



جمهورية مصر العربية

وزارة التعليم العالي

كلية الصيدلة – جامعة أسيوط

لائحة برنامج درجة بكالوريوس الصيدلة (فارم دي-PharmD)

(صيدلة اكلينيكية)

بنظام الساعات المعتمدة

٢٠١٩

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الرؤية:

الريادة فى التعليم الصيدلى والبحث العلمى وخدمة المجتمع على المستوى القومى والعالمى.

الرسالة:

توفير تعليم صيدلى متميز من خلال برامج علمية معتمدة لتأهيل صيادلة ذوى كفاءة عالية قادرين على المساهمة فى تحسين الرعاية الصحية للمجتمع والمنافسة فى مجالات العمل على المستوى القومى والعالمى، وترسيخ أخلاقيات مهنة الصيدلة فى خريجها وغرس قيم التعليم الذاتى والمستمر وإجراء أبحاث علمية متطورة تساهم فى تطوير صناعة الدواء وتلبى الإحتياجات الصحية للمجتمع.

الغايات والأهداف الإستراتيجية للكلية:

١. جهاز أكاديمى وإدارى فعال.
٢. تخريج صيدلى متميز قادر على الإبتكار والمنافسة فى سوق العمل.
٣. تحقيق مستوى متميز فى البحث العلمى وخدمة المجتمع.
٤. التقويم المستمر للمؤسسة

الأقسام العلمية :

Abbreviation	Department	القسم
PT	Pharmaceutics	الصيدلانيات
PI	Industrial Pharmacy	الصيدلة الصناعية
PG	Pharmacognosy	العقاقير
PC	Medicinal Chemistry	الكيمياء الدوائية
PR	Pharmaceutical Organic Chemistry	الكيمياء العضوية الصيدلية
PA	Pharmaceutical Analytical Chemistry	الكيمياء التحليلية الصيدلية
PP	Clinical Pharmacy	الصيدلة الإكلينيكية
PB	Biochemistry	الكيمياء الحيوية
PM	Microbiology and Immunology	الميكروبيولوجيا والمناعة
PO	Pharmacology and Toxicology	علم الأدوية والسموم

تقوم الأقسام التالية بالإشراف على تدريس المقررات الموضحة قرين كل منها وذلك على النحو التالي:

Department	Courses supervised
Pharmaceutics	Mathematics , Pharmacy Legislation and Ethics
Pharmacognosy	Entrepreneurship
Medicinal Chemistry	Information Technology, Communication Skills
Pharmaceutical Analytical Chemistry	University Requirement Courses
Clinical Pharmacy	Marketing & Pharmacoeconomics and First Aid and Basic Life Support
Biochemistry	Scientific Writing
Microbiology and Immunology	Parasitology, Public Health and Pathology
Pharmacology and Toxicology	Anatomy & Histology, Physiology and Pathophysiology

مادة (١) :

رؤية البرنامج

التميز العلمي والتطوير المستمر لمهنة الصيدلة بهدف الوصول لمكانة مرموقة عالميا في مجال الصيدلة الإكلينيكية وذلك لخدمة المنظومة الصحية العلاجية.

رسالة البرنامج

إعداد صيادلة مؤهلين بأحدث المفاهيم الصيدلانية والطبية يمكنهم المساهمة في رفع كفاءة المنظومة العلاجية على المستوى المحلي والإقليمي من خلال التعامل مع الفريق الصحي في المستشفيات وتقديم الخدمات الصيدلانية بمستوى مهني متميز 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 داخل 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 والبحاث 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 إكلينيكية) طبقاً لنظام الساعات المعتمدة.

مادة (٣) :

التأهيل للدرجات الأكاديمية الأعلى.

درجة بكالوريوس بكالوريوس الصيدلة (فارم دي PharmD) (صيدلة إكلينيكية) هي الدرجة الجامعية الأولى في مجال الصيدلة اللازمة للحصول على ترخيص ممارسة المهنة في جميع المجالات الصيدلانية 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 (امتياز) في مواقع العمل (٥+١). بالإضافة إلى عدد ١٠٠ ساعة تدريب ميداني فعلى في الصيدليات الأهلية والحكومية وصيدليات المستشفيات تتم خلال الأجازات الصيفية لسنوات الدراسة بعد نهاية المستوى الثالث و قبل البدء في سنة الامتياز.
- ينقسم كل مستوى (عام) دراسي إلى فصلين دراسيين (الخريف والربيع) ومدة كل فصل دراسي خمسة عشر أسبوعاً.
- ويجوز طرح بعض المقررات في فصل دراسي صيفي مدته من ستة إلى ثمانية أسابيع من الدراسة المكثفة.
- الساعة المعتمدة هي وحدة قياس دراسية وتعادل ساعة دراسية أسبوعية نظرية أو درساً عملياً لا تقل مدته عن ساعتين أسبوعياً وتدرس على مدى فصل دراسي واحد.

مادة (٥) :

تصميم البرنامج الدراسي

- يتم تصميم البرنامج الدراسي بحيث يكون التعلم عن طريق المحاضرات النظرية وحلقات النقاش والدروس العملية و ورش العمل والتدريبات الميدانية و إجراء بحوث و تقديم العروض بالإضافة إلى التعاون مع المجتمع المحيط بالجامعة.
- يدرس ويجتاز الطالب مقررات دراسية تصل مجموع ساعاتها المعتمدة ١٧٧ ساعة تشمل ٨ ساعات معتمدة مقررات كلية إختيارية بالإضافة إلى متطلبات الجامعة بحد أقصى ٦ ساعات معتمدة.
- المقررات الاختيارية للطالب في المستويين الآخرين يفضل ان تحقق له جدارات و مهارات تساعده على التوجه المهني والتخصص. وأن يكون أحد المقررات الإختيارية فى إحدى المجالات الصيدلية الدوائية (التصنيع الدوائى- الرقابة الدوائية...إلخ).
- يكمل الطالب ١٠٠ ساعة فعلية تدريب صيفى يبدأ بنهاية المستوى الثالث و قبل البدء فى سنة الامتياز

مادة (٦) :

(أ) العبء الدراسي :

- 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 آخر فصلين دراسيين بزيادة العبء الدراسي عن الحد الأقصى وبما لا يتجاوز عدد ٣ ساعات معتمدة (يستفيد منها الطالب لمرة واحدة)، كما يجوز لمجلس الكلية بعد موافقة اللجنة المختصة بالإشراف على البرنامج السماح للطالب المتعثر (أنظر مادة ١٣ - التعثر الأكاديمي) بزيادة العبء الدراسي عن الحد الأقصى خلال الفصل الصيفي وبما لا يتجاوز عدد ٢ ساعة معتمدة.

