامسا: مشروع التخرج فى إحدى التخصصات المطروحة.

سادسا: يمكن للكلية عمل تعديل بالحذف والإضافة فى توصيف المقررات بما لايزيد عن ٢٠% من المحتوى العلمى للمقرر وبما يحقق إضافة وتحديث ضرورى.

مادة (٦) :

التسجيل

تحدد الكلية لكل مجموعة من الطلاب مرشداً أكاديمياً من أعضاء هيئة التدريس يقوم بمهام الرعاية والإرشاد ويكون مسئولاً عن الطالب في الشئون العلمية والإجتماعية والنفسية وتوجيهه في كل ما يتعلق بحياته الجامعية ويقوم بمساعدة الطلاب في اختيار المقررات من قائمة المقررات التي تطرحها الكلية في كل فصل دراسي. وعلى كل طالب أن يقوم شخصياً بتسجيل المقررات التي يرغب في دراستها في كل فصل دراسي مع ضرورة أن يتم اختيار المقررات وعدد الساعات المعتمدة بالتشاور والإتفاق مع المرشد الأكاديمي. ويشترط لتسجيل المقرر أن يكون الطالب قد اجتاز بنجاح متطلب التسجيل لهذا المقرر.

ويجوز لمجلس الكلية في حالات الضرورة القصوى وبعد موافقة اللجنة المختصة بالاشراف على البرنامج السماح للطالب بتسجيل بعض المقررات بالتوازي مع متطلباتها التي لم يجتازها الطالب بنجاح إذا قل العبء الدراسي المتاح للطالب عن ١٢ ساعة معتمدة (أنظر التالي – فقرة أ – العبء الدراسي) ، على أن يتم كتابة إقرار بمعرفة ولي أمر الطالب بأنه لن يتم اعتماد نجاحه في هذا المقرر إلا بعد اجتياز متطلبه الذي سمح له بالتسجيل فيه بالتوازي.

وينبغى أن يملأ الطالب نموذج تسجيل المقررات في الأوقات المحددة حسب التقويم الجامعي المعلن لكل فصل دراسي ولا يجوز الانتظام في الدراسة إلا بعد انتهاء عملية التسجيل. لا يسمح للطالب بالتسجيل المتأخر عن الأوقات المحددة إلا بعذر قهري يقبله عميد الكلية على ألا تزيد مدة التأخير عن أسبوع من نهاية فترة التسجيل.

أ) العـبء الدراسـي:

العبء الدراسي هو عدد الساعات المعتمدة التي يقوم الطالب بتسجيلها في الفصل الدراسي الواحد ويجب مراعاة ألا يقل العبء الدراسي المسجل للطالب في أي فصل دراسي عن ١٢ ساعة معتمدة وألا يزيد عن ٢٢ ساعة معتمدة على الا يزيد العبء الدراسي للطالب المتعثر عن ١٢ ساعة معتمدة (أنظر مادة ١٣) .

العبء الدراسي خلال الفصل الصيفي بحد أقصى ١٠ ساعات معتمدة.

ويجوز لمجلس الكلية بعد موافقة اللجنة المختصة بالإشراف على البرنامج السماح للطالب في أخر فصلين دراسيين بزيادة العبء الدراسي عن الحد الأقصى وبما لا يتجاوز عدد٣ ساعات معتمدة (يستفيد منها الطالب لمرة واحدة)،

يسمح للطالب ان يعيد دراسة المقررات التي اجتازها بتقدير D او D^+ بحد اقصي ٣ مقررات دراسية خلال سنوات الدراسة الخمس و ذلك لتحسين المعدل التراكمي و تحتسب للطالب الدرجة الاعلي.

ب) الإضافة والحذف والانسحاب:

يجوز للطالب بعد إستكمال إجراءات التسجيل أن يضيف أو يحذف إلى ساعاته المعتمدة مقرراً أو أكثر في أي فصل دراسي على أن يكون ذلك في خلال الفترات المحددة حسب التقويم الجامعي المعلن لكل فصل دراسي مع مراعاة الحد الأدنى والحد الأقصى للعبء الدراسي.

كما يجوز للطالب بعد تسجيله الإنسحاب من مقرر أو أكثر في أي فصل دراسي دون أن يعتبر راسباً في هذا المقرر وذلك إذا تقدم بطلب الانسحاب خلال الفترات المحددة حسب التقويم الجامعي المعلن لكل فصل دراسي. ومن ينسحب بعد هذه الفترة المحددة يعتبر راسباً.

مادة (٧) :

أ) المواظـــبة

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

ب) حضور الامتحانات والتغيب عنها والإخلال بنظامها

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

مادة (٨) :

لغــة الدراســة

الدراسة في البرنامج باللغة الإنجليزية. ويجوز مع ذلك تدريس بعض المقررات باللغة العربية بناءً على توصية القسم العلمي المختص وموافقة اللجنة المختصة بالاشراف على البرنامج ومجلسي الكلية والجامعة.

مادة (٩) :

التدريــب الميداني الأولى وسنة الأمتياز (التدريب الميدانى المتقدم)

- على الطالب أن يكمل فترة تدريب ميدانى فى الصيدليات الأهلية والحكومية وصيدليات المستشفيات تتم خلال الأجازات الصيفية لسنوات الدراسة بعد نهاية المستوى الثالث بواقع عدد ١٠٠ ساعة، بالإضافة إلى العام السادس من الدراسة الذي يخصص للتدريب الميدانى بواقع ٣٦ اسبوعا وتنقسم الى ست دورات تدريبية بواقع أربع دورات على الأقل داخل مستشفيات تقوم بتطبيق الممارسة الصيدلية الإكلينيكية، وتخصص دورة واحدة للتدريب فى المجال الدوائى (التصنيع -الرقابة الدوائية- ...الخ)، كما يوضح فى البرنامج التدريبي الذى يشمل برنامج تدريبى متكامل وممنهج بطريقة دورية تناوبية مسجلة بالساعات والمهام التدريبية وتحت إشراف دقيق من الكلية وجهة التدريب.
- يقدم الطالب مشروع تخرج كأحد متطلبات التخرج تحت اشراف عضو هيئة تدريس فى تخصص معين يساهم فى تمهيده وإعداده للتوجه لهذا التخصص.
- ويمكن للخريج العمل فى هذا المجال لمدة سنتين ليصبح بعدها صيدليا متخصصا قادرا على تقديم خدمات صيدلية إكلينيكية أو الممارسات الصيدلية المختلفة .
- يتم تصميم البرنامج التدريبى فى تخصصات إكلينيكية مختلفة (مثل: امراض القلب – السرطان – الامراض النفسية و العصبية – التغذية – العناية الفائقة – وحدة معلومات الدواء - إقتصاديات الدواء - والأبحاث السريرية.....) حسب إمكانات الجامعة واحتياج المجتمع فى نطاق الجامعة

(يتم إعداد لائحة تفصيلية خاصة ببرنامج تدريب سنة الامتياز).

