استمارة توصيف برنامج أكاديمي

الجامعة : الوطنية الكلية : العلوم الطبية

1. المعلومات الأساسية عن البرنامج:

اسم البرنامج والدرجة العلمية	بكالوريوس تغذية علاجية وحميات
الجهة المخولةبمنح الدرجة العلمية (الكلية)	كلية العلوم الطبية
الجهة المسؤولة عن البرنامج	قسم علوم تغذية علاجية (كلية العلوم الطبية)
الأقسام العلمية المشاركة في البرنامج	قسم الصيدلة قسم المختبرات
لغة الدراسة في البرنامج	اللغة الإنجليزية
عام البدء بالدراسة(للبرامج الجديدة)	السنة المتوقع افتتاح البرنامج فيها
أسلوب الدراسة في البرنامج	منتظم-الحد الأدنى للحضور 75%
مكان تنفيذ البرنامج	قاعات ومعامل الجامعة الوطنية
نظام الدراسة	فصلي
الزمن الكلي للبرنامج	أربعة سنوات (ثمانية فصول دراسية) + ستة أشهر إمتياز
المهنة/المهن التي يعد البرنامج للالتحاق بها	أخصائي تغذية علاجية
مستوى/مستويات التأهيل المستهدفة في البرنامج	بكالوريوس
المؤهل المطلوب للالتحاق:	ثانوية عامة (قسم عملي)
التقدير المطلوب للالتحاق:	حسب متطلبات التعليم العالي
شروط أخرى:	اختبار قبول –إجادةاللغة الإنجليزية –مهاراتاستخدام الكمبيوتر
اسم منسق البرنامج	د/ طه عبدالعزيز سعيد ود/ عادل احمد حسين المتوكل
تاريخ آخر اعتماد مواصفات البرنامج	2020 - 2019

2. رسالة الكلية وأهدافها:

رسـالة الكلية:

إعداد كوادر مؤهله علمياً وعملياً في المجالات الطبية قادرةً على المنافسة محلياً وإقليمياً من خلال تقديم برامج تعليمية متميزة وفقا لمعايير الجودة ومتطلباتهاوبما يلبي احتياجات سوق العمل والمجتمع.

أهـداف الكلية:

تتمثل أهداف الكلية فيما يلي:

1. إعداد كادر متخصص ومؤهل في المجالات الطبية بالأسس النظرية والتطبيقية والمهارات المهنية والقيم الأخلاقية من خلال برامج اكاديمية وفقا لمعايير الجودة.
2. تطوير المهارات العلمية والعملية باستخدام الوسائل التعليمية الحديثة.
3. دعم البحث العلمي وتنمية قدرات الطالب في مجال تخصصه من خلال المشاركة في المشاريع البحثية والتعاون مع القطاعات البحثية المختلفة.

4. المساهمة الفعالة في خدمة المجتمع وتلبية متطلبات سوق العمل.

3. رسالة القسم العلمي وأهدافه

رسالة القسم العلمي:

اعداد كوادر متخصصة في مجال التغذية العلاجيةعلمياً وعملياً وأخلاقياً، من خلال برنامج أكاديمي تغذوي تم إعداده بشكل منهجي وفقاً لمعايير عالية الجودة، لتلبية احتياجات المجتمع و سوق العمل المحلي و الاقليمي في مجالات تكنولوجيا التغذيةوالصحة التغذوية.

أهداف القسم العلمي:

تتمثل أهداف القسم العلمي فيما يلي:

1. تأهيل الطلبة الملتحقين بقسم التغذية العلاجية بالمهارات التغذوية اللازمة لتقييم الحالة التغذوية للشخص حول أمراض سوء التغذية وحول التغذية السليمة باستخدام التحاليل التشخيصية المختلفة وتفسير نتائجها.
2. تشجيع الطلبة على إعداد البحوث التطبيقية في مجال التغذية العلاجية والمشاركة الفاعلة في حل المشاكل الصحية في المجتمع المتعلقة بالتغذية من خلال العمل المشترك مع المنظمات الغذائية والتخصصات الاخرى.
3. تدريب الطلبةعلى التقنيات والأجهزة الحديثة اللازمة في مجال التغذية والحميات.
4. تزويد الطلبة بالأسس العلمية التغذوية والبحثية الازمة لتمكينهم منالإلتحاقبالدراسات العليا في مختلف مجالات التغذية والحميات.
5. تطويرالبرامج التعليمية الأكاديمية للتغذية والحمياتبصورة دورية لمواكبة التطورات العلمية الحديثة والاحتياجات المتغيرة لسوق العمل.

4. مواصفات الخريج

1. مؤهلا علميا و عمليا للعمل في كمشرف تغذوي في المستشفيات والعيادات الخاصة المتخصصة في التغذية، والعيادات الخاصة بالرياضيين والبرامج العالمية لدعم الغذاء، ومراكز الصحة المدرسية، والمؤسسات التعليمية.
2. قادرا على جمع و فحص و تحليل العينات بطريقة صحيحة ودقيقة
3. قادرا على مواكبة التطور الحديث في مجال التغذية
4. امينا و محافظا على خصوصية مؤسسات الصناعات الغذائية والعيادات الخاصة المتخصصة في التغذية والمرضى
5. قادرا على ادارة المختبرات التغذوية الطبية في اطار الجودة الشاملة
6. قادرا على تقديم الخدمات الاستشارية للمراكز الصحية والصناعات الغذائيةوذلك بوضع البرامج التغذوية المختلفة الملائمة لكل شخص، في كل مراحل الحياة، لمختلف حالات الصحة والمرض.

5. مرجعية البرنامج:

1. اللوائح والأنظمة الصادرة من مجلس الاعتماد الأكاديمي وضمان الجودة بوزارة التعليم العالي والبحث العلمي- اليمن.
2. جامعة الملك سعود وجامعة الاميرة نورة بنت عبدالرحمن وجامعة القصيم.المملكة العربية السعودية

3. جامعةالبترا الاردنية. الاردن
4. King's College London و Coventry University و Bath Spa University-بريطانيا
5. IK Gujral Punjab Technical University و THIRUVALLUVAR UNIVERSITYالهند.
6. the University of Vermont - امريكا

6. مخرجات تعلم البرنامج:

أ. مهارات المعرفة والفهم:

عند إنهاء الطالب دراسة البرنامج يجب أن يكون قادراً على أن :

A1. يُعرّف المصطلحات التغذوية ومبادئ ومفاهيم العلوم الأساسية والعلوم التطبيقية المتعلقة بتخصص التغذية والحميات.

A2. يشرح بنية جسم الإنسان من الناحية التشريحية والفيزيولوجية والكيمياحيوية والنسيجية في الحالة الطبيعية والحالات المرضية المختلفة.

A3. يتعرف على المبادئالاساسيةحول العناصر والمواد الغذائية المختلفة والنظم الغذائية الصحيحة والمناسبة للأفراد والمجموعات في كل مراحل الحياة وفي حالات الصحة والمرض.

A4. يصف طرق الجمع والحفظ والتحليل العينات السريرية والغذائية بطريقة صحيحة لغرض تشخيص سوء التغذية وملوثات الغذاء والمضافات الغذائية وتأثيراتها المرضية في الجسم البشري في إطار نظام الجودة الشاملة.

A5. يشرح الجوانب التشخيصية والسريرية والوبائية ذات الصلة بعلوم التغذية والحميات.

ب. المهارات الذهنية

عند إنهاء الطالب دراسة البرنامج يجب أن يكون قادراً على أن:

B1. يدمج المعرفة والفهم للعلوم الأساسية مع علوم التغذية.

B2. يفسرنتائج تقييم الحالة التغذوية للشخص حول أمراض سوء التغذية وحول التغذية السليمة في ضوء فهم الحدود أو المظاهر غير الطبيعية للحالات المرضية.

B3. يحلل نتائج تشخيص التلوث البيولوجي والفيزيائي والكيميائي للأغذية بالطرق المخبرية المختلفةبصورة نقدية والمصادر المحتملة للخطأ في التحاليل المختبرية ويحل مسبباتها وفقا لمبادئ ضمان الجودة.

B4. يختار طريقة التغذية الملائمة حسب الحالة الصحية للشخصوالطرق المثلى لجمع وحفظ وتحليل العينات السريرية والغذائية ضمن الممارسة عالية الجودة.

ج. المهارات المهنية والعملية

عند إنهاء الطالب دراسة البرنامج يجب أن يكون قادراً على أن :

C1. يطبق تدابير مراقبة الجودة والسلامة البيولوجية وضبط وضمان الجودة في الصناعة الغذائية ومختبرات فحص الاغذية والملوثات الميكروبية للعمل في بيئة خالية من المخاطر.

C2. يضع البرامج التغذوية وتخطيط الوجبات والحميات العلاجية المختلفة الملائمة لكل شخص، في كل مراحل الحياة في حالات الصحة والمرض

C2. يستخدم أفضل الطرق لجمع وحفظ وتجهيز العينات **لتقييم الحالة الغذائية،والمؤشرات الحيوية لمعرفة الاضطرابات الأيضية التغذوية.**

C4. ينفذ مختلف الخطط الغذائية بكفاءة وفقا لحساب المتطلبات الغذائية لمختلف الحلات المرضية والصحية باسخدام

التقنيات الحديثة.

د. المهارات العامة

عند إنهاء الطالب دراسة البرنامج يجب أن يكون قادراً على أن :

D1.يستخدم تكنولوجيا المعلومات بكفاءة لجمع وتحليل وتفسير المعلومات المطلوبة لمعرفة الاضطرابات الأيضية التغذوية والأمراض الوبائية المتعلقة بالتغذية ومشاكل تفاعل الدواء مع العناصر الغذائية للعمل المختبري والتعلم الذاتي المستمر.

D2.يعمل بروح الفريق الواحد ويدير الوقت بكفاءة.

D3.يقّيم المشاكل ويحلها و يتخذ القرارات المناسبة عند الحاجة.

D4.يلتزم بالقضايا الأخلاقية والاجتماعية اللازمة للخدمات الغذائية والصحيةغيرهم من مهنيي الرعاية الصحية وعامة المجتمع.

D5. يشارك في تخطيط برامج التغذية المجتمعية.

7. خارطة المنهج:

8. استراتيجيات التدريس:

إستراتيجية التدريس	وصف كيفية استخدامها
المحاضرة	وتعتبر من أكثر طرق التدريس التي تستخدم للمعرفة والشرح النظري للطلاب على شكل مجموعة تتراوح بين (40– 80) طالب في قاعة دراسية واحدة باستخدام اجهزة العرض السمعية والبصرية .
التطبيق العملي	وتعتبر من أكثر طرق التعليم المستخدمة وبالذات للمقررات العملية وذلك لتدريب الطلاب على تحليل النتائج والوصول إلى استنتاجات محددة وواضحة وتتم هذه الطريقة باستخدام الأجهزة المتوفرة في المعامل .
التدريب الميداني	وتعتبر من أكثر طرق التعليم المستخدمة وبالذات للمقررات المحتوية على جزء تدريبي عملي ليتمكن الطلاب من اكتساب المهارات العملية .
التعليم التعاوني	يشكل الطلاب بمجموعات تعاونية في بعض المحاضرات العملية للتدريب على مهارات العمل الجماعي التعاوني وتتم هذه الطريقة باستخدام الأجهزة المتوفرة في المعامل .
الأنشطة المنزلية	وتعتبر من أكثر طرق التدريس التي تستخدم للبحث عن المعرفة والشرح بحيث يشكل الطلاب بمجموعات أو نشاط فردي لكل طالب على حده وذلك لإنجاز النشاط النظري او العملي المقرر على الطالب وذلك من خلال الأستناد إلى المراجع العلمية والكتب أو الوسائل الإلكترونية الحديثة .

9. استراتيجيات التقييم:

طريقة التقييم	وصفها(في أي المقررات تستخدم ومعدل استخدامها)
الامتحانات التحريرية النصفية	- تستخدم في جميع المقررات الدراسية في البرنامج دون استثناء بحيث يتم احتساب درجات هذه الجزئية من 20 درجة أي بنسبة 20 % .
الامتحانات التحريرية النهائية	- تستخدم في جميع المقررات الدراسية في البرنامج دون استثناء بحيث يتم احتساب درجات هذه الجزئية من 40 درجة ويعتبر الطالب ناجح في المقرر إذا بلغت درجته 12درجة أي بنسبة 30% من إجمالي الدرجة بالنسبة للمواد المحتوية على جزء عملي . - وتحسب درجة هذه الجزئية بالنسبة للمواد النظرية والغير محتوية على جزء عملي من 60درجة ويعتبر الطالب ناجح في المقرر إذا بلغت درجته 18درجة أي بنسبة30 % من إجمالي الدرجة . - ويتم حرمان الطالب من دخول الامتحان إذا تجاوز غيابه بدون عذر ≤25% من إجمالي عدد المحاضرات .
الامتحانات العملية	- تستخدم في جميع المقررات الدراسية في البرنامج المحتوية على جزء عملي دون استثناء بحيث يتم احتساب درجات هذه الجزئية من30 درجة ويعتبر الطالب ناجح في مقرر هذه الجزئية إذا بلغت درجته 15 درجة من إجمالي الدرجةأي بنسبة 50 % من إجمالي الدرجة. - بحيث يتم توزيع درجات هذه الجزئية على النحو التالي :- (10 درجات للإمتحان الفصلي العملي و 20 درجة للإمتحان النهائي العملي) . - ويتم حرمان الطالب من دخول الامتحان العملي إذا تجاوز غيابه بدون عذر ≤25% من إجمالي عدد المحاضرات العملية أو النظرية لنفس المقرر . - وفي حال رسوب الطالب في الجزء العملي يتم حرمانه من الدخول للامتحانات التحريرية النهائية .
الحضور والمشاركة	- تستخدم في جميع المقررات الدراسية في البرنامج دون استثناء بحيث يتم احتساب درجات هذه الجزئية من 5 درجات أي بنسبة 5 % من إجمالي درجة المقررات . - ويتم حرمان الطالب من دخول الامتحان العملي إذا تجاوز غيابه بدون عذر ≤25% من إجمالي عدد المحاضرات . - ويعتمد الحضورفي هذه الجزئية بالنسبة لمقرر التدريب الميداني في جميع اقسام المستضفيات والمختبرات التغذويةبنسبة 50 % من إجمالي حضور فترة التدريب الميداني .
الأنشطة والتقارير	- تستخدم في جميع المقررات الدراسية في البرنامج دون استثناء بحيث يتم احتسابدرجات هذه الجزئية من5 درجات أي بنسبة 5 % من إجمالي درجات المقرر. - ويعتمد لهذه الجزئية بالنسبة لمقرر التدريب الميداني في جميع اقسام المستضفيات والمختبرات التغذوية بنسبة 25 % من إجمالي حضور فترة التدريب الميداني .

الامتحانات الميدانية الشفوية	- وتستخدم هذه الطريقة من التقييم في مقرر التدريب الميداني في جميع اقسام المستضفيات والمختبرات التغذوية بحيث تحتسب نسبة هذه الجزئية من25% بحيث على ان لا تعتمد نتيجة هذه المادة (التدريب الميداني) ضمن المعدل العام للخريج .

10. نظام الدراسة:

1. عدد الساعات المطلوبة لإكمال البرنامج	141 ساعة
2. عدد الساعات ونسبتها المئوية من مجموع ساعات البرنامج، موزعة كالتالي:	
المتطلبات	**النسبة**
• المقررات الثقافية العامة(متطلبات الجامعة)، ونسبتها من إجمالي ساعات البرنامج	8مقررات دراسية – بواقع 17 ساعة بنسبة 12.1% .
• مقررات الكلية(متطلبات الكلية)، ونسبتها من إجمالي ساعات البرنامج.	13مقررات دراسية – بواقع 34 ساعة بنسبة 24.1% .
• المقررات الأساسية للتخصص، ونسبتها من إجمالي ساعات البرنامج	
• مقررات التخصص الإجبارية، ونسبتها من إجمالي ساعات البرنامج	34 مقررات دراسية – بواقع90 ساعة بنسبة 63.8% .
• مقررات التخصص الاختيارية (إن وجدت)، ونسبتها من إجمالي ساعات البرنامج	لاتوجد
• التدريب الميداني، ونسبته من إجمالي ساعات البرنامج.	ستة أشهر
• مقررات أخرى (إن لزم الأمر) تحدد وتبرر، ونسبتها من إجمالي ساعات البرنامج	

11. الخطة الدراسية:

وتتضمن أسماء المقررات الدراسية التي يتكون منها البرنامج ، طبيعة المقرر، توزيع المقررات على الفصول الدراسية، والقسم العلمي المسؤول عن تدريسها

قســـــم التغذية (المســتوى الأول – الفصل الأول)

اسم المـــــادة	Course Title	طبيعة المـــادة	عدد الســـاعات		
			نظري	عملي	الساعات المعتمدة
اللغة العربية (101)	Arabic Language (101)	متطلب جامعة	2	0	2
علم الأحياء	Biology	متطلب كلية	2	2	3
اللغة إنجليزية (101)	English Language (1)	متطلب جامعة	2	0	2
فيزياء طبية	Medical Physics	متطلب كلية	2	2	3
كيمياء عامة وعضوية	General & Organic Chemistry	متطلب كلية	2	2	3
ثقافة إسلامية	Islamic Culture	متطلب جامعة	2	0	2

مهارات حاسوب	Computer Skills	متطلب جامعة	2	2	3
الصراع العربي الاسرائلي	The Arab-Israeli conflict	متطلب جامعة	2	0	2
			16	**8**	**20**

قسـم التغذية(المستوى الأول – الفصل الثاني)					
اسم المادة	Course Title	طبيعة المادة	عدد الساعات		
			نظري	عملي	الساعات المعتمدة
اللغة العربية (102)	Arabic Language (102)	متطلب جامعة	2	0	2
اللغة الإنجليزية (102)	English Language (2)	متطلب جامعة	2	0	2
علم التشريح والانسجة	Anatomyand Histology	متطلب كلية	2	2	3
علم النفس	Psychology	متطلب كلية	2	0	2
كيمياء الغذاء	Food Chemistry	متطلب كلية	2	2	3
مهارات اتصال	Communication Skills	متطلب كلية	2	0	2
وظائف الأعضاء	Physiology	متطلب كلية	2	0	2
الثقافة الوطنية		متطلب جامعة	2	0	2
			16	**4**	**18**

قسـم التغذية(المستوى الثاني – الفصل الأول)					
اسم المادة	Course Title	طبيعة المادة	عدد الساعات		
			نظري	عملي	الساعات المعتمدة
مبادئ واساسيات التغذية	Principles of Nutrition	تخصصية	2	0	2
مقدمة في الميكروبيولوجي	Introduction to Microbiology	متطلب كلية	2	2	3
كيمياء حيوية نغذوية (1)	NutritionalBiochemistry (1)	تخصصية	2	2	3
التغذية والمناعة	Nutrition and Immunology	تخصصية	2	2	3
اساسيات الغذاء	Principles of Food	تخصصية	2	2	3
علم الطفيليات	Parasitology	متطلب كلية	2	2	3
			12	**10**	**17**

قسـم التغذية(المستوى الثاني – الفصل الثاني)					
اسم المادة	Course Title	طبيعة المادة	عدد الساعات		
			نظري	عملي	الساعات المعتمدة
الغذاء والبيولوجيا الجزيئية	Nutrition andMolecular Biology	تخصصية	**2**	**2**	**3**
كيمياء حيوية نغذوية(2)	NutritionalBiochemistry (2)	تخصصية	**2**	**2**	**3**

