برنامج

فنى المختبرات

دبلوم نظام ثلاث سنوات

اشراف معالي الاستاذ/ غازي أحمد علي محسن – وزير التعليم الفني والتدريب المهني
اعداد الجهاز التنفيذي للمجلس الاعلى لكليات المجتمع

اعضاء اللجنة العلمية

ا.د/ لطفي المقطري

ا.د / انور المذحجي

ا.د/ علي الميري

ا.د/ رضوان

SYLLABUS
YEAR (1)
SEMESTER (1)

I.	المعلومات العامة عن المقرر:	
1.	**اسم المقرر:**	لغة عربية

2.	رمز المقرر ورقمه:					
3.	الساعات المعتمدة:	محاضرة	سمنار	عملي	تدريب	الإجمالي
		2				2
4.	المستوى والفصل الدراسي:					
5.	المتطلبات السابقة لدراسة المقرر(إن وجدت):					
6.	المتطلبات المصاحبة لدراسة المقرر(إن وجدت):					
7.	البرنامج/التي يتم فيها تدريس المقرر:					
8.	لغة تدريس المقرر:					
9.	نظام الدراسة:					
10.	أسلوب الدراسة في البرنامج:					
11.	مكان تدريس المقرر:					
12.	اسم معد مواصفات المقرر:					
13.	تاريخ اعتماد مجلس الكلية:					

II. وصف المقرر:

دراسة اللغة العربية من خلال نصوص أدبيه وتطبيقات نحوية ، يأخذ أنماط من النصوص الأدبية والشعرية والنثرية من مختلف العصور الأدبية، ثم استخرج الشواهد النحوية لغرض التطبيق.

III. مخرجات التعلم

ملخص للمعارف والمهارات التى سيقدمها المقرر:

1. الإلمام بأشهر أبواب النحو التي يستقيم بها اللسان ويعتبر من سلامة القول منطوقاً ومكتوب اً.
2. اكتساب الذوق الأدبي من خلال الإطلاع على أشهر النصوص الأدبية.

تسكين مخرجات التعلم

أولا: تسكين مخرجات تعلم المقرر (المعارف والفهم) باستراتيجية التدريس والتقويم:

مخرجات المقرر / المعرفة والفهم	استراتيجية التدريس	استراتيجية التقويم
A1 . يعرف اسس وقواعد كتابة التقرير والرسالة الإدارية	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة
A2. يميز طرق كتابة السيرة الذاتية	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة
A3 . يحدد القواعد النحوية للجمل الاسمية والفعلية	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة
A4 . يعرف القواعد الإملائية اللازمة لضبط الكتابة	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة
A5 . يميز نصوص الشعر العربي ويحللها ويتذوقها	المحاضرة المناقشة	اسئلة مقالية اسئلة قصيرة اسئلة هادفة

	العصف الذهنى	

ثانيا: تسكين مخرجات تعلم المقرر (المهارات الذهنية) باستراتيجية التدريس و التقويم:		
مخرجات المقرر/ المهارات الذهنية	استراتيجية التدريس	استراتيجية التقويم
B1 . يفرق بين الجمل الاسمية والفعلية	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة
B2 . يحلل النصوص الأدبية ويتذوقها	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة

ثالثا: تسكين مخرجات تعلم المقرر (المهارات المهنية والعملية) باستراتيجية التدريس والتقويم:		
مخرجات المقرر/ المهارات المهنية والعملية	استراتيجية التدريس	استراتيجية التقويم
C1.يلم بأهم قواعد النحو لتحسين مهارة القراءة الجهرية	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة
C2. ستخدم القواعد النحوية والإملائية فى كتابة التقارير والرسائل الإدارية والسيرة الذاتية	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة

رابعا: تسكين مخرجات تعلم المقرر (المهارات العامة) باستراتيجة التدريس والتقويم:		
مخرجات المقرر	استراتيجية التدريس	استراتيجية التقويم
لا ينطبق		

IV. تحديد وكتابة مواضيع المقرر الرئيسة والفرعية (النظرية والعملية) وربطها بمخرجات التعلم المقصودة للمساق مع تحديد الساعات المعتمدة لها.

كتابة وحدات /مواضيع محتوى المقرر					
أولا: الجانب النظري					
الرقم	مخرجات تعلم المقرر	وحدات/ موضوعات المقرر	المواضيع التفصيلية	عدد الأسابيع	الساعات الفعلية
1	B1, C1	مهارة القراءة الجهرية	▪ قراءة نصوص نثرية وشعرية ▪ تدريبات صفية	2	4
2	B1, C1	مهارة القراءة الصامتة	▪ قراءة نصوص نثرية وشعرية ▪ تدريبات صفية	2	4

3	A1, C2	مهارة الكتابة الوظيفية	▪ كتابة الرسالة الإدارية ▪ تدريبات صفية	1	2
4	A1, C2	الكتابة الوظيفية	▪ كتابة التقرير ▪ تدريبات صفية	1	2
5	A1, B1, C1, C2	اختبار نصف الفصل	اختبار نصف الفصل	1	2
6	A2, B1, C1, C2	السيرة الذاتية	▪ السيرة الذاتية ▪ تدريبات صفية	1	2
7	A3, B1, C1	مهارة ضبط الكتابة	▪ القواعد النحوية (الجملة الاسمية ونواسخها) ▪ تدريبات صفية	2	4
8	A3, B1, C1	مهارة ضبط الكتابة	▪ القواعد النحوية (الجملة الفعلية ومكملاتها) ▪ تدريبات صفية	1	2
9	A4, C2	مهارة ضبط الكتابة	▪ بعض القواعد الإملائية (همزتا الوصل والقطع – الهمزة المتوسطة – علامات الترقيم) ▪ تدريبات صفية	2	4
10	A5, B2	التذوق الادبي	▪ دراسة نصوص من الشعر العربي وتحليلها وتذوقها ▪ تدريبات صفية + تكاليف	1	2
11	A2, A3, A4, A5, B1, B2, C1	الامتحان النهائي		1	2
إجمالي الأسابيع والساعات				16	32

ثانيا: الجانب العملي:

تكتب تجارب (مواضيع) العملي

الرقم	التجارب المعملية	عدد الأسابيع	الساعات الفعلية	مخرجات التعلم
	لا ينطبق			
إجمالي الأسابيع والساعات				

V. استراتيجية التدريس:

المحاضرة
المناقشة
العصف الذهنى
مناقشة مجموعات صغيرة
تكاليف

VI. التعيينات والتكليفات:

الرقم	التكليف/النشاط	مخرجات التعلم	الأسبوع	الدرجة
1	**كتابة التقرير**	**A2, C2**	**6-8**	**2.5**
2	**السيرة الذاتية**	**A2, B1, C1, C2**	**7-10**	**2.5**

VII. جدولة طرق/ أدوات التقويم خلال الفصل الدراسي

الرقم	طرق/أدوات التقويم	الأسبوع	الدرجة	نسبة الدرجة إلى درجة التقويم النهائي	المخرجات التي يحققها
1	**الحضور**	**15-1**	**5**	**%5**	A1, A2, A3, A4, A5, B1, C1
2	**الواجبات**	**12-4**	**5**	**%5**	A1, A2, B1, C1, C2
3	**اختبار منتصف الفصل**	**7**	**20**	**%20**	A1, B1, C1, C2
4	**الاختبار النهائي**	**17-15**	**70**	**%70**	A2, A3, A4, A5, B1, B2, C1
			100	**%100**	

VIII. مصادر التعلم:

(المؤلف، العام، العنوان، مكان النشر والناشر)

المراجع الرئيسة: (لا تزيد عن مرجعين)

1تاريخ الأدب العربي / د. أحمد حسن الزيات.
المصادر الأدبية واللغوية في التراث العربي / د. عز الدين إسماعيل.

المراجع المساندة

١ .الأدب العربي الحديث / د. محمد صالح الشطبي.

الكتب والمراجع الاثرائية (الدوريات العلمية،...الخ) (يرفق قائمة بذلك):

www.google.com

المصادر الإلكترونية ومواقع الإنترنت...الخ

مواد تعلم أخرى مثل البرامج التي تعتمد على الكمبيوتر أو الأقراص المضغوطة ... الخ

IX. الضوابط والسياسات المتبعة في المقرر.

بعد الرجوع للوائح الجامعة يتم كتابة السياسة العامة للمساق فيما يتعلق بالآتي:

1. **سياسة حضور الفعاليات التعليمية:** تحدد سياسة الحضور ومتى يعتمد الغياب وكيفيته ونسبته، ومتى يعد الطالب محروماً من المقرر
2. **الحضور المتأخر :** يتم تحديد السياسة المتبعة في حالات تكرار تأخر الطالب عن حضور الفعاليات التعليمية
3. **ضوابط الامتحان:** تحديد السياسات المتبعة في حالات الغياب عن الامتحان و توصيف السياسة المتبعة في حالات تأخر الطالب عن الامتحان.
4. **التعيينات والمشاريع:** تحديد السياسات المتبعة في حالات تأخير تسليم التكاليف والمشاريع ومتى يجب أن تسلم إلى الأستاذ.

5.	**الغش:** تحدد هنا السياسات المتبعة في حالات الغش إما في الامتحانات أو في التكاليف بأي طريقة من طرائق الغش.
6.	**الانتحال:** يحدد تعريف الانتحال وحالاته والإجراءات المتبعة في حالة حدوثه.
7.	**سياسات أخرى:** أي سياسات أخرى مثل استخدام الموبايل أو مواعيد تسليم التكليفات ..... الخ

X. المعلومات العامة عن المقرر:						
14.	**اسم المقرر:**	ثقافة اسلامية				
15.	**رمز المقرر ورقمه:**					
16.	**الساعات المعتمدة:**	**محاضرة**	**سمنار**	**عملي**	**تدريب**	**الإجمالي**

		2				2
17.	المستوى والفصل الدراسي:					
18.	المتطلبات السابقة لدراسة المقرر(إن وجدت):					
19.	المتطلبات المصاحبة لدراسة المقرر(إن وجدت):					
20.	البرنامج/التي يتم فيها تدريس المقرر:					
21.	لغة تدريس المقرر:					
22.	نظام الدراسة:					
23.	أسلوب الدراسة في البرنامج:					
24.	مكان تدريس المقرر:					
25.	اسم معد مواصفات المقرر:					
26.	تاريخ اعتماد مجلس الكلية:					

X. وصف المقرر:

صمم هذا المقرر لتزويد الطالب بالمعارف، والمهارات، والاتجاهات السلوكية، اللازمة في مجال الثقافة والأخلاقيات الإسلامية المهنية، والتي تمكنه من التحلي بأخلاقيات الإسلام، والصفات التي تميزه عن غيره - في هذا المجال- ، والابتعاد عن المفسدات، ومحاولة تعزيز الثوابت، وإزالة السلبيات..

XI. مخرجات التعلم

ملخص للمعارف والمهارات التي سيقدمها المقرر:

١ -تعريف الطلبة برأي الإسلام في بعض القضايا المعاصرة، وكيفية التعامل معها.
٢ -تميز مبادئ الإسلام في تأسيس الأسرة واستمرارها
٣ -إكساب الطلبة بعض المفاهيم العامة للأخلاقيات الإسلامية، وأثرها في حياة الأفراد.
٤ -تثقيف أفراد المجتمع حول العادات السيئة والضارة التي ظهرت وانتشرت فيه.
٥ -الإلمام بالقوانين الطبية واللوائح المنظمة للمهنة.
٦ -إدراك أهمية تجنب الأخطاء في المهنة وعقوبتها في الشرع والقانون.

تسكين مخرجات التعلم

أولا: تسكين مخرجات تعلم المقرر (المعارف والفهم) باستراتيجية التدريس والتقويم:

مخرجات المقرر / المعرفة والفهم	استراتيجية التدريس	استراتيجية التقويم
A1 . يناقش مصادر الثقافة الاسلامية	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة
A2. يشرح اركان العقيدة الاسلامية	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة
A3 . يحدد مفهوم الأسرة وأهميتها، ومظاهر اهتمام الإسلام بالأسرة.	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة
A4 . يوضح واجبات الحاكم وحقوقه في النظام السياسي.	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة

A5 . يناقش الأخلاق ومكانتها في الإسلام.	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة
A6. يحدد مصادر وأهمية أخلاقيات المهنة		
A7 يدرك الأحكام الشرعية والأخلاقية في بعض القضايا مثل الموت الرحيم . وعمليات التجميل	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة
A8. يدرك رأي الإسلام حول بعض المشكلات المعاصرة، وكيفية التعامل معها.	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة
A9 .يناقش مفهوم الشورى فى الإسلام	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة

ثانيا: تسكين مخرجات تعلم المقرر (المهارات الذهنية) باستراتيجية التدريس و التقويم:		
مخرجات المقرر/ المهارات الذهنية	استراتيجية التدريس	استراتيجي ة التقويم
B1 . يفرق بين الثقافة والحضارة	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة
B2 . يناقش أثر العقيدة على الفرد والمجتمع	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة
B3 يناقش مبادئ الاسلام التى يجب ان تراعى عند الزواج	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة
B4 ناقش نضرة الاسلام للصحة	المحاضرة المناقشة العصف الذهنى	اسئلة مقالية اسئلة قصيرة اسئلة هادفة

ثالثا: تسكين مخرجات تعلم المقرر (المهارات المهنية والعملية) باستراتيجية التدريس والتقويم:		
مخرجات المقرر/ المهارات المهنية والعملية	استراتيجية التدريس	استراتيجية التقويم
لا ينطبق		

رابعا: تسكين مخرجات تعلم المقرر (المهارات العامة) باستراتيجة التدريس والتقويم:		
مخرجات المقرر	استراتيجية التدريس	استراتيجية التقويم

D1.يعتمد المفاهيم العامة للأخلاقيات الإسلامية، والاحكام الشرعية اثناء التعامل مع القضايا والمشكلات المعاصرة.	**المحاضرة المناقشة العصف الذهنى**	**اسئلة مقالية اسئلة قصيرة اسئلة هادفة**

XI. تحديد وكتابة مواضيع المقرر الرئيسة والفرعية (النظرية والعملية) وربطها بمخرجات التعلم المقصودة للمساق مع تحديد الساعات المعتمدة لها.

كتابة وحدات /مواضيع محتوى المقرر

أولا: الجانب النظري

الرقم	مخرجات تعلم المقرر	وحدات/ موضوعات المقرر	المواضيع التفصيلية	عدد الأسابيع	الساعات الفعلية
1	A1, B1	مقدمة: الثقافة والحضارة	تعريف الثقافة – الثقافة الإسلامية. ▪ تعريف الحضارة ومكوناتها، ومظاهرها . ▪ الفرق بين الثقافة والحضارة. ▪ مصادر الثقافة الإسلامية. ▪ خصائص الثقافة الاسلامية.	2	4
2	A2, B2	النظام العقائدي في الإسلام	▪ تعريف العقيدة. ▪ أركان العقيدة الإسلامية. ▪ أثر العقيدة على الفرد والمجتمع.	1	2
3	A3, B3	النظام الاجتماعي في الإسلام	▪ تعريف النظام الاجتماعي. ▪ تعريف الأسرة وأهميتها، ومظاهر اهتمام الإسلام بالأسرة. ▪ مبادئ الإسلام في تأسيس الأسرة واستمرارها: مبادئ تراعى قبل الإقدام على الزواج. مبادئ تراعى بعد الزواج. مبادئ تراعى عند حصول ▪ زعزعة أو خلاف أسري.	1	2
4	A4	النظام السياسي في الإسلام	▪ مفهوم النظام السياسي. ▪ أسس النظام السياسي في لإسلام السيادة للشرع- السلطة للأمة -ا - للأمة حاكم واحد - الشورى. واجبات الحاكم وحقوقه في ▪ النظام السياسي.	1	2
5	A5	النظام الأخلاقي في	▪تعريف الأخلاق ومكانتها في الإسلام.	1	2

		الإسلام	▪ الأخلاق كما وردت في القرآن الكريم. ▪ الأخلاق كما وردت في السنة النبوية.		
6	A6	أخلاقيات المهنة.	▪ مفهوم أخلاقيات المهنة. ▪ مصادر وأهمية أخلاقيات المهنة. ▪ تصنيف القيم الأخلاقية المهنية.	1	2
7	A1, A2, A3, A4, A5, 7	امتحان نصفي	امتحان نصفي	1	2
8	B4	هدي الإسلام في الصحة والحفاظ عليها	▪ الإسلام والصحة. ▪ الطب الوقائي في الإسلام.	1	2
9	A7, D1	أحكام شرعية وأخلاقية في بعض القضايا	▪ الاجهاض – عمليات التجميل – نقل الدم ▪ زراعة الأعضاء - الاستنساخ ▪ وسائل منع الحمل.	2	4
10	A7, D1	تابع أحكام شرعية	▪ تشريح الجثث – الموت الرحيم - الدواء والصوم. ▪ الأدوية والإدمان – التداوي بالأعشاب.	1	2
11	A7, A8, D1	بعض المشكلات المعاصرة وكيف عالجها الإسلام	▪ سوء التغذية. - انتشار الأمراض المعدية. ▪ حكم وأثر ممارسة بعض العادات الضارة: ▫ المخدرات - المهدئات - اللواط. - العادة السرية.	1	2
12	A9, D1	قضايا معاصرة	▪ الغزو الفكري - الشورى في الإسلام - حقوق الإنسان في الإسلام.	1	2
13	A1, A2, A3, A4, A5, A6, A7, A8, A9, B1, B2, B3, B4, D1	الامتحان النهائي	امتحان نهائي	1	2
		إجمالي الأسابيع والساعات		16	32

ثانيا: الجانب العملي:

تكتب تجارب (مواضيع) العملي

الرقم	التجارب المعملية	عدد الأسابيع	الساعات الفعلية	مخرجات التعلم
	لا ينطبق			
	إجمالي الأسابيع والساعات			

XIV. استراتيجية التدريس:
١ .المحاضرة
٢ .المناقشة
٣ .العصف الذهنى
٤ .مناقشة مجموعات صغيرة
٥ .تكاليف

XV. التعيينات والتكليفات:				
الرقم	التكليف/النشاط	مخرجات التعلم	الأسبوع	الدرجة
1	زراعة الاعضاء	A7,D1	6-8	2.5
2	االاستنساخ	A7,D1	7-10	2.5

XVI. جدولة طرق/ أدوات التقويم خلال الفصل الدراسي					
الرقم	طرق/أدوات التقويم	الأسبوع	الدرجة	نسبة الدرجة إلى درجة التقويم النهائي	المخرجات التي يحققها
1	الحضور	15-1	5	%5	A1, A2, A3, A4, A5, A6, A7, A8, A9, B1, B2, B3
2	الواجبات	12-4	5	%5	A7, D1
3	اختبار منتصف الفصل	7	20	%20	A1, A2, A3, A4, A5, A6, B1, B2, B3
4	الاختبار النهائي	17-15	70	%70	A2, A3, A4, A5, B1, B2, C1
			100	%100	A1, A2, A3, A4, A5, A6, A7, A8, A9, B1, B2, B3, B4, D1

XVII. مصادر التعلم:
(المؤلف، العام، العنوان، مكان النشر والناشر)
المراجع الرئيسة: (لا تزيد عن مرجعين)
١ -الثقافة الإسلامية للدكتور/ عبد الحكيم بن عبد اللطيف السروري. ٢ -أضواء على الثقافة الإسلامية د/ على محمد الأهدل و د/ عبد الحكيم السروري.
المراجع المساندة
١ -الثقافة الإسلامية د/ عبد الغني حيدر. ٢ -الموسوعة الفقهية الطبية د/ محمد أحمد كنعان. ٣ -قانون الجرائم والعقوبات اليمني د/ علي حسن الشرفي
الكتب والمراجع الاثرائية (الدوريات العلمية،...الخ) (يرفق قائمة بذلك):
www.google.com
المصادر الإلكترونية ومواقع الإنترنت...الخ
مواد تعلم أخرى مثل البرامج التي تعتمد على الكمبيوتر أو الأقراص المضغوطة ... الخ

XV. الضوابط والسياسات المتبعة في المقرر.	
بعد الرجوع للوائح الجامعة يتم كتابة السياسة العامة للمساق فيما يتعلق بالآتي:	
8.	**سياسة حضور الفعاليات التعليمية:** تحدد سياسة الحضور ومتى يعتمد الغياب وكيفيته ونسبته، ومتى يعد الطالب محروماً من المقرر
9.	**الحضور المتأخر :** يتم تحديد السياسة المتبعة في حالات تكرار تأخر الطالب عن حضور الفعاليات التعليمية
10.	**ضوابط الامتحان:** تحديد السياسات المتبعة في حالات الغياب عن الامتحان و توصيف السياسة المتبعة في حالات تأخر الطالب عن الامتحان.
11.	**التعيينات والمشاريع:** تحديد السياسات المتبعة في حالات تأخير تسليم التكاليف والمشاريع ومتى يجب أن تسلم إلى الأستاذ.
12.	**الغش:** تحدد هنا السياسات المتبعة في حالات الغش إما في الامتحانات أو في التكاليف بأي طريقة من طرائق الغش.
13.	**الانتحال:** يحدد تعريف الانتحال وحالاته والإجراءات المتبعة في حالة حدوثه.

Standard II: Course Identification and General Information:						
1	**Course Title:**	English Language I				
2	**Course Number & Code:**					
3	**Credit hours:**	**C.H**				**Total**
		Th.	**Pr.**	**Tut.**	**Tr.**	

		2	NA	NA	NA	2
4	**Study level/year at which this course is offered:**					
5	**Pre –requisite (if any):**					
6	**Co –requisite (if any):**					
7	**Name of faculty member responsible for the course:**					
8	**Program (s) in which the course is offered:**					
9	**Language of teaching the course:**					
10	**Location of teaching the course:**					
11	**Prepared By:**					
12	**Approved By:**					

Standard III: Course Description:

This course is designed especially for students of health sciences. It actually covers the four skills of a language: Reading, writing, listening, \ and speaking. The emphasis is, however, rather placed on reading and writing and terminology than on speaking and listening. The course deals primarily
with the essential Grammar that are important for students in their health field studies such as (the
passive, nouns, pronouns, adjectives and so on articles.

Standard IV: Professional Information:

Aims of The Course:

Brief summary of the knowledge or skill the course is intended to develop:

1. Grammatically correct English
2. Reading, writing, speaking and listening to English language.
3. Develop ability to read, understand and express meaningfully, the prescribed text.
4. Ability to communicate with other person.

Intended learning outcomes (ILOs) of the course:

A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies

Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
A1. Identify the structure of sentences and paragraphs	Lecture Discussion Demonstration Classroom conversation	Objective type Short answers Fill in the blanks Para Phrasing
A2. Describe the correct English grammar composition.	Lecture Discussion Demonstration Classroom conversation	Objective type Short answers Fill in the blanks Para Phrasing
A3. Recognize precise writing and summarizing	Lecture Discussion Demonstration Classroom conversation	Objective type Short answers Fill in the blanks Para Phrasing

A4. Describe the composition of letter	Lecture Discussion Demonstration Classroom conversation	Objective type Short answers Fill in the blanks Para Phrasing
A5. Discuss structures of telephone conversion	Lecture Discussion Demonstration Classroom conversation	Objective type Short answers Fill in the blanks Para Phrasing

(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
B1. Develop ability to read, understand and express meaningfully, the prescribed English text.	Lecture Discussion Exercise on: Reading & Summarizing	Short Answers Essay type.
B2. Differentiate between formal and informal letters	Exercise on: Writing & Summarizing	Short Answers Essay type.

(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
C1. Perform reading, writing, and speaking English correctly	Lecture Discussion Class-room Conversation Assignments Exercise on: Reading & writing	Short Answers Objective questions Practice
C2. Practice listening to audio, and video materials	Lecture Discussion Class-room Conversation Exercise on listening	Short Answers Objective questions Practice

(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
D1. Use correct words and structure to communicate with other person.	Exercise on Debating Participating in Seminar	Assessment of the skills based on the checklist

V: Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect:					
Order	**Topic List**	**Sub Topics List**	**Number of Weeks**	**contact hours**	**Learning Outcomes**
1	Applied Grammar	Correct usage: ▪ The structure of sentences ▪ The structure of paragraphs ▪ Enlargements of Vocabulary ▪ Phonetics	4	8	
2	Reading and comprehension	▪ Review of selected materials and express oneself in one's words. ▪ Enlargement of Vocabulary.	6	12	
3	Written Composition	▪ Precise writing and summarizing ▪ Writing of bibliography ▪ Enlargement of Vocabulary	4	8	
4	Midterm Exam	Midterm Exam	2	4	
5	Various forms of composition	▪ The study of various forms of composition ✓ Paragraph, ✓ Essay, ✓ Letter, ✓ Summary, ✓ Practice in writing	4	8	
6	Spoken English	▪ Medical report ▪ Oral report ▪ Discussion & Summarization ▪ Debate ▪ Telephonic conversion	4	8	
7	Listening Comprehension	▪ Media, audio, video, speeches etc.	4	8	
8	**Final Term Exam**		2	4	
Number of Weeks /and Units Per Semester			**30**	**60**	

V. Teaching strategies of the course
1. Lecture Discussion 2. Demonstrate use of dictionary grammar 3. Class-room Conversation 4. Exercise on use of Grammar 5. Exercise on: Reading, writing, speaking and listening

VI. Assignments				
No	Assignments	Aligned CILOs (symbols)	Week Due	Mark
1	Letter writing		**4-10**	**5**
2	Medical reports.		**8-12**	**5**

VII. Schedule of Assessment Tasks for Students During the Semester					
No	Assessments Methods	Week due	Mark	Proportion of Final Assessments	Aligned Course Learning Outcomes
1	Attendance and activities	15th week	**5**	**5%**	
2	Student assignments	5th and 12th week	**5**	**5%**	
3	Mid-term exam	7th or 8th week	**20**	**20%**	
4	Final-exam	16th -17th week	**70**	**70%**	
	Number of Weeks /and Units Per Semester		**100**	**100%**	

VII: Learning Resources:

1. Required Textbook(s) (maximum two).

1. Oxford English for careers (2009). Nursing.
2. Quirk, Randolph and Jreenbaum Sidney(1987). A University Grammar of English, Hong Kong: Longman group (FE) Ltd.

1. Essential References.

1. Thomson A. J. and Maitüiet A. V. (1987). A 1icticl English Grammar, Delhi: Oxford University Press.
2. Gimson A. E. (1986). An Introduction to pronunciation of English. Hong kong:

Wing King Tong Ca. Ltd. 3. O' Connor J. D, (1986). Better English h'onuwiation. Cambridge:University Press.
2. Electronic Materials and Web Sites *etc*.
1. WWW.encontinouelear.com 2. Http: // www.google. Com

IX. Course Policies:	
1	Class Attendance: At least 75 % of the course hours should be attended by the student. Otherwise, he/she will not be allowed to attend the final exam
2	Tardy: any student who is late for more than 15 minutes from starting the lecture will not be allowed to attend the lecture and will be considered absent.
3	Exam Attendance/Punctuality: Any student who is late for more than 30 minutes from starting the exam will not be allowed to attend the exam and will be considered absent.
4	Assignments &Projects: Assignments and projects will be assessed individually unless the teacher request for group work
5	Cheating: Cheating by any means will cause the student failure and he/she must re-study the course
6	Plagiarism: Plagiarism by any means will cause the student failure in the course. Other disciplinary procedures will be according to the college rules.

Standard II: Course Identification and General Information:

1	**Course Title:**	Introduction to Computer				
2	**Course Number & Code:**					
3	**Credit hours:**	**C.H**				**Total**
		Th.	**Pr.**	**Tut.**	**Tr.**	
		1	**2**	**NA**	**NA**	**3**
4	**Study level/year at which this course is offered:**					
5	**Pre –requisite (if any):**					
6	**Co –requisite (if any):**					
7	**Name of faculty member responsible for the course:**					
8	**Program (s) in which the course is offered:**					
9	**Language of teaching the course:**					
10	**Location of teaching the course:**					
11	**Prepared By:**					
12	**Approved By:**					

Standard III: Course Description:

This course is designed for students to develop basic understanding of uses of computer and its applications in health care.

Standard IV: Professional Information:

Aims of The Course:

Brief summary of the knowledge or skill the course is intended to develop:

1. Discuss various concepts used in computer and the disk operating system.
2. Recognize features of computer aided teaching and testing.
3. Uses operating system, MS Office, multi-media, internet and Email.
4. Describe the use of hospital management system.

Intended learning outcomes (ILOs) of the course:

A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies

Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
A1. Recognize various concepts used in computer	Lecture Discussion Demonstration	Short answers Objective type Essay
A2. Identify application of computer in medicine	Lecture Discussion Demonstration	Short answers Objective type Essay
A3. Describe the disk operating system	Lecture Discussion Demonstration	Short answers Objective type Essay
A4. Discuss uses of internet and Email	Lecture Discussion	Short answers Objective type

	Demonstration	Essay
A5. Describe and use the statistical packages	Lecture Discussion Demonstration	Short answers Objective type Essay
A6. Describe the use of Hospital Management System	Lecture Discussion Demonstration	Short answers Objective type Essay

(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
B1. Discuss aided teaching and testing in computers	Lecture Discussion Demonstration Brain storming.	Short answers Objective type Essay
B2, Compare between two statistical packages features	Lecture Discussion Demonstration Brain storming.	Short answers Objective type Essay

(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
C1. Demonstrate skill in the use of MS Office	Lecture - Discussion Demonstration Group discussion	Short answers Objective type Practical Exam
C2. Demonstrate skill in using multi-media	Lecture - Discussion Demonstration Group discussion	Short answers Objective type Practical Exam
C3. Demonstrate use of internet and Email	Lecture - Discussion Demonstration Group discussion	Short answers Objective type Practical Exam
C4. Demonstrate use of hospital management system	Lecture - Discussion Demonstration Group discussion	Short answers Objective type Practical Exam

(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
D1. Describe the use of hospital management system.	Lecture Discussion Demonstration	Short answer questions Objective type

	Practice Session	Practical Exam

V: Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect:

Order	Topic List	Sub Topics List	Number of Weeks	contact hours	Learning Outcomes
1	Introduction	▪ Introduction to computers ▪ Hardware and software; ▪ trends and technology ▪ Application of computers in medicine and health care	2	4	A1, A2
2	Introduction to disk- operating system DOS	▪ Introduction ▪ Windows (all version ▪ Introduction to Microsoft word (MS-Word) ▪ MS-Excel with pictorial presentation ▪ MS-Access ▪ MS-Power point	4	8	A3, C1
3	Multimedia	▯ Types & uses ▯ Computer aided teaching & testing	2	4	B1, C2
4	Midterm exam	Midterm exam	1	2	A1, A2, A3, B1, C1, C2
5	Internet & E-mail	Use of Internet and: e-mail	2	4	A4, C3
6	Statistical packages	Statistical packages: types and their features	2	4	A5, B2
7	Oxygenation	▯ Physiology of (ventilation, circulation & oxygenation) ▯ Factors Affecting Oxygenation ▯ Alterations in oxygenation ▯ Oxygen therapy ▯ Maintenance of patent airway ▯ Oxygen administration ▯ Suction	1	2	A4, B5

		Inhalations: dry and moist Chest physiotherapy Care of Chest drainage Pulse ornery			
8	Hospital Management System	Types Uses	1	2	A6, C4, D1
9	Final exam	Final exam	1	2	A1, A2, A3, A4, A5, A6, B1, B2, C1, C2, C3, C4, D1
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical Aspect:				
Order	Task/ Experiments	**Number of Weeks**	**contact hours**	**Learning Outcomes**
1	Use of MS Office	6	12	C1
2	Use multi-media	2	4	C2
3	Use of internet and Email	2	4	C3
4	Use of hospital management system	2	4	C4
	Number of Weeks /and Units Per Semester	**12**	**24**	

V. Teaching strategies of the course
1. Lecture - Discussion 2. Demonstration 3. Brainstorming 4. Case discussions / Seminar

VI. Assignments				
No	Assignments	Aligned CILOs (symbols)	Week Due	Mark
1	Application of computers in health careWrite records of patient Simulated - Actual	A1, A2, B1, B2, C1, C2	**2-10**	**5**

VII. Schedule of Assessment Tasks for Students During the Semester					
No	Assessments Methods	Week due	Mark	Proportion of Final Assessments	Aligned Course Learning Outcomes
1	Attendance and activities	15th week	**5**	**5%**	A1, A2, A3, A4, A5, A6, B1, B2, C1, C2, C3
2	Student assignments	5th and 12th week	**5**	**5%**	A1, A2, B1, B2, C1, C2
3	Mid-term exam	7th or 8th week	**20**	**20%**	A1, A2, A3, B1, C1, C2
4	Final-exam	16th -17th week	**70**	**70%**	A1, A2, A3, A4, A5, A6, B1, B2, C1, C2, C3, C4, D1

VII: Learning Resources:

1. Required Textbook(s) (maximum two).

1. N.K. Anand & Shikha Goel (2009). Computers for Nurses, A.I.T.B.S. Publishers ,India.

2. Essential References.

2. Thacker N (2009). Computers for Nurses, India.

3. Electronic Materials and Web Sites *etc*.

1. www.google.com
2. www.yahoo.com

IX. Course Policies:	
1	Class Attendance: At least 75 % of the course hours should be attended by the student. Otherwise, he/she will not be allowed to attend the final exam
2	Tardy: any student who is late for more than 15 minutes from starting the lecture will not be allowed to attend the lecture and will be considered absent.
3	Exam Attendance/Punctuality: Any student who is late for more than 30 minutes from starting the exam will not be allowed to attend the exam and will be considered absent.
4	Assignments &Projects: Assignments and projects will be assessed individually unless the teacher request for group work
5	Cheating: Cheating by any means will cause the student failure and he/she must re-study the course
6	Plagiarism: Plagiarism by any means will cause the student failure in the course. Other disciplinary procedures will be according to the college rules.

I. Course Identification and General Information:

1	**Course Title:**	**Medical Terminology**			
2	**Course Code & Number:**				
3	**Credit Hours**	**Theory Hours**	**Credit Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		2	2	--	--
4	**Study Level/ Semester at which this Course is offered:**				
5	**Pre –Requisite (if any):**				
6	**Co –Requisite (if any):**				
7	**Program (s) in which the Course is Offered:**				
8	**Language of Teaching the Course:**	English			
9	**Study System:**	Semester Based System			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**				
12	**Prepared by:**				
13	**Date of Approval:**				

II. Course Description:

Medical Terminology is designed to prepare the students to pronounce, define, analyze and comprehend the medical language. It introduces them to the vocabulary, abbreviations, and symbols used in health care settings. Emphasis is placed on building medical terms using prefixes, suffixes, and word roots.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)	**Referenced PILOs** (مخرجات تعلم البرنامج)
A. Knowledge and Understanding: Upon successful completion of the course, students will be able to:	

a1	Identify the basic structure of medical words, including prefixes, suffixes, roots, combining forms, and plurals.		
a2	Identify the rules of building medical terms and a connection between the term and its relationship to body systems.		
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Construct medical terms correctly using the rules of combining suffixes, prefixes, and word roots.		
b2	Analyze medical terms into their defining parts and meanings as relevant to body systems and functions.		
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Use medical terms properly to report health problems, diagnosis, procedures and treatment.		
c2	Write terms for selected structures of the body systems, matching them with their descriptions.		
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Display high degree of personal commitment, self-developing and cooperation with his colleagues.		
d2	Demonstrate analytical, communicative and professional skills related to his area of interest.		

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:

	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
a1	Identify the basic structure of medical words, including prefixes, suffixes, roots, combining forms, and plurals.	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations

a2	Identify the rules of building medical terms and a connection between the term and its relationship to body systems.	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations
	Demonstrate analytical, communicative and professional skills related to his area of interest.		
		Teaching Strategies	**Assessment Strategies**
b1	Construct medical terms correctly using the rules of combining suffixes, prefixes, and word roots.	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
b2	Analyze medical terms into their defining parts and meanings as relevant to body systems and functions.	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
	(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:		
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
c1	Use medical terms properly to report health problems, diagnosis, procedures and treatment.	▪ Active learning, ▪ Small group learning. ▪ Learning tasks and activities	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
c2	Write terms for selected structures of the body systems, matching them with their descriptions.	▪ Active learning, ▪ Small group learning. ▪ Learning tasks and activities	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
	(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:		
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
d1	Display high degree of personal commitment, self-developing and cooperation with his colleagues.	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities

d2	Demonstrate analytical, communicative and professional skills related to his area of interest.	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Introduction**	– Course objectives and design – What is medical terminology? – Features of a medical term – Parts of a medical term	1	2	a1, a2, b2, c1,
2	**Formation of Medical Term**	– Formation of a medical term – Pronunciation and pluralizing rules – Defining a medical term	1	2	a1, a2, b2, c1,
3	**Suffixes**	– Rules for linking suffixes – Types of suffixes - Surgical - Diagnostic - Pathological - Grammatical - Learning activities	1	2	a1, a2, b2, c1, d1
4	**Prefixes**	– Features of prefixes – Rules for linking prefixes – Types of prefixes - Prefixes of position - Prefixes of number - Prefixes of measurement - Prefixes of direction - Prefixes of color - Prefixes of time - Prefixes of size and comparison - Prefixes of negation	1	2	a1, a2, b2, c1, d1

		- Other common prefixes - Learning activities			
5	**Body Structure**	– Levels of Organization and related terms – Anatomical Position – Planes of the Body – Body Cavities – Abdominopelvic Divisions – Quadrants – Regions	1	2	a2, b1, c2, d2
6	**Body Structure**	– Directional Terms – Pathology Diagnostic, Symptomatic, and Related Terms, – Diagnostic and Therapeutic Procedures – Abbreviations – Learning Activities - Medical Record Activities	1	2	a2, b1, c2, d2
7	**Digestive System**	– Anatomy and Physiology Key terms – Pathological and Diagnostic Terms – Surgical and Therapeutic Terms – Learning Activities – Case study Reports	1	2	a2, b1, b2, c1, c2, d1, d2
8	**Mid-Term Theoretical Exam**	– Mid-Term Theoretical written Exam	1	2	a1, a2, b1, b2, c1, c2, d1, d2
9	**Musculoskeletal System**	– Anatomy and Physiology Key terms – Pathological and Diagnostic Terms – Surgical and Therapeutic Terms – Learning Activities – Case study Reports	1	2	a2, b1, b2, c1, c2, d1, d2
10	**Cardiovascular System**	– Anatomy and Physiology Key terms – Pathological and Diagnostic Terms	1	2	a2, b1, b2, c1, c2, d1, d2

		– Surgical and Therapeutic Terms – Learning Activities – Case study Reports			
11	**Nervous System**	– Anatomy and Physiology Key terms – Pathological and Diagnostic Terms – Surgical and Therapeutic Terms – Learning Activities – Case study Reports	1	2	a2, b1, b2, c1, c2, d1, d2
12	**Integumentary System**	– Anatomy and Physiology Key terms – Pathological and Diagnostic Terms – Surgical and Therapeutic Terms – Learning Activities Case study Reports	1	2	a2, b1, b2, c1, c2, d1, d2
13	**Reproductive System**	– Anatomy and Physiology Key terms – Pathological and Diagnostic Terms – Surgical and Therapeutic Terms – Learning Activities Case study Reports	1	2	a2, b1, b2, c1, c2, d1, d2
14	**Respiratory System**	– Anatomy and Physiology Key Terms – Pathological and Diagnostic Terms – Surgical and Therapeutic Terms – Learning Activities Case study Reports	1	2	a2, b1, b2, c1, c2, d1, d2
15	**Urinary System**	– Anatomy and Physiology Key Terms – Pathological and Diagnostic Terms – Surgical and Therapeutic Terms – Learning Activities Case study Reports	1	2	a2, b1, b2, c1, c2, d1, d2

16	**Final Theoretical Exam**	Final Theoretical Exam Written	1	2	a1, a2, b1, b2, c1, c2, d1, d2
Number of Weeks /and Units Per Semester					

V. Teaching Strategies of the Course:

- Interactive lecture
- Seminars and student presentations
- Brain storming
- Role-play and simulation
- Small group discussion
- Learning tasks and activities
- Problems solving
- Case study analysis

VI. Assessment Methods of the Course:

- Assignments
- Quizzes
- Mid-term exam
- Final term exam

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	**Assignment 1:** Students are asked to finish "Identify and Define" work sheet handed to them. The work sheet is designed to check students' mastery of constructing and analyzing medical terms.	W5	**5**	a1, c1
2	**Assignment 2:** Read the case study reports and complete the charts given below. This is intended to check students comprehending faculties to communicate about a given health problem and procedures.	W11	5	a2, b2, c2
Total			**10**	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes

1	**Assignments**	W5,11	10	10%	a1, b1, a2, b2, c2,
2	**Quizzes 1 & 2**	W3, 9	10	10%	a1, a2, b1, b2
3	**Mid-Term Theoretical Exam**	W7	20	20%	a1, b1, c1, d1
4	**Final Theoretical Exam**	W16	60	60%	a2, b2, c2, d2
Total			**100**	**100%**	

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): مثال example

- Fremgen, Bonnie F. and Frucht, Suzanne S., 2017, *Medical Terminology: A Living Language*: 78th edition, New York, Pearson.
- Gylys, Barbara A. and Wedding, Mary Ellen. 2009, *Medical Terminology Systems: A Body Systems Approach*,6th edition, Philadelphia, F. A. Davis Company.