مادة (١٠):

شروط القبول

بند (١): يشترط فيمن يتقدم للالتحاق بالبرنامج أن يستوفي كافة الشروط التي يحددها المجلس الأعلى للجامعات وطبقا لما تضمنته اللائحة التنفيذية لقانون تنظيم الجامعات رقم ٤٩ لسنة ١٩٧٢.

بند (٢) يجوز قبول تحويل الطلاب المقيدين ببرنامج مماثل في إحدى كليات الصيدلة بالجامعات المصرية أو الأجنبية بشرط استيفاء الطالب لمتطلبات القبول بالكلية وطبقا للطاقة الإستيعابية للكلية وللبرنامج وبعد أخذ راى مجلس الكلية وتحتسب للطالب المقررات التي درسها في الكلية المحول منها وفقاً للقواعد التي يحددها مجلس الكلية.

بند (٣): يشترط ان يدرس الطالب المحول من برنامج مناظر بكلية صيدلة اخري خاضعة لقانون تنظيم الجامعات و لائحته التنفيذية ٦٠% من الساعات المعتمدة بالبرنامج بما يعادل (١٠٩) ساعة معتمدة بكلية الصيدلة – جامعة المنصورة قبل التخرج.

مادة (١١) :

نظـــام التقييـــم

تتكون الدرجة النهائية للمقررمن مجموع درجات الأعمال الفصلية والعملية والتحريرية والشفهية كما هو موضح بجداول الخطة الدراسية. الحد الأدنى للنجاح في أي مقرر هو ٦٠% من مجموع درجات هذا المقرر، ولا يكون الطالب ناجحاً في أي مقرر إلا إذا حصل على ٣٠% من درجة الامتحان التحريري النهائي، وتكون النسبة المئوية للدرجات النهائية والتقديرات كما هو مبين بالجدول التالي.

نظـام التقيـــيم

النسبة المئوية	عدد النقاط	الرمز	التقدير
٩٥ فأكثر	٤	A^{+}	ممتاز
٩٠ لأقل من ٩٥	٣,٨٥	A	
٨٥ لأقل من ٩٠	٣,٧	A^{-}	
٨٢,٥ لأقل من ٨٥	٣,٣	B^{+}	جيد جدا
٧٧,٥ لأقل من ٨٢,٥	٣	B	
٧٥ لأقل من ٧٧.٥	٢,٧	B^{-}	
٧٢,٥ لأقل من ٧٥	٢,٣	C^{+}	جيد
٦٧,٥ لأقل من ٧٢,٥	٢	C	
٦٥ لأقل من ٦٧,٥	١.٧	C^{-}	
٦٢,٥ لأقل من ٦٥	١,٣	D^{+}	مقبول
٦٠ لأقل من ٦٢,٥	١	D	
أقل من ٦٠	٠,٠٠	F	راسب
منسحب	-	W	منسحب
غير مكتمل	-	I*	غير مكتمل
غائب	-	Abs E**	غائب

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

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

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

S: مستوى مرضي

U: مستوى غير مرضي

T: درجات حصل عليها طالب محول من كلية صيدلة أخرى

P: متطلبات الجامعة

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

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

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

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

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

ويتم حساب المعدل التراكمي كما يلي:

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

مادة (١٢) :

الرسـوب في المقـررات

- في حالة تغيب الطالب بدون عذر يقبله مجلس الكلية عن أداء الامتحان التحريري النهائي.

- إذا حصل الطالب على أقل من ٣٠% من درجة الامتحان التحريري النهائي.

- عدم تحقيق ٦٠ % على الأقل من مجموع درجات المقرر.

- إذا رسب الطالب في أي مقرر إجباري في أي فصل دراسى فعليه دراسة ذات المقرر والالتزام بالمواظبة على الحضور والامتحان فيه عند طرحه مرة أخرى، أما إذا رسب في مقرر إختياري فبإمكانه إعادة دراسته أو دراسة مقرر إختياري آخر بديل لإكمال متطلبات التخرج، وذلك بعد موافقة المرشد الأكاديمي واعتماد لجنة الإشراف علي البرنامج و مجلس الكلية.

مادة (١٣) :

التعثر الأكاديمي

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

مادة (١٤) :

أ- الانقطاع عن الدراسة

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

ب- ضوابط إيقاف وإلغاء وإعادة القيد:

بنـد (١): يجوز للطالب أن يتقدم لإيقاف القيد بالكلية حسب الشروط والضوابط التي تضعها الجامعة .

بنـد (٢) وقف القيد: يجوز للطالب أن يتقدم بطلب لوقف قيده لفصل دراسي واحد وبحد أقصى أربعة فصول دراسية منفصلة أو متصلة وذلك لأسباب قهرية يعتمدها مجلس الكلية.

بند (٣) إلغاء القيد: يلغى قيد الطالب إذا ما إرتكب مخالفة تخل بالآداب أو تخالف أنظمة الكلية أو الجامعة أو الأنظمة والآداب العامة أو طبق في حقه لائحة تأديب الطلاب، وذلك وفقا لأحكام قانون تنظيم الجامعات .

بند (٤) إعادة القيد: هي إعادة قيد الطالب الذي سبق إلغاء قيده لأحد الأسباب التي تنص عليها اللوائح الداخلية للكلية.

مادة (١٥):

متطلبات الحصول على درجة بكالوريوس الصيدلة (فارم دي- PharmD) (صيدلة اكلينيكية)

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

أولا : دراسة واجتياز إجمالى ١٨٢ساعة معتمدة موزعة على خمس أعوام أكاديمية على ألا يقل المعدل التراكمي للطالب و قت التخرج عن واحد (١) وتشمل:

١. متطلبات الكلية الإجبارية و تمثل ١٦٨ ساعة معتمدة (جدول توزيع المقررات)
٢. متطلبات الكلية الإختيارية وتمثل عدد ٨ ساعات معتمدة،
٣. متطلبات الجامعة و تمثل ٦ ساعات معتمدة على ألا يتضمنها حساب المعدل الفصلي أو التراكمي للطالب.

ثانيا: اجتياز فترة تدريب ميداني أولى باجمالي عدد ١٠٠ ساعة تدريب فعلية فى الصيدليات الأهلية والحكومية وصيدليات المستشفيات التي يقرها مجلس الكلية وذلك تحت إشراف عضو هيئة تدريس ويتم التدريب خلال الأجازات الصيفية لسنوات الدراسة بعد نهاية المستوى الثالث.

ثالثا: إجتياز سنة الإمتياز (عام أكاديمى- ٩ أشهر) بعد الإنتهاء من سنوات الدراسة الأكاديمية، طبقا للائحة التفصيلية الخاصة ببرنامج تدريب سنة الامتياز والتى تشمل مشروع التخرج فى إحدى التخصصات المطروحة.

رابعا: إجتياز مشروع التخرج فى إحدى التخصصات المطروحة.