ميكروبيولوجي ماء وغذاء	Food and Water Microbiology	تخصصية	2	2	3
علم الأمراض العامة	General Pathology	متطلب كلية	2	0	2
الاحتياجات الغذائية وتخطيط الوجبات	Nutrition Needs and diet Planning	تخصصية	2	2	3
التغذية خلال مراحل العمر	Nutrition Through Life Cycle	تخصصية	2	0	2
التغذية والنشاط البدني	Nutrition and physical activity	تخصصية	2	0	2
			14	8	18

قســـــم التغذية(المســتوى الثالث – الفصل الأول)

اسم المـــــادة	Course Title	طبيعة المـــادة	عدد الســـاعات		
			نظري	عملي	الساعات المعتمدة
العلاج الغذائي في حالات الإجهاد الفسيولوجي	Nutritional Therapy for Physiological Stress	تخصصية	2	2	3
تغذية المجتمع	Community Nutrition	تخصصية	2	0	2
تغذية سريرية 1	Clinical Nutrition 1	تخصصية	2	2	3
تحليل أغذية	Food Analysis	تخصصية	2	2	3
الإحصاء الحيوي	Biostatistics	تخصصية	2	0	2
تقييم الحالة التغذوية	Nutritional Assessment	تخصصية	2	2	3
			12	8	16

قســـــم التغذية(المســتوى الثالث– الفصل الثاني)

اسم المـــــادة	Course Title	طبيعة المـــادة	عدد الســـاعات		
			نظري	عملي	الساعات المعتمدة
علم الأوبئة الغذائي	Nutritional Epidemiology	تخصصية	2	2	3
تغذية سريرية 2	Clinical Nutrition 2	تخصصية	2	2	3
التغذية الأنبوبية والوريدية	Enteral and Parenteral Nutrition	تخصصية	2	2	3
التغذية والدواء	Nutrition and Drugs	تخصصية	2	0	2
الأغذية الوظيفية	Functional Foods	تخصصية	2	0	2
العادات والسلوكيات الغذائية	Food Habits and Behavior	تخصصية	2	0	2
الاقتصاد والتغذية	Economy and Nutrition	تخصصية	2	2	3
			14	8	18

قســـــم التغذية(المســتوى الرابع – الفصل الأول)

اسم المـــــادة	Course Title	طبيعة المـــادة	عدد الســـاعات		
			نظري	عملي	الساعات المعتمدة
مراقبة الجودة والشؤون	Quality Control and Food	تخصصية	2	2	3

الصحية	sanitation				
إسعافات أولية	First Aids	متطلب كلية	2	2	3
علم السموم الغذائي	Food Toxicology	تخصصية	2	0	2
التثقيف الغذائي وإرشاد المرضى	Nutritional Education and Patient Counseling	تخصصية	2	2	3
رعاية الأمومة والطفولة	Maternity and Childhood	تخصصية	2	0	2
طرق بحث علمي	Research Methodology	متطلب كلية	2	0	2
طرق حفظ وتصنيع الأغذية	FoodProcessing	تخصصية	2	2	3
			14	8	18

قســـــم التغذية(المســتوى الرابع – الفصل الثاني)					
اسم المـــــادة	Course Title	طبيعة المـــادة	عدد الســـاعات		
			نظري	عملي	الساعات المعتمدة
الاتجاهات الحديثة في الغذاء والتغذية	Current Topics in Nutrition	تخصصية	2	0	2
إدارة خدمات التغذية	Food Services and Management	تخصصية	2	0	2
مواضيع خاصة في التغذية	Special Topics in Nutrition (Seminar)	تخصصية	2	2	3
مشروع التخرج	Research Project	تخصصية	2	2	3
امراض سوء التغذية	MalnutritionDisorders	تخصصية	2	2	3
تدريب ميداني سريري	Practicum in Clinical Nutrition	تخصصية	2	2	3
			12	8	16

12. متطلبات القبول: تحديد متطلبات القبول في البرنامج مثل:
1- الحصول على مؤهل الثانوية العامة (القسم العلمي)
2- استيفاء الوثائق المطلوبة وهي (أصل مؤهل الثانوية العامة أو طبق الأصل – صورة من البطاقة الشخصية أو جواز السفر مرفقاً بإذن الإقامة (لغير اليمنيين)
3- تعبئة استمارة طلب الالتحاق بالجامعة مستوفية كافة البيانات الواردة فيها
4- – عدد ست صور مقاس 4×6 أو 2×3
5- أن يكون الطالب حاصلاً على المعدل المطلوب (حسب متطلابات التعليم العالي)
6- اختبار القبول
7- إجادة اللغة الانجليزية

8- إجاده استخدام الحاسوب

13. متطلبات الحضور وإكمال البرنامج :توضيح النظم واللوائح التي تحدد شروط وقواعد الانتقال من (مستوى دراسي) إلى (المستوى الدراسي الذي يليه)، نظم ولوائح الانسحاب من البرنامج أو التحويل إلى برنامج آخر في نفس الكلية.
1- أن لا يكون الطالب قد رسب في أكثر من أربعة مقررات دراسية . 2- الالتزام بالحضور بمعدل 75% من إجمالي عدد المحاضرات لكل المواد
14. متطلبات التخرج: ينبغي تحديد متطلبات التخرج بدقة ووضوح ويمكن الاستعانة بالإرشادات الآتية:
• إجمالي الساعات المطلوبة للتخرج.2628ساعة
• الحد الأدنى من الدرجات اللازمة للنجاح بالنسبة لكل مقرر من المقررات الدراسية للبرنامج. 50%
• إجمالي الدرجات أو التقديرات المطلوبة للتخرج.
• أن يكون الطالب قد أنهى دراسة كل ساعات البرنامج المقررة
• أن يكون الطالب قد اجتاز جميع المقررات الدراسية بنجاح
• أن يكون الطالب قد اجتاز فترة الامتياز

15.الإمكانات المطلوبة لتنفيذ البرنامج

أ- مصادر التعلم:

- المكتبة
- مكتبة إلكترونية (الانترنت)

ب- المختبرات والتجهيزات والأدوات والمواد التعليمية:

- معامل
- أجهزة متطورة وحديثة
- محاليل وصبغات ومواد كيميائية .

-التدريب الميداني .

16.تقويم البرنامج وتحسينه:

المستهدفون	أداة التقييم	العينة
طلبة السنة النهائية	الامتحانات	عشوائية
خريجون	الاستبيان	عشوائية
جهات التوظيف	الاستبيان	عشوائية
مراكز التدريب	الاستبيان	عشوائية

17.ملحق يتضمن مواصفات وخطط المقررات الدراسية للبرنامج:

.

1. مفردات المقررات

مفردات مقرر اللغة العربية 101

وصف المقرر:
يحتوي المقررعلى :-تساؤلات في الأدب الجاهلي ،نموذج جاهلي ،الكلام،الإعراب والبناء،الرسالة،اللام الشمسية والقمرية . -أدب صدرالإسلام ،نموذج قرآني ونبوي ،الجملة الاسمية ،النواسخ،الرسائل الرسمية والإخوانية،الألف اللينة. - الأدب الأموي ،جرير التميمي ،أساليب نحوية ،التقارير،التنوين ،أهمية اللغة. -التدوين ،الضمائر،لمحاضر،أساسيات الخط العربي،مهارة القراءة والاستماع . -القصة ،النقد ،السيرة الذاتية ،أنشودة المطر.

تحديد وكتابةمواضيعالمقرر الرئيسة والفرعية (النظرية والعملية) وربطها بمخرجات التعلم المقصودة للمقرر مع تحديد الساعات المعتمدة لها.

كتابة وحدات /مواضيع محتوى المقرر					
أولا:الجانب النظري					
الرقم	وحدات/ موضوعات المقرر	المواضيع التفصيلية	عدد الساعات	عدد الأسابيع	مخرجات تعلم المقرر
	الوحدة الأولى	تساؤلات في الأدب الجاهلي طرفة بن العبد	2	3	
		الكلام الإعراب	2		

		البناء -فن الرسالة	2	3	
1	الوحدة الثانية	نبذة عن الأدب في عصرصدر الإسلام-القرآن الكريم إعجاز خالد	2		
		-حديث الأمانة والساعة-الجملة الاسمية -	2		
		النواسخ- -الألف اللين	2		
2	الوحدة الثالثة	تعدد الأغراض الشعرية في الأدب الأموي-جريرالتميمي في قصيدته الدامغة-	2	4	
		أساليب نحوية-	2		
3		التقارير -التنوين	2		
		- أهمية اللغة في حياة الفرد والمجتمع	2		
	ا لوحدة الرابعة	حركة التدوين في العصرالأموي الضمائر	2	4	
4		-محاضر الجلسات-المرتكزات الأساسية للخط العربي المهارة القرائية -مهارة الاستماع	2 2		
5	الوحدة الخامسة	القصة -النقد- إعدادالسيرة الذاتية-أنشودة المطر	2		
6	إجمالي الساعات والأسابيع		28		14

III. استراتيجية التدريس:

نظام المحاضرات
الإلقاء
الحوار والمناقشة

العصف الذهني
حل تمارين وأنشطة الكتاب

IV. التعيينات والتكليفات:

الرقم	التكليف/النشاط	مخرجات التعلم	الأسبوع	الدرجة
1	تساؤلات في الأدب الجاهلي	يذكر نبذه مختصرة عن حياة العرب الأدبية قبل الإسلام	الأول	10
2	رسالة رسمية	يقدم رسالة رسمية خالية من الأخطاءالإملائية واللغوية	الثالث	
3	إعداد تقرير	يعد تقريرا في أي مجال باسلوب علمي	الثامن	
4	إعداد سيرة ذاتية	يقدم سيرة ذاتية وفق ما تم دراسته	الثاني عشر	

V. تقويم التعلم:

الرقم	أنشطةالتقويم	الأسبوع	الدرجة	نسبة الدرجة إلى درجة التقويم النهائي	المخرجات التي يحققها
1	الواجبات	1-14	10		يطبق المتعلم ما تعلمه
2	اختبار أول	4	10		ينفذ اختبار أولي حول الربع الأول من الفصل
3	اختبار منتصف الفصل	8	10		يحل مجموعة من الأسئلة متعلقة بدروس متعددة
4	اختبار ثالث	12	10		يختبر الربع الأخيرمن الفصل الدراسي
5	الاختبار النهائي	16	60		ينفذ اختبار شامل لكل وحدات المقرر
6					

VI. مصادر التعلم:

(اسم المؤلف، سنة النشر، اسم الكتاب، دار النشر، بلد النشر).

المراجع الرئيسة: (لا تزيد عن مرجعين)

1. شرح المعلقات السبع .الإمام الزوزني دارالكتب العلمية بيروت1985م
2. في النقد والأدب جـ 2 إيليا الحاوي دار الكتاب اللبناني – بيروت الطبعة الرابعة 1979م

المراجع المساعدة
1. اللغة العربية 101،102 علي المخلافي وآخرون – متطلبات الجامعة مكتبة الجيل الجديد صنعاء 6 2. مهارات اللغة العربية جـ1 أمة الرزاق الحوري وآخرون مطابع الكتاب المدرسي صنعاء 1995م
مواد إلكترونية وإنترنت: (إن وجدت)
-1 -2

مسارات البرنامج		مقررات الخبرات الثقافة العامة	مقررات متطلبات الكلية	مقررات البرنامج التخصصي1	مقررات الخبرات الميدانية	مشروع/ بحث التخرج
الرقم	مخرجات التعلم					
A1	يُعرّف المصطلحات الطبية ومبادئ ومفاهيم العلوم الأساسية المتعلقة بتخصص المختبرات الطبية	لغة إنجليزية (1)، لغة إنجليزية (2) أخلاقيات مهنه	علم الأحياء ، فيزياء طبية. كيمياء عامة وعضوية، تشريح إنسان علم الأنسجة، كيمياء تحليلية، علم وظائف الأعضاء، إسعافات أولية، مناهج البحث ، إحصاء حيوي، علم الأدوية	**مقدمة في علم الميكروبيولوجي، كيمياء حيوية طبية (1)، علم المناعة، أجهزة مختبرات طبية، علم الطفيليات** (1 و 2)، علم البيولوجيا الجزيئية و الجينات، كيمياء حيوية طبية (2)، بكتيريا طبية (1 و2)، علم الدم (1 و 2)، علم الأمراض، علم المناعة السريرية و الامصال، علم الفيروسات الطبية، علم السموم، كيمياء حيوية سريرية (1و2)، ميكروبيولوجي ماء وغذاء، بنك الدم، علم الأنسجة المرضية، علم الفطريات الطبية، علم الحشرات الطبية، ضمان الجودة والسلامة الحيوية، سوائل الجسم، تشخيص طفيليات، تشخيص ميكروبيولوجي (1)، علم الوبائيات وصحة عامة، هرمونات، تشخيص دم،		
A2	**يشرح الظواهر المتعلقة بالمختبرات الطبية من خلال المعرفة النظرية وفهم العلوم الأساسية والتطبيقية.**	لغة إنجليزية (2)	علم الأحياء، فيزياء طبية، تشريح إنسان، علم الأنسجة، علم وظائف الأعضاء ، علم الأدوية	**مقدمة في علم الميكروبيولوجي، كيمياء حيوية طبية (1)، علم المناعة، علم الطفيليات** (1 و 2)، علم البيولوجيا الجزيئية و الجينات، كيمياء حيوية طبية (2)، بكتيريا طبية (1 و2)، علم الدم (1و 2)، علم الأمراض، علم المناعة السريرية و الامصال، علم الفيروسات الطبية، علم السموم، كيمياء حيوية سريرية (1و2)، ميكروبيولوجي ماء وغذاء، بنك الدم، علم الأنسجة المرضية، علم الفطريات الطبية، سوائل الجسم، تشخيص طفيليات، تشخيص ميكروبيولوجي (1)، علم الوبائيات وصحة عامة، هرمونات، تشخيص دم،	√	√
A3	**يتعرف على المبادئ الاساسية حول الجمع والحفظ والتعامل مع وتحليل العينات السريرية بطريقة صحيحة لغرض التشخيص في إطار نظام الجودة الشاملة.**	مهارات تواصل		**علم المناعة**، بكتيريا طبية (1 و2)،علم الدم (1 و 2)، علم الأمراض، علم المناعة السريرية و الامصال، علم الفيروسات الطبية، كيمياء حيوية سريرية (1و2)، ميكروبيولوجي ماء وغذاء، بنك الدم، علم الفطريات الطبية، ضمان الجودة والسلامة الحيوية، سوائل الجسم، تشخيص طفيليات، تشخيص ميكروبيولوجي (1)، هرمونات، تشخيص دم،	√	√

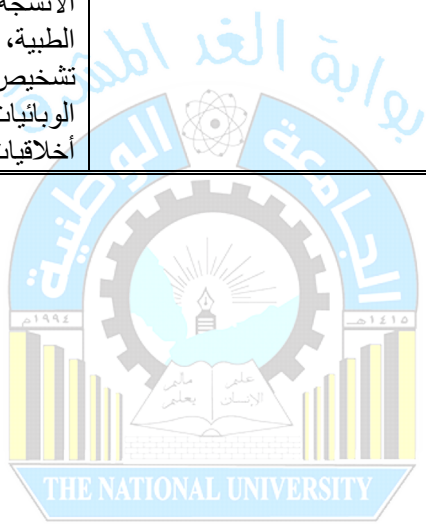
A4	**يشرح الجوانب التشخيصية والسريرية والوبائية ذات الصلة بعلوم المختبرات الطبية.**		تشريح إنسان علم الأنسجة، علم وظائف الأعضاء ، مناهج البحث، إحصاء حيوي، علم الأدوية	**مقدمة في علم الميكروبيولوجي، كيمياء حيوية طبية (1)، علم المناعة، علم الطفيليات** (1 و 2)، علم البيولوجيا الجزيئية و الجينات، كيمياء حيوية طبية (2)، بكتيريا طبية (1 و2)، علم الدم (1 و 2)، علم الأمراض، علم المناعة السريرية و الامصال، علم الفيروسات الطبية، علم السموم، كيمياء حيوية سريرية (1و2)، ميكروبيولوجي ماء وغذاء، بنك الدم، علم الأنسجة المرضية، علم الفطريات الطبية، علم الحشرات الطبية، ضمان الجودة والسلامة الحيوية، سوائل الجسم، تشخيص طفيليات، تشخيص ميكروبيولوجي (1)، علم الوبائيات وصحة عامة، هرمونات، تشخيص دم،	√	√
B1	**يدمج المعرفة والفهم للعلوم الأساسية مع علوم المختبرات الطبية.**		علم الأحياء، تشريح إنسان علم الأنسجة، علم وظائف الأعضاء ، مناهج البحث، علم الأدوية	**مقدمة في علم الميكروبيولوجي، كيمياء حيوية طبية (1)، علم المناعة، علم الطفيليات** (1 و 2)، علم البيولوجيا الجزيئية و الجينات، كيمياء حيوية طبية (2)، بكتيريا طبية (1 و2)، علم الدم (1 و 2)، علم الأمراض، علم المناعة السريرية و الامصال، علم الفيروسات الطبية، علم السموم، كيمياء حيوية سريرية (1و2)، ميكروبيولوجي ماء وغذاء، بنك الدم، علم الأنسجة المرضية، علم الفطريات الطبية، علم الحشرات الطبية، ضمان الجودة والسلامة الحيوية، سوائل الجسم، تشخيص طفيليات، تشخيص ميكروبيولوجي (1)، علم الوبائيات وصحة عامة، هرمونات، تشخيص دم،	√	√
B2	**يفسرنتائج التحاليل المختبرية في ضوء فهم الحدود أو المظاهر غير الطبيعية للحالات المرضية.**		علم وظائف الأعضاء، مناهج البحث،	**مقدمة في علم الميكروبيولوجي، علم المناعة**، بكتيريا طبية (1 و2)، علم الدم (1 و 2)، علم الأمراض، علم المناعة السريرية و الامصال، علم الفيروسات الطبية، علم السموم، كيمياء حيوية سريرية (1و2)، بنك الدم، علم الأنسجة المرضية، علم الفطريات الطبية، ضمان الجودة والسلامة الحيوية، سوائل الجسم، تشخيص طفيليات، تشخيص ميكروبيولوجي (1)، هرمونات، تشخيص دم،	√	√
B3	**يحلل بصورة نقدية المصادر المحتملة للخطأ في التحاليل المختبرية ويحل مسبباتها وفقا لمبادئ ضمان الجودة.**		فيزياء طبية ،كيمياء عامة وعضوية، ، كيمياء تحليلية،	**كيمياء حيوية طبية (1)، علم المناعة، أجهزة مختبرات طبية، علم الطفيليات** (1 و 2)، علم البيولوجيا الجزيئية و	√	√