(ب) التسجيل

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

- وعلى كل طالب أن يقوم شخصياً بتسجيل المقررات التي يرغب في دراستها في كل فصل دراسي مع ضرورة أن يتم اختيار المقررات وعدد الساعات المعتمدة بالتشاور والاتفاق مع المرشد الأكاديمي.
- ويشترط لتسجيل المقرر أن يكون الطالب قد اجتاز بنجاح متطلب التسجيل لهذا المقرر.
- ويجوز لمجلس الكلية في حالات الضرورة القصوى وبعد موافقة اللجنة المختصة بالإشراف على البرنامج السماح للطالب المتعثر بتسجيل بعض المقررات بالتوازي مع متطلباتها التي لم يجتازها الطالب بنجاح إذا قل العبء الدراسي المتاح للطالب عن ١٢ ساعة معتمدة.
- وينبغي 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.

ج) الإضافة والحذف والانسحاب :

- يجوز للطالب بعد إكمال إجراءات التسجيل أن يضيف أو يحذف إلى ساعاته المعتمدة مقررأ 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 الانسحاب 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) المواظبة

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

مادة (٨) :

لغة الدراسة

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

مادة (٩) :

التدريب الميداني الأولى وسنة الأمتياز (التدريب الميداني المتقدم)

التدريب الميداني الأولى:

- على الطالب أن يؤدي 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 و يتم التدريب خلال الأجازات الصيفية لسنوات الدراسة بعد نهاية المستوى الثالث و قبل البدء في سنة الامتياز..

التدريب الميداني المتقدم (سنة الأمتياز):

- على الطالب أن يكمل سنة الأمتياز بعد الإنتهاء من السنوات الدراسية (١٧٧ ساعة معتمدة) بواقع ٣٦ اسبوعا وتنقسم الى ست دورات تدريبية بواقع أربع دورات على الأقل داخل مستشفيات تقوم بتطبيق الممارسة الصيدلية الإكلينيكية ، وتخصص دورة واحدة للتدريب في احدى المجالات الصيدلية الدوائية (التصنيع -الرقابة الدوائية- ...الخ) ، بحيث يكون البرنامج التدريبي متكامل وممنهج بطريقة دورية تناوبية مسجلة بالساعات والمهام التدريبية وتحت إشراف دقيق من الكلية وجهة التدريب.
- يقدم الطالب مشروع تخرج في تخصص معين يساهم في تمهيد وإعداد الطالب للتوجه لهذا التخصص. ويمكن للخريج العمل في هذا المجال لمدة سنتين ليصبح بعدها صيدلي متخصص قادر على تقديم خدمات صيدلية إكلينيكية أو الممارسات الصيدلية المختلفة .
- يتم تصميم البرنامج التدريبي في تخصصات صيدلة إكلينيكية مختلفة (مثل: امراض القلب – السرطان – الأطفال -الامراض النفسية و العصبية – التغذية العلاجية – العناية الحرجة –المعلومات الدوائية - اقتصاديات الدواء -....) حسب إمكانيات الجامعة واحتياج المجتمع في نطاق الجامعة . وذلك طبقا للبرنامج التدريبي لسنة الإمتياز.

مادة (١٠) :

شروط القبول

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

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

مادة (١١) :

نظام التقييم

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

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

نظام التقييم

التقدير	الرمز	عدد النقاط	النسبة المئوية
ممتاز	A ⁺	٤	٩٥ فأكثر
	A	٣,٨	٩٠ لأقل من ٩٥
	A ⁻	٣,٦	٨٥ لأقل من ٩٠
جيد جدا	B ⁺	٣,٤	٨٢,٥ لأقل من ٨٥
	B	٣,٢	٧٧,٥ لأقل من ٨٢,٥
	B ⁻	٣	٧٥ لأقل من ٧٧,٥
جيد	C ⁺	٢,٨	٧٢,٥ لأقل من ٧٥
	C	٢,٦	٦٧,٥ لأقل من ٧٢,٥
	C ⁻	٢,٤	٦٥ لأقل من ٦٧,٥
مقبول	D ⁺	٢,٢	٦٢,٥ لأقل من ٦٥
	D	٢	٦٠ لأقل من ٦٢,٥
راسب	F	٠,٠٠	أقل من ٦٠
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

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 في الفصل الدراسي الواحد وذلك بغرض الحصول على المعدل الفصلي كما يلي:

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

ويتم حساب المعدل التراكمي كما يلي:

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

مادة (١٢) :

الرسوب في المقررات

يعتبر الطالب راسباً في المقرر في الحالات التالية:

- 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 دراسي فعليه دراسة ذات المقرر والالتزام بالموظبة 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.

مادة (١٣) :

التعثر الأكاديمي

يعتبر الطالب متعثر أكاديميا إذا حصل على معدل فصلي (GPA) أقل من "٢".

الطالب الذي يحصل على معدل فصلي (GPA) أقل من "٢" لمدة ستة فصول دراسية متصلة أو في عشرة فصول دراسية غير متصلة يفصل من الكلية وذلك بعد العرض والموافقة من مجلس الكلية ولا يؤخذ في الإعتبار الفصول الصيفية إن وجدت.

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

مادة (١٤) :

الانقطاع عن الدراسة

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

مادة (١٥) :

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

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

أولاً : دراسة واجتياز ١٧٧ ساعة معتمدة تشمل متطلبات الكلية الإختيارية (٨ ساعات معتمدة) على ألا يقل المعدل التراكمي عن اثنين.

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

ثالثاً: 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 و قبل البدء فى سنة الامتياز.
رابعاً: اجتياز سنة الإمتياز والتي تشمل مشروع التخرج فى احد التخصصات المطروحة للتسجيل.

مادة (١٦) :

نظام تأديب الطلاب

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

مادة (١٧) :

كود الأقسام ومتطلبات الجامعة والكلية والمقررات الإختيارية

Abbreviations Course for Key

١- كود الأقسام

PA	Pharmaceutical Analytical Chemistry
PB	Biochemistry
PC	Medicinal Chemistry
PG	Pharmacognosy
PI	Industrial Pharmacy
PM	Microbiology and Immunology
PO	Pharmacology and Toxicology
PP	Clinical Pharmacy
PR	Pharmaceutical Organic Chemistry
PT	Pharmaceutics
MD	Medical Courses
NP	Nonclassified Pharmacy courses
PE	Elective courses

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.