مادة (١٦) :

نظام تأديب الطلاب:

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

مادة (١٧) :

كود الأقسام ومتطلبات البرنامج الدراسي (مرفق رقم ١)

مادة (١٨) :

الخطة الدراسية (مرفق ٢)

مادة (١٩) :

محتوى المقررات الدراسية (مرفق ٣)

مادة (٢٠) :

تحديث المقررات الدراسية

يجوز لمجلس الجامعة الموافقة على تحديث نسبة لا تتجاوز ٢٠% من محتوى المقررات الدراسية بناء على أقتراح مجلس الكلية وذلك بعد موافقة اللجنة المختصة بالإشراف على البرنامج ومجلس القسم العلمي المعني وبعد إبداء المبررات اللازمة.

مادة (٢١) :

برنامج التدريب لسنة الإمتياز

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

مرفق ١

خاص بالمادة (١٧)

كود الأقسام ومتطلبات الجامعة والكلية والمقررات الإختيارية

١- كود الأقسام العلمية و المقررات العير تخصصية:

MS	**Mathematics**
PB	**Biochemistry**
PC	**Chemistry**
PG	**Pharmacognosy**
PM	**Microbiology and Immunology**
PO	**Pharmacology and Toxicology**
PP	**Pharmacy Practice**
PT	**Pharmaceutics**
MD	**Medical Courses**
NP	**Non Pharmaceutical Courses**
UR	**University requirements**

Key for Course Abbreviations:

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

٢ـ متطلبات الجامعة

2. University Requirements:

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam Hours
		Lect.	Pract./Tut	Total		Period.. Activity/C.W	Pract./Tut.	Wr.	Oral		
Information Technology	UR1	1	1	2	Registration	15	25	60	---	100	1
Human Rights and Fighting Corruption	UR2	1	--	1	Registration	25	--	75	--	100	1
Psychology	UR3	1	--	1	Registration	25	--	75	--	100	1
Communication and presentation Skills	UR4	1	--	1	Registration	25	--	75	--	100	1
Entrepreneurship	UR5	1	--	1	Registration	25	--	75	--	100	1
Total		5	1	6							

- ***Lect.*** **= Lecture**
- ***Period.*** **= Periodical**
- ***C.W.*** **=** ***Course Work***
- ***Pract./ Tut.*** **= Practical / Tutorial**
- ***Wr.*** **= Written**

٣ـ متطلبات الكلية

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

4-Elective courses

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

Course Code	Course Title	Credit Hours		
		L	P/T	Total
PC E01	Drug Design	1	1	2
PC E02	Advanced Pharmaceutical Analysis– Spectroscopy	1	1	2
PC E03	Therapeutic Drug Monitoring	1	1	2
PG E04	Complementary Therapies	1	1	2
PG E05	Chromatography and Separation Techniques	1	1	2
PG E06	Biotechnology of medicinal plants	1	1	2
PT E07	Applied Industrial Pharmacy	1	1	2
PT E08	Good Manufacturing Practices	1	1	2
PT E09	Cosmetic Preparations	1	1	2
PT E10	Advanced pharmaceutical technology	1	1	2
PT E11	Medical devices	1	1	2
PM E12	Infection control and antimicrobial stewardship	1	1	2
PM E13	Bioinformatics	1	1	2
PO E14	Biological standardization	1	1	2
PO E15	Geriatric pharmacotherapy	1	1	2
PO E16	Pharmacogenetics of drug metabolism and transport	1	1	2
PP E17	Interprofessional Skills	1	1	2
PP E18	Advanced Pharmacoeconomics	1	1	2

L: Lecture
P: Practical
T: Tutorial

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

مرفق رقم ٢

خاص بالمادة رقم (١٨)

الخطة الدراسية Program Curriculum

Table (1) / Semester (1)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./Tut	Total		Period.. Activity/C.W.	Pract./Tut.	Wr.	Oral		
Pharmaceutical Analytical Chemistry I	PC 101	2	1	3	Registration	15	25	50	10	100	2
Pharmaceutical Organic Chemistry I	PC 102	2	1	3	Registration	15	25	50	10	100	2
Pharmacy Orientation	PT 101	1	--	1	Registration	25	--	75	--	100	1
Medicinal Plants	PG 101	2	1	3	Registration	15	25	50	10	100	2
Medical Terminology	MD 101	1	--	1	Registration	25	--	75	--	100	1
Mathematics and Biostatistics	MS 101	1	---	1	Registration	25	--	75	--	100	1
University Requirements:											
Information Technology	UR1	1	1	2	Registration	15	25	60	---	100	1
Human Rights and Fighting Corruption	UR2	1	--	1	Registration	25	--	75	--	100	1
Total		11	4	15						600	

- *Lect.* = Lecture
- *Period.* = Periodical
- *C.W.* = *Course Work*
- *Pract ./ Tut.* = Practical / Tutorial
- *Wr.* = Written

يمكن إضافة مقرر أو أكثر من متطلبات الجامعة للتخرج.

Table (2) / Semester (2)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam Hours
		Lect.	Pract./Tut	Total		Period.. Activity/C.W.	Pract./Tut.	Wr.	Oral		
Pharmaceutical Analytical Chemistry II	PC 203	2	1	3	Pharmaceutical Analytical Chemistry I	15	25	50	10	100	2
Pharmaceutical Organic Chemistry II	PC 204	2	1	3	Pharmaceutical Organic Chemistry-I	15	25	50	10	100	2
Cell Biology	PB 201	1	1	2	Registration	15	25	50	10	100	1
Anatomy& Histology	MD 202	2	0	2	Registration	25	-	75	-	100	2
Physical Pharmacy	PT 202	2	1	3	Registration	15	25	50	10	100	2
Pharmacognosy I	PG 202	2	1	3	Medicinal Plants	15	25	50	10	100	2
University Requirements:											
Psychology	UR3	1	-	1	Registration	25	--	75	--	100	1
Total		12	5	17						600	

- *Lect.* = Lecture
- *Period.* = Periodical
- *C.W.* = *Course Work*
- *Pract./ Tut.* = Practical / Tutorial
- *Wr.* = Written

يمكن إضافة مقرر أو أكثر من متطلبات الجامعة للتخرج.

Table (3) / Semester (3)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam Hours
		Lect.	Pract./Tut	Total		Period.. Activity/C.W.	Pract./Tut.	Wr.	Oral		
Pharmaceutical Organic Chemistry-III	PC 305	2	1	3	Pharmaceutical Organic Chemistry-II	15	25	50	10	100	2
Biochemistry I	PB302	2	1	3	Registration	15	25	50	10	100	2
Pharmacognosy II	PG 303	2	1	3	Pharmacognosy-I	15	25	50	10	100	2
Pharmacy Legislation and practice ethics	PT 303	1	0	1	Registration	25	--	75	--	100	1
Physiology and pathophysiology	MD 303	2	1	3	Registration	15	25	60	--	100	2
Pharmaceutical dosage forms I	PT 304	2	1	3	Physical pharmacy	15	25	50	10	100	2
University Requirements:											
Communication and presentation Skills	UR4	1	0	1	Registration	25	--	75	---	100	1
Total		12	5	17						600	

- *Lect.* = Lecture
- *Period.* = Periodical
- *C.W.* = *Course Work*
- *Pract./ Tut.* = Practical / Tutorial
- *Wr.* = Written

يمكن إضافة مقرر أو أكثر من متطلبات الجامعة للتخرج.