			مناهج البحث، إحصاء حيوي		الجينات، كيمياء حيوية طبية (2)، بكتيريا طبية (1 و2)، علم الدم (1 و 2)، علم الأمراض، علم المناعة السريرية و الامصال، علم الفيروسات الطبية، علم السموم، كيمياء حيوية سريرية (1و2)، ميكروبيولوجي ماء وغذاء، بنك الدم، علم الأنسجة المرضية، علم الفطريات الطبية، سوائل الجسم، تشخيص طفيليات، تشخيص ميكروبيولوجي (1)، هرمونات، تشخيص دم،		
B4	**يختار أفضل الطرق لجمع وحفظ وتحليل العينات السريرية ضمن الممارسة المختبرية عالية الجودة.**		علم وظائف الأعضاء، مناهج البحث		**علم المناعة**، بكتيريا طبية (1 و2)، علم الدم (1 و 2)، علم المناعة السريرية و الامصال، علم الفيروسات الطبية، كيمياء حيوية سريرية (1و2)، ميكروبيولوجي ماء وغذاء، بنك الدم. علم الفطريات الطبية، ضمان الجودة والسلامة الحيوية، سوائل الجسم، تشخيص طفيليات، تشخيص ميكروبيولوجي (1)، هرمونات، تشخيص دم،	√	√
C1	**يطبق تدابير مراقبة الجودة والسلامة البيولوجية في الممارسة المختبرية للعمل في بيئة خالية من المخاطر**	لغة إنجليزية (2)	علم الأحياء ، كيمياء عامة وعضوية، علم الأنسجة، كيمياء تحليلية، مناهج البحث		**مقدمة في علم الميكروبيولوجي، كيمياء حيوية طبية (1) ،علم المناعة، أجهزة مختبرات طبية، علم الطفيليات** (1 و 2)، علم البيولوجيا الجزيئية و الجينات، كيمياء حيوية طبية (2)، بكتيريا طبية (1 و2)، علم الدم (1 و 2)، علم الأمراض، علم المناعة السريرية و الامصال، علم الفيروسات الطبية، كيمياء حيوية سريرية (1و2)،ميكروبيولوجي ماء وغذاء، بنك الدم، علم الأنسجة المرضية، علم الفطريات الطبية، ضمان الجودة والسلامة الحيوية، سوائل الجسم، تشخيص طفيليات، تشخيص ميكروبيولوجي (1)، هرمونات، تشخيص دم،		
C2	**يستخدم أفضل الطرق لجمع وحفظ وتجهيز العينات في سياق الممارسة المختبرية عالية الجودة.**		مناهج البحث		**مقدمة في علم الميكروبيولوجي، كيمياء حيوية طبية (1) ،علم المناعة، أجهزة مختبرات طبية، علم الطفيليات** (1 و 2)، علم البيولوجيا الجزيئية و الجينات، كيمياء حيوية طبية (2)، بكتيريا طبية (1 و2)، علم الدم (1 و 2)، علم الأمراض، علم المناعة السريرية و الامصال، علم الفيروسات الطبية، كيمياء حيوية سريرية (1و2)،ميكروبيولوجي ماء وغذاء، بنك الدم، علم الأنسجة المرضية، علم الفطريات الطبية، ضمان الجودة والسلامة	√	√

			الحيوية، سوائل الجسم، تشخيص طفيليات، تشخيص ميكروبيولوجي (1)، هرمونات، تشخيص دم،		
C3	**ينفذ مختلف الفحوصات التشخيصية المختبرية بكفاءة وفقا لإجراءات التشغيل القياسية.**		مناهج البحث	**مقدمة في علم الميكروبيولوجي، كيمياء حيوية طبية (1) ،علم المناعة، أجهزة مختبرات طبية، علم الطفيليات** (1 و 2)، علم البيولوجيا الجزيئية و الجينات، كيمياء حيوية طبية (2)، بكتيريا طبية (1 و2)، علم الدم (1 و 2)، علم الأمراض، علم المناعة السريرية و الامصال، علم الفيروسات الطبية، كيمياء حيوية سريرية (1و2)،ميكروبيولوجي ماء وغذاء، بنك الدم، علم الأنسجة المرضية، علم الفطريات الطبية، ضمان الجودة والسلامة الحيوية، سوائل الجسم، تشخيص طفيليات، تشخيص ميكروبيولوجي (1)، هرمونات، تشخيص دم،	√	√
C4	**يستخدم مختلف الأجهزة والأدوات التشخيصية اليدوية والآلية .**	مهارات تواصل	علم الأحياء ، فيزياء طبية، كيمياء عامة وعضوي كيمياء تحليلية ة، تشريح إنسان، علم الأنسجة، مناهج البحث	**مقدمة في علم الميكروبيولوجي، كيمياء حيوية طبية (1) ،علم المناعة، أجهزة مختبرات طبية، علم الطفيليات** (1 و 2)، علم البيولوجيا الجزيئية و الجينات، كيمياء حيوية طبية (2)، بكتيريا طبية (1 و2)، علم الدم (1 و 2)، علم الأمراض، علم المناعة السريرية و الامصال، علم الفيروسات الطبية، كيمياء حيوية سريرية (1و2)،ميكروبيولوجي ماء وغذاء، بنك الدم، علم الأنسجة المرضية، علم الفطريات الطبية، ضمان الجودة والسلامة الحيوية، سوائل الجسم، تشخيص طفيليات، تشخيص ميكروبيولوجي (1)، هرمونات، تشخيص دم،	√	√
D1	**يستخدم أجهزة الكمبيوتر وتكنولوجيا المعلومات بكفاءة لجمع وتحليل وتفسير المعلومات المطلوبة للعمل المختبري والتعلم الذاتي المستمر**		علم الأحياء فيزياء طبية، ثقافة إسلامية ،كيمياء عامة وعضوية، مهارات حاسوب، علم الأنسجة، كيمياء تحليلية، علم وظائف الأعضاء، إسعافات أولية، مناهج البحث	**مقدمة في علم الميكروبيولوجي كيمياء حيوية طبية (1)، علم المناعة، أجهزة مختبرات طبية، علم الطفيليات** (1 و 2)، علم البيولوجيا الجزيئية و الجينات، كيمياء حيوية طبية (2)، بكتيريا طبية (1 و2)، علم الدم (1 و 2)، علم الأمراض، علم المناعة السريرية و الامصال، علم الفيروسات الطبية، علم السموم، كيمياء حيوية سريرية (1و2)، ميكروبيولوجي ماء وغذاء، بنك الدم، علم الأنسجة المرضية، علم الفطريات الطبية، علم الحشرات الطبية، ضمان الجودة والسلامة الحيوية، سوائل الجسم،	√	√

				تشخيص طفيليات، تشخيص ميكروبيولوجي (1)، علم الوبائيات وصحة عامة، هرمونات، تشخيص دم، أخلاقيات مهنه	
D2	**يعمل بشكل مستقل أو كعضو في فريق ويدير الوقت بكفاءة.**		علم الأحياء فيزياء طبية، ثقافة إسلامية ،كيمياء عامة وعضوية، إحصاء حيوي، علم الأدوية	**مقدمة في علم الميكروبيولوجي كيمياء حيوية طبية (1)، علم المناعة، أجهزة مختبرات طبية، علم الطفيليات** (1 و 2)، علم البيولوجيا الجزيئية و الجينات، كيمياء حيوية طبية (2)، بكتيريا طبية (1 و2)، علم الدم (1 و 2)، علم الأمراض، علم المناعة السريرية و الامصال، علم الفيروسات الطبية، علم السموم، كيمياء حيوية سريرية (1و2)، ميكروبيولوجي ماء وغذاء، بنك الدم، علم الأنسجة المرضية، علم الفطريات الطبية، علم الحشرات الطبية، ضمان الجودة والسلامة الحيوية، سوائل الجسم، تشخيص طفيليات، تشخيص ميكروبيولوجي (1)، علم الوبائيات وصحة عامة، هرمونات، تشخيص دم، أخلاقيات مهنه	√	√
D3	**يقّيم المشاكل ويحلها و يتخذ القرارات المناسبة عند الحاجة.**		علم الأحياء ، فيزياء طبية ثقافة إسلامية ،كيمياء عامة وعضوية، ، إحصاء حيوي ، علم الأدوية	**مقدمة في علم الميكروبيولوجي كيمياء حيوية طبية (1)، علم المناعة، أجهزة مختبرات طبية، علم الطفيليات** (1 و 2)، علم البيولوجيا الجزيئية و الجينات، كيمياء حيوية طبية (2)، بكتيريا طبية (1 و2)، علم الدم (1 و 2)، علم الأمراض، علم المناعة السريرية و الامصال، علم الفيروسات الطبية، علم السموم، كيمياء حيوية سريرية (1و2)، ميكروبيولوجي ماء وغذاء، بنك الدم، علم الأنسجة المرضية، علم الفطريات الطبية، علم الحشرات الطبية، ضمان الجودة والسلامة الحيوية، سوائل الجسم، تشخيص طفيليات، تشخيص ميكروبيولوجي (1)، علم الوبائيات وصحة عامة، هرمونات، تشخيص دم، أخلاقيات مهنه	√	√
D4	**يظهر السلوك المهني ومهارات الاتصال مع المرضى وموظفي المختبرات وغيرهم من مهنيي الرعاية الصحية وعامة المجتمع.**		علم الأحياء فيزياء طبية، كيمياء عامة وعضوية، إحصاء حيوي، علم الأدوية	**مقدمة في علم الميكروبيولوجي كيمياء حيوية طبية (1)، علم المناعة، أجهزة مختبرات طبية، علم الطفيليات** (1 و 2)، علم البيولوجيا الجزيئية و الجينات، كيمياء حيوية طبية (2)، بكتيريا طبية (1 و2)، علم الدم (1 و 2)، علم	√	√

			الأمراض، علم المناعة السريرية و الامصال، علم الفيروسات الطبية، علم السموم، كيمياء حيوية سريرية (1و2)، ميكروبيولوجي ماء وغذاء، بنك الدم، علم الأنسجة المرضية، علم الفطريات الطبية، علم الحشرات الطبية، ضمان الجودة والسلامة الحيوية، سوائل الجسم، تشخيص طفيليات، تشخيص ميكروبيولوجي (1)، علم الوبائيات وصحة عامة، هرمونات، تشخيص دم، أخلاقيات مهنه		



الموائمة بين مخرجات تعلم البرنامج وأهداف برنامج بكالوريوس مختبرات طبية كلية العلوم الطبية

نموذج 2

أهداف البرنامج / المخرجات للبرنامج	تأهيل طلبة المرحلة الجامعية بالمهارات المختبرية اللازمة لأداء التحاليل التشخيصية المختلفة وتفسير نتائجها	تشجيع الطلبة على إعداد البحوث والمشاركة الفاعلة في حل المشاكل الصحية في المجتمع من خلال العمل المشترك مع التخصصات الاخرى	تدريب الطلبة على التقنيات والأجهزة الحديثة اللازمة للتشخيص المخبري	تزويد الطلبة بالأسس العلمية والبحثية الازمة لتمكينهم من الإلتحاق بالدراسات العليا في مختلف مجالات المختبرات الطبية	تطوير البرامج التعليمية الأكاديمية للمختبرات الطبية بصورة دورية لمواكبة التطورات العلمية الحديثة والاحتياجات المتغيرة لسوق العمل
يُعرّف المصطلحات الطبية ومبادئ ومفاهيم العلوم الأساسية المتعلقة بتخصص المختبرات الطبية	√				
يشرح الظواهر المتعلقة بالمختبرات الطبية من خلال المعرفة النظرية وفهم العلوم الأساسية والتطبيقية.	√	√	√	√	√

يتعرف على المبادئ الاساسية حول الجمع والحفظ والتعامل مع وتحليل العينات السريرية بطريقة صحيحة لغرض التشخيص في إطار نظام الجودة الشاملة.	√	√	√	√	√
يشرح الجوانب التشخيصية والسريرية والوبائية ذات الصلة بعلوم المختبرات الطبية.	√			√	√
يدمج المعرفة والفهم للعلوم الأساسية مع علوم المختبرات الطبية.	√	√		√	
يفسرنتائج التحاليل المختبرية في ضوء فهم الحدود أو المظاهر غير الطبيعية للحالات المرضية.	√				
يحلل بصورة نقدية المصادر المحتملة للخطأ في التحاليل المختبرية ويحل مسبباتها وفقا لمبادئ ضمان الجودة.	√				
يختار أفضل الطرق لجمع وحفظ وتحليل العينات السريرية ضمن الممارسة المختبرية عالية الجودة.	√	√			√
يطبق تدابير مراقبة الجودة والسلامة البيولوجية في الممارسة المختبرية للعمل في بيئة خالية من المخاطر.	√	√	√		√
يستخدم أفضل الطرق لجمع وحفظ وتجهيز العينات في سياق الممارسة المختبرية عالية الجودة.	√	√			
ينفذ مختلف الفحوصات التشخيصية المختبرية بكفاءة وفقا لإجراءات التشغيل القياسية.	√	√			
يستخدم مختلف الأجهزة والأدوات التشخيصية اليدوية والآلية .	√	√			√

يستخدم أجهزة الكمبيوتر وتكنولوجيا المعلومات بكفاءة لجمع وتحليل وتفسير المعلومات المطلوبة للعمل المختبري والتعلم الذاتي المستمر.	√	√	√	√	√

الموائمة بين مخرجات تعلم البرنامج ومواصفات الخريج لبرنامج بكالوريوس مختبرات طبية كلية العلوم الطبية

مواصفات الخريج المخرج	مؤهلا علميا و عمليا للعمل في مختلف المختبرات الطبية و مراكز الأبحاث و مصانع الأدوية وشركات المستلزمات الطبية	قادرا على جمع و فحص و تحليل العينات بطريقة صحيحة ودقيقة	قادرا على مواكبة التطور الحديث في مجال المختبرات	امينا و محافظا على خصوصية المرضى	قادرا على ادارة المختبرات الطبية في اطار الجودة الشاملة
يُعرّف المصطلحات الطبية ومبادئ ومفاهيم العلوم الأساسية المتعلقة بتخصص المختبرات الطبية	√				
يشرح الظواهر المتعلقة بالمختبرات الطبية من خلال المعرفة النظرية وفهم العلوم الأساسية والتطبيقية.	√				
يتعرف على المبادئ الاساسية حول الجمع والحفظ والتعامل مع وتحليل العينات السريرية بطريقة صحيحة لغرض التشخيص في إطار نظام الجودة الشاملة.	√	√		√	√
يشرح الجوانب التشخيصية والسريرية والوبائية ذات الصلة بعلوم المختبرات الطبية.	√				
يدمج المعرفة والفهم للعلوم الأساسية مع علوم المختبرات الطبية.	√	√			
يفسرنتائج التحاليل المختبرية في ضوء فهم الحدود أو المظاهر غير الطبيعية للحالات المرضية.	√	√			
يحلل بصورة نقدية المصادر المحتملة للخطأ في التحاليل المختبرية ويحل مسبباتها وفقا لمبادئ ضمان الجودة.		√			√
يختار أفضل الطرق لجمع وحفظ وتحليل العينات السريرية ضمن الممارسة المختبرية عالية الجودة.		√	√		√
يطبق تدابير مراقبة الجودة والسلامة البيولوجية في الممارسة المختبرية للعمل في بيئة خالية من المخاطر.	√	√			√
يستخدم أفضل الطرق لجمع وحفظ وتجهيز العينات في سياق الممارسة المختبرية عالية الجودة.		√			√

ينفذ مختلف الفحوصات التشخيصية المختبرية بكفاءة وفقا لإجراءات التشغيل القياسية.	√	√			
يستخدم مختلف الأجهزة والأدوات التشخيصية اليدوية والآلية .			√	√	√
يستخدم أجهزة الكمبيوتر وتكنولوجيا المعلومات بكفاءة لجمع وتحليل وتفسير المعلومات المطلوبة للعمل المختبري والتعلم الذاتي المستمر.			√	√	√

المواءمة بين مخرجات تعلم البرنامج والمرجعيات لبرنامج بكالوريوس مختبرات طبية كلية العلوم الطبية

المخرجات للجامعة الوطنية	المرجعية 1 KING ABDULAZIZ UNIVERSITY Faculty of Applied Medical Sciences Medical Laboratory Technology Department program	المرجعية 2 Armstrong State University Program of Medical Laboratory Science Student Handbook Fall 2015	المرجعية 3 Medical Laboratory Science Program Department of Health Sciences College of Applied Science and Technology Illinois State University	المرجعية 4 Jordan University Of Science And Technology Medical Laboratory Science	نموذج 4 المر Ferris State University Clinical Laboratory Sciences Program Student Handbook, 2015 – 2016 edition
يُعرّف المصطلحات الطبية ومبادئ ومفاهيم العلوم الأساسية المتعلقة بتخصص المختبرات الطبية		demonstrate the knowledge, technical skills, and professional conduct of an entry-level laboratory scientist in the field of medical laboratory science	Providing knowledge in the physical, chemical and biologic sciences including laboratory specialty areas of hematology, immunohematology, clinical chemistry, microbiology, urinalysis and immunology	Ability to apply their medical knowledge in the field of medical laboratory sciences.D.	
يشرح الظواهر المتعلقة بالمختبرات الطبية من خلال المعرفة النظرية وفهم العلوم الأساسية والتطبيقية.	Prepare and present regularly seminars to medical students, staff and community	The student will exhibit a general comprehension of the many factors that affect health and disease, and recognize the		Ability to apply their medical knowledge in the field of medical laboratory sciences.D.	

			importance of proper test selection, the numerous causes of discrepant test results, and deviation of test results.		
	Ability to apply quality control and quality assurance measures and protocols in the laboratory setting.		perform and interpret standard and complex laboratory tests by identifying, organizing, planning, and using necessary resources.	Perform technically demanding specialized diagnostic laboratory procedures.	يتعرف على المبادئ الاساسية حول الجمع والحفظ والتعامل مع وتحليل العينات السريرية بطريقة صحيحة لغرض التشخيص في إطار نظام الجودة الشاملة.
	Ability to apply their medical knowledge in the field of medical laboratory sciences.	interpretation and application of data to diagnosis and treatment of disease.			يشرح الجوانب التشخيصية والسريرية والوبائية ذات الصلة بعلوم المختبرات الطبية.
	Ability to apply their medical knowledge in the field of medical laboratory sciences.	Theoretical knowledge and technical skills in the areas of clinical chemistry, hematology/hemostasis, immunology, immunohematology/transfusion medicine, microbiology, urine and body fluid analysis and laboratory operations and the ability to			يدمج المعرفة والفهم للعلوم الأساسية مع علوم المختبرات الطبية.

		integrate and interpret data			
	Ability to identify issues and troubleshoot them should they arise among the laboratory setting.	Integrates and interprets data from several laboratory departments	Comprehend, measure, calculate, reason, integrate, analyze, evaluate, correlate, problem-solve and compare.	Establish clinical reference ranges for selected laboratory procedures.	يفسرنتائج التحاليل المختبرية في ضوء فهم الحدود أو المظاهر غير الطبيعية للحالات المرضية.
	Ability to identify issues and troubleshoot them should they arise among the laboratory setting.	Integrates and interprets data from several laboratory departments	Recognize abnormal laboratory results (e.g. patient and QC) and take appropriate action.	Recognize laboratory results from out of control procedures and take correction action.	يحلل بصورة نقدية المصادر المحتملة للخطأ في التحاليل المختبرية ويحل مسبباتها وفقا لمبادئ ضمان الجودة.
	Ability to collect various clinical samples including blood and others	Compares, evaluates and validates new equipment or procedures	Perform laboratory-testing adhering to existing laboratory safety standards.	Prepare a report detailing proper specimen collection and processing requirements for the department.	يختار أفضل الطرق لجمع وحفظ وتحليل العينات السريرية ضمن الممارسة المختبرية عالية الجودة.
	Ability to apply appropriate general laboratory safety measures and utilize protective	Adheres to established safety protocols	understanding of quality control and assurance, standards of practice, safety and waste management procedures,	4Maintain the standards of hygiene and safety measures throughout their work area.	يطبق تدابير مراقبة الجودة والسلامة البيولوجية في الممارسة المختبرية للعمل في بيئة خالية من المخاطر.