University Requirements:**٢ - متطلبات الجامعة**

Course code	Course title	Credit hours		
		L	P/T	Total
UR 101	English Language	2	-	2
UR 202	Psychology	1	-	1
UR 203	Social Issues	1	-	1

Faculty Requirements:**٣ - متطلبات الكلية*****Courses supervised by the Department***** مقررات يشرف عليها القسم****Pharmacognosy Department:**

Course code	Course title	Credit hours		
		L	P/T	Total
PG 101	Medicinal plants	2	1	3
PG 202	Pharmacognosy I	2	1	3
PG 303	Pharmacognosy II	2	1	3
PG 504	Phytochemistry I	2	1	3
PG 605	Phytochemistry II	2	1	3
PG 006	Phytotherapy	2	1	3
PG E07	Complementary and Alternative Therapies	1	1	2
PG E08	Production and Manufacture of Medicinal Plants	1	1	2
PG E09	Poisonous Plants	1	1	2
NP 008*	Entrepreneurship	1	-	1

Medicinal Chemistry Department:

Course code	Course title	Credit hours		
		L	P/T	Total
PC 501	Medicinal Chemistry I	2	1	3
PC 602	Medicinal Chemistry II	2	1	3
PC 703	Medicinal Chemistry III	2	-	2
PC E04	Drug Design	1	1	2
PC E05	Medicinal Chemistry of Supplementary Drugs and Nutraceuticals	1	1	2
PC E06	Nanochemistry and Related Aspects	1	1	2

NP 201*	Information Technology	1	1	2
NP 403*	Communication Skills	1	1	2

Pharmaceutical Organic Chemistry Department:

Course code	Course title	Credit hours		
		L	P/T	Total
PR 101	Pharmaceutical Organic Chemistry I	2	1	3
PR 202	Pharmaceutical Organic Chemistry II	2	1	3
PR 303	Pharmaceutical Organic Chemistry III	2	1	3
PR E04	Recent Techniques of Structure Elucidation	1	1	2
PR E05	Green Chemistry	1	1	2
PR E06	Advanced Level of Drug Synthesis	1	1	2

Pharmaceutical Analytical Chemistry Department:

Course code	Course title	Credit hours		
		L	P/T	Total
PA 101	Pharmaceutical Analytical Chemistry I	2	1	3
PA 202	Pharmaceutical Analytical Chemistry II	2	1	3
PA 503	Instrumental Analysis	1	-	1
PA 704	Quality Control of Pharmaceutical	2	1	3
PA E05	Advanced Pharmaceutical Analysis - Spectroscopy	1	1	2
PA E06	Environmental Analysis	1	1	2
PA E07	Forensic Analysis	1	1	2
UR 101*	English Language	2	-	2
UR 202*	Psychology	1	-	1
UR 203*	Social Issues	1	-	1

Pharmaceutics Department:

Course code	Course title	Credit hours		
		L	P/T	Total
PT 101	Pharmacy Orientation	1	-	1
PT 202	Physical Pharmacy	2	1	3
PT 303	Pharmaceutical Dosage Forms I	2	1	3

PT 404	Pharmaceutical Dosage Forms II	2	1	3
PT 505	Pharmaceutical Dosage Forms III	2	1	3
PT 606	Sterile Dosage Forms	1	-	1
PT 707	Biopharmaceutics and Pharmacokinetics	2	1	3
PT 808	Advanced Drug Delivery Systems	2	-	2
PT E09	Cosmetic Preparations	1	1	2
PT E10	Clinical Pharmaceutics	1	1	2
PT E11	Drug Targeting	1	1	2
NP 102*	Mathematics	1	-	1
NP 404*	Pharmacy Legislations and Ethics	1	-	1

Industrial Pharmacy Department:

Course code	Course title	Credit hours		
		L	P/T	Total
PI 801	Pharmaceutical Technology	2	1	3
PI E02	Applied Industrial Pharmacy	1	1	2
PI E03	Good Manufacturing Practices	1	1	2
PI E04	Drug Manufacturing	1	1	2

Clinical Pharmacy Department:

Course code	Course title	Credit hours		
		L	P/T	Total
PP 601	Community Pharmacy	2	1	3
PP 602	Hospital Pharmacy	2	1	3
PP 703	Clinical Pharmacy	2	1	3
PP 704	Drug Information	2	-	2
PP 805	Clinical Pharmacokinetics	2	1	3
PP 806	Pharmacotherapy of Endocrine and Renal Diseases	2	1	3
PP 807	Pharmacotherapy of Oncological Diseases	2	1	3
PP 908	Pharmacotherapy of Neuropsychiatric Diseases	2	1	3
PP 909	Pharmacotherapy of Cardiovascular Diseases	2	1	3

PP 910	Pharmacotherapy of Critical Care Patients	1	1	2
PP 911	Clinical Research and Pharmacovigilance	1	-	1
PP 012	Pharmacotherapy of Dermatological and Musculoskeletal Diseases	1	1	2
PP 013	Pharmacotherapy of Pediatric Diseases	2	1	3
PP 014	Pharmacotherapy of Gastrointestinal Diseases	2	1	3
PP 015	Pharmacotherapy of Respiratory Diseases	1	1	2
PP E16	Precision Pharmacy	1	1	2
PP E17	Advanced Pharmaceutical Care	1	1	2
PP E18	Radiopharmacy	1	1	2
MD 605*	First Aid and Basic Life Support	1	1	2
NP 006*	Marketing & Pharmacoeconomics	2	-	2

Biochemistry Department:

Course code	Course title	Credit hours		
		L	P/T	Total
PB 101	Cell Biology	1	1	2
PB 302	Biochemistry I	2	1	3
PB 403	Biochemistry II	2	1	3
PB 704	Clinical Biochemistry	2	1	3
PB 905	Clinical Nutrition	1	1	2
PB E06	Cancer Biology	1	1	2
PB E07	Radioisotopes in Biochemistry and Medicine	1	1	2
PB E08	Tissue Metabolism	1	1	2
NP 605*	Scientific Writing	1	-	1

Microbiology and Immunology Department:

Course code	Course title	Credit hours		
		L	P/T	Total
PM 401	General Microbiology and Immunology	2	1	3
PM 502	Pharmaceutical Microbiology	2	1	3
PM 603	Medical Microbiology	2	1	3
PM 904	Pharmaceutical Biotechnology	1	1	2

PM E05	Molecular Biology and Epigenetics	1	1	2
PM E06	Infection Control	1	1	2
PM E07	Antimicrobial stewardship	1	1	2
MD 403*	Pathology	2	-	2
MD 405*	Parasitology	1	1	2
MD 806*	Public Health and Preventive Medicine	2	-	2

Pharmacology and Toxicology Department:

Course code	Course title	Credit hours		
		L	P/T	Total
PO 101	Medical Terminology	1	-	1
PO 302	Basic Pharmacology	2	1	3
PO 403	Pharmacology I	2	1	3
PO 504	Pharmacology II	2	1	3
PO 605	Pharmacology III	2	-	2
PO 906	Toxicology and Forensic Chemistry	2	1	3
PO E07	Biological Standardization	1	1	2
PO E08	Drug Interactions	1	1	2
MD 201*	Anatomy & Histology	2	1	3
MD 302*	Physiology and pathophysiology	2	1	3

4-Elective courses

٤- مقررات اختيارية

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

Course Code	Course Title	Credit Hours		
		L	P/T	Total
PA E05	Advanced Pharmaceutical Analysis - Spectroscopy	1	1	2
PA E06	Environmental Analysis	1	1	2
PA E07	Forensic Analysis	1	1	2
PB E06	Cancer Biology	1	1	2
PB E07	Radioisotopes in Biochemistry and Medicine	1	1	2
PB E08	Tissue Metabolism	1	1	2
PC E04	Drug Design	1	1	2