2- Essential References:

- C. Leonard, Peggy, 2014. *Quick & Easy Medical Terminology*, 7th edition, Elsevier.
- Chabner, Davi-Ellen, 1991, *Medical Terminology: A Short Course*, 6th edition, Missouri, Saunders Elsevier Inc.

3- Electronic Materials and Web Sites etc.:

Websites:

- An Online Medical Dictionary
  1. http://www.openmd.com
  2. http://www.medicinenet.com Medtems Medical Dictionary AZ list
  3. http://www.medic8.com/MedicalDictionary.htm. Enter a medical term; then click on "Search" to see its definition.
- Web site providing information on health care issues, medical treatments, medications, etc.
  4. http://www.medbroadcast.com
- An interactive human anatomy site

1- www.innerbody.com. When you click on a system, be sure to scroll down to see other links and animations.

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي

1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.

3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

I. Course Identification and General Information:

1	**Course Title:**	**Anatomy & Physiology1**			
2	**Course Code & Number:**				
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Field**	
		3	2	--	2
4	**Study Level/ Semester at which this Course is offered:**				
5	**Pre –Requisite (if any):**				
6	**Co –Requisite (if any):**				
7	**Program (s) in which the Course is Offered:**				
8	**Language of Teaching the Course:**	English			
9	**Study System:**	Semester Based System			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**				
12	**Prepared by:**				
13	**Date of Approval:**				

II. Course Description:

The course of human anatomy and physiology is designed to prepare the students with an understanding of the structural basis of the human body both at gross and microscopic levels. The course also provides an overview of the cells, the fluids and electrolytes, and acid–base balance. It includes also the laboratory period deals with the integumentary system, the musculoskeletal system, the head, neck, the spine and thorax).

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)	**Referenced PILOs** (مخرجات تعلم البرنامج)
B. Knowledge and Understanding: Upon successful completion of the course, students will be able to:	

a1	Recognize the structure and function of the normal cell, fluids and electrolytes and acid–base balance and pH	**A1**	
a2	Describe the anatomical significance with the physiological functions and with the clinical conditions of the integumentary system, the musculoskeletal system, the head, neck, the spine and thorax).	**A3**	
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Differentiate between epithelial tissue, connective tissue, muscle tissue, and nervous tissue	**B2**	
b2	Explain the surface markings of clinically important structures	**B3**	
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Demonstration of morphology of human body on anatomical models	**C1**	
c2	List the anatomic structures of the special senses, the functions of the anatomic structures of each sense and how the structures of the senses interrelate to perform their specialized functions	**C2**	
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Communicate with the patient and his family effectively in professional manner using the principles of communication techniques	D1	
d2	Use the ethical and professional standards in emergency care services	D3	

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
<u>Course</u> Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
a1	Recognize the structure and function of the normal cell, fluids and electrolytes and acid–base balance and pH	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations
a2	Describe the anatomical significance with the physiological functions and with	▪ Interactive lecture ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam

	the clinical conditions of the integumentary system, the musculoskeletal system, the head, neck, the spine and thorax).	▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Final exam ▪ Presentations
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
b1	Differentiate between epithelial tissue, connective tissue, muscle tissue, and nervous tissue	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
b2	Explain the surface markings of clinically important structures	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
c1	Demonstration of morphology of human body on anatomical models	▪ Case-Based Learning ▪ Clinical teaching & learning ▪ Laboratory work ▪ Role plays & simulation ▪ Small group discussion ▪ Seminar (Discussions) ▪ Practice session ▪ Problems solving	▪ Assignments ▪ Practical/Clinical examination ▪ Reports (Lab Reports.) ▪ Lab work ▪ Assessment of skills with checklist
c2	List the anatomic structures of the special senses, the functions of the anatomic structures of each sense and how the structures of the senses interrelate to perform their specialized functions	▪ Case-Based Learning ▪ Clinical teaching & learning ▪ Laboratory work ▪ Role plays & simulation ▪ Small group discussion ▪ Seminar (Discussions) ▪ Practice session ▪ Problems solving	▪ Assignments ▪ Practical/Clinical examination ▪ Reports (Lab Reports.) ▪ Lab work ▪ Assessment of skills with checklist
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Communicate with the patient and his family effectively in professional manner using the principles of communication techniques	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities
d2	Use the ethical and professional standards in emergency care services	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**The cell and the cellular environment**	▪ **Introduction** ▪ **The cell and the cellular environment** ○ The normal cell ✓ Cell structure • The cell membrane • The cytoplasm • The organelles ○ Cell function ○ Tissues ○ Organs, organ systems, and the organism ○ System integration	2	4	a1, b1
2	**The cellular environment: fluids and electrolytes**	▪ **The cellular environment: fluids and electrolytes** ○ Water ✓ Hydration ○ Electrolytes ○ Osmosis and diffusion ✓ Water movement between intracellular and extracellular compartments ○ Water movement between intravascular and interstitial compartments	2	4	a1
3	**Acid–base balance**	▪ **Acid–base balance** ○ The ph scale ○ Bodily regulation of acid–base balance	1	2	a1

4	**Body systems**	▪ **The integumentary system** ○ **The skin** ✓ Epidermis ✓ Dermis ✓ Subcutaneous tissue ○ The hair ○ The nails ▪ **The blood** ○ Components of blood ✓ Plasma ✓ Red blood cells ✓ White blood cells ✓ Platelets ○ Hemostasis	2	4	a1, b1, c1, d1
5	**Midterm exam**	**Midterm exam**	1	2	a1, b1, c1, d1
6	**The musculoskeletal system**	▪ **The musculoskeletal system** ○ **Skeletal tissue and structure** ✓ Bone structure • The diaphysis • The epiphysis • The metaphysis • The medullary canal • The periosteum • Cartilage ✓ Joint structure • Types of joints • Ligaments • Joint capsule ○ **Skeletal organization** ✓ The extremities • Wrists and hands • Elbows • Shoulders • Ankles and feet • Knees • Hips and pelvis ○ **Bone aging** ○ **Muscular tissue & structure** ✓ Definition ✓ Type of muscles movement. ✓ Muscles of abdominal wall ✓ Muscles of respiration ✓ Pelvic diaphragm	3	6	a2, b1, b2, c2, d2
7	**The head, face, and neck**	▪ **The head, face, and neck** ○ **The head** ✓ The scalp ✓ The cranium ✓ The meninges ✓ Cerebrospinal fluid ✓ The brain	2	4	a2, b2, c2, d2

		✓ CNS circulation ✓ Blood–brain barrier ✓ Cerebral perfusion pressure ✓ Cranial nerves ✓ Ascending reticular activating system ○ **The face** ✓ The ear ✓ The eye ✓ The mouth ○ **The neck** ✓ Vasculature of the neck ✓ Airway structures ✓ Other structures of the neck			
8	**The spine and thorax**	▪ **The spine and thorax** ○ The spine ✓ The vertebral column ✓ Divisions of the vertebral column ○ The spinal meninges ○ The thorax ✓ The thoracic cage ✓ The diaphragm ✓ Associated musculature ✓ Trachea, bronchi, and lungs ✓ Mediastinum and heart ✓ Great vessels ✓ Esophagus	2	4	a2, c2, d2
9	**Final exam**	**Final exam**	**1**	**2**	a2, b1, b2, c2, d2
Number of Weeks /and Units Per Semester			**16**	**32**	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Body Cells** • Cell & Tissues	2	4	**c1**
2	**Integumentary system** • Demonstration of the skin • Demonstration of the Epidermis • Demonstration of the Subcutaneous tissue	2	4	**c1**
3	**The musculoskeletal system** • Human skeleton, Muscular system and Joints	2	4	**c1**
4	**Midterm exam**	1	2	**c1**
5	**The head, and neck** • Demonstration of skull, maxilla, and mandible	2	4	**c1**

6	**The spine and thorax** • Demonstration of vertebral column • Demonstration of rib cage • Demonstration of the heart • Demonstration of the lungs	2	4	**c2**
7	**Sensory organs** • Demonstration of the eyes, ears, nose & tongue	2	4	**c2**
8	**Final exam**	1	2	**c2**
Number of Weeks /and Units Per Semester				

V. Teaching Strategies of the Course:

1. Interactive lecture
2. Seminars and student presentations
3. Brain storming
4. Role-play and simulation
5. Small group discussion
6. Learning tasks and activities
7. Problems solving
8. Case study analysis

VI. Assessment Methods of the Course:

- Assignments
- Quizzes
- Mid-term exam
- Final term exam

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	**Assignment 1**: Regulation of body fluid	W5	**5**	a1, b1
2	**Assignment 2:** Type of joints	W11	5	a2, b2,
Total			**10**	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	**Assignments**	W5,11	10	10%	a1, b1, a2, b2
2	**Quizzes 1 & 2**	W3, 9	10	10%	a1, a2

3	**Mid-Term Theoretical Exam**	W7	20	20%	a1, b1, c1, d1
4	**Final Theoretical Exam**	W16	60	60%	a2, b2, c2, d2
Total			**100**	**100%**	

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): مثال example

1. Heylings D., Leinster S., Carmichael S., Saada J., Logan B., and Hutchings R., (2018). McMinn's Concise Human Anatomy. 2nd Ed.; Taylor & Francis Group, LLC
2. Jones S., (2017). Pocket Anatomy & Physiology. 3rd Ed. F. A. Davis Company, Philadelphia
3. Bledsoe B., Porter, R., & Cherry, R., (2014). Pearson New International Edition, Essentials of Paramedic Care Update, 2nd Ed., Pearson Education Limited

2- Essential References:

1. Sanders, M., & McKenaa k., Tan, D., Pollak A., and Mejia A., (2019). Sanders' Paramedic Textbook 5th Ed., USA.
2. LaPres J., Kersten ., and Tang Y., (2016). Gunstream's Anatomy & Physiology With Integrated Study Guide. 6th Ed. McGraw-Hill

3- Electronic Materials and Web Sites etc.:

Websites:

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي

1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	**Forgery and Impersonation:**

	Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

I. Course Identification and General Information:

1	**Course Title:**	**Medical Physics**			
2	**Course Code & Number:**				
3	**Credit Hours: 2hr**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		2hr	2hr	---	
4	**Study Level/ Semester at which this Course is offered:**	2^{nd} year / 1^{st} semester			
5	**Pre –Requisite (if any):**	Non			
6	**Co –Requisite (if any):**	No found			
7	**Program (s) in which the Course is Offered:**				
8	**Language of Teaching the Course:**	English			
9	**Study System:**	Semester			
10	**Mode of Delivery:**	Full time			
11	**Location of Teaching the Course:**	Class			
12	**Prepared by:**				
13	**Date of Approval:**	2021-2022			

II. Course Description:

Providing the student with the basic knowledge and understand the concepts, lows physics which related to medicine such as measurement and units, work, energy, heat and temperature, properties of liquids and gases, blood pressure, electricity, light and lenses, elasticity, motion, introduction of physics of hearing and vision, introduction of nuclear and the instruments which based on the physic concepts.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)		**Referenced PILOs (مخرجات تعلم البرنامج)**	
C. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Define physics quantities, medical physics, electric charge, electric field, fluid, light, light, radiation physics….	**A1**	
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			

b1	Explain the physics concepts that related in medicine	**B1**	
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Able to use equations to solve problems	**C1**	
c2		**C2**	
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Present scientific topics in seminar.	**D1**	
d2	work as team.	**D2**	

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
a1	Define the physic concepts	Lectures Group discussion.	Quiz Mid-term exam Final term exam
a2	Identify the matter state	Lectures Group discussion.	Quiz Mid-term exam Final term exam
	Recognize the side effects of electricity .	Lectures Group discussion.	Quiz Mid-term exam Final term exam
	Explain Mechanism of electricity in the body.	Lectures Group discussion.	Quiz Mid-term exam Final term exam
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
b1	list the eye defect.	Lectures Group discussion.	Written test Oral exam
b2	Explain the side effect of radiation on the body.	Lectures Group discussion.	Written test Oral exam

	Identify the role of radiation in medicine.	Lectures Group discussion.	Written test Oral exam

(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies

(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Present scientific topics in seminar.	Seminar Group discussion.	Mid-term exam Final term exam
d2	work as team.	Seminar Group discussion.	Mid-term exam Final term exam

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Measurement and units**	• Introduction on physics and medical physics. Physical quantity Measurements • Vectors	2	2	
2	**Motion**	• Motion in straight lines • Newton's lows.	1	2	
		• Work • Energy and its transfer • Power	1	2	
4	**Electricity**	• Electric Charge • Electric field • Electric force and capacitor • Electric current	1	2	

		• Ohm's low			
5		• Electricity in the body • ECG • EEG • EMG	1	2	
6	**Mechanic of fluids**	• Fluid properties • Pressure and blood pressure • Density	1	2	
7		• Flow of fluid • Continuity equation • Bernoulli equation • Application of Bernoulli's equation	2	2	
8		**Mid Exam**	1	2	
9	**Heat and temperature**	• **Introduction** • **Thermometer** • **Gas low** • **Internal energy** • **Heat, Heat capacity, specific heat** • **Mechanisms of Energy Transfer in thermal Processes**	1	2	
10	**Radiation and Radiotherapy**	• Introduction • Type of radiation • radiobiology • Principe of radioprotection • Radiotherapy • Nuclear Medicine	2	2	
11	**Light and optics**	• Introduction • Mirror and lenses • Eye • Microscopes	2	2	
16		**Final exam**	1	2	
Number of Weeks /and Units Per Semester			**16**	**24**	

B. Case Studies and Practical Aspect:				
No.	**Tasks/ Experiments**	**Number of Weeks**	**Contact Hours**	**Learning Outcomes (CILOs)**
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
Number of Weeks /and Units Per Semester				

V. Teaching Strategies of the Course:

1- lecture.
2- Discussion in groups.
3- Researching in groups for different topics as assignments.
4-Seminar Group discussion.

VI. Assessment Methods of the Course:

1- Participation& semester work	to assess intellectual skills
2- Mid-term exam	to assess the knowledge & understanding
3-Final term exam	to assess the knowledge & understanding
4- Quizzes	to assess the knowledge & understanding
6- Workbook Assignments	to assess the general and transferable skills.

VII. Assignments:

No.	**Assignments**	**Week Due**	**Mark**	**Aligned CILOs (symbols)**

1				
2				
3				
Total				

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Semester work		20	20%	
2	Mid-Term Examination		20	20%	
4	Final-term Examination		60	60%	
Total			**100**	**100%**	

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two):

1. Hassan Maridi, Medical physics for medicines

2- Essential References:

1. Hafez A. Radi, John O. Rasmussen(2013) Principles of Physics For Scientists and Engineers, Springer
2.

3- Electronic Materials and Web Sites etc.:

Websites:

- An Online Medical Physics

X. Course Policies: (Based on the Uniform Students' By law (2007)

1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.

4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' By law (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**
7	**Other policies:** The Collage official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the section and Collage Administration.

SYLLABUS
YEAR (1)
SEMESTER (2)

Standard II: Course Identification and General Information:

1	**Course Title:**	English Language II				
2	**Course Number & Code:**					
3	**Credit hours:**	**C.H**				**Total**
		Th.	**Pr.**	**Tut.**	**Tr.**	
		2	**NA**	**NA**	**NA**	**2**
4	**Study level/year at which this course is offered:**					
5	**Pre –requisite (if any):**					
6	**Co –requisite (if any):**					
7	**Name of faculty member responsible for the course:**					
8	**Program (s) in which the course is offered:**					
9	**Language of teaching the course:**					
10	**Location of teaching the course:**					
11	**Prepared By:**					
12	**Approved By:**					

Standard III: Course Description:

This course is designed to help the student acquire a good command and comprehension of the Medical English terminology through individual, papers and conferences. Students will practice their skills in verbal and written English during clinical and classroom experience.

Standard IV: Professional Information:

Aims of The Course:

Brief summary of the knowledge or skill the course is intended to develop:

1. Identifies basic structures and components of medical terms and names of health problems and how to deal with long Latin of Greek terms and their meanings.
2. Divides the English articles into paragraphs and ideas and memorize and recall information from English articles.
3. Write properly an easy in English.

Intended learning outcomes (ILOs) of the course:

A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies

Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
A1. Identifies basic structures and components of medical terms and names of health problems and how to deal with long Latin of Greek terms and their meanings.	Lecture -Discussion Demonstrate use of dictionary grammar Class-room Conversation Exercise on use of terminology	Short Answers Essay type.

(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
B1. Divides the English articles into paragraphs and ideas and memorize and recall information from English articles.	Lecture Discussion Exercise on articles	Short Answers Essay type.
B2. Write properly an easy in English.	Lecture Discussion Exercise on articles	Short Answers Essay type.

(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
Not Applicable		

(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
Not Applicable		

V: Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect:

Order	Topic List	Sub Topics List	Number of Weeks	contact hours	Learning Outcomes
1	Medical terminology	▪ Origin of medical terms ▪ Parts of a medical term: prefix, suffix, root ▪ Prefixes related adjectives e.g. numeric (e.g.mono) , size" large and small" (e.g. micro, macro) , dimension "short (e.g. brachy) , speed" slow, fast (e.g. brady, tachy), location (intra, exter, per, ante, post) increased and decreased (e.g. hypo, hyper , mal, olig, a, an), different (e.g. dis, pseud, meta,) , colors (e.g. leuco, erytho) ▪ Suffixes related to science (e.g. -	6	24	A1,B1

		logy, -logist), tests (-scope, -scopy, ----- ▪ -graph, -graphy, , measurement (e.g. -meter), case (-ia, -iasis, -osis,), diseases (e.g.- pathy, -oma, -neoplsm), operations(e.g. –ectomy) ▪ Roots related to body cells (e.g. cyte, cyto) tissues(hist) , organs (vaso, card), chemical names (glyc, hydr, chlor, proteo), sciences (patho, physio, bio) ▪ Multi-roots terms e.g. hyperglycemia ▪ Terms without suffix e.g. erythrocytes ▪ Terms without prefix e.g. cardiology			
2	Midterm exam	Midterm exam	1	2	A1,B1
3	Articles understanding	▪ Basic skills - Comprehensive reading - Overall topic of the article - Paragraphing - Memorizing - Recalling - Answering questions - Making questions ▪ Experimentation of basic skills on a number of Medical articles - Human anatomy (skeletal system) - Infectious diseases - Prevention of disease - Disease treatment - Hypertension - Diabetes - Depression - Cancer - Blood - Burn - Digestive orders	5	20	B1
4	Essay	▪ Basic skills-Body system – Body cavities - Making a correct sentence. - Flow and compatibility of ideas. - Topics (medical and Health sciences)	3	12	B2
5	**Final Term Exam**		1	2	A1,B1,B2
Number of Weeks /and Units Per Semester			**16**	**60**	

V. Teaching strategies of the course
1. Lecture - Discussion 2. Demonstration 3. Brainstorming 4. Case discussions / Seminar

VI. Assignments				
No	Assignments	Aligned CILOs (symbols)	Week Due	Mark
1	Medical terminology	A1,B1	**5-10**	**5**

VII. Schedule of Assessment Tasks for Students During the Semester					
No	Assessments Methods	Week due	Mark	Proportion of Final Assessments	Aligned Course Learning Outcomes
1	Attendance and activities	15th week	**5**	**5%**	a1,b1,b2
2	Student assignments	5th and 12th week	**5**	**5%**	a1,b1
3	Mid-term exam	7th or 8th week	**20**	**20%**	a1,b1,b2
4	Final-exam	16th -17th week	**70**	**70%**	a1,b1,b2
	Number of Weeks /and Units Per Semester		**100**	**100%**	

VII: Learning Resources:

2. Required Textbook(s) (maximum two).

1. Selva Rose. (1997), Career English for Nurses. Cheiu;ai: OientLongrnanLtd.
2. Quirk, Randolph and Jreenbaum Sidney(1987). A University Grammar of English, Hong Kong: Longman group (FE) Ltd.

3. Essential References.

1. Thomson A. J. and Maitüiet A. V. (1987). A 1icticl English Grammar, Delhi: Oxford University Press.
2. Gimson A. E. (1986). An Introduction to pronunciation of English. Hong kong: Wing King Tong Ca. Ltd.
3. O' Connor J. D, (1986). Better English h'onuwiation. Cambridge:University Press.

4. **Electronic Materials and Web Sites *etc*.**
1. WWW.encontinouelear.com 2. Http: // www.google. Com

IX. Course Policies:	
1	Class Attendance: At least 75 % of the course hours should be attended by the student. Otherwise, he/she will not be allowed to attend the final exam
2	Tardy: any student who is late for more than 15 minutes from starting the lecture will not be allowed to attend the lecture and will be considered absent.
3	Exam Attendance/Punctuality: Any student who is late for more than 30 minutes from starting the exam will not be allowed to attend the exam and will be considered absent.
4	Assignments &Projects: Assignments and projects will be assessed individually unless the teacher request for group work
5	Cheating: Cheating by any means will cause the student failure and he/she must re-study the course
6	Plagiarism: Plagiarism by any means will cause the student failure in the course. Other disciplinary procedures will be according to the college rules.

I. Course Identification and General Information:

1	**Course Title:**	**Anatomy & Physiology 2**			
2	**Course Code & Number:**				
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Field**	
		3	2	--	2
4	**Study Level/ Semester at which this Course is offered:**				
5	**Pre –Requisite (if any):**				
6	**Co –Requisite (if any):**				
7	**Program (s) in which the Course is Offered:**				
8	**Language of Teaching the Course:**	English			
9	**Study System:**	Semester Based System			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**				
12	**Prepared by:**				
13	**Date of Approval:**				

II. Course Description:

The anatomy and physiology course is designed to provide the students with an understanding of the basics of the human body structures and functions both at gross and microscopic levels. The course provides an overview of the anatomy and physiology of the nervous system, endocrine system, cardiovascular system, respiratory system, digestive system, urinary system and reproductive system.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)	**Referenced PILOs (مخرجات تعلم البرنامج)**
D. Knowledge and Understanding: Upon successful completion of the course, students will be able to:	

a1	Define terminology, anatomical position, planes, sections, regions of the nervous system and endocrine system	**A1**	
a2	Identify the anatomical significance with the physiological functions and with the clinical conditions of the cardiovascular system, respiratory system, digestive system, urinary system and reproductive system.	**A3**	
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Differentiate the surface markings of clinically important structures	**B2**	
b2	Compare between the sympathetic nervous system and the parasympathetic nervous system	**B3**	
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Demonstrate the morphology of the nervous system, endocrine system, cardiovascular system and respiratory system on anatomical models	**C1**	
c2	Label a diagram of the anatomic structures of the special organs and the functions of the anatomic structures of each organs	**C2**	
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Utilizes the value of inter-professional collaborative practice, coordination and interpersonal communication skills when dealing with patients and their families	D1	
d2	Apply the principle of professional ethics when dealing with patients and at the end of life care	D3	

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
<u>Course</u> Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
a1	Define terminology, anatomical position, planes, sections, regions of the nervous system and endocrine system	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations

a2	Identify the anatomical significance with the physiological functions and with the clinical conditions of the cardiovascular system, respiratory system, digestive system, urinary system and reproductive system.	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
b1	Differentiate the surface markings of clinically important structures	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
b2	Compare between the sympathetic nervous system and the parasympathetic nervous system	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
c1	Demonstrate the morphology of the nervous system, endocrine system, cardiovascular system and respiratory system on anatomical models	▪ Case-Based Learning ▪ Clinical teaching & learning ▪ Laboratory work ▪ Role plays & simulation ▪ Small group discussion ▪ Seminar (Discussions) ▪ Practice session ▪ Problems solving	▪ Assignments ▪ Practical/Clinical examination ▪ Reports (Lab Reports.) ▪ Lab work ▪ Assessment of skills with checklist
c2	Label a diagram of the anatomic structures of the special organs and the functions of the anatomic structures of each organs	▪ Case-Based Learning ▪ Clinical teaching & learning ▪ Laboratory work ▪ Role plays & simulation ▪ Small group discussion ▪ Seminar (Discussions) ▪ Practice session ▪ Problems solving	▪ Assignments ▪ Practical/Clinical examination ▪ Reports (Lab Reports.) ▪ Lab work ▪ Assessment of skills with checklist

(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
d1	Utilizes the value of inter-professional collaborative practice, coordination and interpersonal communication skills when dealing with patients and their families	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities
d2	Apply the principle of professional ethics when dealing with patients and at the end of life care	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**The nervous system**	▪ **The nervous system** ○ **The central nervous system** • **Brain** ✓ Development ✓ Protective structures • Divisions of the brain • Areas of specialization • Vascular supply ✓ The meninges ✓ Cerebrospinal fluid ✓ Cns circulation • **The spinal cord** ✓ Development ✓ Protective structures ✓ Divisions ○ **The peripheral nervous system** • **Cranial nerves** ✓ The somatic (voluntary) nervous system ✓ The autonomic (involuntary) nervous system • **Spinal nerve** **Nervous system physiology** ✓ Sensory receptors	4	8	a1, b1, c1, d1

		✓ Pain pathway ✓ pain control system ✓ Ascending sensory ✓ Descending motor pathways ✓ Motor function ✓ Synaptic junction			
2	**The endocrine system**	▪ **The endocrine system** o Hypothalamus o Pituitary gland ✓ Posterior pituitary ✓ Anterior pituitary o Thyroid gland o Parathyroid glands o Thymus gland o Pancreas o Adrenal glands o Gonads ✓ Ovaries ✓ Testes o Pineal gland **Endocrine physiology** ✓ Chemical structure and synthesis of hormones, secretion, transport, and clearance. ✓ Mechanisms of action of hormones, feedback control of hormone secretion. ✓ The pituitary hormones and their control by the hypothalamus ✓ The thyroid metabolic hormones. ✓ The adrenocortical hormones. ✓ Insulin, glucagons, and diabetes mellitus.	2	4	a1, c1,d1
3	**Midterm exam**	**Midterm exam**	1	2	a1, b1, c1, d1
4	**The cardiovascular system**	▪ **The cardiovascular system** o **Anatomy of the heart** ✓ Tissue layers ✓ Chambers ✓ Valves ✓ Blood flow ✓ Coronary circulation o **Cardiac physiology** ✓ The cardiac cycle	3	6	a2, b2, c2, d2

		✓ Nervous control of the heart ✓ Electrophysiology ✓ Cardiac depolarization ✓ Cardiac conductive system ○ **Anatomy of the peripheral circulation** ✓ The arterial system ✓ The venous system ✓ The lymphatic system ○ **The physiology of perfusion** ✓ Components of the circulatory system ✓ Oxygen transport ✓ Waste removal			
5	**The respiratory system**	▪ **The respiratory system** ○ **Upper airway anatomy** ✓ The nasal cavity ✓ The oral cavity ✓ The pharynx ✓ The larynx ○ **Lower airway anatomy** ✓ The trachea ✓ The bronchi ✓ The alveoli ✓ The lung parenchyma ✓ The pleura ○ **The pediatric airway** ○ **Physiology of the respiratory system** ✓ Respiration and ventilation • The respiratory cycle • Pulmonary circulation ✓ Measuring oxygen and carbon dioxide levels • Diffusion • Oxygen concentration in the blood • Carbon dioxide concentration in the blood ✓ **Regulation of respiration** • Voluntary and involuntary respiratory controls • Nervous impulses from the respiratory center	2	4	a2, b2, c2, d2

		• Stretch receptors • Chemoreceptors • Hypoxic drive o Measures of respiratory function			
5	**The abdomen and the digestive system**	▪ **The abdomen** o Abdominal vasculature o The peritoneum ▪ **The digestive system** o The digestive tract ✓ Stomach ✓ Pancreas. ✓ Duodenum ✓ Small intestine and its mesentery ✓ Large intestine ✓ Caecum and appendix ✓ A T D Colon ✓ Pelvic colon ✓ Rectum ✓ Anal canal o Accessory organs of digestion ✓ Liver ✓ Pancreas ✓ Gall bleeder ✓ Salivary gland ▪ **The spleen** ▪ **The urinary system** o The kidneys ✓ Gross and microscopic anatomy of the kidney ✓ Kidney physiology • Overview of nephron physiology • Tubular handling of water and electrolytes • Tubular handling of glucose and urea • Control of arterial blood pressure • Control of erythrocyte development o The ureters o The urinary bladder o The urethra	2	4	a2, b2, c2, d2
6	**The reproductive system**	▪ **The reproductive system** o The female reproductive system ✓ The external genitalia • Perineum • Mons pubis • Labia	1	2	a2, b2, c2, d2

		• Clitoris ✓ **The internal genitalia** • Vagina • Uterus • Fallopian tubes • Ovaries ✓ **The menstrual cycle** • The proliferative phase • The secretory phase • The ischemic phase • The menstrual phase ✓ The pregnant uterus ○ **The male reproductive system** ✓ Testes ✓ Epididymis and vas deferens ✓ Prostate gland ✓ Penis			
7	**Final exam**	**Final exam**	1	2	a2, b2, c2, d2
Number of Weeks /and Units Per Semester			**16**	**32**	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**The nervous system,**	2	4	**c2**
2	**Endocrine system**	1	2	**c2**
3	**Cardiovascular system**	2	4	**c2**
4	**Respiratory system**	2	4	**c2**
5	**Midterm exam**	1	2	**c1**
6	**Digestive system**	2	4	**c1**
7	**Urinary system**	2	4	**c1, c2**
8	**Reproductive system**	2	4	**c1, c2**
9	**Final exam**	**1**	2	**c1, c2**
Number of Weeks /and Units Per Semester		**15**	30	

V. Teaching Strategies of the Course:

1. Interactive lecture
2. Seminars and student presentations
3. Brain storming
4. Role-play and simulation
5. Small group discussion
6. Learning tasks and activities
7. Problems solving
8. Case study analysis

VI. Assessment Methods of the Course:

- Assignments
- Quizzes
- Mid-term exam
- Final term exam

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	**Assignment 1**: Endocrine hormones	W5	**5**	a1, d1
2	**Assignment 2:** Menstrual cycle	W11	5	a2, b2, c2
Total			**10**	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	**Assignments**	Weeks 5-11	10	10%	a1, a2, b2, c2, d1
2	**Quizzes 1**	Week 6	5	5%	a1, b1, c1, d1
3	**Mid-Term Theoretical Exam**	Week 7	10	10%	a1, b1, c1, d1
4	**Mid-Term Practical Exam**	Week 7	10	10%	b1, c1,
	Quizzes 2	Week 12	5	5%	a2, b2,
	Final Practical Exam	Week 15	20	20%	b2, c2, d2
	Final Theoretical Exam	Week 16	40	40%	a2, b2, c2, d2
Total			**100**	**100%**	

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): مثال example

1. Heylings D., Leinster S., Carmichael S., Saada J., Logan B., and Hutchings R., (2018). McMinn's Concise Human Anatomy. 2nd Ed.; Taylor & Francis Group, LLC
2. Jones S., (2017). Pocket Anatomy & Physiology. 3rd Ed. F. A. Davis Company, Philadelphia
3. Bledsoe B., Porter, R., & Cherry, R., (2014). Pearson New International Edition, Essentials of Paramedic Care Update, 2nd Ed., Pearson Education Limited

2- Essential References:

1. Sanders, M., & McKenaa k., Tan, D., Pollak A., and Mejia A., (2019). Sanders' Paramedic Textbook 5th Ed., USA.
2. LaPres J., Kersten ., and Tang Y., (2016). Gunstream's Anatomy & Physiology With Integrated Study Guide. 6th Ed. McGraw-Hill

3- Electronic Materials and Web Sites etc.:

Websites:

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X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي

1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

I. Course Identification and General Information:					
1	**Course Title:**	**Biochemistry1**			
2	**Course Code & Number:**	**BC 1204**			
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		3	2	0	2
4	**Study Level/ Semester at which this Course is offered:**	**First Year: Second Semester**			
5	**Pre –Requisite (if any):**	Biology			
6	**Co –Requisite (if any):**	None			
7	**Program (s) in which the Course is Offered:**	Diploma in Medical Laboratory Technology (DMLT)			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	Credit Hour System- Semester			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**	CC Campus(Public and private community colleges)			
12	**Prepared by:**	Prof. Ali Al-Miri			
13	**Date of Approval:**				

II. Course Description:
This course provides an overview of the main aspects about structural formula, digestions, absorption metabolism of carbohydrate, lipids, proteins, nucleic acid, body fluids and diseases of metabolic abnormalities. The practical part includes studying blood collection, anticoagulants, and separation of serum and plasma. Perform some basic chemical testes to identify different sugars, lipids and proteins.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)		Referenced PILOs (مخرجات تعلم البرنامج)	
E. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Understand the important of biochemistry in field of laboratory techniques	**A1**	Know all the fundamental information in medical laboratories.

a2	Understand diseases of metabolic abnormalities.	**A4**	Understand the specialized laboratory materials, theoretically and practically, in line with advanced scientific progress.
a3	Identify the chemical structure of carbohydrate, lipids, proteins.	**A5**	Know and understand all laboratory tests, their abbreviations, their importance, the method of taking them, and the interpretation of their results.
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Describe carbohydrate, lipids, proteins metabolism.	**B2**	Review and critique manual laboratory processes that include patient preparation, sample requirements, solutions preparation, examination procedures, calculation of results and quality assurance.
b2	Discuss important of vitamins enzyme and mineral in biochemistry.	**B6**	Collect, treat, and analyze samples and interpret the results with high efficiency.
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Collect, transport, preserve and store blood samples according to Standard Operating Procedures (SOPs).	**C1**	Collect samples from patients in a safe professional manner.
c2	Use the instrument and devices in biochemistry lab.	**C3**	Use advanced laboratory equipment effectively and responsibly with the application of quality systems.
c3	Perform some basic chemical testes to identify different sugars, lipids and proteins.	**C4**	Perform laboratory experiments and scientific interpretation of the results of laboratory tests.
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Work independently or as a team member and effectively communicate with the teaching hematology staff and colleagues to	**D1**	Work as a team.

	identify, analyze and understand emerging issues.	**D2**	Respect patients, colleagues, and superiors and maintain the privacy of patient information.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
a1	Understand the important of biochemistry in field of laboratory techniques	-Interactive Lectures - Group Discussion - Self study	- Quizzes - Assignments & Homework - Mid-semester exam -Final exams
a2	Understand diseases of metabolic abnormalities.	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
a3	Identify the chemical structure of carbohydrate, lipids, proteins.	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
b1	Describe carbohydrate, lipids, proteins metabolism.	- Interactive Lectures - Seminars -Oral presentations	- Quizzes - Assignments - Mid semester exam -Final exams
b2	Discuss important of vitamins enzyme and mineral in biochemistry.	- Interactive Lectures - Self-learning - Brain storming	- Quizzes - Assignments -Midterm Exam -Final Exam
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
c1	Collect, transport, preserve and store blood samples according to Standard Operating Procedures (SOPs).	- Demonstrations -Group discussion	-Quizzes - Mid semester exam -Final exams

c2	Use the instrument and devices in biochemistry lab.	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam -Final exam
c3	Perform some basic chemical testes to identify different sugars, lipids and proteins.	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam - -Final exam

(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Work independently or as a team member and effectively communicate with the teaching hematology staff and colleagues to identify, analyze and understand emerging issues.	- Presentations - Group discussions & seminars -Self-study modules	- Write reports -Write Exercises & solving it. - Assignments &Homework

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Introduction to biochemistry**	-Definition -Classification of carbohydrates -biomolecule -biochemistry in medicine	1	2	al, a2,b1,b2
2	**Carbohydrates**	-Definition -important of carbohydrate -classification of carbohydrate-types of isomer -cyclic form of carbohydrates -properties of carbohydrates -sugar derivatives -structure of monosaccharide disaccharides , poly saccharides.	3	6	a1-a3, b1 ,b2,c1-c3,d1
3	**Proteins**	-Definition of Protein -Amino acids ,classification -Protein function (important)	2	4	a1,a2, a3,b1 ,b2,c1-c3,d1

		-Peptide bond and polypeptide -protein structure -protein classification			
4	**Enzyme**	-Definition -Classification of enzyme-mode of enzyme action -Factors affecting enzyme activity -Definition of Km and cofactor	2	4	a1,a2, a3,b1 ,b2,c1-c3,d1
5	**Midterm exam**	MCQs, matching, short-answer,…etc.	1	2	a1,a2,a3 b1,b2
6	**Nucleic acids**	-Important of nucleic acid -Types of nucleic acid (DNA and RNA -structure(nucleotide, nucleoside)	2	4	a1,a2, a3,b1 ,b2,c1-c3,d1
7	**Lipids**	-Definition ,important -Classification of lipids -Fatty acids - Classification of fatty acids -Essential ,non essential -saturated ,unsaturated -cholesterol structure, function -classification of lipoprotein Function of lipoprotein	2	4	a1,a2, a3,b1 ,b2,c1-c3,d1
8	**Vitamins**	-Definition, Classification of vitamins(water soluble, fat soluble) and Deficiencies of vitamins	2	4	a1,a2, a3,b1 ,b2,c1-c3,d1
9	**Minerals**	**Minerals :** Calcium ,phosphate ,magnesium Water and minerals (Na^+ ,K^+ ,HCO_3 Cl)	1	2	a1,a2, a3,b1 ,b2,c1-c3,d1
10	**Final exam**	-Fill in the blank, MCQs, matching, short-answer and short essay questions.	1	2	a1-a3, b1 ,b2,c1-c3,
Number of Weeks /and Units Per Semester			**16**	**32**	

B. Case Studies and Practical Aspect:				
No.	**Tasks/ Experiments**	**Number of Weeks**	**Contact Hours**	**Learning Outcomes (CILOs)**

1	-Biosafety procedures in laboratory practice -Anticoagulants preparation, use, mode of action - Instruments and equipment in biochemistry lab.	1	2	a1, a2, b1,b2 c1-c3,d1
2	-Venous and capillary blood collection - Blood separation, plasma and serum preparation	1	2	a1, a2, b1,b2 c1-c3,d1
3	**Carbohydrate** Molish test Iodine test Benedict test Bara food test Selwanof test	3	6	a1, a2, b1,b2 c1-c3,d1
4	**- Med-Term Exam.**	1	2	c1-c3,d1
5	**Protein** - Biurret test - Iso electric test - Heat and acetic acid test - Glycoxylic and test	3	6	a1, a2, b1,b2 c1-c3,d1
6	**Lipids identification** Cholesterol, Triglycerides, HDL,LDL	3	6	
6	**Enzymes kinetics**	1	2	a1,a2, a3,b1 ,b2,c1-c3,d1
7	**Review**	1	2	a1, a2, b1,b2 c1-c3,d1
8	**Final Exam**	1	2	a1, a2,a3 b1,b2 c1-c3
Number of Weeks /and Units Per Semester		15	30	

V. Teaching strategies of the course:

- Interactive Lectures
- Dialogue and Discussion
- Self-Learning
- Presentation

- Seminars
- Brain storming
- Group discussion
- Analyzing , Reporting the results
- Lab. logbook and report
- Practical Training

VI. Assessment Methods of the Course:

- Quizzes
- Midterm Exam
- Final Written Exam
- Final Practical Exam
- Lab. logbook and reports
- Assignments &Homework
- Group work
- Oral discussion

VII. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	**Assignment :** Searching information about related subjects of **fundamentals of biochemistry** in Medical Laboratory Technology	d1	3-13th	5
	TOTAL			**5**

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	**Assignments**	3-13th	5	5 %	d1
2	**Quiz**	6th	5	5 %	a1,a2, a3 b1,b2
	Mid-Term Practical Exam	6th	10	10 %	c1-c3,d1
3	**Mid-Term Theoretical Exam**	7th	10	10 %	a1,a2, a3

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
					b1,b2
4	**Logbook(Practical report)**	weekly	10	10%	c1-c3
5	**Final Practical Exam**	15th	20	20%	a1,a2, a3,b1 ,b2,c1-c3
6	**Final Theoretical Exam**	16th	40	40 %	a1,a2, a3,b1 ,b2,c1-c3
Total			**100**	**100%**	

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, Title, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two):

1 -Victor W. Rodwell, David A. Bender, Kathleen M. Botham, Peter J. Kennelly, P. Anthony Weil, (2018), **Harper's Illustrated Biochemistry 31th** edition, New York : Mcgraw-Hill Education,

2- R. A. Harvey PhD, D. R. Ferrier P. C. Champe (2018), **Biochemistry** (Lippincott's Illustrated Reviews Scries), 8th edition, Lippincott Williams & Wilkins, USA.