	equipment.		information management, and management and education theory.		
	Ability to carry out various laboratory analyses on clinical samples.	Performs complex analytical assays	Obtain patient specimens in a timely, safe, and professional manner (e.g. perform phlebotomy).	1Review and critique the department procedure manual for items to include patient preparation, specimen requirements, reagent preparation, test procedure, calculations and quality assurance.	يستخدم أفضل الطرق لجمع وحفظ وتجهيز العينات في سياق الممارسة المختبرية عالية الجودة.
	Ability to apply quality control and quality assurance measures and protocols in the laboratory setting.		perform and interpret standard and complex laboratory tests by identifying, organizing, planning, and using necessary resources.		ينفذ مختلف الفحوصات التشخيصية المختبرية بكفاءة وفقا لإجراءات التشغيل القياسية.
	Ability to efficiently use and operate various laboratory equipment.H. and I Ability to operate advanced	Implements new procedures	Use laboratory equipment (e.g. pipettes, inoculating loops, test tubes) and instruments to perform laboratory procedures according to established	Perform technically demanding specialized diagnostic laboratory procedures.	يستخدم مختلف الأجهزة والأدوات التشخيصية اليدوية والآلية .

	automated laboratory equipment..		laboratory guidelines.		
	Ability to understand and carry out biomedical scientific research.	Updates knowledge through attendance at professional workshops or Conferences, in-services and reading professional journals	the ability to use computers to process and report information. he ability to acquire, organize, and evaluate information.	Suggest areas within the department (if any) where computerization may be	يستخدم أجهزة الكمبيوتر وتكنولوجيا المعلومات بكفاءة لجمع وتحليل وتفسير المعلومات المطلوبة للعمل المختبري والتعلم الذاتي المستمر
	J. Ability to work as part of a team among the medical setting.	Consults in a team setting	Be able to manage the use of time and be able to systematize actions in order to complete professional and technical tasks within realistic constraints.	Correlate patient results from different laboratory disciplines for the purpose of assuring proper quality control of test results.	يعمل بشكل مستقل أو كعضو في فريق ويدير الوقت بكفاءة.
	N. Ability to identify issues and troubleshoot them should they arise among the laboratory setting.	Engages in problem solving algorithms in instrument trouble shooting, analysis of quality control data and the validation of methods and procedures	recognize the existence of procedural and technical problems and take corrective action according to predetermined criteria.	Recognize laboratory results from out of control procedures and take correction action.	يقّيم المشاكل ويحلها و يتخذ القرارات المناسبة عند الحاجة.
	M.. Ability to	Demonstrates respect for others.	Communicate clearly, accurately	Communicate effectively and	يظهر السلوك المهني ومهارات الاتصال مع المرضى وموظفي المختبرات وغيرهم من مهنيي

الرعاية الصحية وعامة المجتمع.	accurately with patients, physicians, and other personnel.	and tactfully with faculty members, student colleagues, staff and other health care professionals orally and in a recorded format (writing, typing, graphics, or telecommunications).	Honors patient confidentiality	work ethically by respecting patient privacy and maintain confidentiality.	

نموذج 5

المواءمة بين أهداف البرنامج ورسالة برنامج بكالوريوس مختبرات طبية كلية العلوم الطبية

رسالة البرنامج اهداف البرنامج	جزء من الرسالة 1 إعداد كادر مخبري	جزء من الرسالة 2 مؤهل علميا وعمليا	جزء من الرسالة 3 من خلال برنامج أكاديمي وفقا لمعايير الجودة	جزء من الرسالة 4 للمساهمة في تحسين الخدمات الصحية للمجتمع والارتقاء بها	جزء من الرسالة 5
تأهيل طلبة المرحلة الجامعية بالمهارات المختبرية اللازمة لأداء التحاليل التشخيصية المختلفة وتفسير نتائجها	√	√	√	√	
تشجيع الطلبة على إعداد البحوث والمشاركة الفاعلة في حل المشاكل الصحية في المجتمع من خلال العمل المشترك مع التخصصات الاخرى				√	
تدريب الطلبة على التقنيات والأجهزة الحديثة اللازمة للتشخيص المخبري	√	√			
تزويد الطلبة بالأسس العلمية والبحثية الازمة لتمكينهم من الإلتحاق بالدراسات العليا في مختلف مجالات المختبرات الطبية		√	√		

تطوير البرامج التعليمية الأكاديمية للمختبرات الطبية بصورة دورية لمواكبة التطورات العلمية الحديثة والاحتياجات المتغيرة لسوق العمل			√	

نموذج 6

مصفوفة موائمة رسالة وأهداف كلية العلوم والهندسة قسم هندسة البرمجيات مع إستراتيجية التعليم العالي

رؤية التعليم العالي	رؤية الجامعة	رؤية الكلية	رؤية البرنامج (القسم)	الموائمة	
				موائم	غير موائم
إيجاد نظام للتعليم العالي يتسم بالجودة والمشاركة الواسعة، والمسارات المتعددة رأسيا وأفقيا وبما يكفل التنوع ، ويتميز بالفاعلية والكفاءة ويقدم البرامج النوعية ، ويحقق الجودة في التعليم والتعلم والبحث وخدمة المجتمع ، ويحسن من نوعية الحياة في المجتمع اليمني .	التميز والريادة في تقديم المعرفة في مجال التعليم الأكاديمي والبحث العلمي للمساهمة في التنمية المستدامة وخدمة المجتمع.	التميز والريادة في تقديم المعرفة في مجال التعليم الطبي الأكاديمي والبحثي للمساهمة في خدمة المجتمع.	التميز والريادة في تقديم المعرفة في مجال المختبرات الطبية والبحث العلمي للمساهمة في تحسين الرعاية الصحية وخدمة المجتمع.	√	

رسالة التعليم العالي	رسالة الجامعة	رسالة الكلية	رسالة البرنامج (القسم)	موائم	غير موائم
تسترشد وزارة التعليم العالي والبحث العلمي في إدارتها لقطاع التعليم العالي بالأهداف التنموية الوطنية والتي تشمل تحقيق تنمية اقتصادية واجتماعية مبنية على	تقديم تعليم أكاديمي متميز من خلال برامج علمية متطورة وكوادر ذات كفاءة عالية وإجراء البحوث والاستشارات العلمية للمساهمة الفاعلة في التنمية المستدامة وتلبية احتياجات المجتمع وسوق العمل من الكوادر المؤهلة وتهيئة بيئة	كلية العلوم الطبية مؤسسةً تعليميةً تسعى لإعداد كوادر مؤهله علمياً وعملياً في المجالات الطبية وقادرةً على المنافسة محلياً وإقليمياً من خلال تقديم برامج تعليمية متميزة وفقا لمعايير الجودة ومتطلباته بما يلبي	يسعى قسم المختبرات الطبية إلى تأهيل كوادر متخصصة في مجال المختبرات الطبية علمياً وعملياً وأخلاقياً، من خلال برنامج أكاديمي تم إعداده بشكل منهجي وفقاً لمعايير عالية الجودة، لتلبية احتياجات المجتمع للخدمات الطبية، ومتطلبات سوق العملً.	√	

القيم الديمقراطية ومنبثقة من روح الدين الإسلامي الحنيف". و تشجيع وتحسين التعليم والعلوم والبحوث التطبيقية.	محفزة للتعلم والإبداع الفكري والتوظيف الأمثل للتقنية وفقا لأنظمة الجودة وإقامة شراكات محلية وإقليمية ودولية فاعلة، والالتزام بالقيم والأخلاق المهنية.	احتياجات سوق العمل والمجتمع			

أهداف التعليم العالي	أهداف الجامعة	أهداف الكلية	أهداف البرنامج (القسم)	الموائمة	
				موائم	غير موائم
1) تحقيق الفعالية وجودة وملائمة التعليم لتلبية احتياجات سوق العمل، وتلبية البحوث لما يحتاجه المجتمع والقطاع الخاص من الابتكار. 2) توسيع فرص الالتحاق بالتعليم العالي وعدالة في توزيع تلك الفرص بناء على معايير موضوعية وعلى الجدارة المستحقة. 3) الشراكة بين مؤسسات التعليم العالي، والقطاع الخاص والحكومة. 4) التنويع لمصادر التمويل، بما في ذلك الرسوم الدراسية والتمويل	1. إعداد كوادر مؤهلة ذات كفاءة عالية في المجالات العلمية المختلفة قادرة على مواكبة متطلبات التنمية المستدامة والانخراط في سوق العمل. 2. استحداث وتطوير البرامج الأكاديمية لمواكبة التطورات العلمية الحديثة بما يتناسب واحتياجات سوق العمل. 3. تشجيع البحث العلمي والمشاركة في المؤتمرات والأنشطة العلمية داخليا	5. إعداد كادر متخصص ومؤهل في المجالات الطبية بالأسس النظرية والتطبيقية والمهارات المهنية والقيم الأخلاقية من خلال برامج اكاديمية وفقا لمعايير الجودة. 6. تطوير المهارات العلمية والعملية باستخدام الوسائل التعليمية الحديثة. 7. الاهتمام ودعم البحث العلمي وتنمية قدرات الطالب في مجال تخصصه من خلال المشاركة في المشاريع البحثية والتعاون مع القطاعات البحثية المختلفة. 8. المساهمة الفعالة في خدمة	6. تأهيل طلبة المرحلة الجامعية بالمهارات المختبرية اللازمة لأداء التحاليل التشخيصية المختلفة وتفسير نتائجها 7. تشجيع الطلبة على إعداد البحوث والمشاركة الفاعلة في حل المشاكل الصحية في المجتمع من خلال العمل المشترك مع التخصصات الأخرى 8. تدريب الطلبة على التقنيات والأجهزة الحديثة اللازمة للتشخيص المخبري 9. تزويد الطلبة بالأسس العلمية والبحثية اللازمة لتمكينهم من الالتحاق بالدراسات العليا في مختلف مجالات المختبرات الطبية.	√	

من القطاع الخاص. 5) الإدارة الفعالة لمؤسسات التعليم العالي في إطار من الاستقلالية والمسؤولية وبالتزامن مع المساءلة وصولاً إلى تحقيق الأهداف الرئيسية. 6) ربط مؤسسات التعليم العالي بشبكة معلومات.	وخارجيا. 4. المساهمة في خدمة المجتمع من خلال الدراسات والاستشارات وبرامج التدريب المستمر. 5. التواصل والشراكة مع الجامعات والمؤسسات البحثية محليا وإقليماً ودولياً	المجتمع وتلبية متطلبات سوق العمل.	10. تطوير البرامج التعليمية الأكاديمية للمختبرات الطبية بصورة دورية لمواكبة التطورات العلمية الحديثة والاحتياجات المتغيرة لسوق العمل.		

نموذج 7

توزيع المقررات الدراسية وفق المستويات I.R.M

المقررات الدراسية	المستوى الدراسي	الفصل الدراسي	المستوى	الملاحظات
اللغة العربية (101)	الأول	الأول	I	
علم الأحياء	الأول	الأول	I	
لغة إنجليزية (1)	الأول	الأول	I	
فيزياء طبية	الأول	الأول	I	

كيمياء عامة وعضوية	الأول	الأول	I	
ثقافة إسلامية	الأول	الأول	I	
مهارات حاسوب	الأول	الأول	I	
اللغة العربية (102)	الأول	الثاني	R	
لغة إنجليزية (2)	الأول	الثاني	R	
تشريح إنسان	الأول	الثاني	I	
علم الأنسجة	الأول	الثاني	I	
كيمياء تحليلية	الأول	الثاني	I	
مهارات تواصل	الأول	الثاني	I	
علم وظائف الأعضاء	الأول	الثاني	I	
مقدمة في علم الميكروبيولوجي	الثاني	الاول	I	
كيمياء حيوية طبية (1)	الثاني	الاول	I	
علم المناعة	الثاني	الأول	R	
أجهزة مختبرات طبية	الثاني	الأول	R	
علم الطفيليات (1)	الثاني	الأول	I	
علم بيولوجيا الجزيئية و الجينات	الثاني	الثاني	M	
كيمياء حيوية طبية (2)	الثاني	الثاني	R	

بكتيريا طبية (1)	الثاني	الثاني	I	
علم الدم (1)	الثاني	الثاني	I	
علم الأمراض	الثاني	الثاني	R	
علم المناعة السريرية و الامصال	الثاني	الثاني	M	
علم الدم (2)	الثالث	الاول	R	
علم الطفيليات (2)	الثالث	الاول	R	
علم الفيروسات الطبية	الثالث	الاول	R	
علم السموم	الثالث	الاول	R	
كيمياء حيوية سريرية (1)	الثالث	الاول	M	
بكتيريا طبية (2)	الثالث	الاول	M	
ميكروبيولوجي ماء وغذاء	الثالث	الاول	M	
بنك الدم	الثالث	الثاني	M	
علم الأنسجة المرضية	الثالث	الثاني	M	
علم الفطريات الطبية	الثالث	الثاني	R	
علم الحشرات الطبية	الثالث	الثاني	M	
ضمان الجودة والسلامة الحيوية	الثالث	الثاني	M	
كيمياء حيوية سريرية (2)	الثالث	الثاني	M	

بنك الدم	الثالث	الثاني	M	
سوائل الجسم	الرابع	الاول	M	
مناهج البحث	الرابع	الاول	M	
تشخيص طفيليات	الرابع	الاول	M	
تشخيص ميكروبيولوجي (1)	الرابع	الاول	M	
علم الدم (3)	الرابع	الاول	M	
علم الوبائيات وصحة عامة	الرابع	الاول	M	
إسعافات أولية	الرابع	الاول	M	
إحصاء حيوي	الرابع	الاول	M	
هرمونات	الرابع	الثاني	M	
تشخيص دم	الرابع	الثاني	M	
تشخيص ميكروبيولوجي (2)	الرابع	الثاني	M	
علم الأدوية	الرابع	الثاني	M	
أخلاقيات مهنه	الرابع	الثاني	M	
مشروع تخرج	الرابع	الثاني	M	

Course Specification of General Biology

I. Course Identification and General Information:

1	**Course Title:**	General Biology					
2	**Course Number & Code:**						
3	**Credit hours:**	**C.H**				**Total**	
		Th.	**Pr.**	**Tr.**	**Seminar**		
		2	2	----	----	3	
4	**Study level/ semester at which this course is offered:**	Level 1 /semester 1					
5	**Pre –requisite (if any):**	None					
6	**Co –requisite (if any):**	None					
7	**Program (s) in which the course is offered:**	Bachelor degree of Clinical Nutrition and Dietetics					
8	**Language of teaching the course:**	English					
9	**Location of teaching the course:**	The department theaters					
10	**Prepared by:**	Dr. Rashad Abdul-Ghani					
11	**Date of approval:**						

II. Course description:

This course provides undergraduate students with the basic knowledge, understanding and skills about the biology of animals. It involves teaching them the life and its origin, cellular and molecular aspects of life and different vital processes and the systems responsible for performing them. It also equips the students with practical activities related to the field of biology that will serve their future studies. This course is delivered through lectures, presentations and practical sessions.

III. Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect

Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Number of weeks	Contact hours
1	Introduction	a1, a2; b1,b2;	• Definition and branches of biology	1	2

		d1-d3	• Basis and origin of life • Properties and taxonomy of living beings • Cell theory and types of cells according to structure (prokaryotic and eukaryotic; animal and plant cells)		
2	Cell structure and functions	a1, a2; b1, b2; d1-d3	• Cell membrane and types of transport (active/ passive/ bulk) • Nucleus and its contents (chromatin, chromosomes, etc.) • Cellular organelles and their functions • Cytoskeleton structure and function • Tissues and other levels of organization(in animals and plants)	1	2
3	Chemisty of life	a3; b1, b2; d1-d3	• Definition, types and functions of macromolecules (carbohydrates, proteins, lipids and nucleic acids)	1	2
4	Cell cycle, divsiosn and death	a4; b1,b2; d1-d3	• Definition and phases of cell cycle - Interphase (cell growth) - Mitosis and its phases - Cytokinesis - Meiosis and its phases • Programmed cell death (apoptosis)	1	2
5	DNA replication, mutations and repair	a5; b1,b2; d1-d3	• Central dogma of molecular biology • Definition and mechanism of DNA replication • Definition and types of DNA mutations • DNA repair and proofreading	1	2
6	RNA transcription and protein synthesis	a5; b1,b2; d1-d3	• Genetic code and gene expression • Definition and steps of transcription • Definition and steps of translation (protein synthesis)	1	2

7	Nutrition, digestion and absorption	a6; b1,b2; d1-d3	• Nutrients and calories • Types of nutrition (autotrophic and heterotrophic) • Human digestive system and types of digestive processes (intracellular and extracellular) • Nutrient absorption and assimilation • Nuritional deficiency diseases • Absorption, transport, nutrition and nitrogen metabolism in plants	1	2
8	**Mid-semester exam**	a1–a6; b1,b2; d1-d3	----------	1	2
9	Respiration	a6; b1,b2; d1-d3	• Respiration and its processes (gaseous exchange and cellular respiration) • Respiratory system in humans • Mechanism and regulation of pulmonary and cellular respiration • Respiration in plants	1	2
10	Circulation	a6; b1,b2; d1-d3	• Types of circulation (closed/open) and functions of circulatory system • Human circulatory system (heart and blood vessels and their functions) • Types of blood circulation and cardiac cycle • Components and functions of the blood • Lymphatic system and lymph	1	2
11	Excretion	a6; b1,b2; d1-d3	• Definition and importance of excretion • Removal of nitrogenous wastes • Urinary system and excretion via the kidneys (Ultrafiltration, selective reabsorption and tubular secrtion) • Cutaneous and pulmonary excretion	1	2

12	Reproduction	a6; b1,b2; d1-d3	• Types of reproduction (asexul/ sexual) in different organisms • Male and female reproductive systems • Growth, development and reproduction of plants	1	2
13	Coordination and control	a6; b1,b2; d1-d3	• Nervous and hormonal control and coordination • Nervous system (central/peripheral; somatic/autonomic) and its functions in humans • Endocrine system and hormone functions in humans	1	2
14	Metabolism	a6; b1,b2; d1-d3	• Definition and principles of metabolism • Bioenergetics and chemistry in metabolic reactions • Metabolic pathways and regulation of metabolism	1	2
15	Final review			1	2
16	Final Exam			1	2
Number of Weeks /and Units Per Semester				**16**	**32**

b - Practical Aspect

Order	Tasks/ Experiments	CILOs (symbols)	Number of Weeks	Contact Hours
1	Use and care of a light microscope: Parts of microscope, magnification and micrometry	c1; b1; d1-d3	1	2
2	Animal cell structure (unstained and stained; with x100 and x400)	c1, c2; b1; d1-d3	1	2
3	Plant cell structure (unstained and stained; with x100 and x400)	c1, c2; b1; d1-d3	1	2
4	Unicellular (Amoeba as example) and multicellular organisms (fungi as example)	c1, c2; b1; d1-d3	1	2
5	Microscopy of stained blood films and identification of different blood cells.	c1, c3; b1; d1-d3	2	4
6	Types and examples of epithelial tissues	c1, c3; b1; d1-d3	1	2
7	**Mid-semester practical exam**	c1–c3; b1;	1	2

		d1-d3		
8	Types and examples of connective tissues	c1, c3; b1; d1-d3	2	4
9	Types and examples of muscular and nervous tissues	c1, c3; b1; d1-d3	1	2
10	Qualitative testing for sugars and starch	c1, c4; b1; d1-d3	1	2
11	Qualitative testing for proteins	c1, c4; b1; d1-d3	1	2
12	Qualitative testing for fats	c1, c4; b1; d1-d3	1	2
13	Final review	c1, c3; b1, b2; d1-d3	1	2
	Final Exam		1	2
Number of Weeks /and Units Per Semester			**16**	**32**

2. ***Course Specification of "English Language 101"***

3.