PC E05	Medicinal Chemistry of Supplementary Drugs and Nutraceuticals	1	1	2
PC E06	Nanochemistry and Related Aspects	1	1	2
PG E07	Complementary and Alternative Therapies	1	1	2
PG E08	Production and Manufacture of Medicinal Plants	1	1	2
PG E09	Poisonous Plants	1	1	2
PI E02	Applied Industrial Pharmacy	1	1	2
PI E03	Good Manufacturing Practices	1	1	2
PI E04	Drug Manufacturing	1	1	2
PM E05	Molecular Biology and Epigenetics	1	1	2
PM E06	Infection Control	1	1	2
PM E07	Antimicrobial stewardship	1	1	2
PO E07	Biological Standardization	1	1	2
PO E08	Drug Interactions	1	1	2
PP E16	Precision Pharmacy	1	1	2
PP E17	Advanced Pharmaceutical Care	1	1	2
PP E18	Radiopharmacy	1	1	2
PR E04	Recent Techniques of Structure Elucidation	1	1	2
PR E05	Green Chemistry	1	1	2
PR E06	Advanced Level of Drug Synthesis	1	1	2
PT E09	Cosmetic Preparations	1	1	2
PT E10	Clinical Pharmaceutics	1	1	2
PT E11	Drug Targeting	1	1	2

L: Lecture

P: Practical

T: Tutorial

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

مادة (١٨) :

الخطة الدراسية (أنظر مرفق ١)

مادة (١٩) :

محتوى المقررات الدراسية (أنظر مرفق ٢)

مادة (٢٠) :

تحديث المقررات الدراسية

يجوز لمجلس الجامعة الموافقة على تحديث نسبة لا تتجاوز ٢٠٪ من محتوى المقررات الدراسية بناء على اقتراح 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 (الامتياز) في شكل دورات تناوبية في ملحق به لائحة برنامج التدريب التناوبي بصورة ممنهجة تفصيلية.

مرفق رقم ١ : خاص بالمادة رقم (١٨)

Programme Curriculum

الخطة الدراسية

Table (1)

Semester (1)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./tut	Total		Period.	Pract.	Wr.	Oral		
Pharmaceutical Analytical Chemistry I	PA 101	2	1	3	Registration	20	40	75	15	150	2
Pharmaceutical Organic Chemistry I	PR 101	2	1	3	Registration	20	40	75	15	150	2
Pharmacy Orientation	PT 101	1	-	1	Registration	10	--	40	---	50	1
Medicinal Plants	PG 101	2	1	3	Registration	20	40	75	15	150	2
Medical Terminology	PO 101	1	-	1	Registration	10	--	40	---	50	1
Cell Biology	PB 101	1	1	2	Registration	15	25	60	-	100	1
Mathematics	NP 102	1	--	1	Registration	10	---	40	---	50	1
English Language*	UR 101	2	--	2	Registration	25	-	75	--	100	2
Total		10 + 2	4	14+2						700	

○ *Lect.* = Lecture

○ *Period.* = Periodical

○ *Pract.* = Practical

○ *Wr.* = Written

*متطلب جامعة بتقدير نجاح ورسوب فقط دون اضافة درجات للمجموع التراكمي

Table (2)

Semester (2)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./tut	Total		Period.	Pract.	Wr.	Oral		
Pharmaceutical Analytical Chemistry II	PA 202	2	1	3	Pharmaceutical Analytical Chemistry I	20	40	75	15	150	2
Pharmaceutical Organic Chemistry II	PR 202	2	1	3	Pharmaceutical Organic Chemistry-I	20	40	75	15	150	2
Information Technology*	NP 201	1	1	2	Registration	15	25	60	-	100	1
Anatomy & Histology	MD 201	2	1	3	Registration	20	40	75	15	150	2
Physical Pharmacy	PT 202	2	1	3	Registration	20	40	75	15	150	2
Pharmacognosy I	PG 202	2	1	3	Medicinal Plants	20	40	75	15	150	2
Psychology*	UR 202	1	-	1	Registration	10	-	40	-	50	1
Social Issues	UR 203	1	-	1	Registration	10	-	40	-	50	1
Total		11 + 2	6	17 + 2						850	

○ *Lect.* = Lecture

○ *Period.* = Periodical

○ *Pract.* = Practical

○ *Wr.* = Written

* متطلب جامعة بتقدير نجاح ورسوب فقط دون اضافة درجات للمجموع التراكمي

Table (3)**Semester (3)**

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./tut	Total		Period.	Pract.	Wr.	Oral		
Pharmaceutical Organic Chemistry-III	PR 303	2	1	3	Pharmaceutical Organic Chemistry-II	20	40	75	15	150	2
Biochemistry I	PB302	2	1	3	Cell Biology	20	40	75	15	150	2
Pharmacognosy II	PG 303	2	1	3	Pharmacognosy-I	20	40	75	15	150	2
Basic Pharmacology	PO 302	2	1	3	Registration	20	40	75	15	150	2
Physiology and Pathophysiology	MD 302	2	1	3	Registration	20	40	75	15	150	2
Pharmaceutical Dosage Forms I	PT 303	2	1	3	Physical pharmacy	20	40	75	15	150	2
Total		12	6	18						900	

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

Table (4)

Semester (4)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./tut	Total		Period.	Pract.	Wr.	Oral		
Pharmacology I	PO 403	2	1	3	Basic Pharmacology	20	40	75	15	150	2
General Microbiology and Immunology	PM 401	2	1	3	Cell biology	20	40	75	15	150	2
Communication Skills	NP 403	1	1	2	Registration	15	25	60	--	100	1
Pathology	MD 403	2	--	2	Registration	25	--	75	--	100	2
Pharmaceutical Dosage Forms-II	PT 404	2	1	3	Physical Pharmacy	20	40	75	15	150	2
Biochemistry II	PB 403	2	1	3	Biochemistry I	20	40	75	15	150	2
Pharmacy Legislation and Ethics	NP 404	1	-	1	Registration	10	---	40	---	50	1
Parasitology	MD 404	1	1	2	Registration	15	25	50	10	100	1
Total		13	6	19						950	

○ *Lect.* = Lecture

○ *Period.* = Periodical

○ *Pract.* = Practical

○ *Wr.* = Written

Table (5)**Semester (5)**

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./tut	Total		Period.	Pract.	Wr.	Oral		
Pharmacology-II	PO 504	2	1	3	Basic Pharmacology	20	40	75	15	150	2
Pharmaceutical Microbiology	PM 502	2	1	3	General Microbiology & Immunology	20	40	75	15	150	2
Instrumental Analysis	PA 503	1	-	1	Pharmaceutical Analytical Chemistry II	10	-	40	-	50	1
Medicinal Chemistry-I	PC 501	2	1	3	Pharmaceutical Organic Chemistry-II	20	40	75	15	150	2
Pharmaceutical Dosage Forms-III	PT 505	2	1	3	Physical Pharmacy	20	40	75	15	150	2
Phytochemistry-I	PG 504	2	1	3	Pharmacognosy II	20	40	75	15	150	2
First Aid and Basic Life Support (BLS)	MD 505	1	1	2	Registration	15	25	60	--	100	1
Total		12	6	18						900	