2- Essential References:

1- Rifai, Nader, Andrea R. Horvath and Carl T. Wittwer(2019). Tietz **Fundamentals of Clinical Chemistry and Molecular Diagnostics**. 8 th ed. St. Louis, Elsevier,. (NEW EDITION)

2- MN Chatterjea, Rana shinde (2013), **Medical Biochemistry**, 8th edition, Jitendra P Vij, Panama.

3- Electronic Materials and Web Sites etc.:

Websites:

1--https://www.biochemistrv.org/

2. www.biochemi.org/bi/default.htm

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي

1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:**

	A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' By law (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

Standard II: Course Identification and General Information:

1	**Course Title:**	Psychology				
2	**Course Number & Code:**					
3	**Credit hours:**	**C.H**				**Total**
		Th.	**Pr.**	**Tut.**	**Tr.**	
		1	**NA**	**NA**	**NA**	**1**
4	**Study level/year at which this course is offered:**					
5	**Pre –requisite (if any):**					
6	**Co –requisite (if any):**					
7	**Name of faculty member responsible for the course:**					
8	**Program (s) in which the course is offered:**					
9	**Language of teaching the course:**					
10	**Location of teaching the course:**					
11	**Prepared By:**					
12	**Approved By:**					

Standard III: Course Description:

In this course the learners will acquire understanding of the behavior of individuals. This course in
psychology will expose the learners to the theories, perceptions and the explanations for patients and clients behavior and enable them to respond appropriately.

Standard IV: Professional Information:

Aims of The Course:

Brief summary of the knowledge or skill the course is intended to develop:

1. Demonstrate understanding of the uniqueness of individuals and its effect on their behavior.
2. Analyze methods of psychology, various cognitive processes, determinants and their applications.
3. Recognize motivation, emotions, stress, attitudes, personality and their influence on behavior.
4. Explain the psychological assessments and test.
5. Recognize the development stage of human according to various psychological theories.
6. Establish and maintain effective and appropriate therapeutic relationships.
7. Assist and support clients during stressful events and aid them in making informed decisions.

Intended learning outcomes (ILOs) of the course:

A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies

Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
A1. Explain the biology of Human behavior.	Lecture discussion Brain storming	Essay type Short answer
A2. Describe the psychometric assessments of cognitive processes	Lecture discussion Brain storming	Essay type Short answer

A3. Describe the concepts of behavior, conflicts, frustration, and conflict resolution	Lecture discussion Brain storming	Essay type Short answer
A4. Recognize the alterations in emotions	Lecture discussion Brain storming	Essay type Short answer
A5. Discuss the personality alterations according to various psychological theories.	Lecture discussion Brain storming	Essay type Short answer
A6. Identify the principles of growth and development	Lecture discussion Brain storming	Essay type Short answer
A7. Explain the psychological assessments tests	Lecture discussion Brain storming	Essay type Short answer

(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
B1. Recognize motivation, emotions, stress, attitudes, personality and their influence on behavior.	Lecture discussion Role plays Case discussion Demonstration.	Essay type Short answer
B2. Analyze methods of psychology, various cognitive processes, determinants and their applications.	Lecture discussion Role plays Case discussion Demonstration.	Essay type Short answer
B3. Discuss the role of medical assistant in supporting and maintaining of client's psychological state.	Lecture discussion Role plays Case discussion Demonstration.	Essay type Short answer

(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
Not Applicable		

(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
Not Applicable		

V: Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect:

Order	Topic List	Sub Topics List	Number of Weeks	contact hours	Learning Outcomes
1	Introduction to psychology	▪ History and origin of science of psychology ▪ Definitions & Scope of Psychology ▪ Relevance to medical assistant, Methods of ▪ Psychology	1	2	B3
2	Biology of behavior	▪ Body mind relationship modulation process in health and illness ▪ Genetics and behavior: ▪ Heredity and environment ▪ Brain and behavior: Nervous System, Neurons and synapse, ▪ Association Cortex, Rt and Lt Hemispheres ▪ Psychology of Sensations ▪ Muscular and glandular controls of behavior ▪ Nature of behavior of an organism/Integrated responses	1	2	A1
3	Cognitive processes	▪ Attention: Types, determinants, Duration & degree, alterations ▪ Perception: Meaning, Principles, factors affecting, Errors, ▪ Learning: Nature, Types, learner and learning, Factors influencing, laws and theories, process, transfer, study habits ▪ Memory: Meaning, Types, Nature Factors influencing, Development Theories and methods of memorizing and Forgetting ▪ Thinking: Types and levels, stages of development, Relationship with language and communication ▪ Intelligence: Meaning, classification, uses, theories ▪ Aptitude: Concept, types, Individual differences and variability	4	8	A2, B2

		▪ Psychometric assessments of cognitive processes ▪ Alterations in cognitive processes ▪ Applications			
4	Midterm exam	Midterm exam	2	4	A5
5	Motivation and Emotional Processes	▪ Motivation: Meaning, Concepts, Types, Theories, Motives and behavior, Conflicts and frustration, conflict resolution ▪ Emotions & stress ○ Emotion: Definition, components, Changes in emotions, theories emotional adjustments, emotions in health and illness ○ Stress: stressors, cycle, effect, adaptation & coping ▪ Attitude: Meaning, nature, development, factors affecting, Behaviour and attitudes ▪ Attitudinal change Psychometric assessments of emotions and attitudes ▪ Alterations in emotions ▪ Applications	2	4	A3, A4, B1
6	Developmental and Personality Theories (ISTS)	- Fraud, Jung, Sullivan, Piaget, Rogers, Erikson, Others ▪ Psychometric assessments of personality ▪ Alterations in personality ▪ Applications	1	2	A5, B1
7	Principles of Growth and Development Life-Cycle	▪ Pre-Natal, neo-natal, infant, toddler, pre-school child, school child, adolescent, ▪ Psychology of groups	3	6	A6
8	Psychological assessment & tests	▪ Types, development, Characteristics, Principles, Uses, Interpretations. ▪ Role of nurse in psychological assessment and in the supporting and maintaining of	1	2	A7, B3

		client's psychological state.			
11	Final exam	Final exam	1	2	A1, A2, A3, A4, A5, A6, A7, B1, B3
Number of Weeks /and Units Per Semester			**15**	**30**	

B – Practical Aspect:				
Order	Task/ Experiments	**Number of Weeks**	**contact hours**	**Learning Outcomes**
	Not Applicable			
	Number of Weeks /and Units Per Semester			

V. Teaching strategies of the course
1. Lecture 2. Discussion 3. Brainstorming 4. Case discussions

VI. Assignments				
No	Assignments	Aligned CILOs (symbols)	Week Due	Mark
1	Role of medical assistant in the supporting and maintaining of client's psychological state.	A3, A4, A7, B3	**2-10**	**10**

VII. Schedule of Assessment Tasks for Students During the Semester					
No	Assessments Methods	Week due	Mark	Proportion of Final Assessments	Aligned Course Learning Outcomes
1	Attendance and activities	15th week	**5**	**5%**	A1, A2,A3, A5, B1,B2
2	Student assignments	5th and 12th week	**5**	**5%**	A3, A4, A7, B3
3	Mid-term exam	7th or 8th week	**20**	**20%**	A1, A2, B2, B3
4	Final-exam	16th -17th	**70**	**70%**	A1, A2, A3, A4, A5, A6, A7, B1, B3

		week			

Clinical Part					
No	Assessments Methods	Week due	Mark	Proportion of Final Assessments	Aligned Course Learning Outcomes
	Not Applicable				

VII: Learning Resources:

1. Required Textbook(s) (maximum two).

1. Feldman. R. H (1996). Understanding Psychology. New Delhi: Tata McGraw hill.
Morgan et al (2003). Introduction to Psychology. New Delhi: Tata McGraw hill.

1. Essential References.

1. Lefton(2009). Psychology. Boston: Alwin & Bacot Company.
Mangal, S.K (2002). Advanced Educational Psychology. New Delhi: prentice hall.

2. Electronic Materials and Web Sites *etc*.

1. www.PSYCHOLOGY .com
2. Encyclopedia of psychology, www.psychology .org
3. American Psychological Association, www.apa.org
4. Guides to resources, library.ust.hk
5. http://www.google.com

IX. Course Policies:	
1	Class Attendance: At least 75 % of the course hours should be attended by the student. Otherwise, he/she will not be allowed to attend the final exam
2	Tardy: any student who is late for more than 15 minutes from starting the lecture will not be allowed to attend the lecture and will be considered absent.
3	Exam Attendance/Punctuality: Any student who is late for more than 30 minutes from starting the exam will not be allowed to attend the exam and will be considered absent.
4	Assignments &Projects: Assignments and projects will be assessed individually unless the teacher request for group work
5	Cheating: Cheating by any means will cause the student failure and he/she must re-study the course
6	Plagiarism: Plagiarism by any means will cause the student failure in the course. Other disciplinary procedures will be according to the college rules.

I. Course Identification and General Information:					
1	**Course Title:**	Biosafety and Biosecurity			
2	**Course Code & Number:**	**BB 1206**			
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		1	1	0	0
4	**Study Level/ Semester at which this Course is offered:**	**First Year: Second Semester**			
5	**Pre –Requisite (if any):**	None			
6	**Co –Requisite (if any):**	None			
7	**Program (s) in which the Course is Offered:**	Diploma in Medical Laboratory Technology (DMLT)			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	Credit Hour System- Semester			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**	CC Campus(Public and private community colleges)			
12	**Prepared by:**	Prof.Dr. Lutfi A.S. Al-Maktari			
13	**Date of Approval:**				

II. Course Description:
This course provides the students with biosafety, biosecurity, and risk management. The course introduces the new concept of risk management, which combines (AMP model) risk assessment, risk mitigation, and performance systems. It targets professionals in biosafety, biosecurity training, and education. Participants will be empowered with the skills, tools of PPE, safety equipment, biosafety levels, decontamination, regulatory aspects, and management of medical-biological waste disposal, and confidence to advise and guide on sustainable biosafety and biosecurity of Covid-19 as a global threat that will ultimately reduce and control the threat of infectious disease in local laboratory environments.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)	Referenced PILOs (مخرجات تعلم البرنامج)
F. Knowledge and Understanding: Upon successful completion of the course, students will be able to:	

a1	Demonstrate the concepts of biosafety , biosecurity & biorisk management in medical laboratory sciences practice and increased hazards and threats strategies mitigation.	**A1**	Know all the fundamental information in medical laboratories.
a2	Identify components of risk assessment, mitigation and performance for biological hazard and risk management strategies .	**A4**	Apply safety and infection control procedures while handling laboratory and biological samples and other materials, correspond to standardized precautions and regulatory guidelines.
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Integrate the concepts of biosafety and biosecurity within different laboratory analysis in different medical laboratory disciplines.	**B5**	Develop students' awareness of environmental issues, pollution and endemic diseases in the community.
b2	Analyze the range of hazards and threat to biorisk assessment and mitigation to working with pathogens in the laboratory medicine .	**B6**	Collect, treat, and analyze samples and interpret the results with high efficiency.
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Perform professional biosafety and biosecurity in medical laboratory sciences practices , health workers and teamwork.	**C1**	Collect samples from patients in a safe professional manner.
c2	Use different methods to manage Biorisk in the laboratory medicine works.	**C4**	Perform laboratory experiments and scientific interpretation of the results of laboratory tests.
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Work effectively as a member of team.	**D1**	Work as a team.
d2	Respect superiors, colleagues and any other members of the health worker.	**D2**	Respect patients, colleagues, and superiors and maintain the privacy of patient information.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:

	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
a1	Demonstrate the concepts of biosafety , biosecurity & biorisk management in medical laboratory sciences practice and	-Interactive Lectures - Group Discussion - Self study	- Quizzes - Assignments & Homework - Mid-semester exam

	increased hazards and threats strategies mitigation.		-Final exams (Fill in the blank, MCQs, matching, short-answer and short essay questions)
a2	Identify components of risk assessment, mitigation and performance for biological hazard and risk management strategies .	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
	(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:		
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
b1	Integrate the concepts of biosafety and biosecurity within different laboratory analysis in different medical laboratory disciplines.	- Interactive Lectures - Seminars -Oral presentations	- Quizzes - Assignments - Mid semester exam -Final exams
b2	Analyze the range of hazards and threat to biorisk assessment and mitigation to working with pathogens in the laboratory medicine .	- Interactive Lectures - Self-learning - Brain storming	- Quizzes - Assignments -Midterm Exam -Final Exam
	(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:		
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
c1	Perform professional biosafety and biosecurity in medical laboratory sciences practices , health workers and teamwork.	- Demonstrations -Group discussion	-Quizzes - Mid semester exam -Final exams
c2	Use different methods to manage Biorisk in the laboratory medicine works.	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam -Final exam
	(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:		
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
d1	Work effectively as a member of team.	- Presentations - Group discussions & seminars -Self-study modules	- Write reports -Write Exercises & solving it. - Assignments &Homework

d2	Respect superiors, colleagues and any other members of the health worker.	- Presentations - Group discussions & Seminars -Self-study module	- Write reports -Write Exercises & solving it. - Assignments &Homework

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Orientation to Biosafety& Biosecurity**	-Orientation to Biosafety& Biosecurity -Definition: Biosafety, Biosecurity, Biorisk, -Biorisk management system -Uses AMP (Assessment, Mitigation, and Performance) as a simple model for managing biorisks. - CWA 15793	1	1	al, a2,b1,b2
2	**Bio-risk Assessment**	-Factors affecting risk assessment (agent, host, environment behavioral) -Roles and Responsibilities for Risk Assessment -Biorisk Characterization -What is a hazard and threat? -Biorisk Evaluation -What is “acceptable” risk?	1	1	a1,a2, b1 ,b2,c1,c 2,d1,d2
3	**Bio-risk Mitigation**	-What is Biorisk Mitigation? -Explain five major categories Mitigation -Advantages and Disadvantages - Biorisk Mitigation Strategies -Hierarchy of mitigation Controls -Building a new bio-containment laboratory -Laboratory Design Best Practices.	1	1	a1,a2, b1 ,b2,c1,c 2,d1,d2
4	**Bio-risk Performance**	-Regulatory Compliance and Best Practices. -The Biorisk Pyramid - Performance – Access Control Video -The Concept of Performance - Measuring Performance	1	1	a1,a2, b1 ,b2,c1,c 2,d1,d2
5	**Biosafety Levels (BSL)**	- Relationship of Risk Groups with Biosafety Levels	1	1	a1,a2, b1

		-Biosafety Level 1 Class I -Biosafety Level 2 ← focus here! -BSL¬2 "with ¬¬3 Practices Class II -Biosafety Level 3 Class III BSC -Biosafety Level 4			,b2,c1,c2,d1,d2
6	**Personal Protective Equipment (PPE)**	-Routes of exposure -Types of PPE : Gloves, Lab coats and gowns, Eye protection, Respiratory protection -Selection and proper fit, use, of PPE -Cross-contamination and Proper donning & doffing, disposal of PPE -Poor combinations of PPE -Good laboratory work practice	1	1	a1,a2, b1 ,b2,c1,c2,d1,d2
7	**Midterm exam**	**Midterm exam**	1	1	a1,a2, b1 ,b2,c1,c2,
8	**Laboratory Facilities and Safety Equipment**	**-Laboratory Facilities and Safety Equipment** **-Biosafety Cabinet: design, operation, use, and misuse ← focus!** **-Sharps Safety** **-Mechanical pipetting devices (principle of engineering controls)** **-Containment - Directional Airflow, cross contamination, etc.** **-Building Automation Systems** **-Fire detection and control systems**	1	1	a1,a2, b1 ,b2,c1,c2,d1,d2
9	**Decontamination Disinfection , Sterilization**	-a) Definition of decontamination, disinfection and sterilization -b)Selection of disinfectants -c)Mechanisms of action and categories of disinfectants.	1	1	a1,a2, b1 ,b2,c1,c2,d1,d2
10	**Emergency procedures in laboratory (Spill Cleanup)**	I -Emergency procedures in laboratory -II-Spill Cleanup (Laboratory Spills) -Defining of spills -Spills tools -Practical application Video -Incident Reporting	1	1	a1,a2, b1 ,b2,c1,c2,d1,d2
11	**Medical Waste Management**	-Medical Waste Disposal -Treatment methods for infectious agents. -Waste disposal segregation	1	1	a1,a2, b1 ,b2,c1,c2,d1,d2

		-Biohazards Waste Handling Procedures -Mixed waste -Waste Management Program			
12	**Safe Collection, Transportation and Shipment of Samples**	-Risk assessment -Biosafety: protect the patient, yourself, others, and the environment -Risk mitigation -Biosecurity risk mitigation : -Physical security and Personnel Management, - Transport security, Transport Regulations, and Information security.	1	1	a1,a2, b1 ,b2,c1,c 2,d1,d2
13	**Biosafety &Biosecurity Management Program**	-Structure of a biosecurity and biosafety management program -Responsibilities for management, committees, biosafety officers and individuals. -Biosecurity and biosafety issues to be incorporated into the Program	1	1	a1,a2, b1 ,b2,c1,c 2,d1,d2
14	**Covid-19(Biosafety and Biosecurity)**	-COVID-19 as a global threat -Laboratory biosafety -Laboratory biosecurity - Biosecurity for dealing pathogenic e-- Laboratory diagnosis of COVID-19 -Tips, guidelines, and policy pertinent to travelers, general public/and prevention of infectious disease -Prevention and control of COVID-19 merging viruses.	1	1	a1,a2, b1 ,b2,c1,c 2,d1,d2
15	**Infection Control**	-Definition of infection control , Infections, Communicable disease, &Infectious disease -Laboratory Acquired Infections(LAI) -Why infection control important? -Main component of infection control -Standard precautions components of infection control	1	1	a1,a2, b1 ,b2,c1,c 2,d1,d2
16	**Final exam**	-Fill in the blank, MCQs, matching, short-answer and short essay questions.	1	1	a1,a2, b1 ,b2,c1,c 2,
Number of Weeks /and Units Per Semester			**16**	**16**	

V.Teaching strategies of the course:

- Interactive Lectures
- Dialogue and Discussion
- Self-Learning
- Presentation
- Seminars
- Brain storming
- Group discussion
- Animations
- Scenarios and Problem Solving

VI.Assessment Methods of the Course:

- Quizzes
- Midterm Exam
- Final Written Exam
- Assignments &Homework
- Group work
- Oral discussion

VII.Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	**Assignment :** Searching information about related subjects of Biosafety ,Biosecurity and Biorisk Managements in Medical Laboratory Technology	d1,d2	3-13th	10
	TOTAL			**10**

VIII.Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignments	3-13th	10	20%	dl,d2
2	Quiz 1& Quiz 2	6th &12th	5	10%	a2,a2,b1,b2,cl,c2,dl
3	Mid Semester Exam	7th	10	20%	a1,a2,bl,b2, cl,c2
5	Final Exam	16th	25	50%	a1,a2,bl,b2, cl,c2

	Total	50	100%	

IX .Learning Resources:

- Written in the following order: (Author – Year of publication – Title – Edition – Place of publication – Publisher).

1 - Required Textbook(s) (maximum two).

1- WHO (2019), Laboratory biosafety manual. – 5th edition. WHO Library , Geneva.
2- Reynolds M. Salerno, Jennifer Gaudioso,(2015). Laboratory Biorisk Management: Biosafety and _Biosecurity, illustrated,. 1st edition, CRC Press, London New York.

2- Essential References.

1-Biological Safety principles and practices,(2017), 5th. ed ,ASM Press.
2-Block, SS (2020). Disinfection, Sterilization, and Preservation,6th edition Lippincott Willi _& Wilkins. Philadelphia, PA; London.

3- Electronic Materials and Web Sites etc.

1- https://emergencv.cdc.gov/cerc/index.asp
2- http://afbsa.org/indcx.php/featured/-laboratory-biorisk-management-guidelines-for implementation-of-the-cwa-15793
3-http://www.escoglobal.com/resources/pdf/biosafety-booklet.pdf
4web: https://gcbs.sandia.gov/human_capacity_development/hcd-gbrmc.html-
5-www.bioriskyemen.com/A mobile Application on google play store (E&A)

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي	
1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' By law (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

Standard II: Course Identification and General Information:

1	**Course Title:**	Public Health				
2	**Course Number & Code:**					
3	**Credit hours:**	**C.H**				**Total**
		Th.	**Pr.**	**Tut.**	**Tr.**	
		2	**NA**	**NA**	**NA**	**2**
4	**Study level/year at which this course is offered:**					
5	**Pre –requisite (if any):**					
6	**Co –requisite (if any):**					
7	**Name of faculty member responsible for the course:**					
8	**Program (s) in which the course is offered:**					
9	**Language of teaching the course:**					
10	**Location of teaching the course:**					
11	**Prepared By:**					
12	**Approved By:**					

Standard III: Course Description:

This course is designed to help students acquire the concept of health, understanding of the principles of environmental health and education of community members about health, personal health and proper sanitation.

Standard IV: Professional Information:

Aims of The Course:

Brief summary of the knowledge or skill the course is intended to develop:

1. Describe the concept of environmental health
2. Describe the principles of environmental health
3. Demonstrate skills to apply these principles in the pursing care of the patients/clients as well as in their own healthy living.
4. Describe the environmental health hazards and health problems of the country and services available to meet these.

Intended learning outcomes (ILOs) of the course:

A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies

Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
A1. Discuss the basic principles of environmental health	Lecture - Discussion Demonstration Brainstorming	Essay question Short answer question Objective type
A2. Recognize water borne diseases	Lecture - Discussion Demonstration Brainstorming	Essay question Short answer question Objective type
A3. Methods of controlling pollutions	Lecture - Discussion Demonstration Brainstorming	Essay question Short answer question Objective type

A4. Determine the requirements of healthy housing conditions	Lecture - Discussion Demonstration Brainstorming	Essay question Short answer question Objective type
A5. Discuss the importance of proper sanitation	Lecture - Discussion Demonstration Brainstorming	Essay question Short answer question Objective type
A6. Identify the components of personal health	Lecture - Discussion Demonstration Brainstorming	Essay question Short answer question Objective type
A7. Recognize methods of insects control	Lecture - Discussion Demonstration Brainstorming	Essay question Short answer question Objective type
A8. List of diseases transported by insects	Lecture - Discussion Demonstration Brainstorming	Essay question Short answer question Objective type
A9. Describe the components of school health program.	Lecture - Discussion Demonstration Brainstorming	Essay question Short answer question Objective type
A10. Advice appropriate balance diet and suggest any dietary modification	Lecture - Discussion Demonstration Brainstorming	Essay question Short answer question Objective type

(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
B1. Compare between methods of water purification	Lecture - Discussion Demonstration Brainstorming	Essay question Short answer question Objective type.
B2. Differentiate between natural and artificial lighting	Lecture - Discussion Demonstration Brainstorming	Essay question Short answer question Objective type.
B3. Discuss methods used to control cholera in your community	Lecture - Discussion Demonstration Brainstorming	Essay question Short answer question Objective type.

(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
C1. Perform water purification using chlorine or solar	Lecture Discussion Class-room Conversation Assignments	Essay question Short answer question Objective type
C2. Design a health teaching program to maintain proper sanitation	Lecture Discussion Class-room Conversation Assignments	Essay question Short answer question Objective type

(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning	Outcomes Teaching strategies	Assessment Strategies
D1. Engage in educational activities related to environmental health issues.	Role play Practice session Supervised clinical practice	Assess role plays with check- list on teaching techniques Assess health talk with checklist Assess performance with rating scale
D2. Employ effective communication and accurate documentation while dealing and/or managing environmental problems	Role play Practice session Supervised clinical practice	Assess role plays with check- list on teaching techniques Assess health talk with checklist Assess performance with rating scale

V: Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect:

Order	Topic List	Sub Topics List	Number of Weeks	contact hours	Learning Outcomes
1	Introduction	▪ Components of environment ▪ Importance of environmental health. ▪ Concepts of environmental health ▪ Principles of environmental health ▪ Personal health	2	4	A1, A6
2	Water supply	▪ Safe and wholesome water ▪ Uses of Water ▪ Water pollution ▪ Water borne diseases. ▪ Water purification	2	4	A2, A3, B1, C1
3	Air & Noise Pollution	▪ Air ▪ Air pollution	1	2	A3

		▪ Prevention and control of air Pollution Noise ▪ Source of noise ▪ Community noise levels ▪ Effects of noise ▪ Noise control			
4	Housing condition	▪ Site ▪ Basic amenities ▪ Types & standard of ventilation ▪ Requirements of good lighting. ▪ Natural and artificial lighting.	2	4	A4, B2
5	Mid Term Exam	Mid Term Exam	1	2	A1, A2, A3, A4, B1, B2, C1
6	Environmental sanitation	▪ Refuse ▪ Excreta ▪ Sewage ▪ Health hazards of these wastes ▪ Collection removal and disposal of these wastes	2	4	A5
7	Arthropods of Public Health	▪ Mosquitoes, Housefly ▪ Sand fly, human louse, etc. ▪ Rodents. ▪ Control measures for arthropods	2	4	A7, A8
8	School health	▪ Periodic medical examination of the children and teachers. ▪ Immunization of the children in the school. ▪ Health promotion & education ▪ Mid-day meals. ▪ Requirements for school health ▪ Facilities for school health	2	4	A9
9	Food	▪ Common sources of various nutrients and special nutritional requirements ▪ Nutritional assessment (clinical, anthropometric and diet survey tools). ▪ Appropriate balance diet and suggested dietary modification ▪ Common nutrition related	1	2	A10

		health disorders (like protein energy malnutrition, obesity, anemia, iodine deficiency, fluorosis, food toxin diseases) and their control and management. ▪ Nutritional promotion and education. ▪ Elements of healthy foods			
8	**Final Term Exam**		1	2	A5, A7, A8, A9, A10,
Number of Weeks /and Units Per Semester			**16**	**32**	

V. Teaching strategies of the course
1. Lecture - Discussion 2. Demonstration; 3. Brainstorming 4. Case discussions / Seminar

VI. Assignments				
No	Assignments	Aligned CILOs (symbols)	Week Due	Mark
1	Water purification	A2, A3, B1, C1	**4-7**	**2.5**
2	Mosquitoes control	A7, A8	**8-12**	**2.5**

VII. Schedule of Assessment Tasks for Students During the Semester					
No	Assessments Methods	Week due	Mark	Proportion of Final Assessments	Aligned Course Learning Outcomes
1	Attendance and activities	15th week	**5**	**5%**	A1, A2, A3, A4, A5, A7, A8, A9, A10, B1, B2, C1
2	Student assignments	5th and 12th week	**5**	**5%**	A2, A3, A7, A8, B1, C1
3	Mid-term exam	7th or 8th week	**20**	**20%**	A1, A2, A3, A4, B1, B2, C1

4	Final-exam	16th -17th week	**70**	**70%**	A5, A7, A8, A9, A10
	Number of Weeks /and Units Per Semester		**100**	**100%**	

VII: Learning Resources:

3. Required Textbook(s) (maximum two).

1. James F, Robert R. Pinger& Jerome E. KotEcli, (2002), An Introduction to Community Health 4th edition.
2. Lundy K. and Jons S., (2009): Community Health Nursing, Caring for Public Health. 2nd ed Jones and Barllett Comp.

5. Essential References.

3. Basavanthappa. BT., (2008): Community and public Health Nursing, 2nd ed., Mosby An Affiliate of Elsevier Co., United States of America.
4. Maurer F. and Smith C. (2009): Community / Public Health Nursing Practice , Health for all Families and pupulations. Sunders, Elsever.

6. Electronic Materials and Web Sites *etc*.

1. http://www.mohp.gov.eg
2. http://www.google.com

IX. Course Policies:	
1	Class Attendance: At least 75 % of the course hours should be attended by the student. Otherwise, he/she will not be allowed to attend the final exam
2	Tardy: any student who is late for more than 15 minutes from starting the lecture will not be allowed to attend the lecture and will be considered absent.
3	Exam Attendance/Punctuality: Any student who is late for more than 30 minutes from starting the exam will not be allowed to attend the exam and will be considered absent.
4	Assignments &Projects: Assignments and projects will be assessed individually unless the teacher request for group work
5	Cheating: Cheating by any means will cause the student failure and he/she must re-study the course
6	Plagiarism: Plagiarism by any means will cause the student failure in the course. Other disciplinary procedures will be according to the college rules.

I. Course Identification and General Information:					
1	**Course Title:**	**First Aids**			
2	**Course Code & Number:**				
3	**Credit Hours**	**Credit Hours**	**Credit Hours**		**Lab. Hours**
			Lecture	**Field**	
		3	3	--	--
4	**Study Level/ Semester at which this Course is offered:**				
5	**Pre –Requisite (if any):**				
6	**Co –Requisite (if any):**				
7	**Program (s) in which the Course is Offered:**				
8	**Language of Teaching the Course:**	English			
9	**Study System:**	Semester Based System			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**				
12	**Prepared by:**				
13	**Date of Approval:**				

II. Course Description:
This course is designed to provide students with the knowledge and skills required to introduce the first care the critically ill patient. It focuses on identification and implementation of the rapid and accurate assessment and providing care to assist the emergency patients with the accessible resources.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)		Referenced PILOs (مخرجات تعلم البرنامج)	
G. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1			
a2			
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1			
b2			

C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1			
c2			
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1			
d2			

	(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:		
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
a1	Identify the knowledge of the principles of first aid for Wounds Hemorrhage and Musculo-Skeletal Injuries	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations
a2	Describe the clinical pictures and diagnostic measures of patients with the different alterations as burn, and Venomous bites in emergency care settings	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations
	(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:		
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
b1	Identify different emergency actions, principles, and procedures	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
b2	Examine different strategies for different first aid accidents' control and management prevention	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam

(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
c1	Practice the cardiopulmonary resuscitation techniques	▪ Active learning, ▪ Small group learning. ▪ Learning tasks and activities	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
c2	Perform the basic first aid measures for burned and Venomous bites victims	▪ Active learning, ▪ Small group learning. ▪ Learning tasks and activities	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
d1	Utilizes interpersonal communication skills when dealing with colleagues	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities
d2	Perform health education to patients, families and communities when needed	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Introduction**	**Introduction** ▪ Definition of the first aid ▪ Principles of first aid management ▪ Purpose of first aid ▪ First aid providers rules and responsibilities ▪ First aid materials	1	3	a1, b1
2	**Basic life support**	▪ Victim Assessment ▪ Primary, secondary and tertiary assessment ▪ Basic Life Support: Artificial Ventilation ▪ Basic Life support: CPR	3	9	a1, b1, c1, d1

3	**Wounds Haemorrhage**	**Wounds Haemorrhage** ▪ Definition of the Wounds. ▪ Type of the Wounds . ▪ Definition of the Haemorrhage ▪ Type of the Haemorrhage	2	6	a1, b1 c1, d1
4	**Musculo-Skeletal Injuries**	**Fracture, Dislocations, Muscle injuries** ▪ Definition of the Fracture , Dislocations, and Muscle injuries ▪ Type of the Fracture	1	3	a1, b1
5		**Midterm exam**	1	3	a1, b1, c1, d1
6	**Splinting Dressings Principles of bandaging**	**Splinting Dressings Principles of bandaging** ▪ Definition of the Splinting ▪ Definition of the Dressings ▪ Type of the Splinting ▪ Type of the Dressings ▪ Principles of bandaging and Dressings	2	6	a2, b2, d2
7	**Burns**	▪ Burns (Thermal, Chemical, and Other) ▪ Sunburn ▪ Electrical Injury ▪ Scalds, ▪ Foreign bodies in the skin, eye, ear, nose, throat, stomach	2	6	a2, b2, c1, d2
8	**Venomous bites and Stings:**	**Venomous bites and Stings:** ▪ First aids to venomous bites and stings: ▪ Snake bite ▪ Scorpion stings ▪ Spider bite ▪ Bee and wasp stings ▪ Dog bite ▪ Cat bite ▪ Human bite	1	3	a2, b2, c1, d2
9	**Emergency in Drug Overdose and Poisoning**	**Emergency in Drug Overdose and Poisoning** The Poisoned or Overdosed Patient ▪ Poisoning ▪ Substance Abuse and Overdose ▪ Assessment ▪ Triage ▪ History ▪ Physical Examination ▪ Laboratory Studies ▪ Management	2	6	a2, b2, d2

		▪ Stabilization ▪ Initial Decontamination ▪ Gastrointestinal Decontamination ▪ Enhanced Elimination of the Drug or Toxin ▪ Antagonists, Antitoxins, and Antivenins			
		Final exam	1	3	a2, b2, c2, d2
Number of Weeks /and Units Per Semester					

B. Case Studies and Practical Aspect:				
No.	**Sub Topics List**	**Number of Weeks**	**Contact Hours**	**Learning Outcomes (CILOs)**
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
Number of Weeks /and Units Per Semester				

C. Tutorial Aspect:				
No.	**Sub Topics List**	**Number of Weeks**	**Contact Hours**	**Learning Outcomes (CILOs)**
1				
2				
3				
4				
5				
6				
7				

8				
9				
10				
11				
12				
Number of Weeks /and Units Per Semester				

V. Teaching Strategies of the Course:

- Interactive lecture
- Seminars and student presentations
- Brain storming
- Role-play and simulation
- Small group discussion
- Learning tasks and activities
- Problems solving
- Case study analysis

VI. Assessment Methods of the Course:

- Assignments
- Quizzes
- Mid-term exam
- Final term exam

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	**Assignment 1:** guidelines of basic and advanced life support measures	W5	**5**	a1, c1
2	**Assignment 2:** classifications of shock	W11	5	a2, b2, c2
Total			**10**	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	**Assignments**	W5,11	10	10%	a1, b1, a2, b2, c2,
2	**Quizzes 1 & 2**	W3, 9	10	10%	a1, a2, b1, b2

3	**Mid-Term Theoretical Exam**	W7	20	20%	a1, b1, c1, d1
4	**Final Theoretical Exam**	W16	60	60%	a2, b2, c2, d2
Total			**100**	**100%**	

IX. Learning Resources:
• *Written in the following order:* Author, Year of publication, **Title**, Edition, Place of publication Publisher.
1- Required Textbook(s) (maximum two): مثال example
2- Essential References:
3- Electronic Materials and Web Sites etc.:
Websites: ▪

	X. Course Policies: (Based on the Uniform Students' By law (2007 تترك كما هي
1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

SYLLABUS
YEAR (2)
SEMESTER (1)

I. Course Identification and General Information:

1	**Course Title:**	Medical Parasitology 1			
2	**Course Code & Number:**	MP 1301			
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		3	2		2
4	**Study Level/ Semester at which this Course is offered:**	2nd Level/ 1st Semester			
5	**Pre –Requisite (if any):**	General Biology, Biosafety and Biosecurity			
6	**Co –Requisite (if any):**	Immunology			
7	**Program (s) in which the Course is Offered:**	Medical Laboratory Technician			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	Semester based system			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**	Community Colleges			
12	**Prepared by:**	Assoc. Prof. Dr./ Abdulbasit Al-Ghoury			
13	**Date of Approval:**	October 2021			

II. Course Description:

The course is intended to introduce fundamental and important aspects of biology and bionomic of arthropods causing human diseases The course is also provided the students with knowledge concerning the morphological features, life cycles, Epidemiology, pathogenesis, clinical features, diagnosis and treatment of protozoan with insects parasites as well as to prepare the students for a career in diagnosing parasitic infections Laboratory practice will focus on the identification and recognition of parasitic agents and its larval stages.

III. Course Intended Learning Outcomes (CILOs) :		Referenced PILOs	
A. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Identify the principles of basic Medical entomology and protozoology.	**A1**	Know all the basic information in medical laboratories.
a2	Uses bio-safety procedures while handling clinical laboratory samples.	**A4**	Apply safety and infection prevention procedures while handling laboratory and biological samples and other materials, adhering to standard precautions and regulatory guidelines.
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Integrate laboratory findings with disease processes /pathophysiology and physiological factors affecting the results.	**B1**	Interpret the results of various laboratory tests.
b2	Use critical thinking and problem solving skills to make evidence-based decisions.	**B7**	Plan a quality assurance protocol to monitor procedures and devices, identify errors, and integrate and evaluate data analytics with problem-solving skills
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Operate different equipment's and instruments and use emerging technologies in general medical parasitological laboratory practice.	**C3**	Use advanced laboratory equipment effectively and responsibly with the application of quality systems
c2	Apply advanced level knowledge and skills to solve the problem, causes, and results of analysis of lab.tests..	**C4**	Do laboratory experiments and scientific interpretation of the results of laboratory tests.
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Participate in teamwork harmoniously and exhibit collaboration with colleagues and other health care professionals.	**D1**	Work as one team

d2	Communicate effectively using appropriate scientific language orally and in writing.	**D4**	Spread the culture of teamwork among students and the need to adapt to scientific developments

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
a1	Identify the principles of basic Medical entomology and protozoology.	- Interactive Lectures - Self-learning - Lab. session	-Written exam -Reports evaluation Quizzes
a2	Uses bio-safety procedures while handling clinical laboratory samples.	- Interactive Lectures - Self-learning - Brain storming - Lab. session	-Written exam - Reports evaluation - Quizzes
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
b1	Integrate laboratory findings with disease processes /pathophysiology and physiological factors affecting the results.	-Lectures - Group Discussion	-Quizzes -Midterm Exam -Final Exam
b2	Use critical thinking and problem solving skills to make evidence-based decisions.	- Interactive Lectures - Self-learning - Brain storming	-Quizzes -Midterm Exam -Final Exam - Assignments
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
c1	Operate different equipment's and instruments and use emerging technologies in general medical parasitological laboratory practice.	- Laboratory demonstrations - Laboratory practice - Group discussion	- Practical quizzes - Practical reports -Mid- and final exams

		- Animations and videos	
c2	Apply advanced level knowledge and skills to solve the problem, causes, and results of analysis of lab.tests..	- Laboratory demonstrations - Laboratory practice - Group discussion - Animations and videos	- Practical quizzes - Practical reports -Mid- and final exams

(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Participate in teamwork harmoniously and exhibit collaboration with colleagues and other health care professionals.	- Discussion - Self Learning - Presentation -Seminars	-Research -Discussion. - Group work
d2	Communicate effectively using appropriate scientific language orally and in writing.	- Discussion - Self Learning - Presentation -Seminars	-Research -Discussion. - Medical reports

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Introduction to Medical Parasitology**	Definition, purpose, philosophy,organization and classification.	1	2	a1-2, b1-2
2	**Hexapoda** **Diptera**	Morphology, taxonomy, biology and control.	1	2	a1-2, b1-2, c1

		Diseases transmitted by mosquitoes.			
3	**Hexapoda** Diptera	Sand fly and black fly. Muscidae, Calliphoridae, Oestridae..	1	2	a1-2, b1-2, c1-2
4	**Myiasis**	Definition Taxonomy Diagnosis and managments	1	2	a1-2, b1-2, c1-2
5	**Anoplura , Hemiptera & siphonaptera**	Morphology, taxonomy, biology and control. Diseases transmitted.	1	2	a1-2, b1-2, c1-2
6	**Octapoda**	Morphology, taxonomy, biology and control of scorpions. Medical importance.	1	2	a1-2, b1-2, c1
7	**MIDTERM EXAM**		1	2	a1-2, b1-2
8	**Sarcodina**	Introduction, Taxonomy of amoeba and amoebic dysentery.	1	2	a1-2, b1-2
9	**Mastigophora**	Introduction, Taxonomy of flagellates. Intestinal & urogenital flagellates	1	2	a1-2, b1-2, c1-2
10	**Mastigophora**	Blood and tissues flagellates. Leishmaniosis	1	2	a1-2, b1-2, c1-2
11	**Apicomplexan**	Introduction, Taxonomy of sporozoa. Malaria.	1	2	a1-2, b1-2, c1-2
12	**Apicomplexan**	Malignant Malaria.	1	2	a1-2, b1-2, c1-2
13	**Apicomplexan**	Toxoplasmosis.	1	2	a1-2, b1-2, c1-2
14	**Apicomplexan**	Intestinal sporozoa.	1	2	a1-2, b1-2, c1
15	General Review	General Review	1	2	a1-2, b1-2

16	**Final Exam**	1	2	a1-2, b1-2, c1-2
Number of Weeks /and Units Per Semester		**16**	**32**	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Quality Control and Lab.Safety.**	**1**	**2**	a1-2, b1-2
2	**Diptera**	**2**	**4**	c1-2
3	**Diptera**	**1**	**2**	c1-2
4	**Anoplura, Hemiptera & siphonaptera**	**1**	**2**	c1-2
5	**Octapoda**	**1**	**2**	c1-2
6	**Midterm Exam.**	**1**	**2**	a1, c1-2
7	**Sarcodina**	**1**	**2**	c1-2
8	**Mastigophora**	**1**	**2**	c1-2
9	**Mastigophora**	**1**	**2**	c1-2
10	**Apicomplexan**	**2**	**4**	c1-2
11	**Apicomplexan**	**1**	**2**	c1-2
12	**General Review**	**1**	**2**	c1-2
13	**Final Exam.**	**1**	**2**	a1, c1-2
Number of Weeks /and Units Per Semester		**15**	**30**	

C. Tutorial Aspect:

No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	NONE			
2				

3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
Number of Weeks /and Units Per Semester		**14**	**28**	

V. Teaching Strategies of the Course:

Interactive Lectures
Discussion
Self-Learning
Presentation
Seminars
Brain storming
Laboratory demonstrations
Laboratory practice
Group discussion
Animations and videos

VI. Assessment Methods of the Course:

Quizzes Midterm

Exam Final Written

Exam Research

Group work

Oral discussion

Final practical Exam Assignments

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	**Assignment I :** Searching information about related subjects of Medical entomology.	4^{th} -10^{th}	5	b2
2	**Assignment II :** Parasitic diseases endemic in Yemen.	4^{th} -10^{th}	5	b2
Total			**5**	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	**Assignments**	4^{th} -10^{th}	5	5%	b2
2	**Quizzes**	5^{th} -12^{th}	5	5%	a1.2 , b1.2 , c1
3	**Mid-Term Theoretical Exam**	th	20	20 %	a1,a2, b1, 2
4	**Mid-Term Practical Exam**	7^{th}	10	10 %	a1, c1, 2
5	**Final Practical Exam**	15^{th}	10	10%	a1, c1-c2
6	**Final Theoretical Exam**	16^{th}	50	50 %	a1,a2, b1, 2
Total			**100**	**100%**	

IX. Learning Resources:

Written in the following order: Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): لائم example

1- Markell, E.K.; john, D.T. and Krotoski, W.A. (2012): Markell and Voge's Medical Parasitology, 10th edit. W.B. Saunders Co. Philadelphia, USA.