4. ***Basic Information of the Course***

I. Course Identification and General Information:						
1	Course Title: *English Language 101*					
2	Course Code &Number:					
3	Credit hours:	***C.H***				**TOTAL**
		Th.	***Seminar***	***Pr***	***Tr.***	
		theory **2**	Seminars, exercises.	practical	Field, training	**2**
4	Study level/ semester at which this course is offered:	Level 1 /semester 1				
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	Location of teaching the course:	The National University ,				
10	Prepared By:	Dr.MohammedAhmed Abdu				

11	Date of Approval	17-6-2014

II. *Course Description:*

This course is designed to provide students with basic English language skills with the focus on providing an intensive practice of English usage .The course includes elements of sentence and contextual grammar, active and passive vocabulary, question-answer sessions, and paragraph writing. The four language skills - listening, speaking, reading and writing - are integrated.

©Alignment Course Intended Learning Outcomes of Professional and Practical Skillsto Teaching Strategies and Assessment Strategies:

Course Intended Learning Outcomes	*Teaching strategies*	*Assessment Strategies*
C1-Topronounce English sounds correctly and the use of the correct pronunciation ofvocabulary and grammatical items.	lectures / modeling Referring to real life situations	assignments
C2- To answer comprehension questions for each reading text.	Scanning and skimming	Written examinations and quizzes
C3-To Elicit the meaning from the context.	Lectures/Discussion Scanning and skimming	quizzes /Assignments

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

Course Intended	*Teaching strategies*	*Assessment Strategies*

Learning Outcomes		
D1.To write a vocabulary record.	lectures and group discussions	Written examinations and quizzes
D2- To Complete written assignments in due time.	Lectures / Discussions	Homework assignments
D3-To use the internet as a means of developing self study skills and findingvocabulary related to the topics of study.	Lectures / Discussions	Lab. assignments

III. *Course Content:*

A – Theoretical Aspect:

Order	*Units/Topics List*	*Learning Outcomes*	*Sub Topics List*	*Number of Weeks*	*contact hours*
1	***Grammar***	***a3,b3***	• Parts of speech (noun, …etc) • The simple present tense, the verb Be • Personal pronouns • Possessive pronouns and adjectives. • There is/ there are. • Questions with whose; Possessive nouns. • The Present Continuous. • Non- action verbs. • Modals.	4 weeks	***8***
2	***Reading***	***a3,a4,b2 ,c2,c3***	comprehension passages of intermediate level computer riding texts.	3 weeks	***6***

3	***Writing***	**a1,d1,d2**	• topic sentences, • descriptive paragraphs, narrative paragraphs. • ~~There is/are; some~~	2 weeks	6
4	***Speaking and listening***	***c1,b1,a5***	• Talking about people's appearance / jobs / clothes. • Months of the year • Talking about flats and houses • Offers • Asking the time • Request	3 weeks	***6***
Number of Weeks /and Units Per Semester				***12***	***26***

Course Specification of Medical Physics

IV.	Course Identification and General Information:						
1	**Course Title:**	Medical Physics					
2	**Course Number & Code:**						
3	**Credit hours:**	C.H				Total	
		Th.	Pr.	Tr.	Seminar.		
		2	2			3	
4	**Study level/ semester at which this course is offered:**	Level 1 /semester 1					
5	**Prerequisite:**	None					
	Co–requisite:	None					
7	**Program (s) in which the course is offered:**	Bachelor degree of Clinical Nutrition and Dietetics					
8	**Language of teaching the course:**	English					
9	**Location of teaching the course:**	The Department theaters					
10	**Prepared by:**	Dr. MohammedAhmed Abdu					
11	**Date of approval:**						

V. Course description:

This course provided the students knowledge and understanding of the theory and practice about of the basic principles of the Medical Physics and its application in medical fields. The course provided the students about units of forces, energy changes in the body, heat loss from the body, and breathing mechanism. It helps the students acquire knowledge about electric signals of the body, general properties of sound in the body as a drum (percussion in medicine) and vision defects and corrections. Moreover, it makes the student recognize sources of radioactivity, nuclear medicine imaging devices, and the dose in nuclear medicine and therapy with radioactivity. The physical principles as applied to medical imaging and radiation therapy

VI. Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect

Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Number of weeks	Contact hours
1	**Introduction to Medical Physics. Matter and Measurement**	a1-a3	• Defination, Classification. • Domain and methods of Medical Physics • Calculations: units, digits and uncertainty	2	4
2	**The Forces And Energy**	a1,a3; b1;d1-d2	• Definition and Types	1	2
3	**The viscosity**	a1,a4; b1;d1-d2	• Definition and types ,Stokes low • Phase changes. • Viscosity and surface tension. • The relation between viscosity and temperature.	2	4

4	**Physics of the human system**	a1,a3 a4; b1;d1-d2	• Definition, types . • Resistance and tension • The flow in the circulatory system. • The flow resistance. • Flow resistance in blood vessels.	1	2
5	**Temperature and Heat .**	a1,a3 a4; b1;d1-d2	• Definition of Temperature and Heat . Types. • Work and energy. • Power. • Laws of thermodynamics. • Heat content and Heat of reaction.	1	2
6	***Midterm exam***	a1-a4; b2		1	2
7	**Heat transfer material (Conduction and Convection)**	a1,a3 a4; b1;d1-d2	• Definition ,classification and culculation	1	2
8	**Heat transfer material (Radiation)**	a1,a3; b2-b3; d1-d2	• Definition ,classification and culculation.	1	2
9	**Mechanical Properitis Of Material**	a1,a3; b2-b3; d1-d2	• Definition ,classification and culculation.	2	4
10	**Relationship Between Stress And Strain**	a1,a3; b2-b3; d1-d2	• Definition ,classification and culculation.	1	2
11	**Newton's laws of motion**	a1,a3; b2-b3; d1-d2	• Force and weight. • Density. • Newtons first law. • Newtons second law. • Newtons third law. • Friction	2	2
16	**Final Exam**	a1-a4, b1-b3,		1	2
Number of Weeks /and Units per Semester				**16**	**32**

b - Practical Aspect				
Order	Tasks/ Experiments	CILOs (symbols)	Number of Weeks	Contact Hours

1	General information about safety precaution inside the Medical physics lab	c1-c5	1	2
2	Viscosity	c1-c5	2	4
3	Hock law	c1-c5	1	2
4	Ohen law	c1-c5	1	2
5	Sublimation	c1-c5	1	2
6	Convex and Concave Lens	c1-c5	1	2
7	Mid-semester exam	c1-c5	1	2
8	Measurement Tension Surface	c1-c5	2	4
9	Measurement Of Friction Force	c1-c5	1	2
10	Measurement Of Gravity Force	c1-c5	1	2
11	Determination The Solubility	c1-c5	2	4
12	Final review	c1-c5	1	2
16	Final Exam	c1-c5	1	2
	Number of Weeks / Units per Semester		16	32

Course Specification of General & Organic Chemistry

VII.	Course Identification and General Information:					
1	Course Title:	General & Organic Chemistry				
2	Course Number & Code:					
3	Credit hours:	C.H				Total
		Th.	Pr.	Tr.	Seminar.	
		2	2			3
4	Study level/ semester at which this course is offered:	Level 1 /semester 1				
5	Prerequisite:	None				
	Co–requisite:	None				
7	Program (s) in which the course is offered:	Bachelor degree of **Clinical Nutrition and Dietetics**				
8	Language of teaching the course:	English				
9	Location of teaching the course:	Department theter				
10	Prepared by:	Dr. ahmed abutaleb				

11	Date of approval:	

VIII. Course description:

This course provided the students knowledge and understanding of the theory and practice about of the basic principles of general and organic chemistry and its application in medical fields. The course provided the students about the classifications of organic compounds according to functional groups, nomenclature of organic compounds, structural characteristics, physical properties, synthesis of organic compounds, chemical reactions..

IX. Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect

Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Number of weeks	Contact hours
1	**Introduction to general chemistry. Matter and Measurement**	a1, a4	Defination, Classification. Domain and methods of chemistry Calculations: units, digits and uncertainty	1	2
2	**Atoms and the Periodic Table Ionic Compounds**	a1,a4; b1;d1-d2	Early chemical laws Modern atomic structure Atomic mass, isotopes, and chemical formulas The periodic table and ionic & molecular compounds	1	2
3	**Chemical Quantities**	a1,a4; b1;d1-d2	Formula mass, Avogadro's number, mole concept Empirical and molecular formulas Solution concentration and molarity	1	2

4	**Chemical Reactions**	a1,a3 a4; b1;d1-d2	Chemical equations Stoichiometric calculations Solution stoichiometry Precipitation and acid-base reactions Oxidation-reduction reactions	1	2
5	**Gases, Liquids, and Solids**	a1,a3 a4; b1;d1-d2	**Gases:** Gas pressure, The ideal gas law,Effusion and diffusion, Kinetic molecular theory, Real gases. **Liquids and Solids:** Intermolecular forces, Liquids Solids,Phase diagrams	1	2
6	**Solutions** **Acids and Bases**	a1,a3 a4; b1;d1-d2	Concentration measurements Electrolytes and solubility Henry's and Raoult's laws Boiling-point elevation and freezing-point depression, Osmotic pressure. **Acids and Bases:** Nature of acids and bases pH scale Equilibrium calculations for weak acids and bases Acid-base properties of salts Common ion effect and buffers	1	2
7	***Midterm exam***	a1-a4; b2		1	2
8	**Introduction to Organic Molecules and Functional Groups**	a1,a3; b2-b3; d1-d2	Defination, Classification.	1	2
9	**Alkanes**	a1,a3; b2-b3; d1-d2	Nomenclature, structural characteristics, physical properties, synthesis and reactions.	1	2
10	**Unsaturated Hydrocarbons**	a1,a3; b2-b3; d1-d2	Nomenclature, structural characteristics, physical properties, synthesis and reactions.	1	2
11	**Organic Compounds That Contains Oxygen, Halogens, and Sulfur**	a1,a3; b2-b3; d1-d2	Nomenclature, structural characteristics, physical properties, synthesis and reactions.	1	2
12	**Aldehydes and Ketones**	a1,a3; b2-b3; d1-d2	Nomenclature, structural characteristics, physical properties, synthesis and reactions.	1	2
13	**Carboxylic Acids, Esters, and Amids**	a1,a3; b2-b3; d1-d2	Nomenclature, structural characteristics, physical properties, synthesis and reactions.	1	2

14	**Amines and Neurotransmitters**	a1,a3; b2-b3; d1-d2	Nomenclature, structural characteristics, physical properties, synthesis and reactions.	1	2
15	**Lipids, Carbohydrates and Amino Acids, Proteins, and Enzymes**	a1,a3; b2-b3; d1-d2	Nomenclature, structural characteristics, physical properties, synthesis and reactions.	1	2
16	**Final Exam**	a1-a4, b1-b3,		1	2
Number of Weeks /and Units per Semester				**16**	**32**

b - Practical Aspect

Order	Tasks/ Experiments	CILOs (symbols)	Number of Weeks	Contact Hours
1	**Safety and laboratory regulations.**	c1-c3	1	2
2	**Densities of some common materials**	c1-c3	1	2
3	**Molar and mass relationships in chemical reactions.**	c1-c3	1	2
4	**Oxidation states.**	c1-c3	1	2
5	**Relationships between chemical structures and physical properties.**	c1-c3	1	2
6	**Water, its properties and reactions.**	c1-c3	1	2
7	**Qualitative analysis (anions and cations).**	c1-c3	1	2
8	**Chemical equilibrium.**	c1-c3	1	2
9	**pH measurements.**	c1-c3	1	2
10	**Melting and Boiling point determinations.**	c1-c3	1	2
11	**Separation of mixture by solvent extraction and crystallization.**	c1-c3	1	2
12	**Electrophilic aromatic substitution.**	c1-c3	1	2
13	**Preparation of aspirin.**	c1-c3	1	2
14	**Carbohydrates**	c1-c3	1	2
15	**Organic qualitative analysis.**	c1-c3	1	2
16	**Final Exam**	c1-c3	1	2
Number of Weeks / Units per Semester			**16**	**32**

مواصفات المقرر الدراسي:ثقافة إسلامية

مواصفاتالمقرر الدراسي:المعلومات العامة عن المقرر:		
.1	اسم المقرر:	الثقافة الإسلامية
.2	رمز المقرر ورقمه:	
.3	الساعات المعتمدة:	محاضرة: 2 / سمنار: - / عملي: - / تدريب: - / الإجمالي: 14
.4	المستوى والفصل الدراسي:	المستوى :الأول. الفصل :الأول.
.5	المتطلبات السابقة لدراسة المقرر (إن وجدت):	لا يوجد.
.6	المتطلبات المصاحبة لدراسة المقرر(إن وجدت):	لا يوجد
.7	البرنامج/التي يتم فيها تدريس المقرر:	البكالوريوس. متطلب علمي في جميع أقسام وكليات الجامعة.
.8	لغة تدريس المقرر:	العربية
.9	نظام الدراسة:	فصلي.
.10	أسلوب الدراسة في البرنامج:	منتظم.
.11	مكان تدريس المقرر:	الجامعة الوطنية
.12	اسم معد مواصفات المقرر:	د. حسان شريان
.13	تاريخ اعتماد مجلس الجامعة:	

وصف المقرر:

يتناول هذا المقرر مناقشة المفاهيم المتعلقة بالثقافة الإسلامية خصائصها، وأهم الموضوعات المرتبطة بها، وأبرز التحديات الثقافية المعاصرة التي تواجهها، وبيان التصور الإسلامي للكون والإنسان والحياة، وطبيعة الحضارة الإسلامية،وبيان الموقف الصحيح للمسلم من بعض القضايا الفكرية المتعلقة بالقرآن والسنة، مع التركيز على أهم القضايا والمبادئ الحقوقية المعاصرة، وغرس قيم التسامح والحوار، ونبذ الغلو والتطرف والتفريط، والرد على بعض الشبهات التي تستهدف عقيدة المسلم وفكره؛ لأَجْل تكوين شخصية مسلمة وسطية معتدلة فكريًا وعمليًا، مع تناوله بعض القضايا الاقتصادية والاجتماعية المعاصرة المرتبطة بالواقع، وعلى وجه الخصوص ما يتعلق بالمرأة، مبينا الدور التنموي المنوط بالشباب على كافة الأصعدة، وإيمانا من الجامعة الوطنية بأهمية وضرورة التحصين الفكري والدور الريادي للثقافة الإسلامية؛ فقد جعلت من مادة ومقرر الثقافة الإسلامية متطلبًا جامعيًا، يُدَرَّسُ في جميع كلياتها وأقسامها.

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

كتابة وحدات /مواضيع محتوى المقرر

أولا:الجانب النظري

الرقم	وحدات/ موضوعات المقرر	المواضيع التفصيلية	عدد الأسابيع	الساعات الفعلية	مخرجات تعلم المقرر
-1	مفهوم الثقافة الإسلامية ومصادرها التشريعية	مفهوم الثقافة الإسلامية، خصائص الثقافة الإسلامية، وما	1	3	A1-b1-c2

		يميزها عن غيرها، ومصادرها التشريعية			
-2	قضايا عقدية	مراتب الدين: الإسلام ، الإيمان، الإحسان. أنواع التوحيد: الألوهية، الربوبية، الأسماء والصفات.	2	6	A2-b2-c1
-3		الفرق والمذاهب الإسلامية، النشأة والمعتقد(أهل السنة، المعتزلة، الإسماعيلية)			
-4	الإعجاز القرآني	الإعجاز البلاغي، الإعجاز العلمي، الإعجاز التشريعي، الإعجاز الطبي.	1	3	A1-b2-c2
-5	الغزو الفكري	تعريف الغزو الفكري، مؤسساته، أهدافه، وسائله، والاستشراق، التنصير، وأهدافها، أخطارها وطرق الحماية منها.	1	3	A1-b1-c2
-6	الإسلام والتنمية	مقومات النهوض الحضاري، الشباب ودوره في التغيير المجتمعي. الوسطية والاعتدال في الإسلام، الوطنية في الإسلام.	1	3	Aa1-a3-b3-c2
-7	اختبار نصف الفصل	اختبار نصف الفصل	1	3	A2-b3-c1-c2
-8	قضايا الحقوق والحريات في الإسلام	مفهوم الحقوق والحريات في الإسلام، وضوابطها الشرعية، حقوق الإنسان في الإسلام، حقوق الإنسان في القوانين والمواثيق الدولية.	1	3	A1-a3-b2-c1
-9	الإسلام والمرأة	مكانة المرأة في الإسلام، الحقوق والواجبات الشرعية للمرأة، موقف الإسلام من بعض القضايا المعاصرة المتعلقة بالمرأة.	1	3	A4-b3-c1-d1
10	قضايا مجتمعية وسياسية معاصرة	الانتخابات في الفكر الإسلامي، موقف الإسلام من التطرف والإرهاب، الجهاد مشروعيته وشروطه وضوابطه.	1	3	A2-a3-b3-c2-d1
-11		المعاهدات الدولية وموقف الإسلام منها، أحكام الأقليات المسلمة وغير المسلمة.	1	3	
-12	الإسلام والاقتصاد	المصارف الإسلامية والفرق بينها وبين البنوك التجارية.	1	3	A2-b1-b2-c2
-13		التأمين الإسلامي والتأمين التجاري، مسائل اقتصادية وأحكامها الفقهية: (البيع بالتقسيط، الجمعيات)	2	6	
-14	قضايا طبية وأحكامها في الفقه الإسلامي	عمليات التجميل، الإجهاض، زراعة الأعضاء، أحكام المرضى في شهر رمضان.	1	3	A1-b3-c1
-15	اختبار نهاية الفصل	اختبار نهاية الفصل	1	3	A2-b2-b3-c2

	48	16	إجمالي الأسابيع والساعات

5. Course Specification of " Computer Skills"

I. Course Identification and General Information:

1	**Course Title:**	***6. Computer Skills***					
2	**Course Code &Number:**	CS111					
3	**Credit hours:**	C.H				TOTAL	
		Th.	Seminar	Pr	Tr.		
		2		2		***3***	
4	**Study level/ semester at which this course is offered:**	Level 1/ Semester 1					
5	**Pre –requisite (if any):**	Computer Skills					
6	**Co –requisite (if any):**	-					
8	**Program (s) in which the course is offered:**	Bachelor degree of Clinical Nutrition and Dietetics					
9	**Language of teaching the course:**	English & Arabic					
10	**Location of teaching the course:**	The National University					
11	**Prepared By:**	Dr.MowaffakOthman Ahmed Albaraq					
12	**Date of Approval**						

II. Course Description:

This course covers: An Introductionto Computer Systems, Levels of programming languages, Basics of Problem Solving Flowchart & Algorithms, Program development. Introduction toC Programming Languages. Functions and Procedures: Block Structured Languages. Parameter Passing. Recursion, Sub-range and Enumerated. Arrays single and Multi-dimensional arrays, Matrix Manipulations, Record data types, Arrays of record data types, Pointers, Arrays and Pointers. Files Handling, Binary Streams Files Input / Output. Command line argument, function pointers, Variable length argument.

III. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	contact hours
1	**Introduction to Computer Systems**	**A1,A2,B2,C1,D2**	Computer Systems, Computing Environments, Computer Languages Levels,**Basics of Problem Solving** Flowchart & Algorithms, **Program development:** Editing, Compiling and Executing a program.**Number Systems**: Binary, Octal, Decimal, Hexadecimal	1st, 2nd	4
3	**Introduction to C Language**	**A1,A4,B1,B2, C2,D2**	**Background** to C Programming Languages, Identifiers, Data Types, Variables, Constants, Input / Output Statements Arithmetic Operators and Expressions: Evaluating Expressions, Precedence and Associativity of Operators, TypeConversions.**Conditional Control Statements:** Bitwise Operators, Relational and Logical Operators, If, If-Else, Switch-Statement and Examples. Loops& Decisions Control Statements: For, While, Do-While and Examples. Continue, Break and Goto statements	3rd, 4th	4
4	**Functions and Procedures**	**A2,A4,B1, C2,D1,D2**	Simple Functions, Passing Arguments to Functions, Returning Values from Functions, Reference, Arguments, Overloaded Functions, Recursion, Inline Functions, Default Arguments,Scope and Storage Class, Returning by Reference, constant Function Arguments.	5th, 6th	4
5	**Midterm Exam**	**A1, A2, A3, A5, B1, B2, B3, C1, C3, D1, D2**		7th	2
6	**Storage Classes &Preprocessors**	**A3,A4,B3B4, C2,D2**	**Storage Classes:** Auto, Register, Static, Extern, Scope Rules, and Type Qualifiers. **Preprocessors:** Preprocessor Commands.	8th	32

7	**Arrays**	**A2,A4, B1, B3, C1, C2,D1**	**Array**s: Definition and list implementation using single dimensional arrays. Operations on lists such as searching, insertion, deletion, finding maximum, minimum, simple sorting. Character Arrays and String Operations, and **Multi-dimensional arrays:** Matrix Manipulations (Addition, Multiplication, Transpose)	9th, 10th	4
8	**Pointers& Strings**	**A2, B2, C2,D2**	**Pointers** - Introduction, Pointers for Inter-Function Communication, Pointers to Pointers, Compatibility, Lvalue and Rvalue, Arrays and Pointers, Pointer Arithmetic and Arrays, Passing an Array to a Function, Memory Allocation Functions, Array of Pointers, Programming Applications, Pointers to void, Pointers to Functions, Command-line Arguments. **Strings:** Concepts, C Strings, String Input/Output Functions, Arrays of Strings, String Manipulation Functions.	11th,12th	4
9	**Structures in C**	**A1,A2,B1, C1,D2**	Definition and Initialization of Structures, Accessing Structures, Nested Structures, Arrays of Structures, Structures and Functions, Pointers to Structures, Self Referential Structures, Unions, Type Definition (typedef), Enumerated Types.	13th ,14th	4
10	**Streams and Files**	**A1,A3,B1, B2,C2,C3,D1**	Stream Classes, Stream Errors, Disk File I/O with Streams, File Pointers, Error Handling in File I/O, File I/O with Member Functions, Overloading the Extraction and Insertion Operators.	15th	2
			Number of Weeks /and Units Per Semester	**15**	**30**

B - Practical Aspect: (if any)

Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes
1	Write simple C programs with implement	1st	2	**A1, B2,B3,B4,C1,C2, C3, D1,D2**
2	C Tokens variables Data types with implement	2nd	2	**A2, B2,B3,B4,C1,C2,**

				C3, D1,D2
3	Standard Library functions with implement	3rd	2	**A2, B2,B3,B4,C1,C2, C3, D1,D2**
4	Loops and Decisions all programs	4th	2	**A2, B2,B3,B4,C1,C2, C3, D1,D2**
5	Functions in C programs with implement	5th	2	**A1, B2,B3,B4,C1,C2, C3, D1,D2**
5	Midterm Exam	6th	2	**A1,A2,A3, B2,B3,B4,C1,C2,C3 , D1,D2**
6	Arrays programs with implement	7th, 8th	4	**A3,A4, B2,B3,B4,C1,C2,C3 , D1,D2**
7	Pointers programs with implement	9th, 10th	4	**A3, B2,B3,B4,C1,C2, C3, D1,D2**
8	Strings programs with implement	11th	2	**A1, B2,B3,B4,C1,C2, C3, D1,D2**
9	Structures programs with implement	12th, 13th	4	**A3, B2,B3,B4,C1,C2, C3, D1,D2**
10	File Handling programs with implementation	14th	2	**A1,A4 B2,B3,B4,C1,C2,C3 , D1,D2**
11	Overloading, Extraction and InsertionOperators.	15th	2	**A1,A4, B2,B3,B4,C1,C2,C3 , D1,D2**
Number of Weeks /and Units Per Semester			**30**	

7. *Courses specification 1st year 2nd semester*

توصيف مقرر اللغة العربية 102

مواصفات المقرر الدراسي:- اللغة العربية 102

المعلومات العامة عن المقرر:						
.14	اسم المقرر:	اللغة العربية				
.15	رمزالمقرر ورقمه:	102				
.16	الساعات المعتمدة:	محاضرة	سمنار	عملي	تدريب	الإجمالي
		14				14
.17	المستوى والفصل الدراسي:	المستوى الثاني الفصل الدراسي الأول				
.18	المتطلبات السابقة لدراسةالمقرر(إن وجدت):					
.19	المتطلبات المصاحبة لدراسة المقرر(إن وجدت):	أنشطة متعلقة بالمقرر موزعة على فترة الفصل الدراسي				
.20	البرنامج/التي يتم فيها تدريس المقرر:	برنامج بكالوريوس تغذية علاجية وحميات				
.21	لغة تدريس المقرر:	اللغة العربية				
.22	نظام الدراسة:	النظام الفصلي				
.23	أسلوب الدراسة في البرنامج:	انتظام + انتساب				
.24	مكان تدريس المقرر:	قاعات الجامعة الوطنية وفروعها				
.25	اسم معد مواصفات المقرر:	أ/ مصطفى محمد فاضل الطيب د/أحمد عثمان ناجي				
.26	تاريخ اعتماد مجلس الجامعة:					

وصف المقرر:
يحتوي المقرر على :في وصف الحمى للمتنبي ،أقسام الأفعال ،الفاعل ،نائب الفاعل ،علامات الترقيم،الخطابة،في التنبيه والتحذير،المقامة البغدادية،المفاعيل الخمسة،الهمزات ،المقالة،في وصف الجبل،بقية الهمزات ،التعبير الكتابي،المسرحية.

كتابة وحدات /مواضيع محتوى المقرر					
أولا:الجانب النظري					
الرقم	وحدات/ موضوعات المقرر	المواضيع التفصيلية	الساعات الفعلية	عددالأسابيع	مخرجات تعلم المقرر
1	الوحدة الأولى نص شعري الجملة الفعلية	في وصف الحمى للمتنبي -أقسام الفعل -الفاعل -نائب الفاعل	2 2	3	ب-3،أ- 1،د-1 د-3،ج-4
2		علامات الترقيم-	2		
3	الوحدة الثانية	الخطابة -في التنبيه والتحذير لأبي جعفر المنصور	2	8	أ-2،أ-1،د-1،د-أ-3، د-4، ،ج-4،ج-3 ب-2،ب-1
		المقامة البغدادية	2		
	المفاعيل الخمسة	المفعول به المفعول المطلق المفعول لأجله المفعول فيه المفعول معه	8		
		همزة الوصل همزة القطع المقالة مقالة المجد للكواكبي	4		
	الوحدة الثالثة	في وصف الجبل ومناداته الحال	2	3	د-2، -د-3 د-4،ج-2 ج-3،ج-1 أ-3ب-3
		الهمزة المتوسطة الهمزة المتطرفة	2		
		بعض أنواع التعبير الكتابي فن المسرحية	2		
إجمالي الأسابيع والساعات			28	14	

Course Specification English Language 102

X. Course Identification and General Information:

1	**Course Title:**	**English Language 102**				
2	**Course Number & Code:**					
3	**Credit hours:**	**C.H**				**Total**
		Theoretical	**Practical**	**Training**	**Seminar**	
		2	-	-	-	2
4	**Study level/ semester at which this course is offered:**	Level One – Second Semester				
5	**Pre –requisite (if any):**	English Language 101				
6	**Co –requisite (if any):**	None				
7	**Program (s) in which the course is offered:**	**Clinical Nutrition and Dietetics**				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	The National University				
10	**Prepared by:**	Dr. Mohammed Al-fasly				
11	**Date of approval:**					

XI. Course description:

English Language 102 Course aims at reinforcing the four English language skills and the grammatical structures that have been taken in the pre-requisite course. This course provides students with the opportunity to develop their language through a range of texts and topics taken from different sources including newspapers, magazines and literature, etc. In this course, the students supposed to practice English effectively and more widely, and to write different types of sentences, simple paragraphs, letters and other basic writings. In the pre-requisite course, the students have already received instruction in the grammatical rudiments, yet this course also provides a comprehensive set of grammar and usage.

XII. Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect

Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Number of weeks	Contact hours
1.	**Unite One: It's a wonderful world!**	a2, a3, b1, b2, c1, c2,	▪ Grammar: Auxiliary verbs (do, be, have, etc) Naming the tenses (present, past, present perfect) Questions and negatives Short answers (e.g. yes, I did) ▪ Reading: (wonder of the modern world) ▪ Speaking: (information on UN Goodwill, important discussion) ▪ Listening: (my wonders – three generations) ▪ Writing: (correcting mistakes, informal letter)	2	4
2.	**Unit Two: Get Happy!**	a1, a2, a3, b1, b2,	▪ Grammar: (Present Simple, Present continuous, Present passive) ▪ Reading: (the clown doctor) ▪ Speaking: (what makes people happy? ▪ Listening: (sports – three people talk about their free time activities) ▪ Writing: (letters and emails)	2	4
3.	**Unit Three: Telling tales**	a1, a2, b1, , c2, d1, d2	▪ Grammar: (past simple tense, past continuous, past perfect, past passive) ▪ Reading: (the painter and the writer' the lives of Pablo Picasso and Ernest Hemingway) ▪ Speaking: (An amazing thing happened!) ▪ Listening: (Books and films – people talk about their favourite books) ▪ Writing: (a narrative 1)	1	2
4.	**Unit Four: Doing the right thing**	a1, a2, a3, b1, b2, , d2	▪ Grammar: (modal verbs = obligation and permission) ▪ Reading: (a world guide to good manners') ▪ Speaking: (talking about rules and regulations) ▪ Listening: (come around to my place! Entertaining friends in three different countries. 0 ▪ Writing: (for and against	1	2
5.	**Unit Five: On the move**	a2, a3, b1, c1, c2, d1,	▪ Grammar: (future forms, present continuous) ▪ Reading: (my kind of holiday – a travel agent talks about her holidays) ▪ Speaking: (arranging to meet) ▪ Listening: (a weather forecast) ▪ Writing: (making a reservation	1	2
6.	**Unit Six: I just love it!**	a1, a2, a3, b1, b2, c2, d2	▪ Grammar: (question with like, verb patterns)Reading: (global pizza) ▪ Speaking: (talking about popular food and popular places) ▪ Listening: (New York and London) ▪ Writing: (a description)	1	2

7.	**Unit Seven: The world of work**	a2, a3, b1, b2, c1, c2,	▪ Grammar: (present perfect, present perfect passive) ▪ Reading: (dream jobs') ▪ Speaking: (what's in the news today? ▪ Listening: (the busy life of a retired man) ▪ Writing: (a letter of application)	1	2
8.	**Unit Eight: Just imagine!**	a1, b2, c1, c2, d2	▪ Grammar: (conditionals, time clauses) ▪ Reading: (who wants to be a millionaire? ▪ Speaking: (what do with 5 million dollars? ▪ Listening: (who wants to be a millionaire? ▪ Writing: (a narrative 2	1	2
9.	**Unit Nine: Relationships**	a2, a3, b1, b2, c1, d1, d2	▪ Grammar: (modal verbs 2 ▪ Reading: (family matters) ▪ Speaking: (who's who in the family?) ▪ Listening: (brothers and sisters ▪ Writing: (a description 2	1	2
10.	Unit Ten: Obsessions	a1, a2, b1, b2, c1, c2,	▪ Grammar: (present perfect simple vs continuous, questions and answers, time expressions) ▪ Reading: (famous for not being famous) ▪ Speaking: (exchanging information about major life events. ▪ Listening: (collectors – two people talk about their unusual collections) ▪ Writing: (writing a biography)	1	2
11.	Unit: Eleven: Tell me about it!	a1, a3, b1, b2, c1, d1,	▪ Indirect questions, questions tags) ▪ Reading: (how well do you know your world/ ▪ Speaking: (finding out about Madonna) ▪ Listening: (the forgetful generation) ▪ Writing: (words that join idea	1	2
12.	Unit Twelve: Life's great events!	a3, b1, , c1, c2, d1, d2	▪ Grammar: (reported speech) ▪ Reading: (Funeral Blues' – a poem by WH Auden) ▪ Speaking: (customs connected with births, wedding, and funerals.) ▪ Listening: (noisy neighbors – two people making statements to the police.) ▪ Writing: (correcting mistakes)	1	2
Number of Weeks /and Units Per Semester				**14**	**28**

Course Specification of Anatomy and Histology

XIII. Course Identification and General Information:

1	**Course Title:**	**Anatomy and Histology**					
2	**Course Number & Code:**						
3	**Credit hours:**	**C.H**				**Total**	
		Th.	**Pr.**	**Tr.**	**Seminar.**		
		2	2			3	
4	**Study level/ semester at which this course is offered:**	Level 1 / semester 2					
5	**Prerequisite:**	Biology					
	Co–requisite:						
7	**Program (s) in which the course is offered:**	Bachelor degree of Clinical Nutrition and Dietetics					
8	**Language of teaching the course:**	English					
9	**Location of teaching the course:**	The department theaters					
10	**Prepared by:**	Dr. Ebrahim moh. Al-Samet					
11	**Date of approval:**						

XIV. Course description:

This course is designed to enable students to acquire knowledge of thedifferentgeneralanatomical and histologycal ofhumanbodystructure,withageneraloverviewofbody systems andthesurfacelandmarksoftheunderlyingbones, muscles, tendons andinternalstructures (nerves,vessels&viscera).Also apply this knowledge in practice of Clinical Nutrition and Dietetics.

XV. Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect

Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Number of weeks	Contact hours
1	**Introduction to Anatomy**	a1–a4;	• Definehumananatomywithitssubdivisions. • Definestructurallevelsoforganization. • Medicalterminology. • Anatomicalposition. • Anatomicalplanes. • Directionaltermsusedinstudyingthehumanbody. • Theprinciplesemployedinstudyingthehumanbody	2	4
2	**Skeletalsystem**	a1–a4; b1-3;d1,d3	• Typesofbones. • Majorbonylandmarks. • Classificationofbones. • Namingofindividualbonesandtheir majorcharacteristics. • Theskull,overview. • Differentapproachesto thestudyoftheskull • Cranialand facialboneswiththeir mainfeature. • Majorforaminaincranialfossae.-	2	4
3	**MuscularSystem**	a1,a3; d1–d3	• Defintionof musclesandmovement. • Majormusclesofthe headand neckregions. • Expression,mastication,cervicalmusclesmovingtheskull. • Musclesofthetrunk.shoulderm uscles,pectoralregion,thoracic • wall,abdominalwall.glutealreg ion. Musclesofthearmand,forearm. • Musclesofthethighandleg	1	2
4	**CardiovascularSystem**		• Theheartandpericardium. • Thegreatvesselsassociatedwith the heart • Systemicandpulmonarycirculation • Bvsofthe headand neck. • Bvsofthethoracic,andabdomin	2	4

			alaorta. • Bvsofthe upperlimb. • Bvsofthelowerlimb.		
5	**Mid-semester exam**			1	2
6	**RespiratorySystem**	a1,a4; b2; d1–d3	• Upperrespiratorytractorgans. • Condctiveregions.nose,nasopharynx,larynx ,tacheaandbronchialtree.	1	2
7	**DigestiveSystem**		• DivisionsoftheGIT • Oralcavityandpharynx • Oesophagusandstomach. • Theintestinaltract. • Rectumand analcanal. • Liver,pancreasandspleen.	2	4
8	**UrinarySystem**		• Grossanatomyofthekidney. • ureter. • urinarybladder. • Urethra.	1	2
9	**MalereproductiveSystem**		• Malereproductiveorgans. • Malegenitalorgans.	1	2
10	**FemalereproductiveSystem**		• Femalereproductiveorgans,ovary,uterus • Femalegenitalorgans.	1	2
11	**NervousSystem**		• OverviewoftheCNS&PNS • Topographyofthebrainandspinalcord. • Meninges • cranialnerves. • spinalnerves. • plexusessummaryof,brachialandlumbosacral	2	4
12	Final exam			1	2
Number of Weeks /and Units per Semester				**16**	**32**

b - Practical Aspect				
Order	Tasks/ Experiments	CILOs (symbols)	Number of Weeks	Contact Hours
1	**Introduction to Anatomy** • Anatomicalposition. • Anatomicalplanes.	**c1-c3**	2	4
2	**Skeletalsystem** • Expression of the bone by using the musimto administration of the bone.	**c1-c3**	1	2

3	**MuscularSystem** • Expression,mastication,cervicalmusclesmovingtheskull. • Musclesofthetrunk.shouldermuscles,pectoralregion,thoracic	**c1-c3**	1	2
4	**CardiovascularSystem** ***Identify the indicatedregions structures of cardiovascular system***	**c1-c3**	2	4
5	**Mid-semester exam**	**c1-c3**	1	2
6	**RespiratorySystem** ***Identify the indicatedregions structures and the planes that separate them of thr respiratory system.***	**c1-c3**	1	2
7	**DigestiveSystem** ***Identify the indicatedregions structures and the planes that separate them of the Gigestive system***	**c1-c3**	2	4
8	**UrinarySystem** ***Identify the indicatedregions structures and planes that separate them of the Urinary system***	**c1-c3**	2	4
9	**MalereproductiveSystem** ***Identify the indicatedregions structures and the planes that separate them of the male reproductive system***	**c1-c3**	1	2
10	**FemalereproductiveSystem** ***planes that separate them of thr respiratory system planes that separate them of the Female reproductive system***	**c1-c3**	1	2
11	**NervousSystem** ***Identify the indicatedregions structures and the planes that separate them of the Nervous system***	**c1-c3**	1	2
12	Final exam		1	2
			16	**32**

Course Specification Introduction to Microbiology

XVI. Course Identification and General Information:

1	**Course Title:**	Introduction to Microbiology				
2	**Course Number & Code:**					
3	**Credit hours:**	**C.H**				**Total**
		Th.	**Pr.**	**Tr.**	**Seminar.**	
		2	2			3
4	**Study level/ semester at which this course is offered:**	Level 1 / semester 2				
5	**Prerequisite:**	Biology				
	Co–requisite:	None				
7	**Program (s) in which the course is offered:**	Bachelor degree of Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	The National University (Hall & lab)				
10	**Prepared by:**	Dr. Taha Abdul-Aziz kaid				
11	**Date of approval:**					

VII. Course description:

This required course introduces and provides the Clinical Nutrition and Dietetics students with major concepts of pharmaceutical microbiology, prokaryotic and eukaryotic cells, and the structural components of microorganisms and the functions of these components; also the basic information of general bacteriology, virology and mycology, and the host-parasite relationship (normal flora, pathogen), modes of transmission and infection used by microbes. As well as understand the methods of sterilization and disinfection as well as antimicrobial agent and the mechanisms leading to resistance to anti-microbial agents. It is also give the Clinical Nutrition and Dietetics students practical skill in uses the different technique and basic identification methods to known the microorganism.