Table (4) / Semester (4)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam Hours
		Lect.	Pract./Tut	Total		Period.. Activity/C.W.	Pract./Tut.	Wr.	Oral		
Basic Pharmacology	PO 301	2	1	3	Registration	15	25	50	10	100	2
General Microbiology and Immunology	PM 401	2	1	3	Registration	15	25	50	10	100	2
Instrumental Analysis	PC406	2	1	3	Pharmaceutical Analytical Chemistry II	15	25	50	10	100	2
Pathology	MD 404	2	--	2	Registration	25	---	75	---	100	2
Pharmaceutical Dosage Forms-II	PT 405	2	1	3	Physical Pharmacy	15	25	50	10	100	2
Biochemistry II	PB 403	2	1	3	Biochemistry I	15	25	50	10	100	2
Total		12	5	17						600	

- ***Lect.*** = **Lecture**
- ***Period.*** = **Periodical**
- ***C.W.*** = ***Course Work***
- ***Pract./ Tut.*** = **Practical / Tutorial**
- ***Wr.*** = **Written**

Table (5) / Semester (5)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam Hours
		Lect.	Pract./Tut	Total		Period.. Activity/C.W.	Pract./Tut.	Wr.	Oral		
Pharmacology –I	PO 502	2	1	3	Basic Pharmacology	15	25	50	10	100	2
Pharmaceutical Microbiology and Antimicrobials	PM 502	2	1	3	General Microbiology & Immunology	15	25	50	10	100	2
Parasitology & Virology	PM 503	2	1	3	Registration	15	25	50	10	100	2
Pharmaceutical Dosage Forms-III	PT 506	2	1	3	Physical Pharmacy	15	25	50	10	100	2
Phytochemistry-I	PG 504	2	1	3	Registration	15	25	50	10	100	2
Community Pharmacy Practice	PP 501	2	1	3	Pharmacology -I	15	25	50	10	100	2
Total		12	6	18						600	

- ***Lect.*** = **Lecture**
- ***Pract./ Tut.*** = **Practical / Tutorial**
- ***Period.*** = **Periodical**
- ***Wr.*** = **Written**
- ***C.W.*** = ***Course Work***

Table (6) / Semester (6)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam Hours
		Lect.	Pract./Tut	Total		Period.. Activity/C.W.	Pract./Tut.	Wr.	Oral		
Pharmacology-II	PO 603	2	1	3	Pharmacology I	15	25	50	10	100	2
Phytochemistry-II	PG 605	2	1	3	Phytochemistry-I	15	25	50	10	100	2
Pharmaceutical Technology	PT 607	2	1	3	Registration	15	25	50	10	100	2
Hospital Pharmacy	PP 602	2	1	3	Registration	15	25	50	10	100	2
Biopharmaceutics and Pharmacokinetics	PT 608	2	1	3	Pharmaceutical dosage forms III	15	25	50	10	100	2
First Aid and Basic Life Support	MD 605	2	0	2	Registration	15	--	75	10	100	2
Total		12	5	17						600	

- ***Lect.*** = Lecture
- ***Pract./ Tut.*** = Practical / Tutorial
- ***Period.*** = Periodical
- ***Wr.*** = Written
- ***C.W.*** = ***Course Work***

Table (7) / Semester (7)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam Hours
		Lect.	Pract./Tut	Total		Period.. Activity/C.W.	Pract./Tut.	Wr.	Oral		
Pharmacology-III	PO 704	2	1	3	Pharmacology-II	15	25	50	10	100	2
Medicinal Chemistry-I	PC 707	2	1	3	Pharmaceutical Organic Chemistry-II	15	25	50	10	100	2
Advanced Drug Delivery Systems	PT 709	2	-	2	Registration	25	---	75	---	100	2
Clinical Pharmacy Practice	PP 703	2	1	3	Registration	15	25	50	10	100	2
Medical Microbiology	PM 704	2	1	3	General Microbiology and Immunology	15	25	50	10	100	2
Phytotherapy	PG 706	2	1	3	Phytochemistry-II	15	25	50	10	100	2
Elective course	PE --	1	1	2	Registration	15	25	50	10	100	1
Total		13	6	19						700	

- ***Lect.*** = Lecture
- ***Period.*** = Periodical
- ***C.W.*** = ***Course Work***
- ***Pract./ Tut.*** = Practical / Tutorial
- ***Wr.*** = Written

Table (8) / Semester (8)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam Hours
		Lect.	Pract./Tut	Total		Period.. Activity/C.W.	Pract./Tut	Wr.	Oral		
Medicinal Chemistry-II	PC 808	2	1	3	Medicinal Chemistry I	15	25	50	10	100	2
Advanced Pharmacotherapy and Therapeutics	PO 805	2	1	3	Pharmacology III	15	25	50	10	100	2
Clinical Pharmacokinetics	PP 804	2	1	3	Biopharmaceutics and Pharmacokinetics	15	25	50	10	100	2
Pharmacotherapy of Critical Care Patients	PP 805	1	1	2	Pharmacology-III	15	25	50	10	100	1
Clinical Biochemistry	PB 804	2	1	3	Biochemistry-II	15	25	50	10	100	2
Public Health and Preventive Medicine	PM 805	2	--	2	Medical Microbiology	25	---	75	---	100	2
Quality Control and pharmaceutical analysis	PC 809	2	1	3	Pharmaceutical Analytical Chemistry-II	15	25	50	10	100	2
Elective Course	PE ---	1	1	2	Registration	15	25	50	10	100	1
Total		14	7	21						800	

- ***Lect.*** = Lecture
- ***Period.*** = Periodical
- ***C.W.*** = ***Course Work***
- ***Pract./ Tut.*** = Practical / Tutorial
- ***Wr.*** = Written

Table (9) / Semester (9)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam Hours
		Lect.	Pract./Tut	Total		Period.. Activity/C.W.	Pract./Tut.	Wr.	Oral		
Pharmacotherapy of Endocrine and Renal Disorders	PP 906	2	1	3	Pharmacology-I	15	25	50	10	100	2
Pharmacotherapy of Cardiovascular Diseases	PP 907	2	1	3	Pharmacology-II	15	25	50	10	100	2
Biotechnology	PM 906	2	1	3	Pharmaceutical Microbiology	15	25	50	10	100	2
Pharmacotherapy of Neuropsychiatric Diseases	PP 908	2	1	3	Pharmacology III	15	25	50	10	100	2
Clinical Nutrition	PB 905	1	1	2	Biochemistry-II	15	25	50	10	100	1
Drug Information	PO 905	1	1	2	Pharmacology-III	15	25	60	---	100	1
Drug Marketing & Pharmacoeconomics	NP 901	2	--	2	Registration	25	---	75	---	100	2
Elective Course	PE --	1	1	2	Registration	15	25	50	10	100	1
University Requirement											
Entrepreneurship	UR5	1	0	1	Registration	25	--	75	---	100	1
Total		14	7	21						800	