2- Essential References:

1. Peter. C et al. (2001): Atlas of Medical Helminthology and Protozoology,4th ed. Churchill Livingstone, Edin. UK.

3- Electronic Materials and Web Sites etc.:

Websites:

http://www.dof3tna.net/forum/archive/index.php/f-.html?s=b8129301264fff0e276c4c627238d4c6-

- www.abebooks.com

www.biosci.ohio-state.edu/^zoology/parasite/lifecycles.htm/

X. Course Policies: (Based on the Uniform Students' By law (2007) اهك كرنة يه

1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:**

	No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' By law (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

I. Course Identification and General Information:

1	**Course Title:**	Medical Bacteriology1			
2	**Course Code & Number:**	MB 1302			
3	**Credit Hours:**	**Credit Hours**	**Credit Hours:**		**Credit Hours**
			Lecture	**Exercise**	
		4	2		4
4	**Study Level/ Semester at which this Course is offered:**	Second year - First semester			
5	**Pre –Requisite (if any):**	Biology			
6	**Co –Requisite (if any):**	None			
7	**Program (s) in which the Course is Offered:**	Medical Laboratory Technician			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	Semester based system			
10	**Mode of Delivery:**	Full time			
11	**Location of Teaching the Course:**	Faculities of community			
12	**Prepared by:**	Dr Anwar Al-Medhagi			
13	**Date of Approval:**	9 /2021			

II. Course Description:

This course covers the principles of Medical Bacteriology, the general characteristics of microorganisms and classification of bacteria. . It focuses on giving the students practical skills to uses the different techniques and basic identification methods to isolate, identify the pathogenic bacteria and to perform sensitivity tests. Medical Bacteriology covers systemic pathogenic Gram positive bactria including acid fast bacilli

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)		Referenced PILOs (مخرجات تعلم البرنامج)	
H. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Demonstrate understanding of basic Biomedical Sciences in Laboratories	**A1**	Know all the basic information in medical laboratories
a2	Identify different biological sample collections, processing, storage transportation, and laboratory diagnosis by different tests.		. Know and understand all laboratory tests, their abbreviations, their importance, the method of taking them, and the interpretation of their results
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Use critical thinking and problems solving skills in laboratory diagnosis to make evidence-based decisions	**B1**	Review and critique manual laboratory processes that include patient preparation,
b2	Select appropriate specimen and technique for isolating the suspected pathogen	**B2**	Collect, treat, and analyze samples and interpret the results with high efficiency.
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Collect the required specimens carefully, transport and storage them in appropriate conditions	**C1**	Use advanced laboratory equipment effectively and responsibly with the application of quality systems.
c2	Perform various laboratory procedures including specimen processing, isolation, identification and susceptibility testing of pathogenic agents.	**C2**	Do laboratory experiments and scientific interpretation of the results of laboratory tests.
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Demonstrate ethical conduct with patients, colleagues and health care workers	**D1**	Respect patients, superiors and colleagues and maintain the privacy of transactions
d2	Work collaboratively and evaluate tram work in groups	**D2**	Spread the culture of teamwork among students and the need to adapt to scientific developments .scientific developments.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:		
Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**

a1	Demonstrate understanding of basic Biomedical Sciences in Laboratories	Lectures Presentation Discussion	MCQs Quiz
a2	Identify different biological sample collections, processing, storage transportation, and laboratory diagnosis by different tests.	Lectures Presentation Discussion	MCQs Quiz
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
b1	Use critical thinking and problems solving skills in laboratory diagnosis to make evidence-based decisions	Lectures Presentation Discussion	MCQs Quiz
b2	Select appropriate specimen and technique for isolating the suspected pathogen	Lectures Presentation Discussion	MCQs Quiz
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
c1	Collect the required specimens carefully, transport and storage them in appropriate conditions	Lectures Presentation Discussion	MCQs Quiz Practical report
c2	Perform various laboratory procedures including specimen processing, isolation, identification and susceptibility testing of pathogenic agents.	Lectures Presentation Discussion	MCQs Quiz Practical report
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
d1	Demonstrate ethical conduct with patients, colleagues and health care workers	Lectures Presentation Discussion	MCQs Quiz
d2	Work collaboratively and evaluate tram work in groups	Lectures Presentation Discussion	MCQs Quiz

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Principles of Medical Microbiology General characteristics of bacteria	–identification and classification of microorganisms – growth requirement of bacteria –identification of pathogenic bacteria –anti-bacterial sensitivity tests	2	4	a1,a2, b1, b2, d1, d2
2	**Gram positive cocci** **Staphylococci species**	-Staphylococcus aurous - Staphylococcus epidermidis -Staphylococcus saprophyticus	1	2	a1,a2, b1, b2, d1, d2
3	**- β-haemolytic** Streptococci	-Streptococcus pyogenes -Streptococcus agalactia -Streptococcus feacalus	2	4	a1,a2, b1, b2, d1, d2
4	**-α-haemolytic** Streptococci	-Streptococcus pneumonia -Streptococcus viridins	1	2	a1,a2, b1, b2, d1, d2
5	Corynebaceria	Corynebactrium diphtheriae	1	2	a1,a2, b1, b2, d1, d2
6	Mycobacteria	-Mycobacterium tuberculosis -Mycobacterium leprae	2	4	a1,a2, b1, b2, d1, d2
7	**Midterm exam**	**MCQs** **Practical report**	1	2	
8	**Listeria**	-Listeria monocytogens	1	2	a1,a2, b1, b2, d1, d2
9	Bacillus	Bacillus anthraces Bacillus cereus	1	2	a1,a2, b1, b2, d1, d2
10	Clostridia	Clostridium perfrengens Clostridium botulinum Clostridium tetanus Clostridium dificiles	1	2	a1, a2, b2 ,d1
11	Streptomyces	Nicordia Rickettsia Streptomyces	2	4	a1,a2, b1, b2, d1, d2
12	Final exam	-MCQs -Witting	1	2	a1, a2, b1 , b2 ,d1, c1, c2, d1, d2

Number of Weeks /and Units Per Semester	16	32	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Biosafety and control sterilization in laboratory**	1	4	a1, a2, b1,b2 c1-c3,d1
2	Culture and identification of Staphylococci	1	4	a1, a2, b1,b2 c1-c3,d1
3	Culture and identification of Streptococci	2	8	a1, a2, b1,b2 c1-c3,d1
4	Culture and identification of Corynebacteria	1	4	a1, a2, b1,b2 c1-c3,d1
5	Culture and identification of Listeria	1	4	a1, a2, b1,b2 c1-c3,d1
6	Med-Term Exam.	1	4	a1, a2, b1,b2 c1-c3,d1
7	Culture and identification of Mycobacteria	1	4	a1, a2, b1,b2 c1-c3,d1
8	Culture and identification of Bacillus	1	4	a1, a2, b1,b2 c1-c3,d1
9	Culture and identification of Clostridia	2	8	a1, a2, b1,b2 c1-c3,d1
10	Review	1	4	a1, a2, b1,b2 c1-c3,d1
11	Final Exam	1	4	a1, a2, b1,b2 c1-c3,d1
Number of Weeks /and Units Per Semester		15	30	

C. Tutorial Aspect:

No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1				
2				
3				
4				
Number of Weeks /and Units Per Semester		14	28	

V. Teaching Strategies of the Course:

Lectures
Presentation
Discussion

VI. Assessment Methods of the Course:

MCQs
Quiz
Practical report

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	**Assignments**	10th	**30**	5 %
2	Quiz	6th and 12th	**10**	5 %
3	**Mid-Term Theoretical Exam**	8th	**30**	10 %
	Mid-Term Practical Exam	9th	**20**	10%
	Final Practical Exam	15th	**30**	30%
	Final Theoretical Exam	16th	**70**	40 %
Total				

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): مثال example

1- Cheesbrough M (2009). District Laboratory Practice in Tropical Countries Part 2: SC.Parija, (2017), Textbook of Practical Microbiology, Ahuia publishing house, USA.

2- Essential References:

1- Abla M. El-Mishad, 2011: Manual of medical Microbiology & Immunology, Vol1,11ed.

1- 2. Kapil, (2013), Textbook of Microbiology, 9th edition, Orient Blackswan publisher, USA.Craig,

3- Electronic Materials and Web Sites etc.:

Websites:

- An Online Medical Dictionary

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي

1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
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6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

I. Course Identification and General Information:

1	**Course Title:**	**Pharmacology 1**			
2	**Course Code & Number:**				
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Field**	
		2	2	--	--
4	**Study Level/ Semester at which this Course is offered:**	3\2			
5	**Pre –Requisite (if any):**	None			
6	**Co –Requisite (if any):**	None			
7	**Program (s) in which the Course is Offered:**				
8	**Language of Teaching the Course:**	English			
9	**Study System:**	Semester Based System			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**				
12	**Prepared by:**				
13	**Date of Approval:**				

II. Course Description:

Pharmacology is designed to prepare the students integrates comprehensive knowledge of pharmacology to formulate a treatment plan intended to mitigate emergencies and improve the overall health of the patient. This course will give an overview of pharmacology, including historical trends in pharmacology, general properties of drugs, mechanisms of drug action, drug profiles and special considerations in drug therapy, drugs that affect cardiovascular, nervous, blood and respiratory system.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)

A. Knowledge and Understanding: Upon successful completion of the course, students will be able to:

a1	Recognize the four types of drug names, and the factors that influence drug absorption, distribution, and elimination.	**A1**	

a2	Identify drugs that affect the blood, cardiovascular, respiratory system, and mention special considerations for administering pharmacologic agents to pregnant patients, pediatric patients, and older patients.	**A3**	
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Differentiate between characteristics of routes of drug administration	**B2**	
b2	Distinguish among drug forms, respiratory depressants and cough suppressants	**B3**	
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Explain variables that can influence drug interactions	**C1**	
c2	Mention drug actions and care considerations when administering drugs for the nervous, cardiovascular, respiratory, endocrine, and gastrointestinal systems.	**C2**	
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Communicate with the patient and his family effectively in professional manner using the principles of communication techniques	D1	
d2	Discuss the legal and ethical issues that arise in the emergency care setting.	D3	

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
<u>Course</u> Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
a1	Recognize the four types of drug names, and the factors that influence drug absorption, distribution, and elimination.	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations
a2	Identify drugs that affect the blood, cardiovascular, respiratory system, and mention special considerations for administering pharmacologic agents to pregnant patients,	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations

	pediatric patients, and older patients.	▪ Small group for discussing	
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
b1	Differentiate between characteristics of routes of drug administration	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
b2	Distinguish among drug forms, respiratory depressants and cough suppressants	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
c1	Explain variables that can influence drug interactions	▪ Active learning, ▪ Small group learning. ▪ Learning tasks and activities	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
c2	Mention drug actions and care considerations when administering drugs for the nervous, cardiovascular, respiratory, endocrine, and gastrointestinal systems.	▪ Active learning, ▪ Small group learning. ▪ Learning tasks and activities	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
d1	Communicate with the patient and his family effectively in professional manner using the principles of communication techniques	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities

d2	Discuss the legal and ethical issues that arise in the emergency care setting.	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Historical Trends in Pharmacology**	▪ History of drug o Ancient and modern health care ▪ **Drug Names** o Chemical name o Generic name o Trade name o Official name ▪ Sources of Drug information ▪ Drug Standards and Legislation ▪ Drug Regulatory Agencies	1	2	a1,
2	**General properties of Drugs**	▪ Pharmacologic Terminology ▪ Pharmaceutical Phase ▪ Pharmacokinetic Phase o Drug Absorption o Routes of Drug Administration o Excretion o Biotransformation o Excretion o Factors That Influence the Action of Drugs ▪ Pharmacodynamic Phase o Drug–Receptor Interaction o Drug-Response Assessment o Biologic Half-Life o Therapeutic Index	1	2	a1, b1
3	**Mechanisms of drug action and considerations in drug therapy**	**General Properties of Drugs** o Introduction o Pharmaceutical Phase o Pharmacokinetic Phase	1	2	a1, b1, c1, d1

		○ Routes of Drug Administration ○ Parenteral Route (by injection) ○ Pulmonary Route ○ Topical Route ○ Drug Distribution ○ Pharmaco-dynamic Phase **Drug Interactions** ○ Variables that Influence Drug Interaction ○ Drug-Drug Interactions ○ Other Factors that can Influence Drug Interactions **Drug Storage** ○ Certain Precepts Should Guide the Manner in which Drugs are Secured, Stored, Distributed, and Accounted For ○ Factors that Affect Drug Potency ○ Applies also to Diluents ○ Security of Controlled Medications			
4	**Drugs That Affect the Nervous System**	▪ Autonomic Division of Peripheral Nervous System ▪ Neurochemical Transmission ▪ Transmission of Nerve Impulses in the Autonomic Nervous System ▪ Drugs That Affect the Autonomic Nervous System ○ Classifications ▪ Narcotic Analgesics and Antagonists ▪ Non-narcotic Analgesics ▪ Anesthetics ▪ Antianxiety and Sedative-Hypnotic Agents and Alcohol	3	6	a1, c1, d1

		○ Classifications ▪ Alcohol Intake and Behavioral Effects ▪ Anticonvulsants ▪ CNS Stimulants ○ Anorexiants ○ Amphetamines ▪ Psychotherapeutic Drugs ○ CNS and Emotions ○ Antipsychotic Agents ○ Antidepressants ▪ Drugs for Specific CNS–Neuromuscular Dysfunction ○ Parkinson Disease ○ Huntington Disease ▪ Drugs With Central Anticholinergic Activity ▪ Drugs That Affect Dopamine in the Brain ○ Monoamine Oxidase Inhibitors ▪ Skeletal Muscle Relaxants ○ Central-Acting Muscle Relaxants ○ Direct-Acting Muscle Relaxants ○ Neuromuscular Blockers			
5	**Midterm exam**	**Midterm exam**	1	2	a1, b1, c1, d1
6	**Drug Profiles**	**Drug Profiles and Special Considerations in Drug Therapy** ○ The Paramedic should be Familiar with the Drug Profiles of any Drug that He or She Administers ○ Components of a Drug Profile ○ Special Considerations in Drug Therapy ▪ **Various Forms of Drug Preparations** ▪ **Special Considerations in Drug Therapy** ○ Pregnant Patients ○ Pediatric Patients	2	4	a2, b2, c2, d2

		○ Older Adult Patients			
7	**Drugs That Affect the Cardiovascular System**	▪ Review of Anatomy and Physiology ▪ Cardiac Glycosides ▪ Antidysrhythmics ○ Classifications ▪ Antihypertensives ○ Classifications	2	4	a2, c2, d2
8	**Drugs That Affect the Blood**	▪ Anticoagulants ▪ Antihemophilic Agents ▪ Hemostatic Agents ▪ Hemorrhagic Agents ▪ Antifibrinolytic Agents ▪ Blood and Blood Components ▪ Antihyperlipidemic Drugs	2	4	a2, c2, d2
9	**Drugs That Affect the Respiratory System**	▪ Review of Anatomy and Physiology ▪ **Bronchodilators** ○ Sympathomimetic Drugs ○ Anticholinergic Bronchodilator ○ Xanthine Derivatives ○ Other Respiratory Drugs ▪ **Mucokinetic Drugs** ▪ **Oxygen and Other Respiratory Agents** ○ Direct Respiratory Stimulants ○ Reflex Respiratory Stimulants ○ Respiratory Depressants ○ Cough Suppressants ○ Antihistamines ○ Serotonin ○ Selective Serotonin Reuptake Inhibitors ○ Antiserotonins	2	4	a2, b2, c2, d2
	Final term exam	**Final term exam**	1	2	a2, b2, c2, d2
Number of Weeks /and Units Per Semester			**16**	**32**	

V. Teaching Strategies of the Course:

- Interactive lecture

- Seminars and student presentations
- Brain storming
- Role-play and simulation
- Small group discussion
- Learning tasks and activities
- Problems solving
- Case study analysis

VI. Assessment Methods of the Course:

- Assignments
- Quizzes
- Mid-term exam
- Final term exam

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	**Assignment 1: common abbreviations**	W5	**5**	a1, b1
2	**Assignment 2: drug classification**	W11	5	a2, b2,
Total			**10**	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	**Assignments**	W5,11	10	10%	a1, b1, a2, b2
2	**Quizzes 1 & 2**	W3, 9	10	10%	a1, a2
3	**Mid-Term Theoretical Exam**	W7	20	20%	a1, b1, c1, d1
4	**Final Theoretical Exam**	W16	60	60%	a2, b2, c2, d2
Total			**100**	**100%**	

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): مثال example

1. Robert J. Kizior R., and Hodgson K., (2019). Saunders Nursing Drug Handbook. 27th Ed. Saunders Nursing Drug Handbook, St. Louis, Missouri
2. Watkins C., (2018). Pharmacology clear & simple: a guide to drug classifications and dosage calculations. 3rd Ed. Davis Company,

2- Essential References:

1. Burchum J., and Rosenthal L., (2019).Lehne's Pharmacology for Nursing Care. 10th Ed., Elsevier Inc. St. Louis, Missouri
2. Bryant B., & Knights K., (2015). Pharmacology For Health Professionals. 4th Ed. Elsevier Australia.

3- Electronic Materials and Web Sites etc.:

Websites:

- American Journal of Emergency Medicine
- Annals of Emergency Medicine
- Journal of Emergency Medicine
- Journal of Trauma and Acute Care Surgery
- Prehospital Emergency Care

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي

1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
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4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
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I. Course Identification and General Information:					
1	**Course Title:**	**Biochemistry2**			
2	**Course Code & Number:**	**BC 2307**			
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		3	2	0	2
4	**Study Level/ Semester at which this Course is offered:**	**Second Year: First Semester**			
5	**Pre –Requisite (if any):**	Biochemistry 1			
6	**Co –Requisite (if any):**	None			
7	**Program (s) in which the Course is Offered:**	Diploma in Medical Laboratory Technology (DMLT)			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	Credit Hour System- Semester			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**	CC Campus(Public and private community colleges)			
12	**Prepared by:**	Prof. Ali Al-Miri			
13	**Date of Approval:**				

II. Course Description:
This course provides an overview of the main aspects about study of structural Formula, Digestions, absorption metabolism of carbohydrate, lipids, proteins, nucleic, body fluids acid and diseases of metabolic abnormalities.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)	Referenced PILOs (مخرجات تعلم البرنامج)
I. Knowledge and Understanding: Upon successful completion of the course, students will be able to:	

a1	Define the metabolic pathways of carbohydrates, lipids, proteins, nucleotides .	**A1**	Know all the fundamental information in medical laboratories.
a2	Illustrate the steps and regulatory mechanisms of these pathways.	**A4**	Understand the specialized laboratory materials, theoretically and practically, in line with advanced scientific progress.
a3	Point out the related metabolic disorders and their clinical prints on biochemical and molecular basis.	**A5**	Know and understand all laboratory tests, their abbreviations, their importance, the method of taking them, and the interpretation of their results.
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Describe micronutrients, their biochemical, clinical and laboratory importance and deficiency manifestations of each.	**B2**	Review and critique manual laboratory processes that include patient preparation, sample requirements, solutions preparation, examination procedures, calculation of results and quality assurance.
b2	Describe the of some body fluids; viz. blood, urine, milk, Semen, CSF and sweat.	**B6**	Collect, treat, and analyze samples and interpret the results with high efficiency.
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Collect, transport, preserve and store blood samples according to Standard Operating Procedures (SOPs).	**C1**	Collect samples from patients in a safe professional manner.
c2	Use the instrument and devices in biochemistry lab.	**C3**	Use advanced laboratory equipment effectively and responsibly with the application of quality systems.
c3	Perform some basic chemical testes to identify different sugars, lipids and proteins.	**C4**	Perform laboratory experiments and scientific interpretation of the results of laboratory tests.
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Work independently or as a team member and effectively communicate with the	**D1**	Work as a team.

	teaching hematology staff and colleagues to identify, analyze and understand emerging issues.		
		D2	Respect patients, colleagues, and superiors and maintain the privacy of patient information.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
a1	Define the metabolic pathways of carbohydrates, lipids, proteins, nucleotides .	-Interactive Lectures - Group Discussion - Self study	- Quizzes - Assignments & Homework - Mid-semester exam -Final exams
a2	Illustrate the steps and regulatory mechanisms of these pathways.	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
a3	Point out the related metabolic disorders and their clinical prints on biochemical and molecular basis.	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
b1	Describe micronutrients, their biochemical, clinical and laboratory importance and deficiency manifestations of each.	- Interactive Lectures - Seminars -Oral presentations	- Quizzes - Assignments - Mid semester exam -Final exams
b2	Describe the of some body fluids; viz. blood, urine, milk, Semen, CSF and sweat.	- Interactive Lectures - Self-learning - Brain storming	- Quizzes - Assignments -Midterm Exam -Final Exam
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
c1	Collect, transport, preserve and store blood samples according to Standard Operating Procedures (SOPs).	- Demonstrations -Group discussion	-Quizzes - Mid semester exam -Final exams

c2	Use the instrument and devices in biochemistry lab.	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam -Final exam
c3	Perform some basic chemical testes to identify different sugars, lipids and proteins.	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam - -Final exam

(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Work independently or as a team member and effectively communicate with the teaching hematology staff and colleagues to identify, analyze and understand emerging issues.	- Presentations - Group discussions & seminars -Self-study modules	- Write reports -Write Exercises & solving it. - Assignments &Homework

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Carbohydrate Metabolism**	-Digestion and absorption carbohydrates &fate -Absorption -Absorption types(active , passive and, facillated) -outline of fate glucose -Glycolysis(purpose, site, pathway ,key enzyme) -Krebs cycle(purpose, site, pathway ,key enzyme) -Gluconogensis purpose, site, pathway ,key enzyme(synthesis of glucose from glycerol ,lactate, amino acids	4	8	al, a2,b1,b2

		-Pentose phosphate important glycogen metabolism			
2	**Lipid Metabolism**	-Definition -Digestion and absorption lipids -Energy production (B oxidation, -ketone bodes , Cholesterol, Triacylglycerol. sources &fate.	3	6	a1-a3, b1 ,b2,c1-c3,d1
3	**Midterm exam**	MCQs, matching, short-answer,…etc.	1	2	a1,a2,a3 b1,b2
3	**Proteins Metabolism**	-Digestion and absorption protein -Transamination -Deamination -Amonia Urea cycle -Metabolic of some important amino acid outline (Tyrosine ,phenylalanine, Tryptophan)	2	6	a1,a2, a3,b1 ,b2,c1-c3,d1
4	**Urea cycle**	-Definition - urea cycle	2	4	a1,a2, a3,b1 ,b2,c1-c3,d1
6	**Endocrinology**	Endocrinology Hormones -Definition -Classification chemically -Thyroid effect metabolism, disorder ,clinical diagnosis -Pituitary name of hormone ,control of other glands, ,disorders -Adrenal ,name of hormone, cortisone sources, disorder -Sex hormone name ,source disorder	2	4	a1,a2, a3,b1 ,b2,c1-c3,d1
9	**Review**		1	2	a1,a2, a3,b1 ,b2,c1-c3,d1

10	**Final exam**	-Fill in the blank, MCQs, matching, short-answer and short essay questions.	1	2	a1-a3, b1 ,b2,c1-c3,
Number of Weeks /and Units Per Semester			**16**	**32**	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	- Sample collection -Principles of spectrophotometer -Blank, stander. sample -Calculation -Unites of result	3	6	a1, a2, b1,b2 c1-c3,d1
	- Estimation of blood Glucose test	1	2	
2	Stander curve	2	4	a1, a2, b1,b2 c1-c3,d1
4	**- Med-Term Exam.**	1	2	c1-c3,d1
5	Factor affecting enzyme 1-Temp 2-Time 3-Substrate conc. 4-Enzyme conc. -inhibition of enzyme	3	6	a1, a2, b1,b2 c1-c3,d1
	Estimation lipid profile - Total chole sterol - Triglycerides - HDL / LDL / VLDL	2	4	
6	Estimation of total proteins	2	4	a1, a2, b1,b2 c1-c3,d1
7	**Review**	1	2	a1, a2, b1,b2 c1-c3,d1
8	**Final Exam**	1	2	a1, a2,a3 b1,b2 c1-c3
Number of Weeks /and Units Per Semester		15	30	

V. Teaching strategies of the course:

- Interactive Lectures
- Dialogue and Discussion
- Self-Learning
- Presentation
- Seminars
- Brain storming
- Group discussion
- Analyzing , Reporting the results
- Lab. logbook and report
- Practical Training

VI. Assessment Methods of the Course:

- Quizzes
- Midterm Exam
- Final Written Exam
- Final Practical Exam
- Lab. logbook and reports
- Assignments &Homework
- Group work
- Oral discussion

VII. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	**Assignment :** Searching information about related subjects of **fundamentals of biochemistry** in Medical Laboratory Technology	d1	3-13th	5
	TOTAL			**5**

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	**Assignments**	3-13th	5	5 %	d1

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
2	**Quiz**	6th	5	5 %	a1,a2, a3 b1,b2
	Mid-Term Practical Exam	8th	10	10 %	c1-c3,d1
3	**Mid-Term Theoretical Exam**	7th	10	10 %	a1,a2, a3 b1,b2
4	**Logbook(Practical report)**	weekly	10	10%	c1-c3
5	**Final Practical Exam**	15th	20	20%	a1,a2, a3,b1 ,b2,c1-c3
6	**Final Theoretical Exam**	16th	40	40 %	a1,a2, a3,b1 ,b2,c1-c3
Total			**100**	**100%**	

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, Title, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two):

1 -Victor W. Rodwell, David A. Bender, Kathleen M. Botham, Peter J. Kennelly, P. Anthony Weil, (2018), **Harper's Illustrated Biochemistry 31th** edition, New York : Mcgraw-Hill Education,

2- R. A. Harvey PhD, D. R. Ferrier P. C. Champe (2018), **Biochemistry** (Lippincott's Illustrated Reviews Scries), 8th edition, Lippincott Williams & Wilkins, USA.

2- Essential References:

3- Rifai, Nader, Andrea R. Horvath and Carl T. Wittwer(2019). Tietz **Fundamentals of Clinical Chemistry and Molecular Diagnostics**. 8 th ed. St. Louis, Elsevier,. (NEW EDITION)

4- MN Chatterjea, Rana shinde (2013), **Medical Biochemistry**, 8th edition, Jitendra P Vij, Panama.

3- Electronic Materials and Web Sites etc.:

Websites:

1--https://www.biochemistrv.org/

2. www.biochemi.org/bi/default.htm

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي	
1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' By law (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

I. Course Identification and General Information:		
1	**Course Title:**	Immunology & Serology

2	**Course Code & Number:**	IS 2309			
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		3	2	0	2
4	**Study Level/ Semester at which this Course is offered:**	**Second Year: First Semester**			
5	**Pre –Requisite (if any):**	Physiology, anatomy, histology, biochemistry			
6	**Co –Requisite (if any):**	Microbiology, parasitology			
7	**Program (s) in which the Course is Offered:**	Diploma of Medical Laboratory Technician			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	Credit Hour System			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**	CC Campus			
12	**Prepared by:**	Dr. Jamil M.A.S. Obaid			
13	**Date of Approval:**				

II. Course Description:

Immunology & serology course study the constituents, mechanisms and disorders of immune responses in addition to serological diagnosis of microbial infections. The curriculum include origin of immune cells, innate and adaptive immune responses, hypersensitivity, tolerance and autoimmunity, immunodeficiency as well as the topics of serological principles and diagnosis for bacterial and viral infections. This course focus on the basic principles of immune response to foreign and the laboratory immunological investigations of immune and immune0related disease.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)		**Referenced PILOs (مخرجات تعلم البرنامج)**	
J. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Demonstrate knowledge on immunological tools, mechanisms and the disorders of immune system	**A4**	Understand the specialized laboratory materials, theoretically and practically, in line with advanced scientific progress.

a2	Identify the principles of serological diagnosis and some applications in microbial infection diagnosis with correct interpretation.	**A5**	Know and understand all laboratory tests, their abbreviations, their importance, the method of taking them, and the interpretation of their results
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Predict the suitable immune response for any situation and select the suitable diagnostic methods, and apply that in seminars or research preparation and presentation	**B3**	Prepare and present seminars for students, medical team and the community.
b2	Read and interpret the majority of serological laboratory analyses	**B1**	Interpret the results of various laboratory tests.
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Collect, prepare the correct sample for all immunological investigations in safe manner	**C1**	Collect samples from patients in a safe professional manner.
c2	Conduct the most popular and advanced immunological test using different techniques	**C4**	Perform laboratory experiments and scientific interpretation of the results of laboratory tests.
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Work effectively as a member of team and be active in debates and during contribution in long-life learning.	**D1**	Work as a team.
d2	Respect patients, superiors, colleagues and any other members of the health worker.	**D2**	Respect patients, colleagues, and superiors and maintain the privacy of patient information.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
a1	Demonstrate knowledge on immunological tools, mechanisms and the disorders of immune system	– Interactive Lectures – Dialogue and Discussion – Self-Learning – Presentation – Seminars – Brain storming – Animations – Scenarios and Problem Solving	– Quizzes – Midterm Exam – Final Written Exam – Assignments &Homework – Group work – Oral discussion

a2	Identify the principles of serological diagnosis and some applications in microbial infection diagnosis with correct interpretation.	– Interactive Lectures – Self-Learning – Presentation – Seminars – Group discussion – Animations – Scenarios and Problem Solving	– Quizzes – Midterm Exam – Final Written Exam – Group work – Oral discussion
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
b1	Predict the suitable immune response for any situation and select the suitable diagnostic methods, and apply that in seminars or research preparation and presentation	– Interactive Lectures – Dialogue and Discussion – Self-Learning – Presentation – Seminars – Brain storming – Group discussion – Scenarios and Problem Solving	– Quizzes – Midterm Exam – Final Written Exam – Assignments &Homework – Group work – Oral discussion
b2	Read and interpret the majority of serological laboratory analyses	– Dialogue and Discussion – Presentation – Brain storming – Group discussion – Animations – Scenarios and Problem Solving	– Quizzes – Midterm Exam – Final Written Exam – Assignments &Homework – Group work
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
c1	Collect, prepare the correct sample for all immunological investigations in safe manner	– Interactive Lectures – Dialogue and Discussion – Group discussion	– Group work – Oral discussion – Practical exams

c2	Conduct the most popular and advanced immunological test using different techniques	– Interactive Lectures – Dialogue and Discussion – Group discussion – Animations – Scenarios and Problem Solving	– Group work – Oral discussion – Practical exams

(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:

	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
d1	Work effectively as a member of team and be active in debates and during contribution in long-life learning.	– Interactive Lectures – Dialogue and Discussion – Self-Learning – Presentation – Seminars – Brain storming – Group discussion – Scenarios and Problem Solving	– Assignments &Homework – Group work – Oral discussion
d2	Respect patients, superiors, colleagues and any other members of the health worker.	– Interactive Lectures – Dialogue and Discussion – Seminars – Group discussion	– Assignments &Homework – Group work – Oral discussion

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Overview of immune system**	– Cells and organs of immune system – Divisions: Innate vs adaptive, humoral vs cell mediated	1	2	a1, b1, d1

2	**Innate immunity**	– Mechanisms of innate response; mechanical, physical, chemical and cellular – Phagocytosis	1	2	a1, b1, d1
3	**Antigen**	– Antigen, immunogen and epitope – Factors affecting immunogenicity – B cell antigens – T cell antigens – Microbial and autoantigens	1	2	a1, b1, d1
4	**Humoral immunity**	– B cell surface molecules and activation – Antibody structure and functions – Isotypes of antibodies – Heterophil antibodies – Monoclonal antbodies – Primary and secondary immune response	2	4	a1, b1, d1
5	**Cellular immune response**	– Antigen presentation principles – Antigen presenting cells – T cell surface molecules – T cell activation – T cells subsets	1	2	a1, b1, d1
6	**Midterm exam**	– Midterm exam	1	2	a1, b1, d2
7	**Complements**	– Definitions – Activation Pathways and mechanisms – Lytic pathway and MAC. – Biological Functions.	1	2	a1, b1, d1
8	**Antigen antibody interaction**	– Affinity and avidity – Cross reaction – Sensitivity and specificity – Titer and prozone phenomenon – serconversion	1	2	a1, a2, b1, b2, c1, d1
9	**Hypersensitivity reactions**	– Type I mechanism and diagnosis – Types II, III and IV mechanisms and examples	2	4	a1, a2, b1, b2, c1, d1
10	**Immune tolerance and Autoimmunity**	– Central and peripheral tolerance – Definition and classification of autoimmune diseases – SLE pathogenicity and diagnosis	1	2	a1, b1, c1, d1
11	**Bacterial serological diagnosis**	– Widal test significance and interpretation – Brucella tests – RPR and other syphilis diagnostic tests – Wiel- Felix reaction	1	2	a2, b1, b2, c1, d1

12	**Viral serological diagnosis**	– Viral hepatitis diagnosis HBV and HCV (tests interpertation) – HIV diagnosis – Viral specific IgG and IgM tests interpretation – TORCH testing	1	2	a2, b1, b2, c1, d1
13	**Immunodeficie-ncy and immunoprophy-laxis**	– Immunodeficiency definition, types and clinical features – Immunoprophylaxis (active and passive) – Vaccine types	1	2	a1, b1, d1
14	**Final examination**		1	2	a1, a2, b1, b2, d2
Number of Weeks /and Units Per Semester			**16**	**32**	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Laboratory safety and handling of infected sera.	1	2	a1, a2, b2, c1, d1, d2
2	ASO, CRP and RF	2	4	a2, b1, b2, c1, c2, d1, d2
3	Widal test	1	2	a2, b1, b2, c1, c2, d1, d2
4	Pregnancy test in serum and urine	1	2	a2, b1, b2, c1, c2, d1, d2
5	RPR	1	2	a2, b1, b2, c1, c2, d1, d2
6	Immunochromatography antibody assay (HIV, HCV, and H. pylori)	1	2	a2, b1, b2, c1, c2, d1, d2
7	**Med-Term Exam.**	1	2	a1, a2, b1, b2, c1, c2, , d2
8	Immunochromatography antigen assay (HBV, H. pylori)	2	4	a2, b1, b2, c1, c2, d1, d2

9	Enzyme linked immune sorbent assay (ELISA)	1	2	a2, b1, b2, c1, c2, d1, d2
10	Skin prick test for hypersensititivity type I	1	2	a1, a2, b1, b2, c1, c2, d1, d2
11	Tuberculin test for hypersensitivity type IV	1	2	a1, b1, b2, c1, c2, d1, d2
12	Revision	1	2	a1, a2, b1, b2, c1, c2, d1, d2
13	**Final Exam**	1	2	a1, a2, b1, b2, c1, c2, , d2
Number of Weeks /and Units Per Semester		15	30	

V. Teaching strategies of the course:

- Interactive Lectures
- Dialogue and Discussion
- Self-Learning
- Presentation
- Seminars
- Brain storming
- Group discussion
- Animations
- Scenarios and Problem Solving

VI.Assessment Methods of the Course:

- Quizzes
- Midterm Exam
- Final Written Exam
- Assignments &Homework
- Group work
- Oral discussion

VII.Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	**Assignment :** Searching information about related subjects of clinical immunology	a1, b1, d1, d2	3-13th	10
	TOTAL			**10**

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignments	3-13th	10	20%	a1, b1, d1, d2
2	Quiz 1& Quiz 2	6th &12th	5	10%	a1, a2, b1, b2,
3	Mid Semester Exam	7th	10	20%	a1, b1, d2
5	Final Exam	16th	25	50%	a1, a2, b1, b2, d2
	Total		**50**	**100%**	

IX .Learning Resources:

- Written in the following order: (Author – Year of publication – Title – Edition – Place of publication – Publisher).

1 - Required Textbook(s) (maximum two).

1. Turgeon ML. Immunology & Serology In Laboratory Medicine. 2014, by Mosby, an imprint of Elsevier Inc.
2. Playfair JHL. Chain BM. Immunology at a Glance, tenth edition. 2021. Blackwell Science Ltd. United Kingdom

1. Richard A. Goldsby, Barbara A. Osborne, Thomas J. Kindt, Janis Kuby (2019). Kuby immunology. 8th ed. W H Freeman & Company.
2. Coico R, Sunshine G, 2015, Immunology. 7th, John Wiley & Sons inc. Hoboken, New Jersy. USA.
3. Chapel H, Haeney B, Misbah S, Snowden N, (2014) Essentials of Clinical Immunology, 6th ed. by John Wiley & Sons, Ltd, UK.

3- Electronic Materials and Web Sites etc.