○ *Lect.* = Lecture

○ *Period.* = Periodical

○ *Pract.* = Practical

○ *Wr.* = Written

Table (6)

Semester (6)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./tut	Total		Period.	Pract.	Wr.	Oral		
Pharmacology-III	PO 605	2	-	2	Pharmacology I	15	--	75	10	100	2
Phytochemistry-II	PG 605	2	1	3	Phytochemistry-I	20	40	75	15	150	2
Medicinal Chemistry-II	PC 602	2	1	3	Medicinal Chemistry I	20	40	75	15	150	2
Hospital Pharmacy	PP 602	2	1	3	Pharmacy Legislation and Ethics	20	40	75	15	150	2
Medical Microbiology	PM 603	2	1	3	General Microbiology and Immunology	20	40	75	15	150	2
Community Pharmacy	PP 601	2	1	3	Pharmacology I	20	40	75	15	150	2
Sterile Dosage Forms	PT 606	1	-	1	Pharmaceutical Dosage Forms I	10	--	40	---	50	1
Scientific Writing	NP 605	1	-	1	Registration	10	---	40	---	50	1
Total		14	5	19						900	

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

Table (7)**Semester (7)**

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./tut	Total		Period.	Pract.	Wr.	Oral		
Medicinal Chemistry-III	PC 703	2	-	2	Medicinal Chemistry-I	15	--	75	10	100	2
Quality Control of Pharmaceuticals	PA 704	2	1	3	Pharmaceutical Analytical Chemistry-II	20	40	75	15	150	2
Clinical Biochemistry	PB 704	2	1	3	Biochemistry-II	20	40	75	15	150	2
Biopharmaceutics and Pharmacokinetics	PT 707	2	1	3	Pharmaceutical dosage forms III	20	40	75	15	150	2
Clinical Pharmacy	PP 703	2	1	3	Pharmacology I	20	40	75	15	150	2
Drug Information	PP 704	2	-	2	Pharmacology-III	15	--	75	10	100	2
Elective Course	PE --	1	1	2	Registration	15	25	50	10	100	1
Total		13	5	18						900	

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

Table (8)

Semester (8)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./tut	Total		Period.	Pract.	Wr.	Oral		
Pharmacotherapy of Endocrine and Renal Diseases	PP 805	2	1	3	Pharmacology III	20	40	75	15	150	2
Pharmacotherapy of Oncological Diseases	PP 806	2	1	3	Pharmacology III	20	40	75	15	150	2
Clinical Pharmacokinetics	PP 807	2	1	3	Biopharmaceutics and Pharmacokinetics	20	40	75	15	150	2
Advanced Drug Delivery Systems	PT 808	2	-	2	Registration	15	--	75	10	100	2
Pharmaceutical Technology	PI 801	2	1	3	Pharmaceutical Dosage Forms-II	20	40	75	15	150	2
Public Health and Preventive Medicine	MD 806	2	--	2	General Microbiology and Immunology	25	--	75	--	100	2
Elective Course	PE ---	1	1	2	Registration	15	25	50	10	100	1
Total		13	5	18						900	

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

Table (9)

Semester (9)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./tut	Total		Period.	Pract.	Wr.	Oral		
Toxicology and Forensic Chemistry	PO 906	2	1	3	Pharmacology-III	20	40	75	15	150	2
Pharmacotherapy of Neuropsychiatric Diseases	PP 908	2	1	3	Pharmacology-III	20	40	75	15	150	2
Pharmacotherapy of Cardiovascular Diseases	PP 909	2	1	3	Pharmacology-III	20	40	75	15	150	2
Pharmacotherapy of Critical Care Patients	PP 910	1	1	2	Pharmacology-III	15	25	50	10	100	1
Clinical Research and Pharmacovigilance	PP 911	1	--	1	Drug information	10	---	40	--	50	1
Clinical Nutrition	PB 905	1	1	2	Biochemistry-II	15	25	50	10	100	1
Pharmaceutical Biotechnology	PM 904	1	1	2	General Microbiology & Immunology	15	25	75	10	100	1
Elective Course	PE --	1	1	2	Registration	15	25	50	10	100	1
Total		11	7	18						900	

○ *Lect.* = Lecture

○ *Period.* = Periodical

○ *Pract.* = Practical

○ *Wr.* = Written

Table (10)

Semester (10)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./tut	Total		Period.	Pract.	Wr.	Oral		
Pharmacotherapy of Dermatological, and Musculoskeletal Diseases	PP 012	1	1	2	Pharmacology II	15	25	75	10	100	1
Pharmacotherapy of Pediatric Diseases	PP 013	2	1	3	Pharmacology-III	20	40	75	15	150	2
Pharmacotherapy of Gastrointestinal Diseases	PP 014	2	1	3	Pharmacology-III	20	40	75	15	150	2
Pharmacotherapy of Respiratory Diseases	PP 015	1	1	2	Pharmacology-III	15	25	50	10	100	1
Phytotherapy	PG 006	2	1	3	Phytochemistry-II	20	40	75	15	150	2
Marketing & Pharmacoeconomics	NP 006	2	--	2	Registration	25	---	75	--	100	2
Entrepreneurship	NP 007	1	---	1	Registration	10	---	40	---	50	1
Elective	PE --	1	1	2	Registration	15	25	50	10	100	1
Total		12	6	18						900	

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

مرفق ٢ : خاص بالمادة (١٩)

Course Content

المحتوى العلمى للمقررات الدراسية

PA 101 Pharmaceutical Analytical Chemistry I

This course introduces the students to the relevant aspects of chemical kinetics, rate of reaction and chemical equilibrium. Additionally, it also aims to provide the students with the essential knowledge of general chemistry, types of chemical reactions, calculation of concentrations of substances and qualitative analysis of anions and cations and their mixtures

PA 202 Pharmaceutical Analytical Chemistry II

It mainly includes the aspects of volumetric quantitative analysis which are acid-base and non aqueous titrations, precipitometry and compleximetry. Relevant applications in pharmaceutical analysis will be deeply investigated.

PA 503 Instrumental Analysis

The course focuses on introduction to spectroscopy, spectrophotometric methods of analysis, and spectrofluorimetry. It also include introduction of chromatography: Classification of chromatography, thin layer chromatography, paper chromatography, HPLC; types of stationary phase, types of HPLC detectors, UPLC, TLC, gas chromatography, capillary electrophoresis and their application to determine intact drug and degradation products.