- *Lect.* = Lecture
- *Period.* = Periodical
- *C.W.* = *Course Work*
- *Pract./ Tut.* = Practical / Tutorial
- *Wr.* = Written

Table (10) / Semester (10)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam Hours
		Lect.	Pract./Tut	Total		Period.. Activity/C.W.	Pract./Tut.	Wr.	Oral		
Clinical Toxicology	PO 006	2	1	3	Pharmacology-III	15	25	50	10	100	2
Pharmacotherapy of Dermatological, Reproductive and Musculoskeletal Diseases	PP 009	1	1	2	Pharmacology II	15	25	50	10	100	1
Pharmacotherapy of Pediatric Diseases	PP 010	2	1	3	Pharmacology-III	15	25	50	10	100	2
Pharmacotherapy of Oncological Diseases and Radiopharmacy	PP 011	2	1	3	Pharmacology III	15	25	50	10	100	2
Pharmacotherapy of Gastrointestinal Diseases	PP 012	2	1	3	Pharmacology-II	15	25	50	10	100	2
Pharmacotherapy of Respiratory Diseases	PP 013	1	1	2	Pharmacology-II	15	25	50	10	100	1
Clinical Research and Pharmacovigilance	PP 014	1	1	2	Drug information	25	25	50	10	100	1
Elective Course	PE --	1	1	2	Registration	15	25	50	10	100	1
Total		12	8	20						800	

- ***Lect.*** = Lecture
- ***Period.*** = Periodical
- ***C.W.*** = ***Course Work***
- ***Pract./ Tut.*** = Practical / Tutorial
- ***Wr.*** = Written

مرفق ٣

خاص بالمادة (١٩)

محتوى المقررات الدراسية

Course Content

PC 102 Pharmaceutical Organic Chemistry I (2+1)

The objective of this course is to provide students with the basic knowledge in pharmaceutical organic chemistry, which will serve as fundamentals for other courses offered during subsequent semesters. This course involves Electronic structure of atom, alkanes [nomenclature, synthesis and reactions (free radical reactions)], and cycloakanes. Stereochemistry (Optical isomers, racemic modification, nomenclature of configurations). Alkenes, alkadienes and alkynes. Alkyl halides (nomenclature, preparation and chemical reactions (SN1, SN2, E1, E2). Arenes and aromatic compounds (Kekule structure, Huckel rule, Electrophilic aromatic substitution and orientation).

PC 204 Pharmaceutical Organic Chemistry II (2+1)

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

PC 305 Pharmaceutical Organic Chemistry III (2+1)

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

PC 101 Pharmaceutical Analytical Chemistry I (2+1)

Chemical Kinetics, rate of reaction, first Order reaction, rate law , Second order and third order of reaction, molecularity , Theories of reaction rate, activation energy and catalysis , Photochemistry, absorbed energy and quantum yield. Introduction to qualitative and quantitative inorganic chemistry, acid-base theory, titration curve and buffer solutions. Precipitimetry factors affecting precipitate formation and pharmaceutical application.

PC 203 Pharmaceutical Analytical Chemistry II (2+1)

Complexometric titrations and oxidation-reduction titrations (electrical properties of redox systems, Nernest equation factors affecting oxidation potential, redox titration curves,

pharmaceutical application on redox reaction), Electrochemistry (potentiometry, conductometry; and polarography).

PC406 Instrumental analysis (2+1)

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

PC 809 Quality Control and pharmaceutical analysis (2+1)

Good Analytical Practice and Sampling: Introduction, Sampling of pharmaceuticals and related materials, type of sampling tools, sampling plans, documentation, validation of analytical methods according to ICH guidelines Q2 R1, compendial testing , validation of analytical methods, data elements required for assay validation, 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. Official methods of analysis applied to raw materials and end products

PC 707 Medicinal Chemistry I (2+1)

This course is tailored to assist the students to gain the drugs affecting the autonomic nervous system (ANS), drugs acting on the cardiovascular system (CVS). The course handles different classes of antibiotics and antimicrobials (natural and synthetic), beside other synthetic chemotherapeutic agents (including antivirals, antifungals and antiparasitics). Additionally, various anticancer therapies and related drugs are also covered.

PC 808 Medicinal Chemistry II (2+ 1)

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

PB 201 Cell Biology (1+1)

The course aims at studying the structure and function of prokaryotic and eukaryotic cells. In this course study will include many different areas of cellular biology involving: the synthesis and function of macromolecules such as DNA, RNA, and proteins; control of gene expression; membrane and organelle structure and function; bioenergetics; and cellular communication, transformation; transport, receptors, and cell signaling; the cytoskeleton, the extracellular matrix, and cell movements.

PB 302 Biochemistry I (2+1)

Structure of proteins – Biologically active peptides – Protein turnover – Amino acids as precursors for biosynthesis of biomolecules (e.g. neurotransmitters –nucleotides,)– Structurally and physiologically important lipids – Lipoprotein metabolism – Carbohydrates and connective tissue – Enzymes (theories of enzyme action – enzyme kinetics – inhibition and regulation of enzyme activity – clinical correlations), oxidative stress and body defense mechanisms.

PB 403 Biochemistry II (2+1)

Mobilization of body stores of glycogen and fats -Metabolism and tissue utilization of glucose, amino acids, and fatty acids – Regulation of blood glucose level and clinical correlations – Feed/fast cycle – Nitrogen metabolism and nitrogen balance – Inborn errors of metabolism – Second messengers and signal transduction – Biochemistry of cancer - Biochemistry of aging – Food biochemistry (milk – probiotics) – ATP synthesis from reduced metabolites (electron transport chain – inhibitors – uncouplers) – Hemoglobin and myoglobin (structure – synthesis and metabolism).

PB 804 Clinical Biochemistry (2+1)

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

PB 905 Clinical Nutrition (1+1)

Measures of healthy life-style – Macronutrients and calculation of calories – Basal metabolic rate (BMR) - Recommended daily allowance (RDA) – Nutritional requirement for pediatrics and geriatrics - Vitamins and minerals (role in metabolism – clinical significance) – Gut microbiota and human health – Enteral and parenteral nutrition - Dietary care for patients with obesity, diabetes mellitus, cardiovascular, renal and hepatic disorders –

Dietary care for cancer patients - Dietary care for sports` men - Dietary care for pregnant and lactating women – Nutrigenomics.

PT 101 Pharmacy Orientation (1+0)

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

PT 202 Physical Pharmacy (2+1)

This course provides students with knowledge of physical and chemical principles essential for the design and formulation of pharmaceutical products. Students are introduced to the fundamental concepts of states of matter, Phase equilibrium, colligative properties, isotonicity solubility, dissolution, partition coefficient, surface and interfacial phenomena, surface active agents, adsorption and its application in pharmacy and rheological behaviour of dosage forms.