1. International Union of Immunlogical Societies
www.iuis.org/
2. Immunopaedia: educational website.
www.immunopaedia.org.za/
3. Immunology Videos
https://www.immunology.utoronto.ca/immunology-videos
4. The British Society for Allergy & Clinical Immunology (BSACI)
www.bsaci.org/

5. National institute of allergy and infectious diseases
https://www.niaid.nih.gov/
6. The American College of Allergy, Asthma and Immunology
https://college.acaai.org/
7. British Society for Allergy & Clinical Immunology
www.BSACI.org
8. European Academy of Allergy & Clinical Immunology
www.eaaci.org
9. European Society for Immunodeficiencies
www.esid.org

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي	
1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' By law (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

I. Course Identification and General Information:					
1	**Course Title:**	Hematology 1			
2	**Course Code & Number:**	**He 2310**			
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		3	2	0	2
4	**Study Level/ Semester at which this Course is offered:**	**Second Year: First Semester**			
5	**Pre –Requisite (if any):**	Biology			
6	**Co –Requisite (if any):**	None			
7	**Program (s) in which the Course is Offered:**	Diploma in Medical Laboratory Technology (DMLT)			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	Credit Hour System- Semester			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**	CC Campus(Public and private community colleges)			
12	**Prepared by:**	Prof.Dr. Lutfi A.S. Al-Maktari			
13	**Date of Approval:**				

II. Course Description:

This course aims to provide the student with the fundamentals of hematology, Introduces hematopoiesis, the origin and maturation of the various types of blood cell lines with emphasis on the erythropoiesis , Leucopoiesis thrombopoiesis and its functions. The course includes study and analysis of hemoglobin, hematocrit, erythrocytic sedimentation rate and blood cell counts. Emphasizes cell identification, cell differentiation and blood cell morphology. Presents anemias and their classifications based on red blood cell morphology and etiology. The practical part includes studying blood collection and separation, anticoagulants, blood cell counts, hemoglobin estimation, blood film preparation and staining, and normal morphology of blood cells on blood film.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)	Referenced PILOs (مخرجات تعلم البرنامج)
K. Knowledge and Understanding: Upon successful completion of the course, students will be able to:	

a1	Demonstrate an understanding of fundamental knowledge of hematology.	**A1**	Know all the fundamental information in medical laboratories.
a2	Outline the hemoglobin biosynthesis, types of polypeptide chains, how and when developed each type of Hb and Describe the Nutritional Factors in Production, Function and energy metabolism of erythrocyte (RBC) and types of anemia.	**A4**	Understand the specialized laboratory materials, theoretically and practically, in line with advanced scientific progress.
a3	Demonstrate understanding of the principles and procedures of routine Hematological laboratory investigation.	**A5**	Know and understand all laboratory tests, their abbreviations, their importance, the method of taking them, and the interpretation of their results.
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Critically analyze and solve issues related to the diagnosis of red cell disorders in the context of anemia .	**B2**	Review and critique manual laboratory processes that include patient preparation, sample requirements, solutions preparation, examination procedures, calculation of results and quality assurance.
b2	Recognize and differentiate between normal and abnormal RBC morphology using staining techniques and other formed elements.	**B6**	Collect, treat, and analyze samples and interpret the results with high efficiency.
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Collect, transport, preserve and store blood samples according to Standard Operating Procedures (SOPs).	**C1**	Collect samples from patients in a safe professional manner.
c2	Perform routine hematological tests used in the diagnosis of anemia and be able to, interpret the red cell indices in the reports of Manual and automated hematology analyzers(if applicable).	**C3**	Use advanced laboratory equipment effectively and responsibly with the application of quality systems.
c3	Examine peripheral smears for normal and abnormal red cell morphology to diagnose different types of anemia.	**C4**	Perform laboratory experiments and scientific interpretation of the results of laboratory tests.
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Work independently or as a team member and effectively communicate with the	**D1**	Work as a team.

	teaching hematology staff and colleagues to identify, analyze and understand emerging issues.		
		D2	Respect patients, colleagues, and superiors and maintain the privacy of patient information.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
a1	Demonstrate an understanding of fundamental knowledge of hematology.	-Interactive Lectures - Group Discussion - Self study	- Quizzes - Assignments & Homework - Mid-semester exam -Final exams
a2	Outline the hemoglobin biosynthesis, types of polypeptide chains, how and when developed each type of Hb and Describe the Nutritional Factors in Production, Function and energy metabolism of erythrocyte (RBC) and types of anemia and polycythemia.	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
a3	Demonstrate understanding of the principles and procedures of routine Hematological laboratory investigation.	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
b1	Critically analyze and solve issues related to the diagnosis of red cell disorders in the context of anemia .	- Interactive Lectures - Seminars -Oral presentations	- Quizzes - Assignments - Mid semester exam -Final exams
b2	Recognize and differentiate between normal and abnormal RBC morphology using staining techniques and other formed elements.	- Interactive Lectures - Self-learning - Brain storming	- Quizzes - Assignments -Midterm Exam -Final Exam
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**

c1	Collect, transport, preserve and store blood samples according to Standard Operating Procedures (SOPs).	- Demonstrations -Group discussion	-Quizzes - Mid semester exam -Final exams
c2	Perform routine hematological tests used in the diagnosis of anemia and be able to, interpret the red cell indices in the reports of Manual and automated hematology analyzers(if applicable).	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam -Final exam
c3	Examine peripheral smears for normal and abnormal red cell morphology to diagnose different types of anemia.	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam - -Final exam
	(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:		
	Course Intended Learning Outcomes	Teaching Strategies	**Assessment Strategies**
d1	Work independently or as a team member and effectively communicate with the teaching hematology staff and colleagues to identify, analyze and understand emerging issues.	- Presentations - Group discussions & seminars -Self-study modules	- Write reports -Write Exercises & solving it. - Assignments &Homework

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Introduction to Hematology**	- Definition of blood ,hematology and hematopoiesis - Physical Characteristics of Blood - Composition of Blood, types of cells and functions - Definition and separation of plasma and serum	1	2	al, a2,b1,b2
2	**Origin & Development of Blood Cells**	**Hematopoiesis:** - Definition, organs, functions, tissue and sites of hemopoeisis	1	2	a1,a2, b1 ,b2,c1-c3,d1

		- Hemopoietic stem and progenitor cells - - BM structure and stroma - Hemopoiesis and hemopoietic growth factors -Characteristic features of normal cell maturation.			
3	**Erythropoiesis**	Substances for erythroid Characteristics of each maturation step, control of erythroid production, RBC function, morphology and changes.	1	1	a1,a2, a3,b1 ,b2,c1-c3,d1
4	**Leucopoiesis**	-Granulopoiesis,, myelopoiesis, origin and development, characteristics, controlling of production and functions -Non-granulopoiesis (lymphopoiesis) maturation of lymphocytes, monocytes, plasma cells, characteristic of each series, life span, functions.	1	1	a1,a2, a3,b1 ,b2,c1-c3,d1
5	**Megakaryopoiesis** (Platelets production)	Megakaryopoiesis (Platelets production) production and regulation, characteristics, of each step, regulation and function	1	1	a1,a2, a3,b1 ,b2,c1-c3,d1
6	**Hemoglobin biosynthesis**	Hemoglobin Hemoglobin biosynthesis and break down Normal hemoglobin chains Hemoglobin pigments Physiological variation Hemoglobin estimation; colorimetric gasometric and iron content	1	1	a1,a2, a3,b1 ,b2,c1-c3,d1
7	**Midterm exam**	**MCQs**	1	2	a1,a2,a3 b1,b2
8	**Metabolism of Iron, Vitamin B12, folic acid**	**Metabolism of Iron, Vitamin B12, folic acid**	1	1	a1,a2, a3,b1 ,b2,c1-c3,d1
9	**Red blood cells disorders**	Blood film; thin and thick Blood film stains; leishman`s Giemsa and Jenner and Maygrunwald Abnormal red blood cell morphology	1	1	a1,a2, a3,b1 ,b2,c1-c3,d1
10	**Introduction to anemia**	-Introduction to anemia; definition, classification of anemia, causes, symptoms, importance -Iron deficiency .anemia, causes, clinical picture, laboratory finding	1	1	a1,a2, a3,b1 ,b2,c1-c3,d1

11	**Megaloblastic anemia and Non-megaloblastic anemia**	-Megaloblastic anemia, causes, clinical picture, laboratory findings, -Non-megaloblastic anemia Aplastic anemia, causes, clinical picture, lab. finding, Anemia of Chronic disease causes, clinical picture, lab. finding,	1	1	a1,a2, a3,b1 ,b2,c1-c3,d1
12	**Hemolytic anemia**	Hemolytic anemia Definition, classification, evidence of hemolysis, bone marrow regeneration Hemoglobinopathies Definition, special tests of haemoglobinopathies , electrophoresis method study of Hb structure	1	1	a1,a2, a3,b1 ,b2,c1-c3,d1
13	**Thalassemia and Sickle cell Disease**	Thalassemia Definition, classification, laboratory diagnosis Sickle cell Disease Definition, classification, types (Hbss, HbAS, and its combination) lab. Finding Others haemoglopinopathies	1	1	a1,a2, a3,b1 ,b2,c1-c3,d1
14	**Enzymatic RBC disorders**	Enzymatic RBC disorders G6PD Definition, classification, clinical picture ,Lab. diagnosis, RBC membrane disorders Heriditary spherocytosis Definition, clinical picture , lab finding, Heriditary Elleiptocytosis Definition, clinical picture , Lab finding	1	1	a1,a2, a3,b1 ,b2,c1-c3,d1
15	**Polycytheamia**	Polycytheamia Definition , causes , lab findings	1	2	a1,a2, a3,b1 ,b2,c1-c3,d1
16	**Final exam**	-Fill in the blank, MCQs, matching, short-answer and short essay questions.	1	1	a1,a2, b1 ,b2,c1,c2 ,
Number of Weeks /and Units Per Semester			**16**	**32**	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	-Biosafety procedures in laboratory practice -Anticoagulants preparation, use, mode of action	1	2	a1, a2, b1,b2 c1-c3,d1

	- Instruments and equipment in Hematology lab.			
2	-Venous and capillary blood collection - Blood separation, plasma and serum preparation	1	2	a1, a2, b1,b2 c1-c3,d1
3	-Hemoglobin (Hb) estimation - Packed cell volume (PCV) estimation - ESR	1	2	a1, a2, b1,b2 c1-c3,d1
4	-RBC count and Red cells indices calculation	1	2	a1, a2, b1,b2 c1-c3,d1
5	- Blood smear preparation and staining -Total Leucocyte (WBC) count , Blood film study for WBC morphology and Differential count . - Blood film study for RBC morphology - Platelet count & Blood film study for platelet morphology	2	4	a1,a2, a3,b1 ,b2,c1-c3,d1
6	- **Med-Term Exam.**	1	2	a1, a2, b1,b2 c1-c3,d1
7	-Hemoglobin estimation of normal and anemia samples -Blood film study for anisocytosis, Piokilocytosisothers)	1	2	a1,a2, a3,b1 ,b2,c1-c3,d1
8	-Blood film study of iron deficiency anemia (microcytic, pencil and target red cells) - Blood film study of megaloblastic anemia samples (ovalomacrocytic red cells and hypersegmented neutrophils)	1	2	a1,a2, a3,b1 ,b2,c1-c3,d1
9	-Blood film study of spherocytosis anemia (spherocytes) -Blood film study of G6PD anemia (bite, blister and contracted and others red cells)	1	2	a1,a2, a3,b1 ,b2,c1-c3,d1
10	-Blood film study of sickle cell anaemia (sickle cell, nucleated, polychromatic and target red cells)	1	2	a1,a2, a3,b1 ,b2,c1-c3,d1
11	-Blood film study of thalassemia (microcytic, nucleated, polychromatic and target red cells)	1	2	a1, a2, b1,b2 c1-c3,d1
12	Blood film study of renal failure (burr cells and others) -Blood film study of chronic liver disease (rounded macrocytes, acanthocytes and target cells)	1	2	a1,a2, a3,b1 ,b2,c1-c3,d1

13	-Blood film study of pancytopenia -Reticulocyte preparation, staining and count	1	2	a1, a2, b1,b2 c1-c3,d1
14	-Demonstration of Serum Iron ,TIBC and Serum ferritin	1	2	a1,a2, a3,b1 ,b2,c1-c3,d1
15	**Final Exam**	2	2	a1, a2,a3 b1,b2 c1-c3
Number of Weeks /and Units Per Semester		15	30	

V. Teaching strategies of the course:

- Interactive Lectures
- Dialogue and Discussion
- Self-Learning
- Presentation
- Seminars
- Brain storming
- Group discussion
- Analyzing , Reporting the results
- Lab. logbook and report
- Practical Training
- Animations
- Case studies and Problem Solving

VI. Assessment Methods of the Course:

- Quizzes
- Midterm Exam
- Final Written Exam
- Final Practical Exam
- Lab. logbook and reports
- Assignments &Homework
- Group work
- Oral discussion

VII. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	**Assignment :** Searching information about related subjects of **fundamentals of hematology and anaemia** in Medical Laboratory Technology	d1	3-13th	5
	TOTAL			**5**

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	**Assignments**	3-13th	5	5 %	d1
2	**Quiz**	6th	5	5 %	a1,a2, a3 b1,b2
	Mid-Term Practical Exam	6th	10	10 %	c1-c3
3	**Mid-Term Theoretical Exam**	7th	10	10 %	a1,a2, a3 b1,b2
4	**Logbook(Practical report)**	weekly	10	10%	c1-c3
5	**Final Practical Exam**	15th	20	20%	a1,a2, a3,b1 ,b2,c1-c3
6	**Final Theoretical Exam**	16th	40	40 %	a1,a2, a3,b1 ,b2,c1-c3
Total			**100**	**100%**	

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, Title, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two):

1- Hoffbrand AV, Moss PAH. 2016, **Essential Haematology**. 6thed, Chichester: Wiley-Blackwel.

2- Bain, B.J, Bates. I, Laffan, A.L. 2017, Dacie and Lewis **Practical Haematology** ,17th ed, Elsevier Health Science. Churchill Livingstone, Edinburgh,

2- Essential References:
1-Shirlyn B. McKenzie AND J. Lynne Williams(2018) . **Clinical laboratory Hematology** .second edition,Elizabeth Zeibig Series Editor. 2- Ronald Hoffman, Edward J. Benz Jr. Sanford J. Shattil: Hoffman:2017, **Hematology: Basic principles and practice**, 7 ed. Churchill Livingstone New York 3- Douglas C, 2017, Wintrobe,s **Atlas of Clinical Hematology** ,1st Edition, Lippincott, USA.
3- Electronic Materials and Web Sites etc.:
Websites: **1-**www.hematology.org 2.www.haem.net 3. www.hematologylibrary.org

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي	
1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' By law (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

SYLLABUS
YEAR (2)
SEMESTER (2)

I. Course Identification and General Information:

1	**Course Title:**	**Health Administration**			
2	**Course Code & Number:**				
3	**Credit Hours**	**Theory Hours**	**Credit Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		2	2	--	--
4	**Study Level/ Semester at which this Course is offered:**				
5	**Pre –Requisite (if any):**				
6	**Co –Requisite (if any):**				
7	**Program (s) in which the Course is Offered:**				
8	**Language of Teaching the Course:**	English			
9	**Study System:**	Semester Based System			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**				
12	**Prepared by:**				
13	**Date of Approval:**				

II. Course Description:

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)		**Referenced PILOs (مخرجات تعلم البرنامج)**	
L. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Explains the principles, functions, elements and process of planning, organization, budget and staffing		
a2	Identify principles of controlling and conflict management		

B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Discuss advantages and disadvantages of planning		
b2	Differentiate between records and reports, negligence & malpractice		
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Apply the role of the manager as a controller, decision maker, supervisor and director		
c2	Practices appropriate leadership styles		
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Demonstrates the legal and ethical issues in managerial role		
d2	Utilize the legal and ethical principles in managerial role		

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:

	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
a1	Explains the principles, functions, elements and process of planning, organization, budget and staffing	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations
a2	Identify principles of controlling and conflict management	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations

(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**

b1	Discuss advantages and disadvantages of planning	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
b2	Differentiate between records and reports, negligence & malpractice	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam

(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
c1	Apply the role of the manager as a controller, decision maker, supervisor and director	▪ Active learning, ▪ Small group learning. ▪ Learning tasks and activities	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
c2	Practices appropriate leadership styles	▪ Active learning, ▪ Small group learning. ▪ Learning tasks and activities	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam

(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Demonstrates the legal and ethical issues in managerial role	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities
d2	Utilize the legal and ethical principles in managerial role	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)

1	Introduction to administration & management	▪ Definition, concepts and theories of administration and management ▪ Functions of administration ▪ Principles of administration ▪ Role of nurses as a manager	1	1	a1, b1, c1, d1
2	Planning	▪ Definition of planning ▪ Aims, ▪ Principles of planning ▪ Advantages and disadvantages of planning ▪ Methods of planning ▪ Steps of planning ▪ Types of planning	1	1	a1, b1, c1, d1
3	Organization	▪ Definition, aims principles and techniques ▪ Preparation of organizational chart of a hospital ward primary health center, sub center ▪ Policies of the hospital & departments	1	1	a1, b1, c1, d1
4	Budget	▪ Concept of budget ▪ Budget: integration role and function ▪ Purposes of budgeting ▪ Features of budgeting ▪ Importance of budgeting ▪ Principles of budgeting ▪ Classification of budgeting ▪ Budgeting process	1	1	a1, d1
5	Staffing	▪ Meaning of staffing ▪ Roles and functions of manager in staffing ▪ Job description, job specification, Job analysis, and job satisfaction. ▪ Staff development and staff welfare. ▪ Leadership styles, Democratic leadership.	1	1	a1, d1
6		Midterm exam	1	1	a1, b1, c1, d1
7	Directing	▪ Nature of direction ▪ Motivation ▪ Leadership o Leadership styles: theories o Leadership skills	4	4	a2, b2, d2

		○ Leadership activities ▪ Communication: ○ Level of communication ○ Types of communication ○ Making assignment & factors influence of communication ▪ Supervision ▪ Time management ▪ Conflict management ▪ Human relations			
8	Decision making and Problem solving	▪ Decision making ▪ Problem solving ✓ Process and approach, steps and methods of dealing with complaints of patients and other health team members.	1	1	a2, b2, d2
9	Controlling	▪ Definition, types ▪ Principles of controlling ▪ Making standard ▪ Evaluating quality in health care	1	1	a2, b2, d2
10	Recording and reporting	▪ Definitions ▪ Records & Reports ▪ Responsibility for maintain records and reports ▪ Type of records and reports maintained in the ward, importance and use of records and reports. ▪ Records and reports maintained in Primary Health Center	1	1	a2, d2
11	Legal and ethical issues in managerial role	▪ Accountability ▪ Negligence & Malpractice ▪ Risk management ▪ Legislation ▪ Personnel issues	1	1	a2, b2, d2
12		Final exam	1	1	a2, b2, c2, d2
Number of Weeks /and Units Per Semester					

V. Teaching Strategies of the Course:

- Interactive lecture
- Seminars and student presentations
- Brain storming
- Role-play and simulation
- Small group discussion

- Learning tasks and activities
- Problems solving
- Case study analysis

VI. Assessment Methods of the Course:

- Assignments
- Quizzes
- Mid-term exam
- Final term exam

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	**Assignment** 1: Concept of budget	W5	**5**	a1, c1
2	**Assignment 2:** Negligence & Malpractice	W11	5	a2, b2, c2
Total			**10**	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	**Assignments**	W5,11	10	10%	a1, b1, a2, b2, c1, c2,
2	**Quizzes 1 & 2**	W3, 9	10	10%	a1, a2, b1, b2
3	**Mid-Term Theoretical Exam**	W7	20	20%	a1, b1, c1, d1
4	**Final Theoretical Exam**	W16	60	60%	a2, b2, c2, d2
Total			**100**	**100%**	

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): مثال example

4.

2- Essential References:

1.
3- Electronic Materials and Web Sites etc.:
Websites: ▪

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي	
1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

I. Course Identification and General Information:

1	**Course Title:**	Medical Parasitology 2			
2	**Course Code & Number:**	MP 2304			
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		3	2		2
4	**Study Level/ Semester at which this Course is offered:**	2nd Level/ 2nd Semester			
5	**Pre –Requisite (if any):**	Medical Parasitology 1			
6	**Co –Requisite (if any):**				
7	**Program (s) in which the Course is Offered:**	Medical Laboratory Technician			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	Semester based system			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**	Community Colleges			
12	**Prepared by:**	Assoc. Prof. Dr./ Abdulbasit Al-Ghoury			
13	**Date of Approval:**	October 2021			

II. Course Description:

The course is intended to provide the students with basic knowledge concerning the morphological features, life cycles, epidemiology, pathogenesis, diagnosis and treatment of helminthic parasitic diseases as well as to prepare the students for a specialized career in Diagnostic Parasitology. In addition, the practical branch will focus on the identification and recognition of helminthic parasitic agents and larval stages for these parasitic diseases.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات التعلم المقررة)		Referenced PILOs (مخرجات التعلم البرنامجية)	
A. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Identify the fundamentals of basic Medical Helminthology.	**A1**	Know all the basic information in medical laboratories
a2	Define how to start a parasitic infections control program.	**A4**	Understand the specialized laboratory materials, theoretically and practically, in line with modern scientific progress
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Troubleshoot technical errors and interpret results efficiently and professionally.	**B7**	Plan a quality assurance protocol to monitor procedures and devices, identify errors, and integrate and evaluate data analytics with problem-solving skills
b2	Design a plan to management the endemic parasitic diseases in endemic areas.	**B5**	Develop students' awareness of environmental issues, pollution and endemic diseases in society.
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Apply technical skills in using laboratory equipment, tools, and materials in laboratory practice.	**C3**	Use advanced laboratory equipment effectively and responsibly with the application of quality systems
c2	Differentiate between various clinical samples.	**C2**	Distinguish chemical and biological samples based on their physical and chemical characteristics.
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Demonstrate ethical conduct with patients, colleagues and health care workers.	**D2**	Respect patients, superiors and colleagues and maintain the privacy of transactions.
d2	Participate in teamwork harmoniously and exhibit collaboration with colleagues and other to develop a scientific methods.	**D4**	Spread the culture of teamwork among students and the need to adapt to scientific developments.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
a1	Identify the fundamentals of basic Medical Helminthology.	□Lectures □Presentation □Discussion	Quizzes Mid-semester Exam Final exam
a2	Define how to start a parasitic infections control program.	□Lectures □Presentation □Group Discussion	Assignment Mid-semester Exam Final exam
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
b1	Troubleshoot technical errors and interpret results efficiently and professionally.	Lectures Group Discussion Self-learning	Assignments Quizzes Mid-semester Final exam
b2	Design a plan to management the endemic parasitic diseases in endemic areas.	Lectures Group Discussion Self-learning	Assignments Mid-semester Final exam
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
c1	Apply technical skills in using laboratory equipment, tools, and materials in laboratory practice.	- Demonstration - Presentation - Group work - Lab. practice	- Practical reports - Direct observation - Midterm and Final practical Exam
c2	Differentiate between various clinical samples.	- Demonstration - Presentation - Group work - Lab. practice	- Practical reports - Direct observation - Midterm and Final practical Exam
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Demonstrate ethical conduct with patients, colleagues and health care workers.	Discussion Seminars Self-learning	Research Medical reports Logbook.
d2	Participate in teamwork harmoniously and exhibit collaboration with colleagues and other to develop a scientific methods.	Discussion Seminars Self-learning	Research Medical reports Logbook.

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Introduction**	Definition, purpose, philosophy, organization and classification.	1	2	a1-2, b1-2
2	**Blood flukes**	Introduction, Taxonomy, Blood flukes,	2	4	a1-2, b1-2, d2
3	**Hepatic flukes**	Classification, Hepatic flukes.	1	2	a1-2, b1-2
4	**Platyhelminthes/ Cestodes**	Introduction, Cestodes classification, intestinal cestodes	2	4	a1-2, b1-2
5	**Cestodes,**	Intestinal tapeworms.	1	2	a1-2, b1-2,
6	**Tissue tapeworms**	Classification, hydatid cyst	1	2	a1-2, b1-2,
7	**Midterm Exam**		1	2	a1-2, b1-2
8	**Nemathlemnithes, Nematoda**	Introduction, Classification, intestinal nematodes, Geohelminthes.	2	4	a1-2, b1-2

9	**Tissue Nematodes**	Introduction, taxonomy, Lymphatic filarial worms.	1	2	a1-2, b1-2
10	**Tissue Nematodes**	Lymphatic filarial worms.	2	4	a1-2, b1-2
11	**General Review**	General Revision	1	2	a1-2, b1-2
12	**Final Theoretical Exam**		1	2	a1-2, b1-2, c-2, d2
Number of Weeks /and Units Per Semester			**16**	**32**	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Quality Control and Lab.Safety.**	**1**	**2**	a1-2, b1-2
2	**Blood flukes**	**2**	4	c1-2
3	- **Hepatic flukes**	**1**	**2**	c1-2
4	- **Intestinal Cestodes**	**2**	4	c1-2
5	- **Tissue cestodes**	**1**	**2**	c1-2
6	- **Midterm Exam**	**1**	**2**	a1 , c1-2
7	- **Intestinal nematodes (S.T.P)**	**2**	4	c1-2
8	**Intestinal nematodes**	**1**	**2**	c1-2
9	- **Tissue nematodes**	**1**	**2**	c1-2
10	- **Tissue nematodes**	**1**	**2**	c1-2
11	- **General Review**	**1**	**2**	c1-2
12	- **Final Exam.**	**1**	**2**	a1 , c1-2
Number of Weeks /and Units Per Semester		**15**	**30**	

C. Tutorial Aspect:				
No.	**Tutorial**	**Number of Weeks**	**Contact Hours**	**Learning Outcomes (CILOs)**
1	None			
Number of Weeks /and Units Per Semester		**14**	**28**	

V. Teaching Strategies of the Course:

1- Interactive lectures,
2- Discussion-oriented teaching
3- Student presentation
4- Seminar
5- Team work (group learning).

Lab-based learning .

VI. Assessment Methods of the Course:

- Written tests (mid and final terms.
- quizzes,
- Assignments
- Practical Reports
- Research
- Direct observati

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	Assignments-1 ; Situation of blood trematodes in Yemen?	4th -	5	d2
Total			5	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignments-	4th -	5	5%	d2
2	Quizzes	5th -12th	5	5%	a1.2 , b1.2 , c1
3	Mid-Term Practical Exam	7th	10	10 %	a1, c1, 2
4	Mid-Term Theoretical Exam	th	20	20 %	a1,a2, b1, 2
5	Final Practical Exam	15th	10	10%	a1, c1-c2
6	Final Theoretical Exam	16th	50	50 %	a1,a2, b1, 2, d2
Total			100	100%	

IX. Learning Resources:

Written in the following order: Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): لائم example

1) Markell, E.K.; john, D.T. and Krotoski, W.A. (2016): Markell and Voge's Medical Parasitology, 12 th edit. W.B. Saunders Co. Philadelphia, USA.

2- Essential References:

1. Gillespie, S.H. and Pearson, R.D. (2017): Principles and Practice of Clinical Parasitology, John Wiley & Sons Ltd. N.Y. USA. PP: 585-612.

3- Electronic Materials and Web Sites etc.:

Websites:

1) http://www.dof3tna.net/forum/archive/index.php/f-.html?s=b8129301264fff0e276c4c627238d4c
2) www.abebooks.com
3) www.biosci.ohio-state.edu/^zoology/parasite/lifecycles.htm/

X. Course Policies: (Based on the Uniform Students' By law (2007) اهك كرتة يه

1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:**

	Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' By law (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

I. Course Identification and General Information:

1	**Course Title:**	Medical Bacteriology2			
2	**Course Code & Number:**	MB 1302			
3	**Credit Hours:**	**Credit Hours**	**Credit Hours:**		**Credit Hours**
			Lecture	**Exercise**	
		4	2		4
4	**Study Level/ Semester at which this Course is offered:**	Second year - First semester			
5	**Pre –Requisite (if any):**	Biology			
6	**Co –Requisite (if any):**	None			
7	**Program (s) in which the Course is Offered:**	Medical Laboratory Technician			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	Semester based system			
10	**Mode of Delivery:**	Full time			
11	**Location of Teaching the Course:**	facilities of community			
12	**Prepared by:**	Dr Anwar Al-Medhagi			
13	**Date of Approval:**	9 /2021			

II. Course Description:

The Medical Bacteriology2 course is intended for Medical Laboratories students in Community Faculties. The course focuses on giving the students theoretical and practical skills to uses the different techniques and identification methods to isolate, identify the pathogenic bacteria and to perform sensitivity tests. It covers systemic pathogenic Gram negative Bactria including Nocardia, Rickettsia and spirochetes.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)		Referenced PILOs (مخرجات تعلم البرنامج)	
M. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Demonstrate understanding of basic Biomedical Sciences in Laboratories	**A1**	Know all the basic information in medical laboratories
a2	Identify different biological sample collections, processing, storage transportation, and laboratory diagnosis by different tests.		. Know and understand all laboratory tests, their abbreviations, their importance, the method of taking them, and the interpretation of their results
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Use critical thinking and problems solving skills in laboratory diagnosis to make evidence-based decisions	**B1**	Review and critique manual laboratory processes that include patient preparation,
b2	Select appropriate specimen and technique for isolating the suspected pathogen	**B2**	Collect, treat, and analyze samples and interpret the results with high efficiency.
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Collect the required specimens carefully, transport and storage them in appropriate conditions	**C1**	Use advanced laboratory equipment effectively and responsibly with the application of quality systems.
c2	Perform various laboratory procedures including specimen processing, isolation, identification and susceptibility testing of pathogenic agents.	**C2**	Do laboratory experiments and scientific interpretation of the results of laboratory tests.
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Demonstrate ethical conduct with patients, colleagues and health care workers	**D1**	Respect patients, superiors and colleagues and maintain the privacy of transactions
d2	Work collaboratively and evaluate tram work in groups	**D2**	Spread the culture of teamwork among students and the need to adapt to scientific developments .scientific developments.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:		
Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**

a1	Demonstrate understanding of basic Biomedical Sciences in Laboratories	Lectures Presentation Discussion	MCQs Quiz
a2	Identify different clinical specimens collections, processing, storage transportation, and laboratory diagnosis by different tests.	Lectures Presentation Discussion	MCQs Quiz
	(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:		
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
b1	Use critical thinking and problems solving skills in laboratory diagnosis to make evidence-based decisions	Lectures Presentation Discussion	MCQs Quiz
b2	Select appropriate specimen and technique for isolating the suspected pathogen	Lectures Presentation Discussion	MCQs Quiz
	(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:		
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
c1	Collect the required specimens carefully, transport and storage them in appropriate conditions	Lectures Presentation Discussion	MCQs Quiz Practical report
c2	Perform various laboratory procedures including specimen processing, isolation, identification and susceptibility testing of pathogenic agents.	Lectures Presentation Discussion	MCQs Quiz Practical report
	(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:		
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
d1	Demonstrate ethical conduct with patients, colleagues and health care workers	Lectures Presentation Discussion	MCQs Quiz
d2	Work collaboratively and evaluate tram work in groups	Lectures Presentation Discussion	MCQs Quiz

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Gram negative cocci** Neisseria secies	Neisseria gonorrhoeae Neisseria meningitides	1	2	a1,a2, b1, b2, d1, d2
2	**Gram negative bacilli** **Enerobacteriaceae family**	Non-lactose fermenting Gram negative bacilli Lactose fermenting Gram negative bacilli	4	8	a1,a2, b1, b2, d1, d2
4	Vibrios	Vibrio choieriae Cambylobacter Helobacter	2	4	a1,a2, b1, b2, d1, d2
5	**-Gram negative short bacilli**	Brucella Hemophilus Brodetella	2	4	a1,a2, b1, b2, d1, d2
6	Spirochetes	Treponema Borrelia Leptospira	2	4	a1,a2, b1, b2, d1, d2
7	**Midterm exam**	**MCQs** **Practical report**	1	2	
8	- Main Indicator Bacteria in food and water	-Coliform, S fecalus and -Cl perferinges -Normal ranges	1	2	a1, a2, b1, b2 a1, a2, b2 ,d1, c1, c2
9	Methods of food and water analysis	Standard plate count Most Probable Number Special methods of milk	2	4	a1, a2, b1, b2 a1, a2, b2 ,d1, c1, c2
10	Main Indicator Bacteria in food and water	-Coliform, S fecalus and -Cl perferinges -Normal ranges	1	2	a1, a2, b1, b2 a1, a2, b2 ,d1, c1, c2
Number of Weeks /and Units Per Semester			**16**	**32**	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)

1	Culture and identification of Neisseria	1	4	a1, a2, b1,b2 c1-c3,d1
2	Culture and identification of Salmonella	1	4	a1, a2, b1,b2 c1-c3,d1
3	Culture and identification of Shigella	1	4	a1, a2, b1,b2 c1-c3,d1
4	Culture and identification of Proteus	1	4	a1, a2, b1,b2 c1-c3,d1
5	Culture and identification of Pseudomonas	1	4	a1, a2, b1,b2 c1-c3,d1
6	Med-Term Exam.	1	4	a1, a2, b1,b2 c1-c3,d1
7	Culture and identification of Lactose fermenting Gam negative bacteria	2	8	a1, a2, b1,b2 c1-c3,d1
8	Culture and identification of Vibrios	1	4	a1, a2, b1,b2 c1-c3,d1
9	Culture and identification of Gram negative short bacilli	2	8	a1, a2, b1,b2 c1-c3,d1
10	Methods of food and water analysis	1	4	a1, a2, b1,b2 c1-c3,d1
11	Final Exam	1	4	a1, a2, b1,b2 c1-c3,d1
Number of Weeks /and Units Per Semester		15	30	

C. Tutorial Aspect:

No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1				
2				
3				

4				
Number of Weeks /and Units Per Semester		14	28	

V. Teaching Strategies of the Course:

Lectures
Presentation
Discussion

VI. Assessment Methods of the Course:

MCQs
Quiz
Practical report

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	**Assignments**	10th	**30**	5 %
2	Quiz	6th and 12th	**10**	5 %
3	**Mid-Term Theoretical Exam**	8th	**30**	10 %
	Mid-Term Practical Exam	9th	**20**	10%
	Final Practical Exam	15th	**30**	30%
	Final Theoretical Exam	16th	**70**	40 %
Total				

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): مثال example

2- Cheesbrough M (2009). District Laboratory Practice in Tropical Countries Part 2: SC.Parija, (2017), Textbook of Practical Microbiology, Ahuia publishing house, USA.

2- Essential References:

2- Abla M. El-Mishad, 2011: Manual of medical Microbiology & Immunology, Vol1,11ed.