PA 704 Quality Control of Pharmaceuticals

The course concerned with methods and procedures for evaluation of safety, potency and palatability of pharmaceutical products of small and large molecules drugs including herbal drugs. The standard pharmacopeial methods, procedures and international guidelines as WHO, EMA, TGA. Good Analytical Practice and Sampling. Documentation. Validation of analytical methods according to ICH Guidelines Q2 R1. Compendial testing. Drug stability testing according to ICH Q1 R2 Guidelines. Stress conditions for drug degradation according to ICH Q1 R2 Guidelines. 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.

PA E05 Advanced Analytical Chemistry – Spectroscopy

In this course the pharmaceutical applications of different analytical spectroscopic techniques including UV, Visible spectrometry, Fluorimetry, IR, NMR and MS in the quality control

laboratories will be studied. A brief introduction about the instrumentation of these analytical spectroscopic techniques will be presented as well.

PA E06 Environmental Analysis

In this context, analysis of different environmental samples such as water, sewage, air, dust particles will be covered. Different analytical techniques which are closely associated with the environmental analysis will be discussed in details.

PA E07 Forensic analysis

Herein, an introduction about different forensic samples including criminal and overdose samples and ecstasy tablets will be presented. Importantly, different methods of the analysis of these samples will be covered including portable approaches.

PR 101 Pharmaceutical Organic Chemistry I

Types of reactions and reagents. Chemical, physical and nomenclature of hydrocarbons (alkanes, cycloalkanes, alkenes and alkynes). Stereochemistry (Optical isomers, racemic modification, nomenclature of configurations) and pharmaceutical applications. Aromaticity, aromatic ions and compounds. Electrophilic aromatic substitution and orientation, alkylbenzenes and sulfonic acid, polynuclear aromatic compound. pharmaceutical application. The practical sessions-Lab. Safety, basic lab. Techniques to purify and identify organic compounds.

PR 202 Pharmaceutical Organic Chemistry II

Nomenclature, physical and chemical properties of alkyl halides (SN1, SN2, E1 and E2), dynamic stereochemistry, aryl halides, Alcohols, Phenols, ethers, epoxides, amines, aldehydes, ketones, carboxylic acid, acid derivatives.

PR 303 Pharmaceutical Organic Chemistry III

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 infrared (IR), nuclear magnetic resonance (NMR) and mass spectrometry (MS) for the structural elucidation of organic compounds.

PR E04 Recent techniques of structure elucidation

This course focuses on the identification and structure determination of organic molecules by modern spectroscopic techniques. Problem solving and interpretation of 2D-NMR and mass spectrometry spectra will be emphasized.

PR E05 Green Chemistry

This course focuses on the application of innovative technology to established industrial processes, environmentally improved routes to important products, design of new green chemicals and materials, sustainable resources, biotechnology alternatives, evaluation of environmental impact. Students will understand how to assess the environmental impact of chemical operations and understand the methods for their minimization and be able to suggest alternative green methods to current processes.

PR E06 Advanced Levels of Drug Synthesis

This course presents an integrated and insightful look at successful drug synthesis in the drug discovery market. The course includes an introduction on how chemical synthesis, the art and science of constructing molecules shapes our world. Also, This course includes examples of practical methods to make drugs currently in use or in clinical phases.

PC 501 Medicinal Chemistry I

This course includes introduction to Medicinal chemistry with respect to the basic terminology, drugs classification and nomenclature. In addition, the course focuses on the chemical, biochemical and pharmacological aspects of medicinal agents that belong to, ANS, CNS drugs, CVS drugs and drugs affecting neurotransmission as well as drugs acting on immune system and neuromuscular disorders. It is constructed to allow understanding of the basics of drugs actions on the molecular levels, metabolism, methods of synthesis & assay. In addition structure activity relationship of the aforementioned drug classes should be clearly acknowledged.

PC 602 Medicinal Chemistry II

The course includes the medicinal chemistry aspects of chemotherapeutic agents: classes of antibiotics and antimicrobials, antiviral, antifungals and antiparasitics. Additionally various anticancer therapies are also covered. It is designed to afford a comprehensive understanding of the structural features; mechanism of action and SAR of the known chemotherapeutic classes. The structural modification to attenuate and enhance the activity of the studied drug classes will be discussed

PC 703 Medicinal Chemistry III

The course handles overview of the medicinal chemistry of NSAIDs, opioids, steroidal hormones, peptide hormones , GIT drugs, antihistaminics and other related drugs. It is designed to afford a comprehensive understanding of the structural features; mechanism of action and SAR of the

nominated drug classes. The structural modification to attenuate and enhance the activity of the studied drug classes will be discussed.

PC E04 Drug Design

This course affords advanced aspects of the drug design and discovery. Specifically, it will handle molecular modeling, protein data bank, Pharmacophore building & alignment. QSAR; rational drug design, and combinatorial chemistry.

PC E05 Medicinal chemistry of supplementary drugs and Nutraceuticals

The increasingly emerge of several substances as supplementary drugs and nutraceuticals necessitates that pharmacists should understand the basic knowledge underlying the therapeutic aspects of the mentioned substances. This elective course will afford pharmacy students with the medicinal chemistry aspects of supplementary drugs; nutraceuticals; Vitamins; Antiaging, and antiobesity agents.

PC E06 Nanochemistry and related aspects

This course focused on the chemical aspects underlying nano- and radiotherapy as main aspects. Related topics involving chemical delivery systems; biotechnology drugs; and Diagnostic agents will be also discussed. The course contents should reflect the basic knowledge concerning the design, analytical and synthetic aspects involved in the development of these new drugs classes.

PB 101 Cell Biology

The course aims at studying the structure and function of prokaryotic and eukaryotic cells, cell membrane and transport mechanisms, DNA and cell division, cell cycle regulation, apoptosis and autophagy. It include also, expression of genetic information (transcription and translation), and post-translational modification. In addition, the neural cell, action potential, mechanical molecules, cellular energetics and integrating cells into tissues will be covered

PB 302 Biochemistry I

It is an introductory course that covers the biochemical properties and biological importance of biomolecules including carbohydrates, lipids, and proteins, nucleic acids, nucleoproteins and porphyrins, in addition to biochemistry of enzymes. Also, immunoglobulins will be covered.

PB 403 Biochemistry II

It is course to study the biological oxidations and related biochemical processes, metabolism of carbohydrates, proteins and lipids and their regulations, role of hormones in metabolism regulation,

integration of metabolism and metabolic disorders. Mineral metabolism, Biochemistry of cancer and free radicals and antioxidants.

PB 704 Clinical Biochemistry

This course will focus on the biochemistry of body fluids and how to use samples of them in Bio Lab. It will present the biochemical changes of body fluids occurring in human body to evaluate the functional state of liver, kidney, heart, bone, gastrointestinal tract, endocrine glands and to give interpretation of the results in relation to health and disease. In addition to clinical enzymology and acid- base balance, homeostasis and biochemical aspects of hematology and blood analysis , urine analysis, tumor markers and recent diagnostic biomarkers, will be covered.