VIII. Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect

Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Number of weeks	Contact hours
1	**Introduction to pharmaceutical microbiology**	a1–a2;	History. Fundamental features of microbiology (Prokaryotes, eukaryotes and definition, bacteria ,virus, fungi)	1	2
2	**Bacterial**	a1–a4; b2;d1,d3	-Bacterial morphology(Bacterial structure ,function of cell component, spore). Bacterial physiology (Microbial growth curev, physical and chemical factores). Classification of bacteria	1	2
3	**Systematic Bacteriology**	a4,a5;b2 d1–d3	• Staphylococci • Streptococci • Neisseriae • Non-spore forming gram positive bacilli. • Spore forming gram positive bacilli • Escherichia . coli • Salamonella • Shigella • Proteus • Pseudomonase	3	6
4	**Systematic Mycology**	a4,a5;b2 d1–d3	The structure of the fungal cell, Medical significance of fungi, fungal species identification methods and Antifungal therapy. some clinically important fungi: Candida albicans Aspergillus fumigatus Histoplasma capsulatum Cryptococcus neoformans Dermatophytes	2	4
5	**Mid-semester exam**			1	2

6	**Systematic virology**	a1,a4; b1, d1–d3	- General properties, structure and multiplication of human viruses. - DNA viruses - RNA viruses	3	6
7	**Chemical disinfectants, antiseptics and preservatives andSterilization procedures and sterility assurance**	a1,a7; b4; d1–d3	Definition and methods	2	4
8	**Antimicrobial Agents: Therapy and Resistance1**	a8; b3, d1–d3	Definition, mechanism of action, complication of antibacterial chemotherapy. Mechanisms of Resistance.	1	2
9	**Antimicrobial Agents: Therapy and Resistance2**	a8; b3, d1–d3	Type of antibiotics, Structure, Mode of action, Spectrum	1	2
10	**Final Exam**	a1-a6, b1-b4,		1	2
Number of Weeks /and Units per Semester				**16**	**32**

b - Practical Aspect

Order	Tasks/ Experiments	CILOs (symbols)	Number of Weeks	Contact Hours
1	**General information about safety precaution inside pharmaceutical microbiology**	c1–c4	1	2
2	**Sterilization, Disinfection, and Antisepsis**	c1–c4	1	2
3	**Gram Stain**	c1–c4	1	2
4	**Preparation of Culture Media**	c1–c4	1	2
5	**Preparation of Biochemical Tests**	c1-c4	1	2
6	**Antimicrobial Susceptibility testing**	c1–c3	1	2
8	**Methods for Diagnosis of Bacterial infection**	c1–c4	1	2
9	**Methods for Diagnosis of fungel infection**	c1–c4	1	2
10	**Methods for Diagnosis of Virus infection**	c1–c3	1	2

11	Evaluation of Food preparations (Efficacy of preservatives and sterility test)	c1–c3	1	2
12	Final review	c1–c4	1	2
13	Final Exame	c1–c4	1	2
	Number of Weeks / Units per Semester		13	26

Course Specification
Principles of Food Sciences

I. Course Identification and General Information:

1	Course Title:	Principles of Food Sciences					
2	Course Code &Number:						
3	Credit hours: 3	C.H				TOTAL	
		Th.	Seminar	Pr	Tr.		
		2	-	1	-	3	
4	Study level/ semester at which this course is offered:	First year/ Second semester					
5	Pre –requisite:	-					
6	Co –requisite :	-					
7	Program (s) in which the course is offered:	Clinical Nutrition and Dietetics					
8	Language of teaching the course:	English					
9	Location of teaching the course:	Faculty of Medical Science					
10	Prepared By:						
11	Date of Approval	2020					

II. Course Description:

This course will introduce student to principles of food sciences and functions of food in relation to health, classification of foods based on nutrients and food groups. Different methods of cooking on acceptability and nutritive value of foods and microscopic structure of various starch granules.

IV. Course Conten

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes

1	Introduction	• Definition • Functions of food in relation to health • Classification of foods based on nutrients and food groups. • Food Components • Food groups: Basic Four, Basic Five and Basic Seven. • Evaluation of Food Quality • Water	1	2	a1
2	The Cookery	• Preliminary preparation of foods prior to cooking with special reference to conservation of nutrients and palatability. • Different methods of cooking on acceptability and nutritive value of foods: o Dry methods - frying, broiling, parching, and baking. o Moist methods - boiling, stewing, cooking under pressure. o Micro-wave cooking - advantages and disadvantages.	1	2	a2,a3,b1
3	Cereal and Cereal	• Microscopic structure of various starch granules	1	2	a2,a3,a4, b1

	products	• Nutritive value of Rice, Wheat and locally available millets. • Criteria of selection • Storage • Effect of cooking on the nutritive value of cereals. • Gelatinization, Dextrinization, gluten formation.			
4	Pulses and nuts	• Composition and Production (in brief) • Selection and variety • Storage, processing, use in variety of preparation • Nutritional aspects and cost. • Nutritive value of grams, dhals - some common nuts - meat substitutes - soya beans products, lathyrism- removal of toxins. • Textured Vegetable Protein (TVP). • Effect of cooking on pulses.	1	2	a2,a3,a4, b1
5	Vegetables and Fruits	• Classification • Composition • Nutritional value • Criteria of selection • Storage • Purchase • Availability and Cost • Use • Methods of minimize	1	2	a2,a3,a4, b1

		the loss of nutrients • Color, texture, flavor. • Browning reaction • Changes during cooking			
6	Milk and milk products	• Composition • Classification • Nutritional value • Criteria of selection • Storage • Uses and cost. • Principles of milk cookery • Coagulation of milk, digestion of milk and Storage • Problems in milk cookery. • Effect of cooking and processing on milk	1	2	a2,a3,a4, b1
7		Midterm exam	1	2	a1,a2,a3, a4, b1
8	Meat	• Nutritional value • Criteria of selection • Storage • Methods of cooking - Post mortem changes in meat • Factors affecting tenderness - organ meat.	1	2	a2,a3,a4, b1
9	Fish	• Classification • Nutritional value • Criteria of selection • Storage • Methods of cooking	1	2	a2,a3,a4, b1
10	Poultry	• Nutritional value • Criteria of selection • Storage	1	2	a2,a3,a4, b1

		• Economic aspects. • Principles and methods of cooking poultry.			
11	Eggs	• Structure • Composition • Nutritional value • Criteria of selection • Storage • Principles of egg cookery • Uses of eggs in cookery • Methods of cooking eggs.	1	2	a2,a3,a4, b1
12	Fats and Oils	• Types - saturated, MUFA, PUFA, Hydrogenation • Invisible fats - uses of fat in cookery - factors affecting absorption of fats - smoking point • Rancidity.	1	2	a2,a3,a4
13	Spices and Condiments	• Uses and abuses in Yemen cookery.	1	1	a3
14	Government Regulation of the Food Supply	• Government Regulation of the Food Supply and Labeling		1	d1
15	Sugar and Sugar Products	• Jaggery - uses in Yemen cookery • Stages in sugar • Yemen sweets	1	2	a2,a3
16	Beverages	• Classification • Nutritive value • Uses - coffee, tea, cocoa.	1	2	a2,a3,a4, b1
17		Final exam	1	2	a1,a2,a3, a4,b1

Number of Weeks /and Units Per Semester	16	32	

B – Practical/clinical Aspect:				
Order	**Tasks/ Experiments**	**Number of Weeks**	**Contact hours**	**Learning Outcomes**
1	**Food sciences:** • Cookery Practical • Grouping of foods - Discussion on nutritive value • Technique in measurement of food stuff - use of standard measuring cups and spoons. • Different recipes from cereals, pulses, vegetables, fruits, fleshy foods, egg, milk and milk products. • Beverages : o Preparation of stimulating, nourishing and refreshing beverages • Fats and oils: o Preparation of shallow and deep fried foods. • Sugar cookery: o Preparing recipes at different stages of sugar cookery.	5	15	c1
2	**Experimental food practical:** • Cereals : o Microscopic study of different starches o Methods of combining starch and boiling water o Study of effects of moist heat on starch o Preparation of white sauces and soups o Gluten formation • Pulses : o Effect of hard and soft water, alkali, cooking time of grams	6	18	c3

	and dhals. • Vegetables: ○ Effect of acids, alkali, covering, steaming and pressure cooking on the different pigments and acceptability of vegetables. • Fruits: ○ Study of different methods of preventing enzymatic browning of cut fruits, pectin content of fruits. • Eggs : ○ Coagulation of egg protein - factors. ○ Egg white foam - effect of beating, sugar, acid and temperature. • Milk cookery: ○ Coagulation of milk protein, paneer, cooking of vegetables in milk • Fats and oils: ○ comparison of smoking temperature of some fats and oils • Sugar: ○ Different stages of crystallization of sugar			
3	Preservation of food by deferent methods	1	3	c4
4	General visit to food Industry and Factories. Survey of marketed processed and labeling of processed food items.	2	6	c2
Number of Weeks / hours Per Semester		14	42	c1,c2,c3,c4

مواصفات المقرر الدراسي:مهارات الاتصال

مواصفاتالمقرر الدراسي:المعلومات العامة عن المقرر:		
.27	اسم المقرر:	مهارات الاتصال

.28	رمز المقرر ورقمه:					
.29	الساعات المعتمدة:	محاضرة	سمنار	عملي	تدريب	الإجمالي
		2	-	-	-	2
.30	المستوى والفصل الدراسي:	م 1 ف2				
.31	المتطلبات السابقة لدراسة المقرر (إن وجدت):	لا يوجد				
.32	المتطلبات المصاحبة لدراسة المقرر(إن وجدت):					
.33	البرنامج/التي يتم فيها تدريس المقرر:	عام				
.34	لغة تدريس المقرر:	اللغة العربية				
.35	نظام الدراسة:	فصلي				
.36	أسلوب الدراسة في البرنامج:	انتظام				
.37	مكان تدريس المقرر:	كلية العلوم الطبية – الجامعة الوطنية				
.38	اسم معد مواصفات المقرر:	أ.د/ محمد سرحان علي قاسم				
.39	تاريخ اعتماد مجلس الجامعة:					

وصف المقرر:

يهدف مقرر مهارات الاتصال إلى إلمام الطالب بالمفاهيم الأساسية في مجال الاتصال الإنساني وأشكاله وأنواعه، وتنمية المهارات الاتصالية الأساسية لديه، والمتمثلة في مهارات(التحدث، والاستماع، والقراءة، والكتابة)، وتعزيز ممارسته لها في حياته اليومية والعملية باستخدام استراتيجيات الإلقاء والعروض التدريبية وورش العمل والتدريب التعاوني وجلسات العصف الذهني، وباستخدام الوسائل التعليمية المتاحة، كما سيتم التقييم بأساليب التقويم المتنوعة كالتطبيقات والتمارين ودراسة الحالة والتكليفات الفردية والجماعية إضافة إلى الاختبارات النصفية والنهائية .

كتابة وحدات /مواضيع محتوى المقرر

أولا:الجانب النظري

الرقم	وحدات/ موضوعات المقرر	المواضيع التفصيلية	عدد الأسابيع	الساعات الفعلية	مخرجات تعلم المقرر
.1	مدخل إلى الاتصال الإنساني	تعريف الاتصال خصائص الاتصال أهمية الاتصال. أنواع الاتصال أشكال الاتصال أهداف الاتصال. وظائف الاتصال	1	2	a1,a2,b2 ,c2,d1
.2	عناصر العملية الاتصالية	المرسل، المستقبل، الرسالة، وسيلة الاتصال، التغذية العكسية، بيئة الاتصال، التشويش على الرسالة	1	2	a1,a2,b1 ,b2,c1,d 1
.3	الاتصال مع الذات	تعريف الذات.	2	4	a1,a2,b1

	أنواع الذات. طرق التواصل مع الذات وسائل تحسين مفهوم الذات.			,b2,c1,c2,d1
.4	الاتصال الشخصي والإفصاح عن الذات	تعريف الاتصال الشخصي . أهداف الاتصال الشخصي. فوائد الاتصال الشخصي . الصفات الأساسية للاتصال الشخصي. أسباب انشاء العلاقات الشخصية مع الآخرين. تعريف الافصاح عن الذات. لمن نفصح عن ذواتنا. كيفية الافصاح عن الذات. عوائق الافصاح عن الذات. قواعد الافصاح عن الذات.	2	4	a1,a2,b1,b2,c1,c2,d1,d2,d3
.5	الاتصال الكلامي	تعريف الاتصال الكلامي. مهارات الاتصال الكلامي. قواعد الاتصال الكلامي مشوشات الاتصال الكلامي. طرق تحسين الاتصال الكلامي.	1	2	a1,a2,b1,b2,c1,c2,d1,d2,d3
.6	الاتصال غير الكلامي	تعريف الاتصال غير الكلامي. العلاقة بين الاتصال الكلامي وغير الكلامي. مهارات الاتصال غير الكلامي.	1	2	a1,a2,b2,c1,c2,d1,d2,d3
.7	امتحان نصفي		1	2	
.8	مهارة الكتابة أ-مهارة كتابة السيرة الذاتية	مفهوم مهارة الكتابة. طرق التعيين على الوظيفة. تعريف السيرة الذاتية. محتويات السيرة الذاتية. مهارات صياغة السيرة الذاتية. النصائح العامة أثناء كتابة السيرة الذاتية. نموذج كتابة سيرة ذاتية.	1	2	a1, b1, c1,c2,d1
.9	ب- مهارة إعداد وكتابة الرسائل الإدارية	تعريف الرسالة الإدارية. أنواع الكتابة الإدارية. أهمية الرسائل الإدارية . مواصفات كتابة الرسائل الإدارية. أنواع المراسلات الإدارية. أجزاء الرسالة الإدارية. الشروط الشكلية للمراسلات.	1	2	a1, b1, c1,c2, d1,d3

		الشروط الموضوعية للمراسلات نموذج كتابة رسالة إدارية.			
10	مهارة القراءة	تعريف القراءة. أهمية القراءة . أهداف القراءة. أنواع القراءة. مهارات القراءة الجهرية. مهارات القراءة الصامتة. القواعد العامة للقراءة الجادة والمثمرة.	1	2	a1, b1, c1,c2, d1,d3
11	مهارة التحدث أ- المقابلة الشخصية	مفهوم مهارة التحدث. تعريف المقابلة الشخصية. الاستعدادات قبل المقابلة الشخصية. الاستعدادات أثناء المقابلة الشخصية. الاستعدادات بعد المقابلة الشخصية. المحظورات أثناء المقابلة الشخصية.	1	2	a1, b1, c1,c2, d1,d2,d3
12	ب- مهارة العرض والإلقاء	تعريف مهارة العرض والإلقاء. محاور العرض والإلقاء الفعال. مراحل مهارة العرض. مراحل مهارة الإلقاء .	1	2	a1, b1, c1,c2, d1,d2,d3
13	مهارة الاستماع	تعريف مهارة الاستماع. الفرق بين السماع والاستماع. أهمية الاستماع الفعال. متطلبات الاستماع. تصنيف الناس بالنسبة للاستماع. مراحل عملية الاستماع. طرق تنمية مهارة الاستماع.	1	2	a1, b1, c1,c2, d1,d2,d3
14	امتحان نهائي		1	2	
	إجمالي الأسابيع والساعات		16	32	

ثانيا:الجانب العملي:

تكتب تجارب (مواضيع) العملي

الرقم	التجارب العملية	عدد الأسابيع	الساعات الفعلية	مخرجات التعلم
1.	كتابة السيرة الذاتية	1	2	a1, b1,c1,c2,d1

2.	كتابة رسالة إدارية	1	2	a1, b1,c1,c2,d1,d3
3.	تقديم عرض شفوي	1	2	a1, b1,c1,c2,d1,d2,d3
	إجمالي الأسابيع والساعات	3	6	

Course Specification of Physiology

Course Identification and General Information: I						
1	Course Title:	Physiology				
2	Course Number & Code:					
3	Credit hours:	C.H				Total
		Th.	Pr.	Tr.	Seminar.	
		2				2
4	Study level/ semester at which this course is offered:	Level 1 / semester 2				
5	Pre -requisite (if any):	Biology				
6	Co -requisite (if any):	Anatomy				
7	Program (s) in which the course is offered:	Bachelor degree of Clinical Nutrition and Dietetics				
8	Language of teaching the course:	English				
9	Location of teaching the course:	The Department theaters				
10	Prepared by:	Dr:				
11	Date of approval:					

II. Course description:

This course is designed to enable the student to understand the normal physiology of blood, and blood components, the cardiovascular system, introduction to respiratory system, functional anatomy of the urinary system, functions of kidneys, introduction to digestive system, introduction to peripheral nervous system, physiology of endocrine system, and muscle nerve physiology.