2. Kapil, (2013), Textbook of Microbiology, 9th edition, Orient Blackswan publisher, USA.Craig,

3-Anwar Al-Madhsgi (2007) Manual of Sanitary Microbiology

3- Electronic Materials and Web Sites etc.:

Websites:

- An Online Medical Dictionary

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي

1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' By law (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

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I. Course Identification and General Information:					
1	**Course Title:**	**Hematology 2**			
2	**Course Code & Number:**	**He 2311**			
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		3	2	0	2
4	**Study Level/ Semester at which this Course is offered:**	**Second Year :Second Semester**			
5	**Pre –Requisite (if any):**	**Hematology1**			
6	**Co –Requisite (if any):**	None			
7	**Program (s) in which the Course is Offered:**	Diploma in Medical Laboratory Technology(DMLT)			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	Credit Hour System- Semester			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**	CC Campus(Public and private community colleges)			
12	**Prepared by:**	Prof.Dr. Lutfi A.S. Al-Maktari			
13	**Date of Approval:**				

II. Course Description:
The course is designed to provide an overview of the theory and practical application of hemostasis (coagulation), as it relates to the medical laboratory. Presents coagulation laboratory principles and correlates results with disease states. The basic concepts of the routine methods of blood analysis with respect to total and differential WBC s counts, examination, and assist in reporting of different types of leukemia, leukemoid reaction, multiple myeloma on peripheral smear as well as the performance of specific blood tests to diagnose white blood cells disorders.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)	Referenced PILOs (مخرجات تعلم البرنامج)
N. Knowledge and Understanding: Upon successful completion of the course, students will be able to:	

a1	Explain the mechanisms of hemostasis, platelets, coagulation ,fibrinolysis and discuss their associated disorders.	**A4**	Understand the specialized laboratory materials, theoretically and practically, in line with advanced scientific progress.
a2	Identify the qualitative and quantitative disorders related to white blood cells as well as recognize classification systems of leukemia.	**A4**	Understand the specialized laboratory materials, theoretically and practically, in line with advanced scientific progress.
a3	Recognize the fundamental aspect and diagnosis of hemostasis, leukocyte disorders benign and malignant disorders.	**A5**	Know and understand all laboratory tests, their abbreviations, their importance, the method of taking them, and the interpretation of their results.
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Integrate knowledge and making informed judgments about hematology of hemostasis and white cells disorders test results in the clinical setting.	**B2**	Review and critique manual laboratory processes that include patient preparation, sample requirements, solutions preparation, examination procedures, calculation of results and quality assurance.
b2	Recognize and differentiate between normal and abnormal WBCs morphology using staining techniques and other formed elements.	**B6**	Collect, treat, and analyze samples and interpret the results with high efficiency.
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Collect, transport, preserve and store blood samples according to Standard Operating Procedures (SOPs).	**C1**	Collect samples from patients in a safe professional manner.
c2	Apply the routine lab tests for WBCs and Platelets disorders and coagulation disorders by classical and automated methods of investigation as CBC & blood film.	**C3**	Use advanced laboratory equipment effectively and responsibly with the application of quality systems.
c3	Recognize errors or discrepancies in results during lab procedures and interpretation of the results of laboratory	**C4**	Perform laboratory experiments and scientific interpretation of the results of laboratory tests.

	tests in hemostasis and white blood cells disorders .		
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Work independently or as a team member and effectively communicate with the teaching hematology staff and colleagues to identify, analyze and understand emerging issues.	**D1**	Work as a team.
		D2	Respect patients, colleagues, and superiors and maintain the privacy of patient information.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
a1	Explain the mechanisms of hemostasis, platelets, coagulation ,fibrinolysis and discuss their associated disorders.	-Interactive Lectures - Group Discussion - Self study	- Quizzes - Assignments & Homework - Mid-semester exam -Final exams (Fill in the blank, MCQs, matching, short-answer and short essay questions)
a2	Identify the qualitative and quantitative disorders related to white blood cells as well as recognize classification systems of leukemia.	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
a3	Recognize the fundamental aspect and diagnosis of hemostasis, leukocyte disorders benign and malignant disorders.	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
b1	Integrate knowledge and making informed judgments about hematology of hemostasis and white cells disorders test results in the clinical setting.	- Interactive Lectures - Seminars -Oral presentations	- Quizzes - Assignments - Mid semester exam -Final exams
b2	Recognize and differentiate between normal and abnormal WBCs morphology using staining techniques and other formed elements.	- Interactive Lectures - Self-learning - Brain storming	- Quizzes - Assignments -Midterm Exam -Final Exam

(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
c1	Collect, transport, preserve and store blood samples according to Standard Operating Procedures (SOPs).	- Demonstrations -Group discussion	-Quizzes - Mid semester exam -Final exams
c2	Apply the routine lab tests for WBCs and Platelets disorders and coagulation disorders by classical and automated methods of investigation as CBC & blood film.	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam -Final exam
c3	Recognize errors or discrepancies in results during lab procedures and interpretation of the results of laboratory tests in hemostasis and white blood cells disorders .	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam - -Final exam
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
d1	Work independently or as a team member and effectively communicate with the teaching hematology staff and colleagues to identify, analyze and understand emerging issues.	- Presentations - Group discussions & seminars -Self-study modules	- Write reports -Write Exercises & solving it. - Assignments &Homework

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Haemostasis**	**Haemostasis** – General definitions of haemostasis and normal steps of haemostasis 1-Primary haemostasis: a- Vascular definition, function and role of vascular and skin .	2	4	al, a2,b1,b2

		b-Platelets role and inhibitory system . 2-Secondary haemostasis: a-Coagulation cascades mechanism, Coagulation factors roles, coagulation inhibitory system, b-Fibrinolytic system			
2	**Laboratories Tests for Hemostasis &Coagulation**	-Platelets counts methods and tests BT, CT,PT, PTT, TT, D-diamer tests and others	1	2	a1,a2, b1 ,b2,c1,c2 ,d1,d2
3	**Bleeding Disorders: I-Blood Vessels and Platelets disorders: Acquired and Inherited**	- **Blood Vessels disorders** - Definition, classification, causes, Inherited and Acquired - **Platelets disorders** - Inherited and Acquired -Numbers &functions defects of Platelets disorders -Thrombocytopenia, - Acquired Platelets disorders eg: Aspirin ,..etc. - laboratory tests of Platelets disorders	1	2	a1,a2, b1 ,b2,c1,c2 ,d1,d2
4	**II-Inherited Disorders of Coagulation**	**Hemophilia A and B** Definition, classification, symptoms. Lab finding **VON WILL BRAND DISEASE** Definition, symptoms. Lab finding	1	2	a1,a2, b1 ,b2,c1,c2 ,d1,d2
5	**III-Acquired coagulation disorders**	- Definition and classification -Vitamin K deficiency, Kendy & Liver diseases. - DIC, ITP, VW diseases, causes and lab. diagnosis	1	2	a1,a2, b1 ,b2,c1,c2 ,d1,d2
7	**Midterm exam**		1	2	a1,a2, b1 ,b2,c1,c2 ,
8	**Leukocytes disorders**	Leukocytes study, counting, total leukocyte count, differential leukocyte count, absolute count, Leukocytosis and leucopenia;	1	2	a1,a2, b1 ,b2,c1,c2 ,d1,d2
9	**Definition and causes of Benign Leukocytes disorders**	**Definition and causes of** Quantitative and Qualitative Abnormalities in leukocyte: 1-Quantitative :neutrophils neutrophilia neutropenia, abnormal granulation, Lymphocytosis, lymphopenia, definition, causes Monocytic disorders, definition, causes	2	4	a1,a2, b1 ,b2,c1,c2 ,d1,d2

		2-Qualitative: -Acquired disorders in Neutrophils			
10	**Introduction of Hematologic Malignancy and leukemia**	- Definition, classification, risk factors plan investigation -Definition and etiology of leukemia -General classification of leukemia -Leukemoid reaction and leukemia -Acute lymphoid leukemia (ALL) :definition and laboratory finding Acute myeloid leukemia : definition, laboratory finding Chronic myeloid (CML) leukemia : definition, lab finding Chronic lymphoid leukemia CLL : definition, lab finding -Myelodysplastic syndromes definition, lab finding	3	6	a1,a2, b1 ,b2,c1,c2 ,d1,d2
11	**Leukemoid reactions and Multiple myeloma**	**Leukemoid reactions** Types , laboratory diagnosis **Multiple myeloma** , definition, clinical picture, laboratory finding	1	2	a1,a2, b1 ,b2,c1,c2 ,d1,d2
12	**General review**		1	2	a1,a2, b1 ,b2,c1,c2 ,d1,d2
13	**Final exam**	-Fill in the blank, MCQs, matching, short-answer and short essay questions.	1	2	a1,a2, b1 ,b2,c1,c2 ,
Number of Weeks /and Units Per Semester			**16**	**32**	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	- Laboratory safety rules & biosafety in coagulation - Reagents which used in practice coagulation and their Preparation • Trisodium citrate, 3.2% and Trisodium citrate, 3.8% • Differences and uses , preparation • Specimen collection and time performed •Quality Assurance &Quality control in coagulation hematology lab.	1	2	a1, a2, b1,b2 c1-c3,d1
2	-Thrombocyte number concentration (Microscopic examination) Smear and hemocytometer counting .	1	2	a1, a2, b1,b2 c1-c3,d1

	-Blood film study of thrombocytopenia and thrombocytosis blood films			
3	Bleeding time (BT)- Duke method &IVY method	1	2	a1, a2, b1,b2 c1-c3,d1
4	Activated partial thromboplastin time (APTT) test	1	2	a1, a2, b1,b2 c1-c3,d1
5	- Prothrombin time (PT) test & INR	1	2	a1, a2, b1,b2 c1-c3,d1
6	Normal morphology of white blood cells in the peripheral blood Drawing the cells, observing the cells Types of normal neutrophils WBC counting manually	1	2	a1, a2, b1,b2 c1-c3,d1
7	Blood film preparation for WBC study, How to study the blood smear?	1	2	a1, a2, b1,b2 c1-c3,d1
8	- Normal WBC count value in adult and children Relative count - Absolute count, how calculated NRBC interference on the WBC counting , How calculated and corrected the new result	1	2	a1, a2, b1,b2 c1-c3,d1
9	**Blood film study for benign morphological neutrophil and lymphocyte changes**	1	2	a1, a2, b1,b2 c1-c3,d1
10	**- Blood film study of acute myeloid leukemia**	1	2	a1, a2, b1,b2 c1-c3,d1
11	**- Blood film study of acute lymphoblastic leukemia**	1	2	a1, a2, b1,b2 c1-c3,d1
12	**- Blood film study of chronic myelocytic leukemia**	1	2	a1, a2, b1,b2 c1-c3,d1
13	**Blood film study of chronic lymphocytic leukemia**	1	2	a1, a2, b1,b2 c1-c3,d1
14	**Blood film study of multiple myeloma**	1	2	a1, a2, b1,b2 c1-c3,d1
15	**Final Exam**	1	2	a1, a2, b1,b2 c1-c3,
Number of Weeks /and Units Per Semester		15	30	

V. Teaching strategies of the course:

- Interactive Lectures
- Dialogue and Discussion
- Self-Learning
- Presentation
- Seminars
- Brain storming

- Group discussion
- Analyzing , Reporting the results
- Lab. logbook and report
- Practical Training
- Animations
- Case studies and Problem Solving

VI.Assessment Methods of the Course:

- Quizzes
- Midterm Exam
- Final Written Exam
- Final Practical Exam
- Assignments &Homework
- Group work
- Lab. logbook and report
- Oral discussion

VII.Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	**Assignment :** Searching information about related subjects of **Hemostasias ,white blood cells disorders and leukemia** in Medical Laboratory Technology	d1	3-13th	10
	TOTAL			**10**

VII .Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignments	3-13	10	10%	al-a3; bl, b2; cl-c3; dl
2	Quiz 1&2	6&12	5	5%	al-a3; bl, b2
3	Lab. logbook and report	Weekly	10	10%	cl-c3
4	Mid Semester Exam (Practical)	7	10	10%	cl-c3; dl
5	Mid Semester Exam(Theoretical)	8	15	15%	al-a3;bl, b2, cl-c3
6	Final Practical Exam	15	20	20%	cl-c3, ; dl
7	Final Theoretical Exam	16	40	40%	al-a3;bl, b2
	Total		**100**	**100%**	

IX .Learning Resources:

- Written in the following order: (Author – Year of publication – Title – Edition – Place of publication – Publisher).

1 - Required Textbook(s) (maximum two).

3- V. Hoffbrand and P. A. H. Moss, (2020), **Essential Haematology**, Eighth edition, Wiley Blackwell Publishing, UK.

4- Barbara Bain, Imelda Bates, Mike Laffan, SM Lewis and Dacie (2017) . Dacie and Lewis **Practical Haematology**, 12th Edition, Elsevier Limited UK.

2- Essential References.

1--Shirlyn B. McKenzie and J. Lynne Williams(2019) . Clinical **laboratory Hematology** .second edition, Elizabeth Zeibig Series Editor .USA..

2--Lutfi Al-Maktari(2021).Lecture notes in Hemostasis and Thrombosis ,for Laboratory Medicine students, Department of Hematology &Blood Banking ,Faculty of Medicine and Health Sciences- Sana'a University ,first edition, Hail Publisher ,Yemen 734184099.

3-Douglas C , Babette Weksler. , Geraldine P Schechter and Scott Ely (2017) Wintrobe's **Atlas of Clinical Hematology** Hardcover. 2nd Edition, Wolters Kluwer, USA.

3- Electronic Materials and Web Sites etc.

1-www.cambodiamed.blogspot.com
2-www.bloodmed.com
3-www.medline.com.
4- www.simplyblood.org
5- www.labmedicineblog.com/category
6- www.hematology.org
7- www.hematologyadvisor.com

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي	
1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' By law (2007) shall apply.
6	**Forgery and Impersonation:**

	Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

I. Course Identification and General Information:

1	**Course Title:**	**Medical Virology and Mycology**			
2	**Course Code & Number:**	VM 2312			
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		3	2		2
4	**Study Level/ Semester at which this Course is offered:**	Second Level - First Semester			
5	**Pre –Requisite (if any):**	Biology			
6	**Co –Requisite (if any):**	None			
7	**Program (s) in which the Course is Offered:**	Diploma degree of Medical Laboratory Technician			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	Semester based system			
10	**Mode of Delivery:**	Full time			
11	**Location of Teaching the Course:**	Faculties of community			
12	**Prepared by:**	Dr Anwar Al-Madahagi			
13	**Date of Approval:**	10 / 2021			

II. Course Description:

This is an introductory course in virology and mycology for the Medical Laboratory Technicians students. It covers basic principles of viral and fungal classification, structures, life cycles, host-parasite interactions, clinical diseases, and laboratory diagnostic methods.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات التعلم المقررة)		Referenced PILOs (مخرجات التعلم البرنامج)	
A. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Understand the general characteristics, structure, classification of viruses and fungi and their diseases	**A1**	Know all the basic information in medical laboratories
a2	Define the principles and procedures of different laboratory tests used to diagnose viral fungal diseases.	**A5**	Know and understand all laboratory tests, their abbreviations, their importance, the method of taking them, and the interpretation of their results
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Determine type of clinical specimen to obtain to identify the source of viral and fungal disease and laboratory tests for diagnosis	**B1**	Review and critique manual laboratory processes that include patient preparation, sample requirements, preparation of solutions, examination procedures, calculation of results and quality assurance
b2	Categorize viruses and fungi according to standard taxonomy	**B5**	Develop students' awareness of environmental issues, pollution and endemic diseases in society.
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Collect the required specimens carefully, transport and storage them in appropriate conditions	**C3**	Use advanced laboratory equipment effectively and responsibly with the application of quality systems
c2	Proper handling and testing of clinical specimens for the isolation or identification of viral or fungal pathogens	**C4**	Do laboratory experiments and scientific interpretation of the results of laboratory tests.
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Demonstrate ethical conduct with patients, colleagues and health care workers	**D1**	Work as one team

d2	Work collaboratively and evaluate tram work in groups	**D3**	Enable students to know the personal and social responsibility placed on the medical laboratory specialist.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
a1	Understand the general characteristics, structure, classification of viruses and fungi and their diseases	Lectures Presentation Discussion	MCQs Quiz
a2	Define the principles and procedures of different laboratory tests used to diagnose viral fungal diseases.	Lectures Presentation Discussion	MCQs Quiz
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
b1	Determine type of clinical specimen to obtain to identify the source of viral and fungal disease and laboratory tests for diagnosis	Lectures Presentation Discussion	MCQs Quiz
b2	Categorize viruses and fungi according to standard taxonomy		
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
c1	Collect the required specimens carefully, transport and storage them in appropriate conditions	Lectures Presentation Discussion	MCQs Quiz Practical report

c2	Proper handling and testing of clinical specimens for the isolation or identification of viral or fungal pathogens	Lectures Presentation Discussion	MCQs Quiz Practical report

(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Demonstrate ethical conduct with patients, colleagues and health care workers	Lectures Presentation Discussion	MCQs Quiz
d2	Work collaboratively and evaluate tram work in groups	Lectures Presentation Discussion	MCQs Quiz

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**General characteristics of viruses and Replication**	- -Structure -Cultivation -DNA Viruses Replication -RNA Viruses Replication	1	2	a1, a2, b1,b 2, c1, c2, d1, d2
2	**Classification and Pathogenesis of viruses**	-DNA viruses -RNA viruses Pathogenesis Immune response	1	2	a1, a2, b1,b 2, c1, c2, d1, d2
3	**-Lab diagnosis of viruses**	- Microscopy, serological assays, PCR & RT-PCR Virus animal inoculation, Cell culture	1	2	a1, a2, b1,b 2, c1, c2, d1, d2
4	**Midterm exam**	**Writing** **MCQs**	1	2	a1, a2, b1,b 2, c1, c2, d1, d2

5	**Hepatitis viruses**	Hepatitis viruses A, B, C, D & E	1	2	a1, a2, b1,b 2, c1, c2, d1, d2
6	**Mid exam**	**-** MCQs -Written exam	1	2	a1, a2, b1,b 2, c1, c2, d1, d2
7	**Retroviruses**	Human immunodeficiency virus (HIV)	1	2	a1, a2, b1,b 2, c1, c2, d1, d2
8	**Childhood viral infections**	**-** Measles –Mumps **-** Rubella virus	1	2	a1, a2, b1,b 2, c1, c2, d1, d2
9	**Viral respiratory tract infections**	-Influenza viruses -Coronavirus	1	2	a1, a2, b1,b 2, c1, c2, d1, d2
10	**Viral Gastroenteritis picomaviruses**	**-** Rotavirus **-** Adenoviruses **-** Poliovirus -Coxsackie viruses	1	2	a1, a2, b1,b 2, c1, c2, d1, d2
11	Herpesviridae	**-** Herpes simplex virus 1,2 **-** Varicella zoster virus Epstein-Barr virus	1	2	a1, a2, b1,b 2, c1, c2, d1, d2
12	Arboviruses and unusual viruses	**-** Dengue and Zika virus **-** Yellow fever virus **-** Rabies virus Ebola virus	1	2	a1, a2, b1,b 2, c1, c2, d1, d2
13	- General features and classification- of fungi - A Lab diagnosis and antifungal therapy	-structure Classification - Wet preparation -Culture Antigen detection tests Antibodies detection tests	1	2	a1, a2, b1,b 2, c1, c2, d1, d2

		Antifungal therapy			
14	Cutaneous & Subcutaneous Mycosis	Definition, Dermatophytosis, Tinea types, Sporotrichosis Chromomycosis Mycetoma	1	2	a1, a2, b1,b 2, c1, c2, d1, d2
15	**Systemic Mycosis & Opportunistic fungi**	Coccidioidies Histoplasma Blastomyces - Paracoccidioides Candida Cryptococcus Aspergillosis	1	2	a1, a2, b1,b 2, c1, c2, d1, d2
16	**Final exam**	**Writing** **MCQs**	1	2	a1, a2, b1,b 2, c1, c2, d1, d2
Number of Weeks /and Units Per Semester			**16**	**32**	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Direct methods:, antigen-antibody reaction, nucleic acids based methods and ELISA	3	6	b 2, c1, c2, d1, d2
2	Indirect methods: serological methods for detection of antiviral antibodies as agglutination tests and ELISA	3	6	b 2, c1, c2, d1, d2
3	Serologic detection of antiviral antibodies		2	b 2, c1, c2, d1, d2
4	Skin tests to diagnosis cell mediated	1	2	b 2, c1, c2, d1, d2
5	Med-Term exam.	1	2	b 2, c1, c2, d1, d2
6	Direct diagnosis of fungi by wet preparation	1	2	b 2, c1, c2, d1, d2

7	Isolation of fungi on culture, media	1	2	b 2, c1, c2, d1, d2
8	identify fungi macroscopically and microscopically	2	4	b 2, c1, c2, d1, d2
9	**Final exam**	**1**	2	a1, a2, b1,b 2, c1, c2, d1, d2
Number of Weeks /and Units Per Semester		13	**26**	

C. Tutorial Aspect:

No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1				
2				
Number of Weeks /and Units Per Semester		**14**	**28**	

V. Teaching Strategies of the Course:

Lectures
Presentation
Discussion

VI. Assessment Methods of the Course:

MCQs
Quiz
Practical report
Med-Term Exam
Final Exam

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)

1				
Total				

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	**Assignments**	10th	5	5 %	d2
2	**Quizzes**	6th	5	5 %	a1,a2, a3 b1
3	**Mid-Term Theoretical Exam**	8th	10	10 %	a1,a2, a3 b1, d2
4	**Logbook(Practical report)**	Weekly	10	10%	c1-c3
5	**Final Practical Exam**	15th	30	30%	c1-c3
6	**Final Theoretical Exam**	16th	50	40 %	a1,a2, a3 b1, d2
7					
Total			**100**	**100%**	

IX. Learning Resources:

Written in the following order: Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): لالثم example

1. Dimmock, AJ.Easton and KN.Leppard, (2010), Introduction to Modern Virology. 10th edition. Blackwell

2- Essential References:

1. AJ.Zuckerman, JE. Banatvala, PD.Griffiths and P.Mortimer (2012), Principles and practice of Clinical virology, 11th edition, Wiley-Blackwell. Jawetz, Melnick, & Adelberg's Medical Microbiology
2. Jawetz, Melnick, & Adelberg's Medical Microbiology (2016)27th,
3.

3- Electronic Materials and Web Sites etc.:

Websites:

1-http://www.asm.orq
2-http://microbiologyonline.org/
3-http://www.microbiologybook.org/

X. Course Policies: (Based on the Uniform Students' By law (2007) امك كرنئ يه

1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' By law (2007) shall apply.

6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

I. Course Identification and General Information:					
1	**Course Title:**	**Blood Bank**			
2	**Course Code & Number:**	**BB 2313**			
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		3	1	0	4
4	**Study Level/ Semester at which this Course is offered:**	**Second Year :Second Semester**			
5	**Pre –Requisite (if any):**	**Hematology1 and Immunology & Serology**			
6	**Co –Requisite (if any):**	None			
7	**Program (s) in which the Course is Offered:**	Diploma in Medical Laboratory Technology (DMLT)			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	Credit Hour System - Semester			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**	CC Campus (Public and private community colleges)			
12	**Prepared by:**	Prof.Dr. Lutfi Al-Maktari			
13	**Date of Approval:**				

II. Course Description:
This course covers the basic theory and concepts of antigen-antibody reactions as they relate to blood cell transfusions. The structure of ABO & Rh blood group antigens and the genetics of their inheritance are closely examined. Antibody production and the role of antibodies in transfusion reactions are studied in depth. Methods are introduced for performing blood grouping and compatibility testing. Proper donor and component selection are also covered. Laboratory intensive sessions in the course help students develop blood banking skills and provide hands on experience in blood bank procedures.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)	Referenced PILOs (مخرجات تعلم البرنامج)

O. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Define basic immunohematology terms, and demonstrate essential understanding of the main functions of blood banking and quality assurance in blood banks.	**A1**	Know all the fundamental information in medical laboratories.
a2	Describe different blood group systems characteristics and applications in blood banks, with emphasis on ABO and Rh systems.	**A3**	Read and understand written and visual data on display screens and write laboratory reports.
a3	Define and state the purpose and elements of quality audit and accreditation and describe the levels and procedures of laboratory blood bank and blood transfusion services.	**A5**	Understand the specialized laboratory materials, theoretically and practically, in line with modern scientific progress.
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Compare between different blood groups, subgroup, and Rh variants, to know the importance of each one.	**B2**	Review and critique manual laboratory processes that include patient preparation, sample requirements, solutions preparation, examination procedures, calculation of results and quality assurance.
b2	Analyze evidence-based basic information needed in Blood Banking ,medical laboratory practice.	**B7**	Plan a quality assurance protocol to monitor procedures and devices, identify errors, and integrate and evaluate data analytics with problem-solving skills.
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Apply Safety rules of Collect, transport, preserve and store blood samples according to Standard Operating Procedures (SOPs) of blood bank.	**C1**	Collect samples from patients in a safe professional manner.
c2	Apply the concepts and processes that underpin quality control and assurance to the quality of tested specimens, reagents, stains and equipment in the blood bank laboratory.	**C3**	Use advanced laboratory equipment effectively and responsibly with the application of quality systems.
c3	Correctly perform and interpret results of a forward and reverse blood type; interpret and record results using AABB standards.	**C4**	Perform laboratory experiments and scientific interpretation of the results of laboratory tests.
D. Transferable Skills: Upon successful completion of the course, students will be able to:			

d1	Work independently or as a team member and effectively communicate with the teaching staff and colleagues to identify, analyze and understand emerging issues.	**D1**	Work as a team.
		D2	Respect patients, colleagues, and superiors and maintain the privacy of patient information.
d2	Manage time efficiently, solve encountered problems and be able to undertake self-learning.	**D3**	Spread the culture of teamwork among students and the need to adapt to scientific developments
		D4	Enable students to know the personal and social responsibility placed on the medical laboratory specialist.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
a1	Define basic immunohematology terms, and demonstrate essential understanding of the main functions of blood banking and quality assurance in blood banks.	-Interactive Lectures - Group Discussion - Self study	- Quizzes - Assignments & Homework - Mid-semester exam -Final exams
a2	Describe different blood group systems characteristics and applications in blood banks, with emphasis on ABO and Rh systems.	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
a3	Define and state the purpose and elements of quality audit and accreditation and describe the levels and procedures of laboratory blood bank and blood transfusion services.	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**

b1	Compare between different blood groups, subgroup, and Rh variants, to know the importance of each one.	- Interactive Lectures - Seminars -Oral presentations	- Quizzes - Assignments - Mid semester exam -Final exams
b2	Analyze evidence-based basic information needed in Blood Banking ,medical laboratory practice.	- Interactive Lectures - Self-learning - Brain storming	- Quizzes - Assignments -Midterm Exam -Final Exam
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
c1	Apply Safety rules of Collect, transport, preserve and store blood samples according to Standard Operating Procedures (SOPs) of blood bank.	- Laboratory demonstrations - Laboratory practice - Group discussion - Animations and Problem Solving -Students of Lab. Med Visits to Blood Bank Services	- Practical quizzes - Portfolios - Logbooks and reports -Mid-semester and final exams
c2	Apply the concepts and processes that underpin quality control and assurance to the quality of tested specimens, reagents, stains and equipment in the blood bank laboratory.	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam -Final exam
c3	Correctly perform and interpret results of a forward and reverse blood type; interpret and record results using AABB standards.	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam - -Final exam
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
d1	Work independently or as a team member and effectively communicate with the teaching hematology staff and colleagues to identify, analyze and understand emerging issues.	- Presentations - Group discussions & seminars -Self-study modules	- Write reports -Write Exercises & solving it. - Assignments &Homework
d2	Enable students to know the personal and social responsibility placed on the medical laboratory specialist.	- Presentations - Group discussions & seminars - -Self-study modules	- Write reports -Write Exercises & solving it. - Assignments - &Homework

IV-Course Content:					
A – Theoretical Aspect:					
Order	**Units/Topics List**	**Sub Topics List**	**Week Due**	**contact hours**	**Learning Outcomes**
1	**Introduction to immunohaematology and blood bank.**	- Overview of course - **Human blood group system** Nature of antigen Antibody definition Structure and classification of immunoglobulin with different properties of IgG and IgM Type of antigen- antibody reaction(sensitization)	1	1	a1-a3, ,b1,b2 ,c2,c3 d1,d2
2	**ABO blood group system**	The ABO blood group gene, and sub groups - Formation of ABO antibodies and antigen, inheritance and incidence. definition of Phenotype and Genotype - Procedure of cells and serum grouping - Method of sub-grouping determination A1, A2 and Bombay subgroup	1	1	a1-a3, ,b1,b2 ,c2,c3 d1,d2
3	**Secretor status and Other main blood group systems**	Secretor status of ABO-genes governed secretor status Procedure of secretor status determination Factors leading to false positive and negative results in grouping techniques - Other main blood group systems	2	2	a1-a3, ,b1,b2 ,c2,c3 d1,d2
4	**Rhesus Blood Group System**	-Rhesus Blood Group System (Rh) -Brief history and discovery -Rh antigen and antibodies Reaction geneotypes and phenotypes of Rh -Rh- grouping and typing tile and tube, albumin and anti-globulin techniques	1	1	a1-a3, ,b1,b2 ,c2,c3 d1,d2

6	**Coombs and compatibility tests (cross-matching)**	Anti-globulin nature of sera and importance, anti-globulin techniques: direct and direct principles and significances Compatibility (cross-matching) techniques, saline room temperature , saline , 28-30 C Albumin 37 C , temperature of each Urgent cross-matching	1	1	a1-a3, ,b1,b2 ,c2,c3 d1,d2
7	**Blood donors and preparation of blood component**	-Blood banking roles, regulation, polices, and duties. -Blood donors selection, medical history, safety guard, donor document and protection. -physical evaluation and management of complication	1	1	a1-a3, ,b1,b2 ,c2,c3 d1,d2
8	**Mid-semester exam**	- MCQs & short-answers	1	l	al,a2 a3, b1,b2, cl-c3
9	**Anticoagulant and preservative used in keeping blood**	-Anticoagulant and preservative used in keeping blood -Blood collection ,phlebotomy, processing and storage	1	1	a1-a3, ,b1,b2 ,c2,c3 d1,d2
10	**Requirements, preparation and handling of blood components :**	-Requirements, preparation handling, and Apheresis of blood components : Packed red cells, platelets, leukocytes, plasma and its fractions i.e cryo-precipitate (factor VIII)	1	l	a1-a3, ,b1,b2 ,c2,c3 d1,d2
11	**Pre-transfusion testing: Avoid transfusion transmitted diseases**	- Types of infectious agents and diseases transmitted via blood: Hepatitis B and C - HIV , such dengue fever &malaria	1	1	

12	**Transfusion reaction**	Transfusion reaction Immunological and nonimmunological reaction	1	1	a1-a3, ,b1,b2 ,c2,c3 d1,d2
13	**Hemolytic disease of the newborn (**HDN**), and Cord blood banking**	HDN: definition, clinical features investigation, treatment and preventive measures Compatibility test for the new born	1	1	a1-a3, ,b1,b2 ,c2,c3 d1,d2
14	**Quality assurance in blood banking and transfusion**	- Organization and management of blood banks - Quality control of reagents and equipment - Quality control of donation, storage and transfusion processes - Documentation and reporting - Internal quality control and external quality assessment	1	1	a1-a3, ,b1,b2 ,c2,c3 d1,d2
15	**Course review**	- Review and discussion of the course topics	1	1	al-a3; b1-b2;c1 -c3, dl,d2
16	**Final Exam**	- MCQs, short-answer and essay questions	1	1	al,a2, a3,bl, b2,cl-c3,
Number of Weeks /and Units Per Semester			**16**	**16**	

B. Case Studies and Practical Aspect:

Order	Tasks/ Experiments	Week Due	Contact Hours	Learning Outcomes
1	Blood bank safety, reagents and equipment and quality assurance in blood bank laboratory.	1	4	cl, c2
2	Forward and reverse ABO blood grouping (slide method): Purpose, principle, procedure, precautions and interpretation	1	4	cl-c3
3	- Forward and reverse ABO blood grouping (tube method): Purpose, principle, procedure, precautions and interpretation	1	4	cl-c3

4	Rh typing: Purpose, principle, procedure, precautions and interpretation	1	4	cl-c3
5	D^u (weak D) testing: Purpose, principle, procedure, precautions and interpretation	1	4	cl-c3
6	Anticoagulants, preservatives and types of blood collection bags: uses, advantages and disadvantages	1	4	C2
7	Mid-semester exam	1	4	a1-a2cl-c3
8	Blood collection, preservation and storage: Purpose, principle, procedure and precautions	1	4	cl-c3
9	Direct Coombs test (Direct anti-globulin test): Purpose, principle, procedure, precautions and interpretation	1	4	cl-c3
10	Indirect Coombs test (Indirect antiglobulin test): Purpose, principle, procedure, precautions and interpretation	1	4	cl-c3
11	Major cross-matching test: Purpose, principle, procedure, precautions and interpretation	1	4	cl-c3
12	Minor cross-matching test: Purpose, principle, procedure, precautions and interpretation	1	4	cl-c3
13	Separation of blood components and testing blood for infectious agents	1	4	cl-c3
14	Final review	1	4	cl-c3
15	Final Practical Exam	1	4	cl-c3
Number of Weeks /and Units Per Semester		**15**	**60**	

V. Teaching strategies of the course:

- Interactive Lectures
- Dialogue and Discussion
- Self-Learning
- Presentation
- Seminars
- Brain storming
- Analyzing and Reporting the results
- Lab. logbook and report assessments
- Practical Training
- Group discussion
- Case studies and Problem Solving

VI. Assessment Methods of the Course:

- Quizzes
- Midterm Exam
- Final Written Exam
- Midterm Practical Exam

- Final Practical Exam
- Lab. logbook and report assessments
- Assignments &Homework
- Group work
- Oral discussion

VII. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	**Assignment :** Searching information about related subjects of Blood Banking in Medical Laboratory Technology	d1	3-13th	10
	TOTAL			**10**

VIII .Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignments	3-13	10	10%	al-a3; bl, b2; cl-c3; dl
2	Quiz 1&2	6&12	5	5%	al-a3; bl, b2; cl-c3
3	Lab. logbook and report	Weekly	10	10%	cl-c3
4	Mid Semester Exam (Practical)	7	10	10%	cl-c3
5	Mid Semester Exam(Theoretical)	8	15	15%	al-a3;bl, b2
6	Final Practical Exam	15	20	20%	cl-c3
7	Final Theoretical Exam	16	40	40%	al-a3;bl, b2
	Total		**100**	**100%**	

IX . Learning Resources:

- *Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).*

1- Required Textbook(s) (maximum two).

1- Blaney KD, Howard' PR (2018). Basic and Applied Concepts of Blood Banking and Transfusion Practices. 4th ed. Mosby Elsevier.
2- Denise M. Harmening (2019). Modern Blood Banking & Transfusion Practices .Kindle Edition .7th ed.F.A.Davis .USA.

2- Essential References.

1-Lewis SM, et al (2017). Dacie and Lewis Practical Haematology Elsevier Health Sciences.

	2- Basic & Applied Concepts of Blood Banking and Transfusion Practices (2016),4th Edition (3rd Edition will work as well) 4th EDITION ISBN-13: 978-0323374781 ISBN-10: 0323374786 Published by Elsevier - Health Sciences Division 2-Gretchen Johns, William Zundel, Elizabeth Gockel-Blessing (2014) Clinical Laboratory Blood Banking and Transfusion Medicine Practices (Pearson Clinical Laboratory Science). Paperback.Books.A.Milion.USA.
3- Electronic Materials and Web Sites *etc*.	
	1-Transfusion handbook (http://www.transfusion2uidelines.or2.uk/transfusion-handbook) 2-Essential Hematolo2V (htto://www.essentialhaematolo2v6.com/default.asD) 3-http://www.aabb.org 4-http://www.haemonetics.com/en/learning-center

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي	
1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' By law (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

I. Course Identification and General Information:					
1	**Course Title:**	**Clinical Chemistry & Body Fluids**			
2	**Course Code & Number:**	**CBF 2314**			
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		3	2	0	2
4	**Study Level/ Semester at which this Course is offered:**	**Second Year :Second Semester**			
5	**Pre –Requisite (if any):**	Biochemistry 2			
6	**Co –Requisite (if any):**	None			
7	**Program (s) in which the Course is Offered:**	Diploma in Medical Laboratory Technology (DMLT)			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	Credit Hour System- Semester			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**	CC Campus(Public and private community colleges)			
12	**Prepared by:**	Prof. Ali Al-Miri			
13	**Date of Approval:**				

II. Course Description:
This course provides an overview of the main aspects about study of theoretical and practical aspects of chemical and microscopic analysis of urine, cerebrospinal fluid, synovial fluid, and serous fluid. Introduces pathophysiology, diagnosis, and monitoring of selected human diseases on an organ system basis. Includes lipids, acid-base balance, electrolytes, non-protein nitrogenous waste (creatinine, urea, uric acid), discuss areas unique to clinical chemistry laboratory and professional performance.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)	Referenced PILOs (مخرجات تعلم البرنامج)
P. Knowledge and Understanding: Upon successful completion of the course, students will be able to:	

a1	Demonstrate chemical composition and microscopic analysis of urine, cerebrospinal fluid, synovial fluid, semen, and serous fluids in the body.	**A1**	Know all the fundamental information in medical laboratories.
a2	Make decisions about the validity of test results using an understanding of abnormal test results and their correlation with appropriate pathologic conditions.	**A4**	Understand the specialized laboratory materials, theoretically and practically, in line with advanced scientific progress.
a3	Adapt chemistry laboratory techniques and procedures when errors and discrepancies in results are obtained to effect resolution in a professional and timely manner.	**A5**	Know and understand all laboratory tests, their abbreviations, their importance, the method of taking them, and the interpretation of their results.
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Integrate knowledge and making informed judgments about urinalysis &clinical chemistry test results in the clinical setting.	**B2**	Review and critique manual laboratory processes that include patient preparation, sample requirements, solutions preparation, examination procedures, calculation of results and quality assurance.
b2	Collect and organize data in a systematic fashion of some body fluids; viz. blood, urine, milk, Semen, CSF and sweat and other body fluids which analyze interpret the results with high efficiency.	**B6**	Collect, treat, and analyze samples and interpret the results with high efficiency.
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Collect, transport, preserve and store blood samples according to Standard Operating Procedures (SOPs).	**C1**	Collect samples from patients in a safe professional manner.
c2	Use the instrument and devices in biochemistry lab and recognize errors or discrepancies in results during lab procedures ,includes lipids, liver function tests, enzymes ,electrolytes, non-protein nitrogenous waste (creatinine, urea, uric acid).	**C3**	Use advanced laboratory equipment effectively and responsibly with the application of quality systems.

c3	Properly prepare reagents, standards, quality control material, and patient specimens for chemistry procedures.	**C4**	Perform laboratory experiments and scientific interpretation of the results of laboratory tests.
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Work independently or as a team member and effectively communicate with the teaching hematology staff and colleagues to identify, analyze and understand emerging issues.	**D1**	Work as a team.
		D2	Respect patients, colleagues, and superiors and maintain the privacy of patient information.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
a1	Demonstrate chemical composition and microscopic analysis of urine, cerebrospinal fluid, synovial fluid, semen, and serous fluids in the body.	-Interactive Lectures - Group Discussion - Self study	- Quizzes - Assignments & Homework - Mid-semester exam -Final exams
a2	Make decisions about the validity of test results using an understanding of abnormal test results and their correlation with appropriate pathologic conditions.	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
a3	Adapt chemistry laboratory techniques and procedures when errors and discrepancies in results are obtained to effect resolution in a professional and timely manner.	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
b1	Describe micronutrients, their biochemical, clinical and laboratory importance and deficiency manifestations of each.	- Interactive Lectures - Seminars -Oral presentations	- Quizzes - Assignments - Mid semester exam -Final exams

b2	Describe the of some body fluids; viz. blood, urine, , Semen, CSF and sweat.	- Interactive Lectures - Self-learning - Brain storming	- Quizzes - Assignments -Midterm Exam -Final Exam
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
c1	Collect, transport, preserve and store blood samples according to Standard Operating Procedures (SOPs).	- Demonstrations -Group discussion	-Quizzes - Mid semester exam -Final exams
c2	Use the instrument and devices in biochemistry lab.	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam -Final exam
c3	Perform some basic chemical testes to identify different enzymes, minerals hormones.	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam - -Final exam
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
d1	Work independently or as a team member and effectively communicate with the teaching hematology staff and colleagues to identify, analyze and understand emerging issues.	- Presentations - Group discussions & seminars -Self-study modules	- Write reports -Write Exercises & solving it. - Assignments &Homework

IV. Course Contents:					
A. Theoretical Aspect:					
No.	**Units/Topics List**	**Sub Topics List**	**Number of Weeks**	**Contact Hours**	**Learning Outcomes (CILOs)**
1	**Urine Analysis**	Urinary tract system,formation of the urine, - Normal composition, collection, - Physical properties - Chemical properties, -Microscopically examinations, - Bacteriological tests	2	4	al, a2,b1,b2
2	**CSF (cerebrospinal Fluid)**	-Introduction, , formation, - Normal composition, collection techniques, -Physical examination, chemical examination, Microscopically examinations, bacteriological tests	1	2	a1-a3, b1 ,b2,c1-c3,d1
3	**Semen Analysis**	Introduction, reproductive system (Male), formation of the Semen and sperm normal morphology abnormal Morphology, normal composition, collection techniques, Physical examination, chemical examination, Microscopically examinations, bacteriological tests	2	42	
4	**Midterm exam**	MCQs, matching, short-answer,…etc.	1	2	a1,a2,a3 b1,b2
5	**Pleural, peritoneal effusion, Synovial fluid**	Introduction Physiology, Exudates Collection techniques, physical examination, chemical Examination, microscopically examinations, Bacteriological tests	1	2	a1,a2, a3,b1 ,b2,c1-c3,d1
6	**Clinical enzymology**	Uses of diagnostic enzyme in human disease - introduction to plasma enzyme **-Liver enzymes:** GOT,GPT,ALP,αGT,SNase	2	4	a1,a2, a3,b1 ,b2,c1-c3,d1

		-Cardiac Enzymes : CPK:izoenzyme and total ,LDH izoenzyme			
7	**Pancreatic enzymes and Prostatic enzyme**	**Pancreatic enzymes**(definition, cause and subtypes) - α.amaylase - lipase **Prostatic enzyme** - Acid phosphatase (ACP)	1	2	
8	**Clinical Endo Craniology:**	**Endocrine and hormons** Introduction Hormons of H.T Hormones of Pituitary gland(antierior labe of pituitary glan) Relationship between hypothalamus hormones and anterior lobe of pituitary gand.	1	2	a1,a2, a3,b1 ,b2,c1-c3,d1
9	**Thyroid hormones**	**Thyroid hormones** - hyper and hypothyroidism . -primary ,secondary and teriatry. - adrenal cortex ,cortisol ,aldosterone	1	2	
10	**Gonads hormones**	**Gonads hormones** Oesterogen ,ostrodiol Androgen (testosterone and DHS	1	2	
11	**Minerals :**	**Minerals** - Calcium ,phosphate ,magnesium Water and minerals (Na^+ ,K^+ ,HCO_3 Cl)	1	2	
12	**Review**		1	2	a1,a2, a3,b1 ,b2,c1-c3,d1
13	**Final exam**	-Fill in the blank, MCQs, matching, short-answer and short essay questions.	1	2	a1-a3, b1 ,b2,c1-c3,
Number of Weeks /and Units Per Semester			**16**	**32**	

B. Case Studies and Practical Aspect:				
No.	**Tasks/ Experiments**	**Number of Weeks**	**Contact Hours**	**Learning Outcomes (CILOs)**
1	-Collection of fluid sample -Instruments in body fluid analysis & lab safety -Physical examination of body fluid -Chemical examination of body fluid -Microscopical examination of body fluid	2	4	a1, a2, b1,b2 c1-c3,d1
2	Urine analysis	1	2	
3	CSF, Pleural, peritoneal effusion, Synovial fluid analysis	1	2	a1, a2, b1,b2 c1-c3,d1
4	Semen Analysis	1	2	
5	**Med-Term Exam.**	1	2	c1-c3,d1
6	Markers for myocardial infarction, troponin, CK, LDH, AST and Myoglobin. Abnormalities and measurements	1	2	a1, a2, b1,b2 c1-c3,d1
7	Kidney function tests: urea, creatinine, creatinine clearance	2	4	
8	Liver function tests: Bilirubin (direct and total), GPT,GOT, ALP , GGT, and albumin abnormalities and measurements	2	4	
9	Estimation lipid profile - Total cholesterol - Triglycerides - HDL / LDL / VLDL	1	2	
10	Estimation of total proteins	1	2	a1, a2, b1,b2 c1-c3,d1
11	**Review**	1	2	a1, a2, b1,b2 c1-c3,d1
12	**Final Exam**	1	2	a1, a2,a3 b1,b2 c1-c3
Number of Weeks /and Units Per Semester		15	30	

V. Teaching strategies of the course:

- Interactive Lectures
- Dialogue and Discussion
- Self-Learning

- Presentation
- Seminars
- Brain storming
- Group discussion
- Analyzing , Reporting the results
- Lab. logbook and report
- Practical Training

VI. Assessment Methods of the Course:

- Quizzes
- Midterm Exam
- Final Written Exam
- Final Practical Exam
- Lab. logbook and reports
- Assignments &Homework
- Group work
- Oral discussion

VII. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	**Assignment :** Searching information about related subjects of **fundamentals of body fluids and clinical chemistry** in Medical Laboratory Technology	d1	3-13th	5
	TOTAL			**5**

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	**Assignments**	3-13th	5	5 %	d1
2	**Quiz**	6th	5	5 %	a1,a2, a3 b1,b2
	Mid-Term Practical Exam	8th	10	10 %	c1-c3,d1
3	**Mid-Term Theoretical Exam**	7th	10	10 %	a1,a2, a3

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
					b1,b2
4	**Logbook(Practical report)**	weekly	10	10%	c1-c3
5	**Final Practical Exam**	15th	20	20%	a1,a2, a3,b1 ,b2,c1-c3
6	**Final Theoretical Exam**	16th	40	40 %	a1,a2, a3,b1 ,b2,c1-c3
Total			**100**	**100%**	

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, Title, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two):

1 -Victor W. Rodwell, David A. Bender, Kathleen M. Botham, Peter J. Kennelly, P. Anthony Weil, (2018), **Harper's Illustrated Biochemistry 31th** edition, New York : Mcgraw-Hill Education,

2- R. A. Harvey PhD, D. R. Ferrier P. C. Champe (2018), **Biochemistry** (Lippincott's Illustrated Reviews Scries), 8th edition, Lippincott Williams & Wilkins, USA.