PB 905 Clinical Nutrition

The aim of the course is designed to provide the student with understanding of the fundamentals of nutrition, roles of carbohydrates, proteins, fats, water, minerals and vitamins in clinical nutrition and how these components promote and maintain of optimal health. Nutritional assessment and management of patients requiring specialized nutrition support, enteral nutrition, and parental nutrition. Nutritional therapy in specific diseases (cardiovascular, cancer, gastrointestinal diseases, malnutrition and genetic diseases) is covered.

PB E06 Cancer Biology

This course will cover the different types of carcinogenic agents and how these carcinogenic agents can affect DNA, the mechanism of chemical carcinogenesis, molecular basis of cancer, the mechanisms of activations of proto-oncogenes and their roles in carcinogenesis, the regulators of cell cycle and how the actions of P53 protein and pRb as negative regulators of cell cycle and suppressors of cancer with emphasis of the effects of P53 in stimulating DNA repair and apoptosis. In addition, the tumor markers and their role in diagnosis and evaluation of progression and treatment of cancer will be studied. Biochemical basis of current anticancer treatments will be clarified.

PB E07 Radioisotopes in biochemistry and medicine

This course will cover the types of isotopes, radioactive decay, half-life, measurement and their units. Radioisotope techniques in biochemistry. Research, diagnostic and treatment applications of isotopes will be studied. Biological effects of radiation will be clarified.

PB E08 Tissue metabolism:

This course will cover the biochemistry of erythrocytes, the blood plasma protein- coagulation and fibrinolysis, role of liver in metabolism, the metabolism of muscle at rest and during exercise, the metabolism of the nervous system and the extracellular matrix and connective tissue

PT 101 Pharmacy Orientation

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

This course covers principles of physical pharmacy including rheology and flow of fluids, solutions, their properties, solubility, complexation, state of matter, kinetics of drug reaction and thermodynamics.

PT303 Pharmaceutical Dosage Forms I

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

PT 404 Pharmaceutical Dosage Forms II

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

PT 505 Pharmaceutical Dosage Forms III

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, in-vitro possible drug/excipients interactions, diffusion and dissolution. It also describes the principles and techniques involved in the formulation, and manufacturing of solid dosage forms including powders, granules, tablets, capsules and suppositories.

PT 606 Sterile Dosage Forms

This course involves principles of formulation, development, sterilization, packaging and QC testing of pharmaceutical sterile pharmaceutical products.

PT 707 Biopharmaceutics & Pharmacokinetics

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 808 Advanced Drug Delivery Systems

A continued study of pharmaceutical dosage forms with emphasis on novel and targeted drug delivery systems. This course covers nanoformulations, advanced drug delivery systems for transdermal and oral delivery, site-specific, stimuli-responsive drug delivery systems and targeted drug delivery systems. Also covers the application of polymers and excipients to solve problems/issues concerning the optimization of absorption, selective transport, and targeting.

PT E09 Cosmetics

This course provides broad-based knowledge about cosmetic products and their types, classification, ingredients, formulation, uses, quality control and packaging.

PT E10 Clinical Pharmaceutics

This course considers the role of basic pharmaceutics in determining or modifying clinical outcomes. It deals with the behavior of medicines within the body and how adverse drug reactions

can result from nature of formulation, dosage forms and devices as well as excipients rather than from the drug. It focuses on dealing with formulation/excipient-related problems, tailoring of formulations for specific populations, and how this affects the treatment outcome. The course depends mainly on examples and case studies.

PT E11 Drug Targeting

This course introduces the different technologies that can be employed to enhance the drug accumulation at their target sites. It emphasizes the biological limitations and barriers to drug transport across the membranes, the importance of new excipients and new drug formulations, the possibilities of drug targeting by modern formulation techniques, and how to improve bioavailability of drugs produced by biotechnology.

PI 801 Pharmaceutical Technology

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.

PI E02 Applied Industrial Pharmacy

The course provides students with the pre-formulation study, quality assurance with emphasis on process validation and sampling techniques, and good manufacturing practice regulations.

PI E03 Good Manufacturing Practice

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.

PI E04 Drug Manufacturing

The course provides students with the basic understanding in the area of preformulation study, manufacturing of capsules, fundamentals and importance of liposomes, nanoparticles, sterile area, target drug delivery systems, stability, and good laboratory practice.

PG 101 Medicinal Plants

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

Based on the Egyptian flora and other floras 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

Based on the Egyptian flora and other floras 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

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

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 006 Phytotherapy

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

PG E07 Complementary and Alternative Medicinal Therapies

The study of herbal preparations, nutritional supplements, and homeopathies. The study of herbal preparations that are widely used by the general public as self-selected OTC (over-the-counter) products/NPDs (nonprescription drugs). Food items for therapeutic, disease prevention, or health promotion purposes. Emphasis will be placed on the role of the pharmacist to help clients make an informed choice and counsel them on the selection of useful and safe products.

PG E08 Production and Manufacture of Medicinal Plants

Commercial production of medicinal plants: cultivation, collection, drying, preservation, extraction, quality control, and final packaging of entire or powdered forms or extracts.

PG E09 Poisonous plants

This course will focus on the major poisonous plants that can be harmful to humans, the toxic principle(s) causing the poisoning. These are alkaloids, amino acids, peptides, proteins, thio- and cyanoglycosides, cardiolides, phenolics, acids (oxalic acid), terpenes and resins, diagnosis and treatments for diseases caused by poisonous plants and food poisoning

PM 401 General Microbiology and Immunology

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

PM 502 Pharmaceutical Microbiology

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.

PM 603 Medical Microbiology

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 microorganisms caused by Gram positive cocci & bacilli, Gram negative cocci & bacilli and mycobacteria of major significance to public health will be studied. 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 904 Pharmaceutical Biotechnology

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

PM E05 Molecular Biology and Epigenetics

The course aims to provide students with fundamental of molecular biology techniques. It also discusses the molecular mechanisms for regulating gene expression and new techniques used to modulate gene expression. The class will discuss the mechanisms of epigenetic regulation including DNA methylation and posttranslational modification of histones and the roles of chromatin assembly modifying complexes, noncoding RNAs and nuclear organization.

PM E06 Infection Control

This course aims to ensure that students are well prepared to direct the infection control services, to develop and to supervise infection programs in different health care facilities. Also, this course will provide students with knowledge about basic guidelines of infection control, outbreak investigations, surveillance techniques as well as prevention of health care-associated infections. This course will help students to work within the hospital team and in the integrated programs of quality management.

PM E07 Antimicrobial stewardship

This course provides basic concepts of the emergence and spread of resistance of microorganisms to different antimicrobial drug classes. The specific goal of this course is to provide cutting-edge approaches for detection of resistance and antimicrobial discovery. In addition, chemical optimization, and usage that minimizes the development of resistance will be examined.