PT303 Pharmaceutical Legislations and Practice ethics (1+0)

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

PT304 Pharmaceutical Dosage Forms I (2+1)

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

PT 405 Pharmaceutical Dosage Forms II (2+1)

This course covers the structure and function of the skin, target area of treatment after topical application to skin, basic principles of diffusion through membranes and factors affecting percutaneous absorption, enhancement of skin penetration, transdermal drug delivery systems (TDDS). It also describes the principles and techniques involved in the

formulation and manufacturing of traditional dermatological semisolid dosage forms (creams, ointments, gels and pastes) and cosmetic products.

PT 506 Pharmaceutical Dosage Forms III (2+1)

The course introduces the students to the kinetics of drug decomposition including rate and order of the reaction, determination of the half-life, expiry date and shelf-life by different methods, stability testing, and in-vitro possible drug/excipients interactions . It also describes the principles and techniques involved in the formulation, and manufacturing of solid dosage forms including powders, granules, tablets, capsules and suppositories.

PT 607 Pharmaceutical Technology (2+1)

The course provides students with an introduction to industrial pharmacy. It deals with the principles of various unit operations such as heat transfer, evaporation, drying, distillation, filtration, centrifugation, crystallization, extraction, size reduction, size separation, size analysis and size enlargement. It focuses on the application of these unit operations in pharmaceutical industry with emphasis on the equipment and machines used during the production of different dosage forms.

PT 608 Biopharmaceutics and Pharmacokinetics (2+1)

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

PT 709 Advanced Drug Delivery Systems (2+0)

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

the application of polymers and excipients to solve problems/issues concerning the optimization of absorption, selective transport, and targeting.

PG 101 Medicinal Plants (2+1)

The aim of the course is to provide students with knowledge necessary to identify and prepare a crude drug from the farm to the firm. Students should acquire knowledge concerning dusting powders, plant cytology, physiology and medicinal leafy plants. In this course, the student will study: importance of natural products, preparation of natural products-derived drugs including collection, storage, preservation and adulteration. The course will introduce the students to the different classes of secondary metabolites. In addition, the course will discuss and address the variability in occurrence of pharmacologically active substances in certain official medicinal leafy plants according to their WHO monographs.

PG 202 Pharmacognosy I (2+1)

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

PG 303 Pharmacognosy II (2+1)

Based on the Egyptian flora and other florae of wild and cultivated medicinal plants that are used in the pharmaceutical, cosmetic and food industries in the global & Egyptian market. The course introduces students to some botanical drugs of, fruits, subterreans, herbs, unorganized drugs of marine and animal origin. During the lectures and practical sessions, students learn to identify examples of these drugs in their entire and powdered forms. Student will learn about the major constituents, folk uses, clinically proven uses, benefits, precautions of those medicinal plants. possible herbal-drug interactions of selected examples of these drugs.

PG 504 Phytochemistry I (2+1)

Based on complementary medicine and Egyptian medicinal plants that can be used as natural extracts, bioactive raw materials and phytochemical standards to serve the pharmaceuticals, cosmetics and food industries in Egypt. The course aims to gain the students the knowledge and experience those enable them to understand, describe and deal with the chemistry and Pharmaceutical uses of volatile oils, resins and resin combinations, carbohydrates, glycosides, and bitters of plant or animals as well as

techniques for their, isolation, identification and determination from their respective sources. Clinical applications will be correlated with various clinical analyses.

PG 605 Phytochemistry II (2+1)

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

PG 706 Phytotherapy (2+1)

The course aims to enable students to attain the systematic approach for herbal prescribing through a comparative study of both traditional and scientifically based uses of herbal drugs in the treatment of various clinical disorders. The course provides clinical pharmacy students with review of the available information on how botanicals may normalize an altered function. Approval by World Health Organization (WHO), German Federal Institute for Drugs and Medical Devices (Commission E) is the base for selection of the studied herbs. The herbal drugs treated in combined way relative to pharmacognosy, pharmacology and toxicology. Special concern is given to the possible mode of action of the herbal drugs based on experimental and clinical pharmacological studies. Also the student should understand the basis of complementary and alternative medicine with emphasis on herbal remedies, nutritional supplements, homeopathies, aromatherapy & their effect on maintaining optimum health and prevention of chronic diseases.

PM 401 General Microbiology and Immunology (2+1)

The course provides students with a combination of laboratory and theoretical experience exploring the general aspects of microbiology. It includes knowledge of microorganisms, their morphology, diversity, cell structure and function, cultural characteristics, identification of microorganisms, microbial nutrition. It also explores the basic concepts microbial growth, cultivation and reproduction. It also clarifies different mechanisms of transport across bacterial cell membrane. The course also covers the principles of genetic characters including DNA and RNA structures, replication, different forms of mutation and mutagenic agents. Moreover, it introduces the modern concepts of medical immunology, with an emphasis on host parasite relationship, Non-specific and specific immunity, Mechanism of protective immunity. Molecular and cellular immunology, including antigen and antibody structure, function and reaction between them, effect or mechanisms, complement, and cell mediated immunity and in vitro antigen antibody reactions

PM 502 Pharmaceutical Microbiology and Antimicrobials (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; sterilization, sterilization indicators, sterility testing and aseptic area and 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 including the new categories and new approaches to overcome bacterial resistance & antibiotics clinical abuse will be covered. Antiviral and antifungal agents and assay of antimicrobial activity will be covered as well.

PM 503 Parasitology & Virology (2+1)

Part of this course will focus on parasitic infections of humans with knowledge concerning biological, epidemiological and ecological aspects of parasites causing diseases to humans with special attention to different parasitological related diseases in Egypt causing serious health problems. This part of the course will discuss medical helminthology, protozoology and entomology concerning their morphological features, life cycle, pathogenesis, clinical manifestations, different diagnostic techniques, the most recent lines of treatment and prevention with control strategy for each parasitic infection. Moreover, it also covers laboratory diagnosis of human parasitic infections. The other part of the course provides students with the essential knowledge to recognize the epidemiology, mechanisms of pathogenesis, clinical picture, methods of laboratory diagnosis, treatment, prevention and control measures of RNA and DNA viral infections in humans.

PM 704 Medical Microbiology (2+1)

The course aims at studying microorganisms causing infectious disease in human beings. The infectious diseases, their etiology, pathogenesis and clinical manifestation, routes of transmission, treatment and techniques in detection and identification of pathogenic bacteria and fungi of major significance to public health will be studied. The course also focuses on immunological diseases and disorders in immunity including hypersensitivity, immuno-deficiency disorders, autoimmunity and auto-immune diseases and organ transplantation.

PM 805 Public Health and Preventive medicine (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 nosocomial infections, control of communicable, non-communicable diseases including active and passive immunization, improving mental, social,

environmental, occupational, geriatric and family health, use of sufficient and balanced food and nutrition, supplying safe drinking water, treating and disposing wastes and proper intervention during disasters

PM 906 Biotechnology (2+1)

Introduction to biotechnology, fermentation technology, fermentation process and fermenters, Fermented products (Antibiotics, vitamins, amino acids, interferons, interleukins, monoclonal antibodies, vaccines and etc.... Bioremediation, N2 fixation, detection and monitoring of genetically engineered microorganisms. Genetic Engineering, PCR, Recombinant DNA Technology and Applications of recombinant DNA in the pharmaceutical and medical fields. Basics of Gene therapy and its applications in monogenic and polygenic disorders. Other modem techniques of environmental microbiology.