2- Essential References:

5- Rifai, Nader, Andrea R. Horvath and Carl T. Wittwer(2019). Tietz **Fundamentals of Clinical Chemistry and Molecular Diagnostics**. 8 th ed. St. Louis, Elsevier,. (NEW EDITION)

6- MN Chatterjea, Rana shinde (2013), **Medical Biochemistry**, 8th edition, Jitendra P Vij, Panama.

3- Electronic Materials and Web Sites etc.:

Websites:

1--https://www.biochemistrv.org/

2. www.biochemi.org/bi/default.htm

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي

1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:**

	A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' By law (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

SYLLABUS
YEAR (3)
SEMESTER (1)

I. Course Identification and General Information:

1	**Course Title:**	**Biostatistics**			
2	**Course Code & Number:**				
3	**Credit Hours**	**Theory Hours**	**Credit Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		2	2	--	--
4	**Study Level/ Semester at which this Course is offered:**				
5	**Pre –Requisite (if any):**				
6	**Co –Requisite (if any):**				
7	**Program (s) in which the Course is Offered:**				
8	**Language of Teaching the Course:**	English			
9	**Study System:**	Semester Based System			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**				
12	**Prepared by:**				
13	**Date of Approval:**				

II. Course Description:

This course is designed to acquire student with basic principles of statistics and how to deal with different data at various clinical settings and researches

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)		**Referenced PILOs (مخرجات تعلم البرنامج)**	
Q. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Identify Types of variables, classification of data, statistical test and their applications to health		
a2	Recognize types of hospital records, nonparametric tests and methods of data presentation		

B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Differentiate between types of hospital records **and** alternative and null hypotheses		
b2	Analysis the data and tabulation and interpret the results		
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Apply methods of graphical presentation		
c2	Records different types of hospital data		
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Consider confidentiality during data management & work within legal aspect		
d2	Enhance lifelong, self-directed working		

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
a1	Identify Types of variables, classification of data, statistical test and their applications to health	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations
a2	Recognize types of hospital records, nonparametric tests and methods of data presentation	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
b1	Differentiate between types of hospital records **and** alternative and null hypotheses	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam

b2	Analysis the data and tabulation and interpret the results	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam

(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
c1	Apply methods of graphical presentation	▪ Active learning, ▪ Small group learning. ▪ Learning tasks and activities	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
c2	Records different types of hospital data	▪ Active learning, ▪ Small group learning. ▪ Learning tasks and activities	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam

(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Consider confidentiality during data management & work within legal aspect	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities
d2	Enhance lifelong, self-directed working	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Introduction	▪ Definition and application of biostatistics ▪ Variables ▪ Hypothesis ▪ Sampling types of samples and methods.	1	1	a1, b1, c1, d1

2	Data	• Data collection • Classification of data • Methods of data presentation • Tabulation of data • Graphic presentation of data • Uses of frequency distribution tables.	3	3	a1, b1, c1, d1
3	Statistical test and their applications to health	• Mean, SD, mode and Median • Applicable examples on biostatistics • Measurement of correlation and calculation of correlation coefficient. • Research analysis. • Vital statistics.	3	3	a1, b1, c1, d1
4		Midterm exam	1	1	a1, b1, c1, d1
5	Records	• Types of hospital records. • The importance of statistical ratio. • Statistical data analysis to obtain percentage, rate, test and graphic presentation.	2	2	a2, b2, c2, d2
6	Nonparametric tests	• Association and Causation • Correlation and regression • Analysis of Variance • Multivariate analysis	4	4	a2, b2, c2, d2
7		Final exam	1	1	a2, b2, c2, d2
Number of Weeks /and Units Per Semester					

V. Teaching Strategies of the Course:

- Interactive lecture
- Seminars and student presentations
- Brain storming
- Role-play and simulation
- Small group discussion
- Learning tasks and activities
- Problems solving
- Case study analysis

VI. Assessment Methods of the Course:

- Assignments
- Quizzes
- Mid-term exam

- Final term exam

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	**Assignment 1: Parametric tests**	W5	**5**	a1, c1
2	**Assignment 2: Nonparametric tests**	W11	5	a2, b2, c2
Total			**10**	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	**Assignments**	W5,11	10	10%	a1, b1, a2, b2, c2,
2	**Quizzes 1 & 2**	W3, 9	10	10%	a1, a2, b1, b2
3	**Mid-Term Theoretical Exam**	W7	20	20%	a1, b1, c1, d1
4	**Final Theoretical Exam**	W16	60	60%	a2, b2, c2, d2
Total			**100**	**100%**	

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): مثال example

2- Essential References:

3- Electronic Materials and Web Sites etc.:

Websites:

-

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي

1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.

2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

I. Course Identification and General Information:

1	**Course Title:**	**Research Methodology**			
2	**Course Code & Number:**				
3	**Credit Hours**	**Theory Hours**	**Credit Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		2	2	--	--
4	**Study Level/ Semester at which this Course is offered:**				
5	**Pre –Requisite (if any):**				
6	**Co –Requisite (if any):**				
7	**Program (s) in which the Course is Offered:**				
8	**Language of Teaching the Course:**	English			
9	**Study System:**	Semester Based System			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**				
12	**Prepared by:**				
13	**Date of Approval:**				

II. Course Description:

This course is necessary for nurses to be familiar with research principles, needed to conduct research, collect research data, and interpret published studies, because research is essential to improving patient care. This course includes identifying specific problem to be investigated, initiating research, research ethics, writing the literature review, study design, methodology, sampling instruments, research statistics, data management, manuscript preparation, manuscript submission, and research presentation.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)		**Referenced PILOs** (مخرجات تعلم البرنامج)	
R. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Identify research problem, question, literature review, study design for the research to be investigated		

a2	Recognize the research methodology, data collection instruments, research statistics, data management, manuscript preparation and research presentation		
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Compare quantitative and qualitative research approaches, observational and experimental studies, probability and nonprobability sampling.		
b2	Use critical thinking to examine literature review and research outcomes relevant to emergency practices.		
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Design an appropriate research question, study aim, study hypothesis, research types and study design, sampling methodology and data collection instruments		
c2	Formulate research projects and manuscript in a structured and predetermined and fascinating style.		
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Demonstrate competent communication, presentation skills, group work skills and understanding for their future role in utilizing research findings.		
d2	Sought ethical committee authorization prior to study commencement		

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
a1	Identify research problem, question, literature review, study design for the research to be investigated	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations
a2	Recognize the research methodology, data collection instruments, research statistics, data management, manuscript preparation and research presentation	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations

(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
b1	Compare quantitative and qualitative research approaches, observational and experimental studies, probability and nonprobability sampling.	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
b2	Use critical thinking to examine literature review and research outcomes relevant to emergency practices.	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
c1	Design an appropriate research question, study aim, study hypothesis, research types and study design, sampling methodology and data collection instruments	▪ Active learning, ▪ Small group learning. ▪ Learning tasks and activities	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
c2	Formulate research projects and manuscript in a structured and predetermined and fascinating style.	▪ Active learning, ▪ Small group learning. ▪ Learning tasks and activities	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
d1	Demonstrate competent communication, presentation skills, group work skills and understanding for their future role in utilizing research findings.	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities
d2	Sought ethical committee authorization prior to study commencement	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Identify research problem, funding, and research team**	▪ **Identify specific problem, procedure, or question to be investigated** o Introduction o Justification ▪ **Funding** ▪ **Initiating the research** o Purpose of the study ***protocol*** o Protocol structure o Prepare a Question o Study hypothesis o Study aims ▪ **Assembling the research team** ✓ Introduction ✓ Methods ▪ **Research ethics** o Scientific value o Benefits forgone o Informed consent	**2**	**4**	a1, b1, c1, d1
2	**Selection of types of research**	▪ **Selection of types of research** o Qualitative o Quantitative ✓ Experimental research ✓ Nonexperimental research ✓ Survey research o Retrospective research ▪ longitudinal design	**1**	**2**	a1, b1, c1, d1
3	**The literature review**	▪ **The literature review** o Purposes of the Literature Review o Literature Sources ✓ Types of Information Sources ✓ Primary and Secondary Source ✓ Grey Literature o Search Strategies ✓ Develop a Search Strategy ✓ Ask a Librarian ✓ Finding Tools ✓ Selected Databases o Writing the Literature Review ✓ Extracting Information from Literature Sources	**2**	**4**	a1, b1, c1, d1

		✓ Critiquing the Literature Review in a Research Article o Components of a Literature Review			
4	***Study design***	▪ ***Study design*** o Observational studies ✓ Cross-sectional studies ✓ Ecological studies ✓ Cohort studies ✓ Case-control studies ✓ Case reports and case series o Experimental or interventional studies ✓ Main types of clinical trials ✓ Key features of clinical trials ✓ Blinding ▪ **Questionnaire studies** ▪ **Typical errors in questionnaire design** ▪ **Case control studies** ▪ **Case reports** ▪ **Interview studies** ▪ **Focus group studies**	**2**	**4**	a1, b1, c1, d1
5		**Midterm exam**	**1**	**2**	a1, b1, c1, d1
6	***Methodology***	▪ **Concepts of *methodology*** o Validity & repeatability of study methods ✓ Response rate ✓ Study variables ✓ Study end points ▪ ***Sampling* study subjects** o Define the Population o Sampling frame o Sampling methodology o Stratified sampling o Nonprobability sampling	**1**	**2**	a2, b2, c2, d2
7	**Data collection *instruments***	▪ **Data collection *instruments*** o Surveys o Designing a survey o Before a survey o During the survey o After the survey o Data collection performs ▪ **Questionnaire** ▪ **Bias and confounding** o Study design errors o Systematic error (bias) o Confounding o Common confounders ▪ **Interview studies**	**2**	**4**	a2, b2, c2, d2

8	**Principles of clinical research *statistics***	▪ **Principles of clinical research *statistics*** o Sample size o Study power o Statistical versus clinical significance o Gather and Analyze Data ✓ Descriptive Statistics • Qualitative analysis • Quantitative analysis • Inferential Statistics ▪ **Databases & principles of *data management*** o Defining data to be collected o Database design o Data entry o Data validation	**1**	**2**	a2, b2, c2, d2
9	**Research publication**	▪ **Introduction** ▪ **Important principles** o Duplicate publication ▪ **Readability** ▪ **Publication types** ▪ **Manuscript preparation** o Original research manuscripts ✓ Abstract ✓ Introduction ✓ Methods ✓ Results ✓ Discussion ✓ Case reports ✓ Systematic reviews & meta-analyses ✓ Letter to the editor ▪ **Manuscript submission** o The cover letter ▪ **Feedback from journals** ▪ **Post-acceptance issues** o Social media	**1**	**2**	a2, b2, c2, d2
10	**Research presentation**	▪ **Research presentation** o Data **show presentation** (Tables, Charts, Graph, …) ▪ **Proposal Discussion**	**2**	**4**	a2, b2, c2, d2
11		**Final exam**	**1**	**2**	a2, b2, c2, d2
Number of Weeks /and Units Per Semester					

V. Teaching Strategies of the Course:

- Interactive lecture
- Seminars and student presentations

- Brain storming
- Role-play and simulation
- Small group discussion
- Learning tasks and activities
- Problems solving
- Case study analysis

VI. Assessment Methods of the Course:

- Assignments
- Quizzes
- Mid-term exam
- Final term exam

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	**Assignment 1:** literature review	W5	**5**	a1, c1
2	**Assignment 2:** report presentation	W11	5	a2, b2, c2
Total			**10**	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	**Assignments**	W5,11	10	10%	a1, b1, a2, b2, c2,
2	**Quizzes 1 & 2**	W3, 9	10	10%	a1, a2, b1, b2
3	**Mid-Term Theoretical Exam**	W7	20	20%	a1, b1, c1, d1
4	**Final Theoretical Exam**	W16	60	60%	a2, b2, c2, d2
Total			**100**	**100%**	

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): مثال example

5.

2- Essential References:
2.
3- Electronic Materials and Web Sites etc.:
Websites: ▪

I. Course Identification and General Information:					
1	**Course Title:**	**Diagnostic Microbiology**			
2	**Course Code & Number:**				
3	**Credit Hours:**	Credit Hours	Theory Hours		Lab. Hours
			Lecture	Exercise	
		3	1	0	4
4	**Study Level/ Semester at which this Course is offered:**	**third Year - FIRST Semester**			
5	**Pre –Requisite (if any):**	-Medical Bacteriology1 - Medical Bacteriology 2 **-Virology and Mycology**			
6	**Co –Requisite (if any):**	None			
7	**Program (s) in which the Course is Offered:**	Medical Laboratories			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	**Credit Hour based**			
10	**Mode of Delivery:**	**Full Time**			
11	**Location of Teaching the Course:**	**MS Campus**			
12	**Prepared by:**	**Dr. Anwar Al-Madhagi**			
13	**Date of Approval:**				

II. Course Description:

This course is designed to study diagnostic Microbiology and intended for Medical Laboratories students. It will covers general principles of infectious diseases and laboratory diagnosis. The course will focus on collection of clinical specimens, culture, isolation and identification by biochemical and serological tests and other unique aid in identification of infectious agents, followed by determination of susceptibility to antibacterial agents.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات التعلم المقررة)		Referenced PILOs (مخرجات التعلم البرنامج)	
A. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Apply theory, microbiology knowledge and technical skills to identify bacteria in the laboratory, appreciating the hazards associated with handling microorganisms in the laboratory and the subsequent safety requirements	**A4**	Apply safety and infection prevention procedures while handling laboratory and biological samples and other materials, adhering to standard precautions and regulatory guidelines.
a2	Explain the etiology, epidemiology, laboratory diagnostic methods of different diseases and anti-bacterial sensitivity tests	**A5**	Know and understand all laboratory tests, their abbreviations, their importance, the method of taking them, and the interpretation of their results
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Select appropriate methods of infection control to prevent infections and using appropriate laboratory procedures in analysis of biological samples.	**B2**	Review and critique manual laboratory processes that include patient preparation, sample requirements, preparation of solutions, examination procedures, calculation of results and quality assurance.
b2	Analyze the results, different problems and recognize the diseases caused by different pathogens	**B6**	Collect, treat, and analyze samples and interpret the results with high efficiency
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			

c1	Perform various laboratory procedures including specimen collection, , processing, isolation, identification of pathogenic agent	**C1**	Take samples from patients in a safe professional manner
c2	Do laboratory tests to investigate anti-microbial agents;	**C3**	Use advanced laboratory equipment effectively and responsibly with the application of quality systems.
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Demonstrate effective communication skills with patients, colleagues and other staff members.	**D2**	Respect patients, superiors and colleagues and maintain the privacy of transactions.
d2	Effectively use computer skills as well as information and communication technologies	**D4**	Spread the culture of teamwork among students and the need to adapt to scientific developments.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
a1	Apply theory, microbiology knowledge and technical skills to identify bacteria in the laboratory, appreciating the hazards associated with handling microorganisms in the laboratory and the subsequent safety requirements	Lectures Presentation Discussion	MCQs Quiz Practical report
a2	Explain the etiology, epidemiology, laboratory diagnostic methods of different diseases and anti-bacterial sensitivity tests	Lectures Presentation Discussion	MCQs Quiz Practical report
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
b1	Select appropriate methods of infection control to prevent infections and using appropriate laboratory procedures in analysis of biological samples.	Lectures Presentation Discussion	MCQs Quiz Practical report
b2	Analyze the results, different problems and recognize the diseases caused by different pathogens	Lectures Presentation Discussion	MCQs Quiz Practical report
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
c1	Perform various laboratory procedures including specimen collection, , processing, isolation, identification of pathogenic agent	Lectures Presentation Discussion Group work	MCQs Quiz Practical report
c2	Do laboratory tests to investigate anti-microbial agents;	Lectures Presentation Discussion Group work	MCQs Quiz Practical report
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
d1	Demonstrate effective communication skills with patients, colleagues and other staff members.	Lectures Presentation Discussion	MCQs Quiz Practical report
d2	Effectively use computer skills as well as information and communication technologies	Lectures Presentation Discussion	MCQs Quiz Practical report

IV. Course Contents: a1,a2,b1,b2,c1,c2,d1,d2

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Principles of Diagnostic Microbiology	-Medically important pathogens -Main characteristics of pathogens -Clinical specimens used for the diagnosis of pathogenic Microorganisms	2	4	a1,a2,b1, b2,c1,c2, d1,d2
2	Preparation of media and reagents	Nutrient broth/Agar Blood Agar MacConkey Agar	1	2	a1,a2,b1, b2,c1,c2, d1,d2
3	**Ear specimen**	-Collection, transportation of specimen -Cultivation and identification of pathogenic bacteria - Antimicrobial susceptibility testing	1	2	a1,a2,b1, b2,c1,c2, d1,d2
4	**Throat swab**	-Collection, transportation of specimen -Cultivation and identification of pathogenic bacteria - Antimicrobial susceptibility testing	1	2	a1,a2,b1, b2,c1,c2, d1,d2
5	**Urine specimen**	-Collection, transportation of specimen -Cultivation and identification of pathogenic bacteria - Antimicrobial susceptibility testing	1	2	a1,a2,b1, b2,c1,c2, d1,d2
6	**Eye specimen**	Collection, transportation of specimen -Cultivation and identification of pathogenic bacteria - Antimicrobial susceptibility testing	1	4	a1,a2,b1, b2,c1,c2, d1,d2
7	**Revision**	-Ear specimen -Throat swab -Urine specimen - Eye specimen	1	2	a1,a2,b1, b2,c1,c2, d1,d2
8	**Midterm exam**	**Writing** **-MCQs**	1	2	a1,a2,b1, b2,c1,c2, d1,d2

9	**Stool specimen**	Collection, transportation of specimen -Cultivation and identification of pathogenic bacteria - Antimicrobial susceptibility testing		2	a1,a2,b1, b2,c1,c2, d1,d2
10	**pus specimen**	Collection, transportation of specimen -Cultivation and identification of pathogenic bacteria - Antimicrobial susceptibility testing	1	2	a1,a2,b1, b2,c1,c2, d1,d2
11	**Urogenital swab**	Collection, transportation of specimen -Cultivation and identification of pathogenic bacteria - Antimicrobial susceptibility testing	1	2	a1,a2,b1, b2,c1,c2, d1,d2
12	**Blood specimen**	Collection, transportation of specimen -Cultivation and identification of pathogenic bacteria - Antimicrobial susceptibility testing	1	2	a1,a2,b1, b2,c1,c2, d1,d2
13	**Nasal specimen**	Collection, transportation of specimen -Cultivation and identification of pathogenic bacteria - Antimicrobial susceptibility testing	1	2	a1,a2,b1, b2,c1,c2, d1,d2
14	**Revision**	**All topics**	1	2	a1,a2,b1, b2,c1,c2, d1,d2
15	**Final Exam**	**MCQs** **Writing**	1	2	a1,a2,b1, b2,c1,c2, d1,d2
16					
Number of Weeks /and Units Per Semester			**15**	**30**	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Preparation media and reagents	1	4	a1,a2,b1,b2,c1,c2,d1,d2
2	Exam ear swab and report the result	1	4	a1,a2,b1,b2,c1,c2,d1,d2
3	Exam throat swab and report the result	1	4	a1,a2,b1,b2,c1,c2,d1,d2
4	Exam urine specimen and report the result	1	4	a1,a2,b1,b2,c1,c2,d1,d2

5	Exam eye swab and report the result	1	4	a1,a2,b1,b2,c1,c2,d1,d2
6	Revision	1	4	a1,a2,b1,b2,c1,c2,d1,d2
7	Med-Term Exam.	1	4	a1,a2,b1,b2,c1,c2,d1,d2
8	Exam stool specimen and report the result	1	4	a1,a2,b1,b2,c1,c2,d1,d2
9	Exam pus specimen and report the result	1	4	a1,a2,b1,b2,c1,c2,d1,d2
10	Exam nasal swab and report the result	1	4	a1,a2,b1,b2,c1,c2,d1,d2
11	Exam blood specimen and report the result	1	4	a1,a2,b1,b2,c1,c2,d1,d2
12	Revision	1	4	a1,a2,b1,b2,c1,c2,d1,d2
13	Final Exam.	1	4	a1,a2,b1,b2,c1,c2,d1,d2
Number of Weeks /and Units Per Semester		26	**52**	

C. Tutorial Aspect:

No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1				
2				
Number of Weeks /and Units Per Semester		**14**	**28**	

V. Teaching Strategies of the Course:

Lectures
Presentation
Discussion

VI. Assessment Methods of the Course:

MCQs
Quiz

Practical report

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1				
2				
Total				

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	**Assignments**	10^{th}	30	5 %	Assignments
2	**Quiz**	6^{th} and 12^{th}	10	5 %	Quiz
3	**Assignments**	10^{th}	30	5 %	Assignments
4	**Quiz**	6^{th} and 12^{th}	10	5 %	Quiz
5	**Assignments**	10^{th}	30	5 %	Assignments
6	**Quiz**	6^{th} and 12^{th}	10	5 %	Quiz
7					
Total			**100**	**100%**	

IX. Learning Resources:

Written in the following order: Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): لائم example

1. Cheesbrough M (2009). District Laboratory Practice in Tropical Countries Part 2: SC.Parija, (2017), Textbook of Practical Microbiology, Ahuia publishing house, USA.

2- Essential References:

1. Abla M. El-Mishad, 2011: Manual of medical Microbiology & Immunology, Vol1,11ed.
2. 2. Kapil, (2013), Textbook of Microbiology, 9th edition, Orient Blackswan publisher, USA

3- Electronic Materials and Web Sites etc.:

Websites:

1-http://microbiologyonline.org/
2-http://www.microbiologybook.org/

X. Course Policies: (Based on the Uniform Students' By law (2007) اهك كرتة يه

1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:**

I. Course Identification and General Information:

1	**Course Title:**	Diagnostic Parasitology			
2	**Course Code & Number:**	DP 3317			
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		3	2		2
4	**Study Level/ Semester at which this Course is offered:**	3rd Level / 1st Semester			
5	**Pre –Requisite (if any):**	Parasitology1;2			
6	**Co –Requisite (if any):**				
7	**Program (s) in which the Course is Offered:**	Medical Laboratory Technician			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	Semester based system			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**	Community Colleges			
12	**Prepared by:**	Assoc. Prof. Dr./ Abdulbasit Al-Ghoury			
13	**Date of Approval:**	October 2021			

II. Course Description:

The course is concerning with the Protozoa, Helminths, and Entomology, which infect human or play a role in human infection. The course is designed to introduce the student to diagnostic parasitology practice, purpose, safety measures, collection and processing of specimens from specific parasitic infection , isolation of disease agent, identification, and selection of suitable diagnostic techniques, with emphasis on automation.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات التعلم المقررة)		Referenced PILOs (مخرجات التعلم البرنامجية)	
A. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Identify the nature of diagnostic Medical Parasitology.	**A1**	Know all the basic information in medical laboratories.
a2	Demonstrate techniques and procedures used for parasitological specimen collection, transportation, storage, and suitability evaluations.	**A4**	Apply safety and infection prevention procedures while handling laboratory and biological samples and other materials, adhering to standard precautions and regulatory guidelines.
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Integrate laboratory findings with disease processes and physiological factors affecting the results.	**B1**	Interpret the results of various laboratory tests.
b2	Formulate a plan for differential diagnosis with prioritization of the common possibilities for each parasitic infection.	**B7**	Plan a quality assurance protocol to monitor procedures and devices, identify errors, and integrate and evaluate data analytics with problem-solving skills.
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Apply technical skills in using laboratory equipment, tools, and materials in laboratory practice.	**C3**	Use advanced laboratory equipment effectively and responsibly with the application of quality systems.
c2	Perform the suitable diagnostic tests on clinical samples of fluids, blood, and tissue samples and other substances.	**C4**	Do laboratory experiments and scientific interpretation of the results of laboratory tests.
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Work independently or as a team member and effectively communicate with the teaching staff, colleagues and other health care professionals.	**D1**	Work as one team
d2	Communicate effectively using appropriate scientific language orally and in writing.	**D4**	Spread the culture of teamwork among students and the need to adapt to scientific developments.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
a1	Identify the nature of diagnostic Medical Parasitology.	- Interactive Lectures - Self-learning	-Written exam -Reports evaluation - MCQ Quizzes
a2	Demonstrate techniques and procedures used for parasitological specimen collection, transportation, storage, and suitability evaluations.	- Interactive Lectures - Presentation	-Written exam -Reports evaluation -Problems evaluation - MCQ
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
b1	Integrate laboratory findings with disease processes and physiological factors affecting the results.	-Lectures - Group Discussion - Laboratory session	-Quizzes -Midterm Exam -Final Exam
b2	Formulate a plan for differential diagnosis with prioritization of the common possibilities for each parasitic infection.	- Interactive Lectures - Self-learning - Laboratory session	Oral exams Coursework assignments Midterm Exam -Final Exam
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**

c1	Apply technical skills in using laboratory equipment, tools, and materials in laboratory practice.	- Laboratory demonstrations - Laboratory practice - Group discussion	- Quizzes - Written exam - Reports evaluation
c2	Perform the suitable diagnostic tests on clinical samples of fluids, blood, and tissue samples and other substances.	- Laboratory demonstrations - Laboratory practice - Group discussion	- Practical quizzes - Logbooks and reports -Mid-semester and final exams

(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Work independently or as a team member and effectively communicate with the teaching staff, colleagues and other health care professionals.	- Discussion - Self Learning - Presentation -Interactive Lectures -Seminars	-Research -Discussion. - Group work
d2	Communicate effectively using appropriate scientific language orally and in writing.		

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Introduction**	Overview medical parasitology. Introduction to diagnostic medical parasitology. Definition, purpose, philosophy and organization.	1	2	a1-2, b1, d1-2.
2	**Diagnostic methods of parasitic infections.**	P.D. methods - Collection, preservation, Transport and Identification of clinical specimens.	2	4	a1-2, b-2, c1-2-d1,2.

3	**Stool analysis.**	1- Collection, preservation, Transport and shipment of fecal specimens 2-Macroscopic & Microscopic Examination of fecal specimens.	2	4	a1-2, b-1,2, c1-2-d1,2.
4	**Culture of larval stages nematodes and egg studies. (Coprological Examination).**	-Methods of Coprological Examination. - Egg Studies. - Intensity of infection	1	2	a1-2, b-1,2, c1-2-d1,2.
5	**Examination of other specimens from the intestinal tract and urogenital system.**	- Pinworm Examination. - Duodenal contents. - Sigmoidoscopy material. - Urogenital specimens.	1	2	a1-2, b-1,2, c1-2-d1,2.
6	**Midterm exam**		1	2	a1, 2, b1, d2
7	**Urine Examination.**	- Types of urine samples. - Macroscopic and Microscopic. - Examination of urine samples.	1	2	a1-2, b-1,2, c1-2-d1,2.
8	**Sputum, Aspirates, skin scraping and biopsy material examination.**	-Sputum analysis. -Aspirate Examination. -Skin scraping Exam. - Biopsy Examination.	1	2	a1-2, b-1,2, c1-2-d1,2.
9	**Examination and detection of Blood parasites.**	-Blood parasites classification. - Blood parasites detection methods. - Blood parasitemia.	1	2	a-2, b-1,2, c1-2-d1,2.

10	**Immuno-diagnosis of parasitic diseases.**	-Immunology of Parasitic infections. - Types of Immuno-Diagnostic methods of parasitic diseases. Antibody and Antigen detection in parasitic diseases. -Applications.	2	2	a1-2, b-1,2, c1-2-d1,2.
11	**Molecular diagnosis of parasitic diseases.**	-Definition. -Classification. -Applications and magnitude.	1	2	a1-2 , b-1,2, c1-2-d1,2. .
12	**General revision**	General revision	1	2	a1,2b1-2, c1-2, d2
13	**Final Theoretical Exam**		1	2	a1-2, c1-2-d1,2.
Number of Weeks /and Units Per Semester			**16**	**32**	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Quality Control and Laboratory Safety.**	**1**	**2**	**b2-, c1, d2**
2	**Stool Examination**	**2**	**4**	**c1-2,**
3	**Culture of larval stages nematodes and egg studies.**	**1**	**2**	**-c1-2 d1,2**
4	**Examination of other specimens from the intestinal tract and urogenital system.**	**1**	**2**	**, c1-2**
5	**Urine Examination**	**1**	**2**	**, c1-2 d,2**
6	**Midterm Exam.**	**1**	**2**	**c1,c1,2,**

7	Sputum, Aspirates, skin scraping and biopsy material examination	1	2	c1-2
8	Examination and detection of Blood parasites.	2	4	-c1-2 d1,2
9	Immuno-diagnosis of parasitic diseases	1	2	b1-2, c1-2
10	Molecular diagnosis of parasitic diseases.	1	2	-c1-2
11	Revision	1	2	b1, 2,c1,c2, d1,
12	Final Exam.	1	2	b1, 2,c1,c2, d1,d2,
Number of Weeks /and Units Per Semester		14	28	

C. Tutorial Aspect:

No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	None			
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
Number of Weeks /and Units Per Semester		14	28	

V. Teaching Strategies of the Course:

Interactive Lectures
Discussion
Self Learning
Presentation
Seminars
Brain storming
Laboratory demonstrations
Laboratory practice
Group discussion

VI. Assessment Methods of the Course:

Quizzes Midterm
Exam Final Written
Exam Research
Oral discussion
Final practical Exam
Assignments

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	**Assignment :** Searching information about related subjects of new techniques used in diagnostic parasitology.	10^{th}	5	d2
2				
3				
Total			**5**	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes

1	**Assignments**	10th	5	5 %	d2
2	**Mid-Term Theoretical Exam**	8th	20	20 %	a1,a2, b1, d2
3	**Mid-Term Practical Exam**	7th	10	10%	c1-c2
4	**Final Practical Exam**	14th	20	20%	c1-c2
5	**Final oral Exam**	16th	5	5%	c1-c2
6	**Final Theoretical Exam**	16th	40	40 %	a1,a2, b1, d2
Total			**100**	**100%**	

IX. Learning Resources:

Written in the following order: Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): لائم example

1) Markell, E.K.; john, D.T. and Krotoski, W.A. (2016): Markell and Voge's Medical Parasitology, 12 th edit. W.B. Saunders Co. Philadelphia, USA.

2- Essential References:

1- Garcia, L.S. (2007): Diagnostic Medical Parasitology, 5th ed., Washington D.C. ASM press, USA.

3- Electronic Materials and Web Sites etc.:

Websites:

http://www.dof3tna.net/forum/archive/index.php/f-.html?s=b8129301264fff0e276c4c627238d4c6-

www.abebooks.com

Journal of Parasitology.

- www.Pubmed.com

X. Course Policies: (Based on the Uniform Students' By law (2007) اهك كرنك يه	
1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' By law (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

I. Course Identification and General Information:					
1	**Course Title:**	**Diagnostic Hematology**			
2	**Course Code & Number:**	**DH 3318**			
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		3	2	0	2
4	**Study Level/ Semester at which this Course is offered:**	**Third Year: First Semester**			
5	**Pre –Requisite (if any):**	**Hematology1&2 and Blood Bank**			
6	**Co –Requisite (if any):**	None			
7	**Program (s) in which the Course is Offered:**	Diploma in Medical Laboratory Technology (DMLT)			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	Credit Hour System - Semester			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**	CC Campus (Public and private community colleges)			
12	**Prepared by:**	Prof.Dr. Lutfi Al-Maktari			
13	**Date of Approval:**				

II. Course Description:
This course provides community colleges medical laboratory technology students with theoretical and practical knowledge about different diagnostic procedures of blood disorders. It provides the students with the essential knowledge and practical skills to properly collect, store and examine blood specimens through the use of routine as well as specific tests. Allows for practice of hematology analytical skills and correlation of laboratory findings. It also aims to enable the students to comply with quality control standards within the context of total patient care and quality assurance in medical laboratory technology. Presents principles of automated instrumentation and application.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)	Referenced PILOs (مخرجات تعلم البرنامج)
S. Knowledge and Understanding: Upon successful completion of the course, students will be able to:	

a1	Recognize the precautions when dealing with blood specimens and routine as well as specific tests used in hematology laboratory and explain the principles, advantages and disadvantages of automated hematology analyzers.	**A4**	Understand the specialized laboratory materials, theoretically and practically, in line with advanced scientific progress.
a2	Outline the approaches to laboratory diagnosis of anemia, recognize confirmatory tests and discuss differential diagnosis of each type.	**A4**	Understand the specialized laboratory materials, theoretically and practically, in line with advanced scientific progress.
a3	Outline the approaches to laboratory diagnosis of anemia, bleeding disorders, leukemia, lymphoma and other white blood cell disorders recognize confirmatory tests and discuss differential diagnosis of each type.	**A5**	Know and understand all laboratory tests, their abbreviations, their importance, the method of taking them, and the interpretation of their results.
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Critically analyze and propose solutions for any emerging problems to ensure the quality in diagnostic hematology laboratory.	**B2**	Review and critique manual laboratory processes that include patient preparation, sample requirements, solutions preparation, examination procedures, calculation of results and quality assurance.
b2	Decide on choosing the best cost-effective diagnostic approaches for the diagnosis of blood disorders among a variety of variables.	**B6**	Collect, treat, and analyze samples and interpret the results with high efficiency.
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Collect, transport, preserve and store blood samples according to Standard Operating Procedures (SOPs).	**C1**	Collect samples from patients in a safe professional manner.
c2	Apply special diagnostic techniques of diagnostic hematology during lab procedures and interpretation of the results of laboratory tests in hemostasis, white blood cells, red blood cells disorders, and blood bank.	**C3**	Use advanced laboratory equipment effectively and responsibly with the application of quality systems.
c3	Apply the routine lab tests for WBCs ,RBCs and Platelets disorders and coagulation disorders by classical and automated methods of investigation as CBC & blood film.	**C4**	Perform laboratory experiments and scientific interpretation of the results of laboratory tests.

D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Work independently or as a team member and effectively communicate with the teaching hematology staff and colleagues to identify, analyze and understand emerging issues.	**D1**	Work as a team.
		D2	Respect patients, colleagues, and superiors and maintain the privacy of patient information.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
a1	Recognize the precautions when dealing with blood specimens and routine as well as specific tests used in hematology laboratory and explain the principles, advantages and disadvantages of automated hematology analyzers.	-Interactive Lectures - Group Discussion - Self study	- Quizzes - Assignments & Homework - Mid-semester exam -Final exams
a2	Outline the approaches to laboratory diagnosis of anemia, recognize confirmatory tests and discuss differential diagnosis of each type.	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
a3	Outline the approaches to laboratory diagnosis of anemia, bleeding disorders, leukemia, lymphoma and other white blood cell disorders recognize confirmatory tests and discuss differential diagnosis of each type.	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
b1	Critically analyze and propose solutions for any emerging problems to ensure the quality in diagnostic hematology laboratory.	- Interactive Lectures - Seminars -Oral presentations	- Quizzes - Assignments - Mid semester exam -Final exams

b2	Decide on choosing the best cost-effective diagnostic approaches for the diagnosis of blood disorders among a variety of variables.	- Interactive Lectures - Self-learning - Brain storming	- Quizzes - Assignments -Midterm Exam -Final Exam

(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:

	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
c1	Collect, transport, preserve and store blood samples according to Standard Operating Procedures (SOPs).	- Demonstrations -Group discussion	-Quizzes - Mid semester exam -Final exams
c2	Apply special diagnostic techniques of diagnostic hematology during lab procedures and interpretation of the results of laboratory tests in hemostasis, white blood cells, leukemia, red blood cells disorders, and blood bank.	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam -Final exam
c3	Apply the routine lab tests for WBCs ,RBCs and Platelets disorders and coagulation disorders by classical and automated methods of investigation as CBC & blood film.	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam - -Final exam

(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:

	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
d1	Work independently or as a team member and effectively communicate with the teaching hematology staff and colleagues to identify, analyze and understand emerging issues.	- Presentations - Group discussions & seminars -Self-study modules	- Write reports -Write Exercises & solving it. - Assignments &Homework

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)

1	**Introduction to diagnostic hematology**	-Laboratory safety precautions when dealing with blood specimens or blood components -Blood collection and storage for haematological test. -Routine and specific testing in hematology	1	2	a1, a2,a3, d1
2	**Approach to anemia laboratory diagnosis**	-Clinical personation of anemia in -WHO criteria to establish anemia in different age groups -Interpretation of Hb, Hct & RBC count, RBC indices in anemia diagnosis -Morphological classification of anaemia (microcytic, normocytic, macrocytic)	1	2	a1, a2,a3 b1,b2,c1-c3, d1
3	**Laboratory diagnosis of microcytic hypochromic anemias**	• Laboratory clues to differential diagnosis of microcytic hypochromic anemias: • Value of RBC morphological abnormalities, (MCV/RBC) and CBC • Iron indices (serum iron, TIBC, transferrin, transferrin saturation, ferritin and hemosiderin) in iron deficiency and sideroblastic anemias	1	2	a1, a2,a3 b1,b2,c1-c3, d1
4	**Laboratory diagnosis of macrocytic and normocytic anemias**	- Laboratory clue to differential diagnosis of macrocytic and normocytic anemias: - Value of blood smear morphological abnormalities, - Confirmatory tests for the type megaloblastic anemia: serum folate/ vitamin B 12.	1	2	a1, a2,a3 b1,b2,c1-c3, d1
5	**Laboratory diagnosis of acute leukemias**	• CBC features in acute leukemias • Differential diagnosis between acute leukemias	1	2	a1, a2,a3 b1,b2,c1-c3, d1
6	**Laboratory diagnosis of chronic leukemias**	• CBC features in chronic leukemias • Peripheral blood pictures in CLL and CML • Differential diagnosis between CLL and CML	1	2	a1, a2,a3 b1,b2,c1-c3, d1
7	**Laboratory diagnosis of multiple myeloma**	• -Differential diagnosis between various myeloproliferative disorders • Blood and bone marrow pictures • Protein and immunofixation electrophoresis • Biochemical findings	1	2	a1, a2,a3 b1,b2,c1-c3, d1
8	**Mid-Term Theoretical exam**	- Fill in the blank, MCQs ,matching, short-answers	1	2	a1, a2,a3 b1,b2,c1-c3, d1

9	**Hematological tests for bleeding disorders**	• Description. Rationale and possible significance of abnormal results of the following: - Platelet count and function ,Bleeding time, Clotting time - Activity of coagulation factors by PT, APTT & TT - Antigens of coagulation factors - Fibrinigen and D-dimer	1	2	a1, a2,a3 b1,b2,c1-c3, d1
10	**Laboratory diagnosis of hemophilia and Hypercoagulable states (Thrombophilia)**	- Screening coagulation assays to diagnose hemophilia, possible sources of error and interpretation of results. - Coagulation assays to differentiate between hemophilia A and B. - Differential diagnosis between - hemophilia A and vWD.	1	2	a1, a2,a3 b1,b2,c1-c3, d1
11	**Laboratory diagnosis approach to the selection of blood donors**	- Criteria for blood donor selection - Screening for blood groups and blood group antibodies - Screening for infectious agents	1	2	a1, a2,a3 b1,b2,c1-c3, d1
12	**Cross-matching blood for transfusion**	- Major and minor cross-matching - Types and protocols of cross¬ matching tests - Basis of antiglobulin tests - Interpretation and limitations of cross-match tests	1	2	a1, a2,a3 b1,b2,c1-c3, d1
13	**Laboratory diagnosis of the hemolytic disease of the newborn**	• Classification of HDNB: Rh negative blood type or ABO incompatibility • Blood smear picture, CBC findings and reticulocyte count • Biochemical findings - Interpretation of direct Coombs test	1	2	a1, a2,a3 b1,b2,c1-c3, d1
14	**Automation in diagnostic hematology**	- Overview of automated hematology instrumentation - Calibration and troubleshooting - Advantages and disadvantages	2	4	a1, a2,a3 b1,b2,c1-c3 & d1
15	**Final Theoretical Exam**	- Fill in the blank, MCQs, matching, short-answer, short essay questions and case studies .	1	2	a1, a2,a3 b1,b2
Number of Weeks /and Units Per Semester			**16**	**32**	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Routine hematological tests (CBC , blood film study and ESR)** Preparation, staining and examination and reporting of normal blood smear	1	2	a1, a2, b1,b2 c1-c3,d1
2	Screening for different disorders of red blood cells and different types of anemia Examination of peripheral smears for abnormal findings in different types of anemias	1	2	a1, a2, b1,b2 c1-c3,d1
3	Screening for sickle cell anemia Reticulocyte count	1	2	a1, a2, b1,b2 c1-c3,d1
4	Hb electrophoresis, normal and abnormal types of Hb	1	2	a1- a3, b1,b2 c1-c3,d1
5	- Estimation &Measurements of Hb F	1	2	a1, a2, b1,b2 c1-c3,d1
6	Osmotic fragility test	1	2	a1, a2, b1,b2 c1-c3,d1
7	**Mid-Term practical exam**	1	2	c1-c3
8	Determination of serum Fe, TIBC, B12 and folic acid			a1, a2, b1,b2 c1-c3,d1
9	Screening test for G6PD	1	2	a1, a2, b1,b2 c1-c3,d1
10	Screening for different disorders of white blood cells and different types of leukemia	1	2	a1, a2, b1,b2 c1-c3,d1
11	**Screening for coagulation system:** - Platelet count and function ,bleeding time & Clotting time - Activity of coagulation factors by PT, APTT & TT - Fibrinogen and D-dimer(if applicable)	1	2	a1, a2, b1,b2 c1-c3,d1

12	- **Case studies:** Interpretation of hematology lab results - All aspect of hematology by seminars and reports (anemias, leukemia, coagulation techniques and blood bank)	1	2	a1, a2, b1,b2 c1-c3,d1
13	Direct and indirect Coombs tests and antibody titration Interpretation of direct Coombs test	1	2	a1, a2, b1,b2 c1-c3,d1
14	Automation in diagnostic hematology	1	2	a1, a2, b1,b2 c1-c3,d1
15	**Final Exam**	1	2	a1, a2, b1,b2 c1-c3
Number of Weeks /and Units Per Semester		15	30	

V.Teaching strategies of the course:

- Interactive Lectures
- Dialogue and Discussion
- Self-Learning
- Presentation
- Seminars
- Brain storming
- Group discussion
- Analyzing , Reporting the results
- Lab. logbook and report
- Practical Training
- Case studies and Problem Solving

VI.Assessment Methods of the Course:

- Quizzes
- Midterm Exam
- Final Written Exam
- Final Practical Exam
- Assignments &Homework
- Group work

- Lab. logbook and report
- Oral discussion

VII.Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	**Assignment :** Searching information about related subjects of **laboratory diagnostic hematology** in Medical Laboratory Technology	d1	3-13th	5
	TOTAL			**5**

VIII .Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	**Assignments**	3-13th	5	5 %	d1
2	**Quiz**	6th	5	5 %	al-a3; bl, b2
3	**Med term Practical Exam**	7th	10	10 %	c1-c3
4	**Mid-Term Theoretical Exam**	8th	10	10 %	a1,a2, a3 b1,b2
5	**Logbook(Practical report)**	weekly	10	10%	c1-c3
6	**Final Practical Exam**	15th	30	30%	c1-c3
7	**Final Theoretical Exam**	16th	30	30 %	a1, a2, b1,b2 c1-c3
Total			**100**	**100%**	

IX .Learning Resources:

- Written in the following order: (Author – Year of publication – Title – Edition – Place of publication – Publisher).