MD 201 Anatomy and Histology

This course aims to provide the students with knowledge 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, articular, muscular, digestive, cardiovascular, respiratory, lymphatic, urinary, genital, nervous and endocrine systems.

MD 302 Physiology and Pathophysiology

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.

MD 403 Pathology

The course concentrates on the study of biochemical, structural and functional changes in cells, tissues and organs, which are caused by diseases.

MD 404 Parasitology

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

This part of the course will discuss medical helminthology, protozoology and entomology concerning their morphological features, life cycle, pathogenesis, clinical manifestations, different diagnostic techniques, the most recent lines of treatment and prevention with control strategy for each parasitic infection. Moreover, it also covers laboratory diagnosis of human parasitic infections.

MD 505 First Aid and Basic Life Support

Basic life support, bleeding, shock, medical emergencies, poisoning, bones and joints, soft tissue injuries, rescue and transportation

MD 806 Public Health

The course introduces students to the global public health and the Sustainable Development Goals (SDGs). It also includes the fundamentals of epidemiology, communicable and non-communicable diseases and their control with special emphasis on antibiotic resistance and antibiotic stewardship as

well as emerging pathogens. The course also covers nutritional health, occupational medicine and women's, children's and adolescent's health and the relationship between the environment and public health. It is anticipated that students will achieve an understanding of the optimal environmental conditions for improved public health such as air, food and water purity and sanitary water disposal. The ability to understand and evaluate the biological and chemical basis for health threats emanating from the environment is also gained.

PO 101 Medical Terminology

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 and diseases.

PO 302 Basic Pharmacology

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 are covered. Key concepts include enzyme action, regulation, inhibition and signal transduction. In addition, the course provides the basic principles of drug absorption, distribution, metabolism and excretion.

PO 403 Pharmacology I

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 504 Pharmacology II

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 605 Pharmacology III

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 906 Toxicology and Forensic Chemistry

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

PO E07 Biological standardization

This course covers the biological and biochemical evaluation of various drugs that lead identification of the mode of action, safety and hazards of newly developed drugs compared with already available drugs. The first part will cover a brief introduction on biological assay and drug discovering system. The second part is concerned with most recent available analytical techniques used routinely in drugs evaluation in both experimental and clinical labs. The third part covers screening methods and new technologies used for pharmacological evaluation of novel compounds acting on autonomic nervous system, CVS and CNS, endocrine, GIT and respiratory systems.

PO E08 Drug interactions

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

PP 601 Community Pharmacy

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 musculoskeletal symptoms, skin, eyes, and ears, and childhood symptoms.

PP 602 Hospital Pharmacy

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

PP 703 Clinical Pharmacy

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 704 Drug information

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

PP 805 Clinical Pharmacokinetics

This course provides basic principles of pharmacokinetics and their application to the clinical setting. Intravenous and oral kinetics, IV infusion, multiple 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.

PP 806 Pharmacotherapy of Endocrine & Renal Diseases

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

PP 807 Pharmacotherapy of Oncological Diseases

Cancer aetiology, risk factors, cancer staging and grading, diagnosis, prognosis, optimizing chemotherapeutic regimens, different types of tumors (solid and hematologic) and their management, toxicities of chemotherapy, radiotherapy, supportive treatment, pharmaceutical care and patient's support measures.

PP 908 Pharmacotherapy of Neuropsychiatric Diseases

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

PP 909 Pharmacotherapy of Cardiovascular Diseases

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 910 Pharmacotherapy of Critical Care Patients

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 911 Clinical Research and Pharmacovigilance

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

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

PP 012 Pharmacotherapy of Dermatological, and Musculoskeletal Diseases

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 013 Pharmacotherapy of Pediatric Diseases

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

PP 014 Pharmacotherapy of Gastrointestinal Diseases

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 015 Pharmacotherapy of Respiratory Diseases

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 E16 Precision Pharmacy

This course covers all aspects of precision medicine, the basic understanding of genetic disease, molecular diagnostic methods and principles for personalized medicine. The course also investigates the mechanisms for interindividual variability in drug response, ethical, legal and regulatory and issues of pharmacogenetics and best practices to ensure the effectiveness of genomic medicine.

PP E17 Advanced Pharmaceutical Care

The course provides the student with the foundations of pharmaceutical care, principles and skills necessary for patient care process. This course allows students to apply didactic knowledge to direct patient care activities, patient specific pharmacotherapy, evidence based medicine, and effective communication with patients and healthcare professionals

PP E18 Radiopharmacy

The course aims to provide the student with a basic background of nuclear pharmacy and fundamentals of radiopharmacy. The course also focuses on types of radiation, radioisotopes, radionuclide generators and detectors, radiation protection, methods of radiolabeling and design and preparation of radiopharmaceuticals. Diagnostic and therapeutic uses of radiopharmaceuticals and regulatory procedures and quality control of radiopharmaceuticals.

NP 201 Information Technology

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.

Pharmacy Informatics is concerned with the use of technology to improve patient care as well as increasing patient safety. Informatics deals with data generated by software used in patient care, not only the storage of data but also the retrieval of data as meaningful clinical reports and the management of information systems to assure patient safety and optimal medical outcomes.

NP 102 Mathematics

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

NP 403 Communication Skills

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. The course will also deal with the underlying attitudes, which form an

interpersonal skills. It focuses on concept and meaning of communication; verbal and non verbal communication (body and vocal language); active listening skills; communication styles and presentation skills. Communication skills in diverse pharmacy practice setting will be discussed

NP 404 Pharmaceutical Legislations and Ethics

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. Professional ethics provides general principles and history of pharmacy ethics, general principles of medical ethics, conflicts of interests and its management pharmacists relationship with society and family, ethics in disaster, medication error, research ethics and animal ethics.

NP 605 Scientific Writing

This course is designed to introduce students to the principles of good scientific writing, to be familiar with basic structure of scientific reports and research articles. It covers methods of paraphrasing, common mistakes in scientific writing, different writing styles, how to write a scientific report, proposal and manuscript, appropriate use of tables and figures in data presentation and evaluation of literature and information sources.

NP 006 Marketing & Pharmacoeconomics

The course introduces the student to understand the major concept of marketing, marketing strategies, market research, segmentation and marketing of pharmacy services, pricing strategies, promotion, selling skills, e-marketing, advertising and customer behaviors. Introduction to pharmacoeconomics, types, methods of pharmacoeconomics analysis. Cost-minimization analysis and cost-effectiveness analysis, cost-benefit analysis, cost-utility analysis

NP 007 Entrepreneurship

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

UR 101 English Language

Training in reading, comprehension, basic grammatical rules, writing and translation. The course adopts a systematic approach to proper essay writing such as idea development, paragraph structure, introduction, support and conclusions.

UR 202 Psychology

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

UR 203 Social Issues

يهدف مقرر القضايا المجتمعية إلى رفع درجة الوعي لدى الطلاب بالقضايا التالية: مكافحة الفساد، الزيادة السكانية وحقوق الإنسان.