MD 101 Medical Terminology (1+0)

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

MD 202 Anatomy and Histology (2+0)

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

MD 303 Physiology and Pathophysiology (2+1)

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

systems; organic and energy metabolism; exercise and environmental stress are also included. The basic concepts of pathophysiology at the cellular level related to injury, the self-defense mechanism, mutation, and cellular proliferation, and the pathological factors that influence the disease process. Clinical manifestations associated with the diseased organ(s).

MD 404 Pathology (2+0)

The study of biochemical, structural and functional changes in cells, tissues and organs, which are caused by diseases

MD 605 First Aid and Basic Life Support (2+0)

After completing the course, the student should be able to know how to deal with medical emergency based on the different courses. It includes: introduction & accidents, first aid ABCs, medical emergencies, effect of temperature, transportation of an injured casualty & first aid kit, respiratory emergencies, fractures and dislocations, bleeding and surgical emergencies, burns and scalds, animal bites or stings and poisoning.

PO 301 Basic Pharmacology (2+1)

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

PO 502 Pharmacology I (2+1)

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

PO 603 Pharmacology II (2+1)

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

PO 704 Pharmacology III (2+1)

This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology disease processes regarding drugs acting on endocrine

system. Chemotherapeutic drugs including antimicrobials, anticancer and immunosuppressant are within the scope of the course. Stem cell therapy is also included.

PO 805 Advanced Pharmacotherapy and Therapeutics (2+1)

The student should on completion of the course should be able to: identify selected diseases based on knowledge of given symptoms and laboratory values, state investigations that are of value for the diagnosis and monitoring of drug therapy in selected disease areas, choose and justify appropriate drug and treatment duration to a given patient with regard to current recommendations and patient-related factors, choose and justify appropriate dose, dosing interval and pharmaceutical form for a given patient with regard to age, organ functions and drug pharmacokinetics, pharmacodynamics and toxicity, evaluate abnormalities in common laboratory values and explain related to physiology, drug treatment and / or disease, extract information from medical records, identify, evaluate and respond to basic drug-related problems from patient records and to motivate action, choose appropriate non-pharmacological treatment with regard to the given patient and current recommendations

PO 905 Drug information (1+1)

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

PO 006 Clinical Toxicology (2+1)

To ensure that the students have the necessary knowledge & skills, as well as comprehensive understanding of the basics of toxicology enabling them to have detailed knowledge and to develop professional competence in the recognition, solving, and discussion of different toxicological cases. It includes: basics and concepts of toxicology including the mechanism of toxicity, target organ and treatment of toxicity. Toxic groups including heavy metals, toxic gases, animal, plant and marine poisons, pesticides and radiation hazards are covered. Environmental, occupational, reproductive and genetic toxicology as well as drug abuse are included. Postmortem sampling for detection of poisons, methods of detection, interpretation of results and writing of a report are also covered.

PP 501 Community Pharmacy Practice (2+1)

This course includes the study of the clinical situations that can be handled by the pharmacist in the community pharmacy (referral or using OTC medications) including

upper respiratory tract, gastrointestinal, and musculosketal symptoms, skin, eyes, and ears, and childhood symptoms.

PP 602 Hospital Pharmacy (2+1)

Organization and structure of a hospital pharmacy, hospital pharmacy facilities and services (inpatient and outpatient services), transfer of care, patient's medication record, and rational medication use, hospital formulary, pharmacy and therapeutic committee, I.V. admixtures and incompatibilities, parenteral nutrition, handling of cytotoxic drugs, therapeutic drug monitoring, patient counseling and safety, and risk management

PP 703 Clinical Pharmacy Practice (2+1)

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

PP 804 Clinical Pharmacokinetics (2+1)

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

PP 805 Pharmacotherapy of critical care patients (1+1)

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

PP 906 Pharmacotherapy of endocrine &renal disorders (2+1)

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

effective treatment plans and provide appropriate information to patient, caregivers, and health professionals.

PP 907 Pharmacotherapy of Cardiovascular diseases (2+1)

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

PP 908 Pharmacotherapy of neuropsychiatry diseases (2+1)

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

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

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

PP 010 Pharmacotherapy of Pediatric diseases (2+1)

Nutritional requirements in neonates and infants, nutritional disorders, neonatology, infectious diseases in pediatrics, congenital heart diseases, endocrine, neurological, hematologic, renal, and respiratory disorders, pediatric emergencies.

PP 011 Pharmacotherapy of oncological diseases and radio pharmacy (2+1)

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

PP 012 Pharmacotherapy of Gastrointestinal diseases (2+1)

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

PP 013 Pharmacotherapy of Respiratory diseases (1+1)

Epidemiology, aetiology, pathophysiology, clinical manifestation, investigations, treatment, monitoring, and patient counseling of bronchial asthma, chronic obstructive pulmonary

disease, pulmonary hypertension, cystic fibrosis, upper and lower respiratory tract infections, and drug-induced respiratory **problems.**

PP 014 Clinical Research and Pharmacovigilance (1+1)

This course introduces the student to the basic principles of clinical research, design of research studies, types of research studies, clinical trials, statistical presentation of research data and ethical guidelines in drug research. This course also provides the student's with understanding of pharmacovigilance importance, concept, processes, systems, global safety standards and regulations and reporting systems.

MS 101 Mathematics and biostatistics (1+0)

This course provides an essential guide to the mathematical, biostatistics and data analysis concepts, techniques, and calculations. Functions and graphs, limits and continuity, differentiation, exponential, logarithmic and trigometric functions, integration, basic differential equations, functions of several variables and problems related to them, probability, random variables and hypothesis testing, , estimation and confidence intervals, t-test and chi-square test, linear regression theory and the analysis of variance.

UR1 Information Technology (1+1)

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

UR2 Human Rights and Fighting Corruption (1+0)

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

UR3 Psychology (1+0)

This course provides an overview of the basic concepts in psychology. Topics may include human information processing, learning and memory, motivation, development, language acquisition, social psychology, and personality.

UR4 Communication and presentation skills (1+ 0)

This course will help the students to develop necessary written and oral communication and presentation skills to improve inter- and intra-professional collaboration and communication with patients and other health care providers. The course will also deal with the underlying attitudes, which form an interpersonal skill. It focuses on concept and meaning of communication; verbal and non verbal communication (body and vocal language); active listening skills; communication styles and presentation skills. Communication skills in diverse pharmacy practice setting will be discussed. The course describes elements of successful presentations, types and methods of presentations, how to prepare a presentation, selection and use of the media, how to develop a personal style of presentation, how to deal with speaking anxiety and how to capture an audience's attention .