1 - Required Textbook(s) (maximum two).

5- V. Hoffbrand and P. A. H. Moss, (2020), **Essential Haematology**, Eighth edition, Wiley Blackwell Publishing, UK.

6- Barbara Bain, Imelda Bates, Mike Laffan, SM Lewis and Dacie (2017) . Dacie and Lewis **Practical Haematology**, 12th Edition, Elsevier Limited UK.

2- Essential References.

1--Shirlyn B. McKenzie and J. Lynne Williams(2019) . Clinical **laboratory Hematology** .second edition, Elizabeth Zeibig Series Editor .USA..

2--Lutfi Al-Maktari(2021).Lecture notes in Hemostasis and Thrombosis ,for Laboratory Medicine students, Department of Hematology &Blood Banking ,Faculty of Medicine and Health Sciences- Sana'a University ,first edition, Hail Publisher ,Yemen 734184099.

3-Douglas C , Babette Weksler. , Geraldine P Schechter and Scott Ely (2017) Wintrobe's **Atlas of Clinical Hematology** Hardcover. 2nd Edition, Wolters Kluwer, USA.

3- Electronic Materials and Web Sites etc.

1-www.cambodiamed.blogspot.com
2-www.bloodmed.com
3-www.medline.com.
4- www.simplyblood.org
5- www.labmedicineblog.com/category
6- www.hematology.org
7- www.hematologyadvisor.com

	X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي
1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' By law (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

SYLLABUS
YEAR (3)
SEMESTER (2)

I. Course Identification and General Information:

1	**Course Title:**	**Professional Ethics**			
2	**Course Code & Number:**				
3	**Credit Hours**	**Theory Hours**	**Credit Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		2	2	--	--
4	**Study Level/ Semester at which this Course is offered:**				
5	**Pre –Requisite (if any):**				
6	**Co –Requisite (if any):**				
7	**Program (s) in which the Course is Offered:**				
8	**Language of Teaching the Course:**	English			
9	**Study System:**	Semester Based System			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**				
12	**Prepared by:**				
13	**Date of Approval:**				

II. Course Description:

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)		**Referenced PILOs (مخرجات تعلم البرنامج)**	
T. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Define ethics, bioethics, moral, morality, moral dilemma, professional values and models of relationship		
a2	Describe the concepts, principles and theories of ethics and their relationship to clinical practice		

B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Compare between Value, Beliefs an Attitude		
b2	Differentiate between ethics, morality, Bioethics, medical ethics, health care ethics, clinical ethics & Law		
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Use appropriate interpersonal skills when handling ethics		
c2	Apply Nurse-patient relationship in professional manner		
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Conceptualize ethics, morality, Bioethics, medical ethics, health care ethics, clinical ethics& Law		
d2	Identify ethics of nursing profession, the human rights and legal issues related to Yemen community		

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
a1	Define ethics, bioethics, moral, morality, moral dilemma, professional values and models of relationship	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations
a2	Describe the concepts, principles and theories of ethics and their relationship to clinical practice	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**

b1	Compare between Value, Beliefs an Attitude	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
b2	Differentiate between ethics, morality, Bioethics, medical ethics, health care ethics, clinical ethics & Law	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
c1	Use appropriate interpersonal skills when handling ethics	▪ Active learning, ▪ Small group learning. ▪ Learning tasks and activities	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
c2	Apply Nurse-patient relationship in professional manner	▪ Active learning, ▪ Small group learning. ▪ Learning tasks and activities	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
d1	Conceptualize ethics, morality, Bioethics, medical ethics, health care ethics, clinical ethics& Law	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities
d2	Identify ethics of nursing profession, the human rights and legal issues related to Yemen community	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Introduction	▪ The practice of nursing - History of nursing occupation - Characteristics of nursing occupation - Ethics of nursing occupation - Duties and responsibilities of nursing - Laws of practicing nursing occupation ▪ Main Definitions: - Ethics, Bioethics, Moral, Morality, and Moral dilemma	2	2	a1, b1, d1
2	The caring relationship.	▪ Models of relationship ▪ Nurse-patient relationship ▪ Doctor-patient relationship	1	1	a1, b1, c1, d1
3	Values and value-statement	▪ Professional values: - Value, Beliefs an Attitude ▪ Professional Values in community health	1	1	a1, b1, d1
4	Theories and principles of ethics	▪ Theories: - Utilitarian. - Deontologic. ▪ Principles: - Autonomy. - Beneficence. - Confidentiality. - Fidelity. - Justice. - Non maleficence. - Paternalism. - Veracity.	1	1	a1, b1, d1
5	Patient Rights	▪ Human rights ▪ Patient rights ▪ Childbearing Women ▪ Reproductive Rights	1	1	a1, b1, d1
6		Midterm exam	1	1	a1, b1, c1, d1

7	Types of ethical problems	▪ Confidentiality. ▪ Trust issues. ▪ Refusing care ▪ End of life issues. ▪ Advance Directives ▪ Informed Consent	2	2	a2, b2, d2
8	Ethical and legal Issues	▪ Legal aspects of maternity and perinatal care ▪ Ethical and legal considerations prior to conception - Artificial Insemination - In Vitro fertilization and embryo transfer - Surrogate Mothers - Amniocentesis (Screening and the perfect baby)	2	2	a2, b2, d2
9	Ethical and legal considerations	▪ Ethical and legal considerations in abortion ▪ Ethical and legal considerations for the fetus and sick neonate - The Fetus - Fetal Research - Fetal Therapy ▪ The Neonate and effects of invasive procedures ▪ Ethical issues in research ▪ Ethical issues between nurses and physicians: ▪ Disagreements about the proposed medical regimen. ▪ Unprofessional, incompetent, unethical or illegal physician practice.	3	3	a2, b2, c2, d2
10		Final exam	1	1	a2, b2, c2, d2
Number of Weeks /and Units Per Semester					

V. Teaching Strategies of the Course:

- Interactive lecture
- Seminars and student presentations
- Brain storming
- Role-play and simulation
- Small group discussion
- Learning tasks and activities
- Problems solving

- Case study analysis

VI. Assessment Methods of the Course:

- Assignments
- Quizzes
- Mid-term exam
- Final term exam

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	**Assignment 1:** Ethical and moral dilemma	W5	**5**	a1, c1
2	**Assignment 2:** Ethical issues in research	W11	5	a2, b2, c2
Total			**10**	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	**Assignments**	W5,11	10	10%	a1, b1, a2, b2, c2,
2	**Quizzes 1 & 2**	W3, 9	10	10%	a1, a2, b1, b2
3	**Mid-Term Theoretical Exam**	W7	20	20%	a1, b1, c1, d1
4	**Final Theoretical Exam**	W16	60	60%	a2, b2, c2, d2
Total			**100**	**100%**	

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): مثال example

2- Essential References:

3- Electronic Materials and Web Sites etc.:
Websites: ▪

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي	
1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

I. Course Identification and General Information:					
1	**Course Title:**	**Communication Skill**			
2	**Course Code & Number:**				
3	**Credit Hours**	**Theory Hours**	**Credit Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		2	2	--	--
4	**Study Level/ Semester at which this Course is offered:**				
5	**Pre –Requisite (if any):**				
6	**Co –Requisite (if any):**				
7	**Program (s) in which the Course is Offered:**				
8	**Language of Teaching the Course:**	English			
9	**Study System:**	Semester Based System			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**				
12	**Prepared by:**				
13	**Date of Approval:**				

II. Course Description:

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)		Referenced PILOs (مخرجات تعلم البرنامج)	
U. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Identify process, levels, barriers and strategies of communication and techniques of effective communication		
a2	Recognize the characteristics of verbal and nonverbal communication, levels of		

	communication, barriers to effective communication and communication blokes		
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Differentiate between therapeutic and non-therapeutic communication		
b2	Integrate ethical principles and concepts with nursing practice as a foundation for decision-making		
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Applies techniques of effective communication		
c2	Communicate with clients with impaired hearing, speech, or cognition		
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Establish effective inter-personal relations with patients, families & co-workers		
d2	Describe the elements of collaborative professional communication		

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
a1	Identify process, levels, barriers and strategies of communication and techniques of effective communication	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations
a2	Recognize the characteristics of verbal and nonverbal communication, levels of communication, barriers to effective communication and communication blokes	▪ Interactive lecture ▪ Seminars and student presentations ▪ Brain storming, role-play and simulation ▪ Small group for discussing	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam ▪ Presentations
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**

b1	Differentiate between therapeutic and non-therapeutic communication	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
b2	Integrate ethical principles and concepts with nursing practice as a foundation for decision-making	▪ Interactive lecture ▪ Brain storming ▪ Role-play & simulation ▪ Small group discussions ▪ Seminars and student presentations	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
c1	Applies techniques of effective communication	▪ Active learning, ▪ Small group learning. ▪ Learning tasks and activities	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
c2	Communicate with clients with impaired hearing, speech, or cognition	▪ Active learning, ▪ Small group learning. ▪ Learning tasks and activities	▪ Assignments ▪ Quizzes ▪ Mid-term Exam ▪ Final exam
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
d1	Establish effective inter-personal relations with patients, families & co-workers	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities
d2	Describe the elements of collaborative professional communication	▪ Classroom discussions, ▪ Problems solving ▪ Case study analysis	▪ Presentations ▪ Case Studies ▪ Learning activities

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Review of Communication Process	▪ Definition; ▪ Elements of communication ▪ Factors that influence the communication process ▪ Barriers of communication	1	2	a1, b1, d1
2	Levels of communication.	▪ Basic levels of communication. ✓ Interpersonal ✓ Intrapersonal Communication ✓ Group Communication ▪ Space in communication ✓ Intimate space ✓ Personal space ✓ Public space	2	2	a1, b1, c1, d1
3	Types of communication	▪ Types of communication ▪ Verbal communication ▪ Non-verbal communication ▪ Characteristics ▪ Listening & hearing	2	4	a1, b1, c1, d1
4	Therapeutic and non therapeutic communication.	▪ Therapeutic communication ✓ Elements ✓ Principles of therapeutic interaction ✓ Barriers ✓ Traits of Therapeutic Communication ▪ Non-therapeutic communication	2	4	a1, b1, c1, d1
5		Midterm exam	1	2	a1, b1, c1, d1
6	Communication blokes	▪ Communication blokes	1	2	a2, b2, c2, d2
7	Effective Communication	▪ Introduction ▪ Importance ▪ Principles ▪ Basic abilities for effective communication ▪ Barriers to effective communication	2	4	a2, b2, c2, d2
8	Collaborative professional communication	Collaborative professional communication	1	2	a2, b2, c2, d2

9	Communicate with clients with impaired hearing, speech, or cognition.	Communicate with clients with: ▪ Impaired hearing, ▪ Impaired speech, ▪ Impaired cognition.	2	4	a2, b2, c2, d2
10		Final exam	1	2	a2, b2, c2, d2
Number of Weeks /and Units Per Semester					

V. Teaching Strategies of the Course:

- Interactive lecture
- Seminars and student presentations
- Brain storming
- Role-play and simulation
- Small group discussion
- Learning tasks and activities
- Problems solving
- Case study analysis

VI. Assessment Methods of the Course:

- Assignments
- Quizzes
- Mid-term exam
- Final term exam

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	**Assignment 1:** Therapeutic and non-therapeutic communication	W5	**5**	a1, c1
2	**Assignment 2:** communication blocks	W11	5	a2, b2, c2
Total			**10**	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes

1	**Assignments**	W5,11	10	10%	a1, b1, a2, b2, c2,
2	**Quizzes 1 & 2**	W3, 9	10	10%	a1, a2, b1, b2
3	**Mid-Term Theoretical Exam**	W7	20	20%	a1, b1, c1, d1
4	**Final Theoretical Exam**	W16	60	60%	a2, b2, c2, d2
Total			**100**	**100%**	

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): مثال example

2- Essential References:

3- Electronic Materials and Web Sites etc.:

Websites:

-

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي

1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply**.**

I. Course Identification and General Information:					
1	**Course Title:**	Histology/Histopathology Techniques			
2	**Course Code & Number:**	**He 2311**			
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		2	1	0	2
4	**Study Level/ Semester at which this Course is offered:**	**Third Year :Second Semester**			
5	**Pre –Requisite (if any):**	Cytology &histology			
6	**Co –Requisite (if any):**	None			
7	**Program (s) in which the Course is Offered:**	Diploma in Medical Laboratory Technology(DMLT)			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	Credit Hour System- Semester			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**	CC Campus(Public and private community colleges)			
12	**Prepared by:**	Prof.Dr. Lutfi Al-Maktari			
13	**Date of Approval:**				

II. Course Description:

The course is designed to provide students to learn an overview basic concept of the disease processes in the body as well the basic molecular, cellular and reactions to various injurious agents. Cell injury including adaptations &necrosis. Pathology of Inflammation including causes and manifestations and hemodynamic are also discussed. The course also emphasizes neoplasia including classification, epidemiology, and characteristics of benign and malignant tumors. Practical application deals with knowledge on various types of sample testing of cytology, histopathology and practical skills that are related to cellular technologies the preparation of different fixation, solutions, materials, dyes (natural and special), i.e. how to deal with a sample of a tissue in the lab and transfer them into slides that can be diagnosed by histopathologist and saved for decades.

III. Course Intended Learning Outcomes (CILOs) :	Referenced PILOs (مخرجات تعلم البرنامج)

(مخرجات تعلم المقرر)			
V. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Demonstrate an understanding of the etiology and pathogenesis of disease & it's effects on the body, the salient principles of inflammation ,repair and circulatory dysfunction.	**A4**	Understand the specialized laboratory materials, theoretically and practically, in line with advanced scientific progress.
a2	Describe step-by-step procedure in tissue preparation used in cytopathological, , histopathological studies.	**A4**	Understand the specialized laboratory materials, theoretically and practically, in line with advanced scientific progress.
a3	Identify the regulatory and safety procedures for specimen reception, identification and handling in anatomical pathology.	**A5**	Know and understand all laboratory tests, their abbreviations, their importance, the method of taking them, and the interpretation of their results.
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Acquire the necessary skills required in the preparation of slides for microscopic examination of cytology and tissues from fresh state to mounted state in Cyto-Histopathology laboratories.	**B2**	Review and critique manual laboratory processes that include patient preparation, sample requirements, solutions preparation, examination procedures, calculation of results and quality assurance.
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Collect, transport, preserve and store samples according to Standard Operating Procedures (SOPs).	**C1**	Collect samples from patients in a safe professional manner.
c2	Apply appropriate manual and automated techniques in Laboratory investigations of histopathology .	**C3**	Use advanced laboratory equipment effectively and responsibly with the application of quality systems.
c3	Recognize errors or discrepancies during lab procedures and interpretation of the troubleshooting of laboratory tests in Cyto-Histopathology laboratories.	**C4**	Perform laboratory experiments and scientific interpretation of the results of laboratory tests.
D. Transferable Skills: Upon successful completion of the course, students will be able to:			

d1	Work independently or as a team member and effectively communicate with the teaching hematology staff and colleagues to identify, analyze and understand emerging issues.	**D1**	Work as a team.
		D2	Respect patients, colleagues, and superiors and maintain the privacy of patient information.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
a1	Demonstrate an understanding of the etiology and pathogenesis of disease & it's effects on the body, the salient principles of inflammation ,repair and circulatory dysfunction.	-Interactive Lectures - Group Discussion - Self study	- Quizzes - Assignments & Homework - Mid-semester exam -Final exams (Fill in the blank, MCQs, matching, short-answer and short essay questions)
a2	Describe step-by-step procedure in tissue preparation used in cytopathological, histopathological studies.	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
a3	Identify the regulatory and safety procedures for specimen reception, identification and handling in anatomical pathology.	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
b1	Acquire the necessary skills required in the preparation of slides for microscopic examination of cytology and tissues from fresh state to mounted state in Cyto-Histopathology laboratories..	- Interactive Lectures - Seminars -Oral presentations	- Quizzes - Assignments - Mid semester exam -Final exams
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		**Teaching Strategies**	**Assessment Strategies**
c1	Collect, transport, preserve and store samples according to Standard Operating Procedures (SOPs).	- Demonstrations -Group discussion	-Quizzes - Mid semester exam -Final exams

c2	Apply appropriate manual and automated techniques in Laboratory investigations of histopathology .	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam -Final exam
c3	Recognize errors or discrepancies during lab procedures and interpretation of the troubleshooting of laboratory tests in Cyto-Histopathology laboratories.	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam - -Final exam

(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Work independently or as a team member and effectively communicate with the teaching Histopathology staff and colleagues to identify, analyze and understand emerging issues.	- Presentations - Group discussions & seminars -Self-study modules	- Write reports -Write Exercises & solving it. - Assignments &Homework

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	**Introduction to Histopathology and Cytopathology**	-Course contents Definition of pathology, histopathology, cytopathology -Types of specimens, Collection, Handling and Preservation of Specimen	2	2	a1-a3, b1,c1-c3,d1
	Cell injury	- Normal Cell - Cell Injury- Definition types of cell injury, etiology of cell injury, morphology of cell injury, cellular swelling.	1	1	a1-a3, b1,c1-c3,d1
2	**Cellular Adaptation**	- Definition - Atrophy - Hypertrophy - Hyperplasia - Metaplasia - Dysplasia	1	1	a1-a3, b1,c1-c3,d1

3	**Necrosis**	- Definition - Causes - Types -Deference between necrosis and apoptosis	1	1	a1-a3, b1,c1-c3,d1
4	**Inflammation**	- Definition, types, - a) Acute inflammation - vascular event, cellular event, inflammatory cells. - b) Chronic Inflammation - general features, granulomatous inflammation, tuberculoma.	1	1	a1-a3, b1,c1-c3,d1
5	**Repair and Healing**	-Definition, different phases of healing, factors influencing wound healing.	1	1	a1-a3, b1,c1-c3,d1
6	**Midterm exam**	Fill in the blank, MCQs, matching	1	1	a1-a3, b1,c1-c3,d1
7	**The Response to infection**	-Categories of infectious agents, host barriers to infection, how disease is caused , inflammatory response to infectious agents, Infection and immune system.	1	1	a1-a3, b1,c1-c3,d1
8	**Circulatory disturbance and Haemodynamic Disorders**	- Definition**:** - Thrombosis - Embolism - Ischemia - Infarction - Congestion - Oedema -Hemorrhage	1	1	a1-a3, b1,c1-c3,d1
9	**Neoplasia**	-Definition, how does it differ from hyperplasia, -Difference between benign tumor and malignant tumor.	1	1	a1-a3, b1,c1-c3,d1
10	**Tissue processing methods**	- Manual tissue processing ,steps, advantages and disadvantages -Automated tissue processing advantages and disadvantages	1	1	a1-a3, b1,c1-c3,d1
11	**Sectioning of tissue by Microtome**	-Microtome machines types with advantages and disadvantages of each rocking, rotary, base sledge ,freezing and sliding microtome.	1	1	a1-a3, b1,c1-c3,d1
12	**Special stains used in cyto / histopathology lab.**	-Staining properties, theory of staining -Neutral dyes, synthetic, acid base and neutral dyes Hematoxylin & Eosin stain, Hematoxylin - Types, methods of preparation, staining, Eosin - Method of	1	1	a1-a3, b1,c1-c3,d1

		preparation. b. Reticulin stain c. Papanicolaou (PAP) staining- components & methods.			
13	**General review**	- Review of subjects in the course	1	1	a1-a3, b1,c1-c3,d1
14	**Final exam**	-Fill in the blank, MCQs, matching, short-answer and short essay questions.	1	1	a1-a2, b1,c1-c3,
Number of Weeks /and Units Per Semester			**16**	**16**	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	- Laboratory safety rules & biosafety in histopathology techniques lab . - Manual tissue processing - Automated tissue processing	1	2	a1-a3, b1,c1-c3,d1
2	-Fixation; Introduction, reagents Definition of micro-anatomical, cytological, histochemical, samples and compound fixative -Advantages and disadvantages of miscellaneous fixative -Fixation of gross specimens , central nervous system, heart, liver etc -Biopsy ,block processing by vapor, post- chromatization and freeze dry	1	2	a1-a3, b1,c1-c3,d1
3	**Decalcification** Definition, techniques, Section/ tissues to be calcified bones, teeth and calcified tissue Assessment of decalcification process **Decalcification** solution Advantage and disadvantages Ion exchange resin, chelating agents, electrophoretic decalcification	1	2	c1-c3,d1

4	**Dehydration** Alcohol method, dioxane method	1	2	c1-c3,d1
5	**Clearing,** Procedure of cleaning by - Xylene, benzene, touline, chloroform, cedar oil and others	1	2	c1-c3,d1
6	**Impregnation** Paraffin wax, parablast, parablast plus, Techniques of impregnation	1	2	c1-c3,d1
7	**Embedding ,Blocking out:** -Vacuum embedding oven, assembly of apparatus -Casting or blocking out Moulds-different types Leuchared, plastic ice tray, paper boats, plastic embedding knife chafing , tissue tech. -Techniques for embedding. Gelatin, celloidin and low viscosity nitrocellulose	1	2	c1-c3,d1
8	**- Med-Term Exam.**	1	2	c1-c3,d1
9	**Section cutting:** -Microtome machines types with advantages and disadvantages of each rocking, rotary, base sledge ,freezing and sliding microtome. -Microtome knives, types, Sharpening of the microtome knife -Cutting of paraffin waxes embedded section training the block onto the microtome -Cutting paraffin waxes embedded sections of difficult tissues -Heart and fragmentation of tissues -Cutting serial sections and faults in paraffin section cutting -Fixing the section to the slides and adhesive used for that.	1	2	c1-c3,d1
10	**Biological staining:** -Staining equipment, staining procedures for paraffin - Wax section, hematoxylin and eosin stain- mounting the section and mounting media used	1	2	a c1-c3,d1
11	- **Automatic tissue processor** - Automatic tissue processor, general structure- beakers, wax bath, transfer arm, agitation, timing unit, delay mechanism - Procedure for using the automatic tissue processor	1	2	c1-c3,d1

12	- **Cryostat cutting** - Definition - Cryostat machine construction ,Usage and Applications - Advantage & disadvantages. - -Mechanism of action - -Sectioning, Spreading of tissue on slides , - - Staining and Mounting	1	2	c1-c3,d1
13	**Cytological/cytopathological techniques** Preparation, of smears from :cervix ,sputum, urine, CSF etc Fixation of smears Papanicolaou staining procedure Brief notes on Hormone assessment e.g Sex chromatin- Bar bodies	2	4	c1-c3,d1
14	**Final Exam**	1	2	c1-c3
Number of Weeks /and Units Per Semester		15	30	

V. Teaching strategies of the course:

- Interactive Lectures
- Dialogue and Discussion
- Self-Learning
- Presentation
- Seminars
- Brain storming
- Group discussion
- Analyzing , Reporting the results
- Lab. logbook and report
- Practical Training
- Animations and videos
- Case studies and Problem Solving

VI.Assessment Methods of the Course:

- Quizzes
- Midterm Exam
- Final Written Exam

- Final Practical Exam
- Assignments &Homework
- Group work
- Lab. logbook and report
- Oral discussion

VII.Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	**Assignment :** Searching information about related subjects of cytopathology **and histopathology techniques** in Medical Laboratory Technology	d1	3-13th	10
	TOTAL			**10**

VII .Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignments	3-13	10	10%	al-a3; bl,; cl-c3; dl
2	Quiz 1&2	6&12	5	5%	al-a3; bl,
3	Lab. logbook and report	Weekly	10	10%	cl-c3
4	Mid Semester Exam (Practical)	7	15	15%	cl-c3; dl
5	Mid Semester Exam(Theoretical)	8	10	10%	al-a3;bl, cl-c3
6	Final Practical Exam	15	25	25%	cl-c3
7	Final Theoretical Exam	16	25	25%	al-a3;bl,c1-c3
	Total		**100**	**100%**	

IX .Learning Resources:

- Written in the following order: (Author – Year of publication – Title – Edition – Place of publication – Publisher).

1 - Required Textbook(s) (maximum two).

7- V. Hoffbrand and P. A. H. Moss, (2020), **Essential Haematology**, Eighth edition, Wiley Blackwell Publishing, UK.

8- Barbara Bain, Imelda Bates, Mike Laffan, SM Lewis and Dacie (2017) . Dacie and Lewis **Practical Haematology**, 12th Edition, Elsevier Limited UK.

2- Essential References.

1--Shirlyn B. McKenzie and J. Lynne Williams(2019) . Clinical **laboratory Hematology** .second edition, Elizabeth Zeibig Series Editor .USA..

2--Lutfi Al-Maktari(2021).Lecture notes in Hemostasis and Thrombosis ,for Laboratory Medicine students, Department of Hematology &Blood Banking ,Faculty of Medicine and Health Sciences- Sana'a University ,first edition, Hail Publisher ,Yemen 734184099.

3-Douglas C , Babette Weksler. , Geraldine P Schechter and Scott Ely (2017) Wintrobe's **Atlas of Clinical Hematology** Hardcover. 2nd Edition, Wolters Kluwer, USA.

3- Electronic Materials and Web Sites etc.

1-www.cambodiamed.blogspot.com
2-www.bloodmed.com
3-www.medline.com.
4- www.simplyblood.org
5- www.labmedicineblog.com/category
6- www.hematology.org
7- www.hematologyadvisor.com

	X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي
1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
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I. Course Identification and General Information:					
1	**Course Title:**	**Quality Assurance**			
2	**Course Code & Number:**	**QA 3319**			
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		1	1	0	0
4	**Study Level/ Semester at which this Course is offered:**	**Third Year :Second Semester**			
5	**Pre –Requisite (if any):**	**Hematology1&2,biochemistry and Blood Bank**			
6	**Co –Requisite (if any):**	None			
7	**Program (s) in which the Course is Offered:**	Diploma in Medical Laboratory Technology (DMLT)			
8	**Language of Teaching the Course:**	English and Arabic			
9	**Study System:**	Credit Hour System - Semester			
10	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**	CC Campus (Public and private community colleges)			
12	**Prepared by:**	Prof.Dr. Lutfi Al-Maktari			
13	**Date of Approval:**				

II. Course Description:
This course provides community colleges medical laboratory technology students with theoretical knowledge about basic concepts of quality control, quality assurance, and laboratory management within the medical laboratory environment to decrease lab errors of results, Topics covered include quality control, quality assurance, internal quality control, and external quality assessment, types and sources of error, measurement uncertainty, quality audit, and accreditation.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)	Referenced PILOs (مخرجات تعلم البرنامج)

W. Knowledge and Understanding: Upon successful completion of the course, students will be able to:			
a1	Recognize different approaches of quality assurance related to sampling, analysis and reporting of laboratory results in different laboratory disciplines.	**A2**	Compare the results of patients using different laboratory systems in order to verify the validity of the results.
a2	Recognize the types, sources and consequences of laboratory errors as well as different measures of uncertainty.	**A3**	Read and understand written and visual data on display screens and write laboratory reports.
a3	Explain terminology related to laboratory quality assurance and management and state the purposes of internal quality control and external quality assessment	**A5**	Understand the specialized laboratory materials, theoretically and practically, in line with modern scientific progress.
B. Intellectual Skills: Upon successful completion of the course, students will be able to:			
b1	Integrate the concepts of quality control and assurance within different phases of laboratory analysis in different medical laboratory disciplines.	**B2**	Review and critique manual laboratory processes that include patient preparation, sample requirements, solutions preparation, examination procedures, calculation of results and quality assurance.
b2	Analyze laboratory errors and follow a systematic approach to solve them within the context of quality assurance and total quality management.	**B7**	Plan a quality assurance protocol to monitor procedures and devices, identify errors, and integrate and evaluate data analytics with problem-solving skills.
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Collect, transport, preserve and store blood samples according to Standard Operating Procedures (SOPs).	**C1**	Collect samples from patients in a safe professional manner.
c2	Apply the concepts and processes that underpin quality control and assurance to the quality of tested specimens, reagents, stains and equipment in the medical laboratory.	**C3**	Use advanced laboratory equipment effectively and responsibly with the application of quality systems.
c3	Apply methods for quality assurance including monitoring and evaluating the quality of testing procedures.	**C4**	Perform laboratory experiments and scientific interpretation of the results of laboratory tests.
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Work independently or as a team member and effectively communicate with the teaching staff	**D1**	Work as a team.

	and colleagues to identify, analyze and understand emerging issues.	**D2**	Respect patients, colleagues, and superiors and maintain the privacy of patient information.
d2	Manage time efficiently, solve encountered problems and be able to undertake self-learning.	**D3**	Spread the culture of teamwork among students and the need to adapt to scientific developments
		D4	Enable students to know the personal and social responsibility placed on the medical laboratory specialist.

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:

	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
a1	Recognize different approaches of quality assurance related to sampling, analysis and reporting of laboratory results in different laboratory disciplines.	-Interactive Lectures - Group Discussion - Self study	- Quizzes - Assignments & Homework - Mid-semester exam -Final exams
a2	Recognize the types, sources and consequences of laboratory errors as well as different measures of uncertainty.	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams
a3	Explain terminology related to laboratory quality assurance and management and state the purposes of internal quality control and external quality assessment	-Interactive Lectures - Presentation - Group Discussion	-Quizzes -Assignments & Homework -Mid-semester exam -Final exams

(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:

	Course Intended Learning Outcomes	**Teaching Strategies**	**Assessment Strategies**
b1	Integrate the concepts of quality control and assurance within different phases of laboratory analysis in different medical laboratory disciplines.	- Interactive Lectures - Seminars -Oral presentations	- Quizzes - Assignments - Mid semester exam -Final exams
b2	Analyze laboratory errors and follow a systematic approach to solve them	- Interactive Lectures - Self-learning	- Quizzes - Assignments

	within the context of quality assurance and total quality management.	- Brain storming	-Midterm Exam -Final Exam

(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:

	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
c1	Collect, transport, preserve and store blood samples according to Standard Operating Procedures (SOPs).	- Demonstrations -Group discussion	-Quizzes - Mid semester exam -Final exams
c2	Apply the concepts and processes that underpin quality control and assurance to the quality of tested specimens, reagents, stains and equipment in the medical laboratory.	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam -Final exam
c3	Apply methods for quality assurance including monitoring and evaluating the quality of testing procedures.	- Group discussion - Animations - Scenarios and Problem Solving	- Quizzes - Assignments - Mid semester exam - -Final exam

(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:

	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
d1	Work independently or as a team member and effectively communicate with the teaching hematology staff and colleagues to identify, analyze and understand emerging issues.	- Presentations - Group discussions & seminars -Self-study modules	- Write reports -Write Exercises & solving it. - Assignments &Homework
d2	Enable students to know the personal and social responsibility placed on the medical laboratory specialist.	- Presentations - Group discussions & seminars - -Self-study modules	- Write reports -Write Exercises & solving it. - Assignments - &Homework

IV-Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	Week Due	contact hours	Learning Outcomes
1	**Introduction**	- Overview of course -Definition of quality and control -Concepts of Quality assurance (QA) & Quality control -Components of QA -Total quality management (TQM) in laboratory -Components of TQM	1	1	al, a2,a3
2	**Laboratory design, safety and management**	- Classification of medical laboratories - Guidelines for appropriate laboratory design - Management of laboratory - Health and safety considerations - Source of hazards, safety and infection control preventing measures and personal protective equipment. - Waste management.	1	1	a3,b1, c2,d1
3	**Quality Assurance phases and Errors**	-**Pre-analytical:** Patient preparation and request forms; Specimen collection, labeling, transport, storage and processing, etc. -**Analytical:** Standard Operating Procedures; Instrument calibration; QC of reagents; Evaluation of diagnostic tests: sensitivity, specificity, predictive values (positive/ negative); Test interferences and cross- reactivity; etc -**Post-analytical:** reporting and record keeping	2	2	a1-a4,b1, c2,d1
4	**Quality Assurance of Sample management and transport**	- Some sample collection errors that could lead to incorrect laboratory examination results - Types of samples that cause test interference: Hemolyzed, turbid, lipemic, icteric, etc. (Examples of samples should be presented to students with types of tests that are affected). -Laboratory Handbook Policies & Practices ,sample storage and sample disposal . -The Laboratory's Responsibilities - Sample rejection criteria -Transport Regulations	1	1	a1-a4, ,b1,c2, d1

5	**Mid-semester exam**	-	1	2	al,a2 a3, a4,bl,c l
6	**Quality Control for Quantitative Tests**	•Definition of quantitative tests •Standard and control material •Characteristics and types (primary, secondary, internal) of standards •Characteristics, types (assayed/ unassayed/ in-house) and sources of control materials . •Establishing a value range for control materials (Levy-Jennings QC chart, etc.); Westgard control rules	1	1	a1,a2,a 3,a4 ,b1,c2, d1
7	**Quality control for Qualitative/ semi-quantitative tests**	-Definition of qualitative and semi-quantitative tests -Types of controls: built-in/ traditional/ stock cultures -Quality control of stains -Quality control of culture media	1	1	a1,a2 ,b1,c2, d1
8	**Assessment: Audits , External Quality Assessment (EQA)**	- What is an assessment? -Definition, purpose, types of audit (internal/ external)	1	1	a1,a3, ,b1,c2, d1
9	**Standard Operating Procedures (SOPs) in medical laboratory**	• **Preparation of Standard Operating Procedures (SOPs):** -Learning of how to prepare and write SOPs for selected tests.	1	2	a2,a3 ,b1,c2, d1
10	**Quality assurance Procedures**	-Microscopy quality assurance -Staining and serology quality assurance -Spectrophotometry quality assurance -Quality assurance & Q.Contol in automated chemistry and -Quality assurance Q.Contol in hematology analyzers	1	2	a2,a3 ,b1,c2, d1
11	**Calibration**	-Calibration of spectrophotometer and ELISA reader: Using standard solutions for calibration	1	2	a1,a2,a 3,

		-Calibration of pipettes and micropipettes			,b1,c2, d1,d2
12	**Validation and verification of analytical procedure (test methods)**	- Proficiency Testing - Sensitivity, Specificity, Predictive values - Precision and accuracy of the test.	1	2	a1,a2,a 3, ,b1,c2, d1,d2
13	**Quality assurance of laboratory medicine services**	-Hematology , blood banking, -Microbiology, biochemistry, -immunology, and parasitology**:** -Hito/Cytopathology Techniques Lab.	1	2	a1,a2,a 3, ,b1,c2, d1,d2
14	**Accreditation of Medical Laboratories**	-Definition of certification and accreditation -Elements and benefits of accreditation -Standards of accreditation ,ISO, CAP 15189 Accreditation Process,…etc			a1,a2,a 3, ,b1,c2, d1,d2
15	**Final Exam**		1	2	al,a2, a3,bl, b2,cl- c3,
Number of Weeks /and Units Per Semester			**16**	**32**	

V. Teaching strategies of the course:

- Interactive Lectures
- Dialogue and Discussion
- Self-Learning
- Presentation
- Seminars
- Brain storming
- Group discussion
- Case studies and Problem Solving

VI. Assessment Methods of the Course:

- Quizzes
- Midterm Exam
- Final Written Exam
- Assignments &Homework
- Group work
- Oral discussion

VII.Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	**Assignment :** Searching information about related subjects of **quality assurance** in Medical Laboratory Technology	d1	3-13th	10
	TOTAL			**10**

VIII.Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignments	3-13th	10	20%	dl,d2
2	Quiz 1& Quiz 2	6th &12th	5	10%	a2,a2,b1,b2,cl,c2,dl
3	Mid Semester Exam	7th	10	20%	a1,a2,bl,b2, cl,c2
5	Final Exam	16th	25	50%	a1,a2,bl,b2, cl,c2
	Total		**50**	**100%**	

IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, Title, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two):

2- WHO (2019) World Health Organization. Laboratory Quality Management System.

3- James O.Westgard.(2019).Basic Quality Management System . Elsevier, USA

2- Essential References:

1- -Kenneth N. Parson.(2019). Laboratory Quality/Management: A Workbook with an Eye on Accreditation Paperback Xlibris

2- Endris Mekonnen,University of Gondar(2018) Health Laboratory Management and Quality Assurance. LECTURE NOTE,For Medical Laboratory Technology Students

3- Electronic Materials and Web Sites etc.:

Websites:

1-https://www.westgard.com/iso-l5189-2012-requirements-l.htm

2-https://www.who.int/ihr/publications/lqms en.pdf

3.www. europepmc.org

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