UR5 Entrepreneurship (1+0)

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

NP901 Drug marketing & pharmacoeconomics (2+0)

The course introduces the student to 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. Moreover, it introduces the 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.

PC E01 Drug Design (1+1)

Structure activity relationships, quantum mechanical approaches, molecular connectivity, pharmacophore generation, and molecular modification by isosteric replacement. Natural products leading to new pharmaceuticals, mathematical treatment serving prediction, defining sites and targets, molecular modeling, prodrugs and drug latentiation.

PC E02 Advanced Pharmaceutical Analysis - Spectroscopy (1+1)

Advanced Pharmaceutical applications of different intsrumental methods of analysis including UV/Visible spectrophotometry, synchronous fluorimetry, chemiluminescenceatomic spectroscopy, mass pectroscopy and nanoanalysis.

PC E03 Therapeutic Drug Monitoring (1+1)

Introduction, serum drug concentrations, drug protein binding, therapeutic drug monitoring of some typical drug classes eg. Antidepressants, benzodiazepines, antipsychotics, antiarrhythmic drugs, toxicological drug monitoring.

PC E04 Complementary therapies (1+1)

The course covers Complementary medicine with an overview of different domains of mind- body interventions, alternative medical systems. This course will also encompass the studying of the nutraceuticals as types of biologically based therapies. Including dietary supplements, vitamins and minerals, functional foods and medical foods. The course will also include aromatherapy: definition, effective application and safety guidelines.

PC E05 Chromatography and separation techniques (1+1)

Introduction and modes of separation, gel filteration and permeation, ion exchange chromatography, type properties, ion exchange and non-ion exchange manifestaions and applications. High pressure liquid chromatography, gas liquid chromatography and their apllication.

PG E06 Biotechnology of medicinal plants (1+1)

The objective of the course is to give students new knowledge and widening of the knowledge acquired in other course by handling of classical and modern plant biotechnology processes, including breeding of healthy plants, plants with improved characteristics and plants for biomolecule production. Understanding of biotechnological processes has also applicative value in pharmaceutical and food industry, in agriculture and in ecology.

PT E07 Applied industrial pharmacy (1+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.

PT E08 Good manufacturing practices (1+1)

Concepts, objectives and applicability, general provisions, organization, building and facilities, materials, equipment's, production and process controls, packing and labeling, control, distribution, laboratory controls, records and reports, returned and salvaged drug products, repacking and inspections.

PT E09 Cosmetic Preparations (1+1)

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

PT E10Advanced pharmaceutical technology (1+1)

This course is designed to provide students with various important aspects of quality assurance, cGMP, quality audit, and process validation; including regulatory and quality compliance as applied to pharmaceutical industries. The students will also be provided with in-depth knowledge in the organization and operation of the major departments of pharmaceutical companies, as well as ways of dealing with regulatory and compliance issues. The course will provide advanced information on drug discovery & development process, including INDA, NDA & ANDA, drug master file & therapeutic equivalent codes. Other essential topics such as production & operational management, production planning & control shall be covered. In addition, various in-process quality control tests needed to assess some sterile and non-sterile products shall also be discussed. The course will also include pilot plant and scale up techniques, design, construction and operation of clean rooms as well as recent advances in packaging techniques for various pharmaceutical dosage forms, including stability & regulatory aspects of packaging.

PT E11Medical devices (1+1)

The course presents the foundation to the students to understand the development and commercialization of safe and effective medical devices and in vitro diagnostic devices (IVDs). Students learn to research, design, develop, regulate, test, and market new devices and biologics. Experienced and aspiring medical device professionals will gain insight into the technological, ethical, regulatory, and business aspects of the highly regulated medical device industry.

PM E12 Infection control and antimicrobial stewardship (1+1)

The course includes infection prevention and control practices, the chain of infection, standard and transmission-based precautions, barriers and use of personal protective equipment, strategies for preventing the spread of infectious disease to healthcare workers and patients and disposal of biohazard waste. The course also addresses the improvement of antimicrobial agent's prescription in the clinical practice through the application of stewardship programs in medical institutions. The course focuses on all elements and considerations required for the establishment and implementation of a successful antimicrobial policy.

PM E13 Bioinformatics (1+1)

The course introduces bioinformatics concepts and practice. Topics include: biological databases, sequence alignment, gene and protein structure prediction, molecular phylogenetics, genomics and proteomics. Students will gain practical experience with bioinformatics tools and develop basic skills in the collection and presentation of bioinformatics data, as well as the rudiments of programming in a scripting language.

PO E14 Biological Standardization (1+1)

Introduction to concepts of screening and bioassay in the course of drug discovery. Testing drug activities belonging to various drug classes of which: central and autonomic nervous systems, cardiovascular system, hormones, analgesics, anti-inflammatory, anticancer drugs**, etc..**

PO E15 Geriatric pharmacotherapy (1+1)

The course integrates the critical issues of aging and the importance of team-based health care for geriatric patients in long term care facilities. The Geriatrics course is designed to provide students with the knowledge, skills, and experience to recognize and approach common problems in older adults in inpatient and outpatient settings as well as in the nursing home, common disease in old ages (neurodegenerative disease, osteoarthritis, fall & dizziness, hypertension, ischemic heart disease, arrhythmias and stroke).

PO E16 Pharmacogenetics of drug metabolism and transport (1+1)

This course will intoduce the student to the study of how an individual's genetic inheritance affects the body's response to drugs. This course will examine factors that affect drug response including genetics, as well as, additional factors such as environment, diet, age, and concurrent drug therapy and health status. Methods important to pharmacogenomics research will be presented. The student will be able to discuss basic principles of genetic medicine and personalized medicine, describe the mechanisms by which genetic variation impacts drug metabolism and transport, describe how this may impact clinical response and outcomes and describe the methodology used for standard

genotyping assays and the evolving role of pharmacogenomics in drug discovery and development.

PP E17 Interprofessional skills (1+1)

The students are introduced to interprofessional practice and the roles of the different healthcare professionals that make up an interprofessional team. Understand and respect the roles, responsibilities and scope of practice of one's own profession and of other healthcare professions through a role play experience and open dialogue.Communicate role expectations of each healthcare profession within the context of interprofessional team functioning.Recognize the impact of teamwork on patient-centred practice.Appraise the attributes of effective interprofessional team functioning and their impact on effective healthcare delivery using a case-based approach.

PP E18 Advanced Pharmacoeconomics (1+1)

The Advanced course provides a more in-depth review of the principles for those who aspire to a greater knowledge in how pharmacoeconomic studies are conducted, interpreted and used to make policy and clinical decisions. The student will be able to discuss advanced concepts in cost-effectiveness and cost-utility analyses, draw decision trees and perform the calculations involved in decision analysis, discuss Markov Modeling, probabilistic modeling, multiple criteria decision analysis, creating and interpreting cost-effectiveness graphs, meta-analysis in pharmacoeconomic modeling, mixed treatment comparisons and to describe how to create, read and assess pharmacoeconomic studies.