III. Course Content:

1 - Course Topics/Items:

a - Theoretical Aspect

Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Number of weeks	Contact hours
1	Blood	a1, a2, a3	Introduction-Red blood cells estimation of hemoglobin. -White blood cells Platelets-Plasma proteins-Hemostasis-Blood groups Rh system Blood transfusion	2	4
2	Cardiovascular system	a3, b1	Heart Properties of cardiac muscle, cardiac cycle, cardiac output and blood pressure	2	4
3	Digestive System	a2, a4, b2	Physiological anatomy of gastro intestinal tract, functions of digestive Salivary glands Stomach: .system structure and functions. Gastric secretion: Pancreas Functions of liver Small intestine Large intestine	2	4
4	Respiratory system	a1,b1, b2, c1	Respiratory system- Anatomy of respiratory organs and their functions, mechanism and regulation of respiration, physiology of respiration, respiratory ،transport of gases volumes, methods of artificial respiration, and disorders of respiratory system (definitions only)	2	4
5	Midterm exam	All	————————	1	2
6	Endocrine system	a1, b2	Anatomy and physiology of hormones of pituitary gland, adrenal gland, parathyroid gland, pancreas, gonads (testis and ovary), disorders of endocrine system (definitions only)	2	4
7	Nervous system	c2,c3, d1, d2	Classification of nervous system, Anatomy and physiology of parts of brain Autonomous nervous system (sympathetic and parasympathetic), fundamentals of neurotransmitters, process of neuroconduction and neurotransmission. Disorders of nervous system (definitions only)	2	4

8	Excretory System	b1, c2, d3	Functions of kidneys. Nephrons - .cortical & juxtamedullary Juxtaglomerular apparatus - functions. Mechanism of urine formation : ultra filtration, GFR - Factors affecting, selective reabsorption- sodium, urea, water, glucose.	2	4
9	Muscle nerve physiology	a2, b1, c3,d2	Classification of muscle, structure of skeletal muscle, sarcomere ،contractile proteins Neuromuscular junction. Trans-mission across neuro-muscular junction. Excitation contraction coupling. Mechanism of muscle contraction	1	2
Number of Weeks /and Units Per Semester				**16**	**32**

b - Practical Aspect

Order	Tasks/ Experiments	CILOs (symbols)	Number of Weeks	Contact Hours
1	• **Safety in the** Human Physiology**laboratory**: Guidelines and precautions	c1, c2	1	2
2	• Haemoglobinometry .	c2	1	2
3	• White blood cell count. Red blood cell count	c1, c2	1	2
4	• Determination of blood groups.	c1–c3	1	2
5	• Determination of packed cell Volume.	c1, c2,	1	2
6	• Erythrocyte sedimentation rate (ESR).	c1, c2,	1	2
7	**Mid-semester exam**	c1–c4	1	2
8	• Calculation of blood indices.	c1, c2,	1	2
9	• Determination of clotting time, bleeding time.	c1–c2	1	2
10	• Blood pressure recording.	c1, c2,	1	2
11	• Auscultation for heart sounds.	c1–c2	1	2
12	• Artificial respiration.	c1, c2,	1	2

13	• Examination of fixed microscope spots	c1, c2	1	2
14	• **Final review**	c1–c2	1	2
	Number of Weeks / Units per Semester		**14**	**28**

8. *Courses specification 2nd year1st semester*

Course Specification

I. Course Identification and General Information:

1	**Course Title:**	**Principles of Nutrition**				
2	**Course Code &Number:**					
3	**Credit hours: 2**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-		-	**2**
4	**Study level/ semester at which this course is offered:**	Second year/ First semester				
5	**Pre –requisite:**	-				
6	**Co –requisite:**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Sciences				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

This course will introduce student to concepts and principles of basic nutrition. Also identify the major properties, functions, and important food sources of the nutrients.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Introduction to nutrition	• Definition of nutrition, nutrients & energy	1	2	a1,a2

		• Food as source of nutrients • Development of Nutrition as a Science • Functions of food • Adequate, optimum & good nutrition • Malnutrition			
2	Nutrition and physical activity	• Fitness • Athletics • Sports	1	2	a3,b1
3	Nutrition Guidelines	• Basic five food groups • How to use food guide	1	2	a3,b1
4	Interrelationship between nutrition & health	• Visible symptoms of goods health	1	2	a3,b1
5	Use of food in body	• Digestion • Absorption • Transport • Utilization	1	2	a2
6	Water	• Total body water • Function of water in the body • Hormones that regulate fluid and electrolytes • Sources • Requirement • Water Balance • Effect of Deficiency	1	2	a2,a3,b1, b3
7	Midterm exam		1	2	a1,a2,a3, b1,b3
8	Carbohydrates	• Functions • Classification • Food Sources • Storage in Body.	2	4	a2, a3,d1
9	Fats & Oils	• Composition • Saturated and	1	2	a2, a3,d1

		Unsaturated Fatty Acids Classification • Food Sources • Function of Fats			
10	Protein	• Composition • Sources • Essential & Non-Essential Amino Acids • Functions • Protein Deficiency	2	4	a2, a3,d1
11	Vitamins	• Water-soluble Vitamins ○ Definition ○ Classification ○ Functions. • Fat-soluble vitamins ○ Definition ○ Classification ○ Functions	2	4	a2, a3,d1
12	Minerals: Macro, Micro& Trace Nutrients	• Functions • Sources • Bioavailability and Deficiency of Calcium, Iron, Iodine, Sodium & Potassium Major Minerals	1	2	a2, a3,d1
16		Final exam	1	2	a1,a2,a3, b1,b2,b3, d1
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1	Use and care of kitchen equipment.	1	2	c1
2	Controlling techniques: • Weights and measures standard, household measures for raw and cooked food.	1	2	c1
3	Food preparation and classifying recipes	3		

	as good, moderate or poor, sources of specific nutrients, Amount of ingredients to be in standard recipe: • Portion size • Beverages - tea, coffee, cocoa, fruit juice, milk, milk shakes. • Cereals and flour mixtures - basic preparation & their nutritive value - boiled rice and rice pulao, chapati, puri, paratha, sandwiches, pastas, pancakes, cookies & cakes.		6	c2
4	Vegetables & fruits: • Simple salads, Dry vegetables, Curries, fruits preparation using fresh and dried stewed fruit, fruit salad	1	2	c2
5	Mix and milk products: • Porridges, Curds, paneer and their commonly made preparations, Milk based simple desserts and puddings, custard, kheer, ice cream	1	2	c2
6	Meat - cuts of meat : • Meat preparations, Poultry, Fish, hard and soft cooked, poached, scrambled, fried omlette & eggnogs.	2	4	c2
7	Soups: Basic, clear and cream soups.	1	2	c2
8	Snacks: Pakoras, cheese toast, upma, pohe, peanut, chikki, til & laddo	1	2	c2
9	Final exam	2	4	c1,c2
Number of Weeks / hours Per Semester		14	28	

V. Teaching strategies of the course:

1. Lecture - Discussion
2. Practical session

توصيف مقرر علم النفس

مواصفاتالمقرر الدراسي:المعلومات العامة عن المقرر:						
.40	اسم المقرر:	مدخل إلى علم النفس				
.41	رمز المقرر ورقمه:					
.42	الساعات المعتمدة:	محاضرة	سمنار	عملي	تدريب	الإجمالي
		2	-	-	-	2
.43	المستوى والفصل الدراسي:	مستوى ثاني فصل أول				
.44	المتطلبات السابقة لدراسة المقرر (إن وجدت):	لا يوجد				
.45	المتطلبات المصاحبة لدراسة المقرر(إن وجدت):					
.46	البرنامج/التي يتم فيها تدريس المقرر:	صيدلة + التغذية العلاجية والجحميات				
.47	لغة تدريس المقرر:	اللغة العربية				
.48	نظام الدراسة:	فصلي				
.49	أسلوب الدراسة في البرنامج:	انتظام				
.50	مكان تدريس المقرر:	الجامعة الوطنية				
.51	اسم معد مواصفات المقرر:	د/ طه ناجي محمد العوبلي				
.52	تاريخ اعتماد مجلس الجامعة:					

وصف المقرر:

يتضمن مقرر هذا المقرر العديد من الموضوعات تدور حول مواضيع علم النفس العام ،مفهومه أهميته وميادينه المختلفة.

– كما يتضمن تاريخ علم النفس ومجالاته النظرية والتطبيقية ، ويستعرض دراستنا للسلوك الإنساني وخصائصه وطرق قياسه ، وماهي المحددات الرئيسية المؤثرة على السلوك الإنساني ، كما سيتضمن هذا المقرر مراحل تطور علم النفس من خلال التعرف على النظريات التقليدية والحديثة لعلم النفس .

– وسيستعرض موضوع الدافعية بشكل من التفصيل وماهي النظريات المرتبطة بالسلوك الإنساني،كما وتطرق إلى موضوع الانفعالات والعواطف و الإدراك الإنساني كعمليات خاصة بالسلوك الإنساني ، وأخيرا سيتناول موضوع سيكولوجية التعلم لدى الإنسان سواءً التعلم التقليدي أو التعلم المبرمج (التعلم الذاتي).

كتابة وحدات /مواضيع محتوى المقرر

أولا: الجانب النظري

الرقم	وحدات/ موضوعات المقرر	المواضيع التفصيلية	عدد الأسابيع	الساعات الفعلية	مخرجات تعلم المقرر
.15	الفصل الأول: علم النفس العام، أهميته	• تعريف علم النفس • موضوع الدراسة في علم النفس • تعريف السلوك.	1	2	A1.b1. c1

	وميادينه.	• أنواع السلوك. • مكونات السلوك. • خصائص السلوك. • اهداف علم النفس. • مجالات الدراسة في علم النفس			
.16	الفصل الثاني تاريخعلمالنفسومدارسه	• مقدمه. • مراحل تطور علم النفس. • المدارس التقليدية في علم النفس • نشأة وتأسيس علم النفس كعلم • المدرسة البنائية • المدرسة الوظيفية • مدرسة التحليل النفسي • المدرسة السلوكية	3	6	a1,a2,b2,c2
.17	الفصل الثالث المحدداتالأساسيةللسلوكالبشري.	• مقدمة • تأثير الوراثة على السلوك البشري • تأثير البيئة على السلوك البشري. • أثر التفاعل بين الوراثة والبيئة على السلوك • العلاقة بين النضج والسلوك البشري • الغدد واثرها على السلوك. • سلوك الانسان كنتاج لتفاعل المحددات التكوينية والمحددات البيئية.	2	4	a1,a3,b1, b3,c1,c2,d 1
.18	الفصل الرابع سيكولوجيةالدوافع،دوافعوحاجاتالبشر.	• مقدمه . • تعريف الدافع وعلاقته بالمفاهيم الدافعية الاخرى. • طرق تصنيف الدوافع. • العلاقة بين الدافعية والسلوك • طرق قياس الدوافع. • تفسير الدافعية. • دافعية الانجاز. • الانفعالات والعواطف.	3	6	a1,a3,b1 ,b3,c1,c3, d1
.19	اختبار نصفي	اختبار نصف الفصل الدراسي	1	2	a1,a3,a3

					,b1,b2,b3,c 1,c2,c3, d1
.20	الفصل الخامس الإدراكالبشري.	• عملية الادراك. • عملية الاحساس والادراك. • الانتباه والادراك. • الادراك والتعلم.	2	4	a1,a4,b1,b4 ,c1,c4,d1,d 2,d3,d4
.21	الفصل الخامس سيكولوجية التعلم لدى الإنسان.	• تعريف التعلم • شروط التعلم. • نظريات التعلم • اساليب التعلم	2	4	a1,a4,b1,b4 ,c1,c4,d1,d 2,d3,d4
.22	مراجعة	الثالث عشر	1	2	a1,a2,a3, ,b1,b2,b3,b 4,c1,c2,c3,c 4,d1,d2,d3
.23	الاختبار النهائي		1	2	a1,a2,a3,a4 ,b1,b2,b3,b 4,c1,c2,c3,c 4,d1,d2,d3, d4
	إجمالي الأسابيع والساعات		16	32	

Course Specification

Nutritional Biochemistry

I. Course Identification and General Information:						
1	**Course Title:**	**Nutritional Biochemistry**				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	1	-	**3**
4	**Study level/ semester at which this course is offered:**	Second year/First semester				
5	**Pre –requisite:**	General & Organic Chemistry and Biology				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	**Clinical Nutrition and Dietetics**				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of medical Science				
10	**Prepared By:**	Dr. Mohammed Abdulwahed				
11	**Date of Approval**	2020				

IV. Course description:

The courses Biochemistry are designed for Clinical Nutrition and Dietetics students having their first exposure to biochemistry. The sequence provides a comprehensive survey of the major topics in biochemistry, with the objective of developing the tools necessary to understand biological processes in chemical terms.

The courses focuses on the structural organization and function of the major components of living cells: proteins, carbohydrates, lipids, nucleic acids vitamins. It also imparts knowledge about the catalytic role of enzymes, their structure, physicochemical, kinetic and regulatory properties and mechanism of action.

V. Course Content:

1 - Course Topics/Items:

a - Theoretical Aspect

Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Number of weeks	Contact hours
1	• Introduction to Biochemistry • Cells :The units of life	a1, a2, a4,a5 ,b1, b3, c3, c4,d3	• Definition of biochemistry. • Aims of Biochemistry Study. • Relationship between biochemistry and Medicine. • Cell types, structure and disease.	1	2
2	Carbohydrate biochemistry	a1, a2, a4,a5 ,b1, b3, c3, c4,d3	Definition, importance, classification and properties. Monosaccharaides. Oligosaccharides & disaccharides Polysaccharides	3	6
3	Lipids biochemistry	a1, a2, a4,a5 ,b1, b3, c3, c4,d3	Definition, importance, classification and properties. Fatty acids and waxes. Compound lipids (phospholipids, glycolipids) Derived lipids (cholesterol, steroids and bile acids)	3	6
4	Amino Acids biochemistry	a1, a2, a4,a5 ,b1, b3, c3, c4,d3	Definition, importance, classification and properties.	1	2
5	Midterm exam	a1, a2, a3 a4 ,a5,a6,b1,b3, c1, c2c3,c4, d1, d3		1	2
6	Proteins biochemistry	a1, a2, a3 a4 ,a5,a6,b1,b3, c1, c2c3,c4, d1, d3	Definition, importance, classification and properties. Protein structure and denaturation. Plasma proteins	1	2
7	Nucleic Acids	a1, a2, a3 a4, a5, b1, b3, c3, c4,d3	Definition, importance, classification and properties. DNA & RNA structure, properties and types.	1	2

8	Enzymes	a1, a2, a4, 5, a6 b1, b3, c3, c4,d3	Definition, importance, classification and properties. Specificity and active site Enzyme inhibition.	1	2
9	Vitamins biochemistry	a1, a2, a4,a5 ,b1, b3, c3, c4,d3	Definition, classification and properties. Sources, role and diseases due to vitamins deficiency.	1	2
10	Final exam	a1, a2, a3 a4 ,a5,a6,b1,b3, c1, c2c3,c4, d1, d3		1	2
Number of Weeks /and Units Per Semester				**14**	**28**

b - Practical Aspect

Order	Tasks/ Experiments	CILOs (symbols)	Number of Weeks	Contact Hours
1	Introduction of biochemistry. Lab.: safety requirements list of experiments, How the reports done. etc.	a1, a2, a4,a5 ,b1, b2, c1, c2, c3, c4, c5, d1, d2, d3,d4	1	2
2	Carbohydrates: Monosaccharides physicochemical properties, in vitro identification and differentiation.	a1, a2, a4,a5 ,b1, b2, c1, c2, c3, c4, c5, d1, d2, d3,d4	2	4
3	Carbohydrates: Disaccharides physicochemical properties, in vitro identification and differentiation.	a1, a2, a4,a5 ,b1, b2, c1, c2, c3, c4, c5, d1, d2, d3,d4	2	4
4	Lipids: Physicochemical properties, in vitro identification of cholesterol & Triacylglycerol.	a1, a2, a4,a5 ,b1, b2, c1, c2, c3, c4, c5, d1, d2, d3,d4	1	2
5	Bioassay of cholesterol in human blood	a1, a2, a4,a5 ,b1, b2, c1, c2, c3, c4, c5, d1, d2, d3,d4	1	2
6	Proteins and amino acids: Physicochemical properties, in vitro identification of certain types of amino acids & proteins.	a1, a2, a4,a5 ,b1, b2, c1, c2, c3,	1	2

		c4, c5, d1, d2, d3,d4		
7	Bioassay of enzymes related to hepatic function For example GPT, GOT	a1, a2, a4,a5 ,b1, b2, c1, c2, c3, c4, c5, d1, d2, d3,d4	1	2
8	FINAL EXAM	a1, a2, a4,a5 ,b1, b2, c1, c2, c3, c4, c5, d1, d2, d3,d4	1	2
Number of Weeks /and Units Per Semester			**10**	**20**

Course Specification

I. Course Identification and General Information:

1	**Course Title:**	**Food Microbiology**				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	1	-	**3**
4	**Study level/ semester at which this course is offered:**	Second year/First semester				
5	**Pre –requisite:**	Introduction to Microbiology&Principles of Food Sciences				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

This course will introduce student to food microbiology and important microorganisms in foods. Primary sources of microorganisms in foods, Fundamentals of control of microorganism in foods and Contamination and microorganisms in the spoilage of different kinds of foods.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Introduction to food microbiology	• Brief history of microbiology - Louis Pasteur, Robert Koch, Edward Jenner. • Important microorganisms in foods. • Cultivation of microorganisms, Nutritional requirements of microorganisms, types of media used, methods of isolation.	1	2	a1
2	Microbiology of microorganism	• Classification, growth and multiplication, growth curve. • Effects of environmental factors on growth of microorganism on: ○ pH ○ a_w ○ redox potential ○ temperature ○ oxygen ○ Time and nutrients present in the substrate. • Characteristics ○ Bacteria, Fungi - mucor, rhizopus, aspergillus, pencillium. ○ Yeasts - sacchromyces.	3	6	b1

		○ Algae - chalmydomonas, spirogyra. ○ Animal viruses and Bacteriophages - classification and replication. ○ Protozoa - entamoeba histolytica, paramecium, plasmodium. Role of microorganisms in food processing and product development. Beneficial effect of bacteria, fungi algae and yeasts.			
3	Food contamination	• Sources and transmission, water, air, sewage and soil as reservoirs of infection: ○ green plants and fruits ○ animal ○ sewage ○ soil ○ water ○ air ○ During handling and processing. • Toxin production and physiological action • Epidemiology of food-borne diseases.	1	2	a2
4	Fundamentals of control of microorganism in foods	• Extrinsic and intrinsic parameters affecting growth and survival of microbes • Use of high and low	1	2	

		temperature, dehydration, freezing, freeze-drying, irradiation and preservatives in food preservation.			a3
5		Midterm exam	1	2	a1,a3,b1
6	General principles underlying spoilage	• Fitness of unfitness of food for consumption causes or spoilage • classification of foods by case of spoilage factors • affecting the growth of microorganisms in food • factors affecting kinds and numbers of micro organization food • Chemical changes caused by microorganisms.	1	2	a3,b1
7	Microbiology of different foods	• Microbial food spoilage for borne diseases • Food poisoning and food infection and their control. • Contamination, Spoilage and preservation of: o Cereals and Cereal products o Sugar and sugar products o Vegetable and fruits o Meat and meat products o Fish and other sea foods	3	6	a1, a2,a3

		○ Microorganisms in milk: ▪ Microbial role in Fermentation Microbial Spoilage of milk ▪ prevention and control of spoilage ▪ pasteurization:- methods, principles and advantages ▪ Milk borne disease (Human and bovine origin) and their control.			
8	Environmental microbiology	• Soil Micro-biology: Role of microorganism in N2 cycle. • Microorganisms in water: Bacteriological examination of water, test for E. Coil, water borne diseases and their control. • Sewage: Method of sewage disposal role of files and other insects in the spread of disease. • Microorganisms in air: droplet infection and air-borne diseases and their control.	2	4	a3
9	Sterilization and disinfection	• Concepts of sterilization and disinfection	1	2	

		• Methods of sterilization and disinfection. • Common disinfectants used in home and at industries. • Tests to identify the effectiveness of sterilization and disinfection. • Normal microbiological criteria for food consumption, testing milk and water for quality.			a4
10	Public health hazards due to contaminated foods	• Food borne infections and intoxications o Symptoms o mode of transmission and methods of prevention o Investigation and detection of food borne disease out-break.	1	2	a5
11		Final exam	1	2	a1,a2,a3, a4, a5,b1
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1	Detection of number of Bacteria in milk by breed count.	1	3	c1
2	Detection of number of bacteria in milk by standard plant count.	1	3	c1
3	Determination of quality of milk sample by methylene blue reductase test and Resorzurin method.	2	6	c1

4	Isolation of yeast and molds from spoiled nuts, fruits, and vegetables. Bacteriological examination of specific food : • Curd • Raw meat • Fish • Ice cream.	4	12	c1
5	Determination of BOD and COD of wastewater.	1	3	c1
6	Water analysis: • MPN method • Membrane filter method Study of equipments in a microbiology lab.	1	3	c1
7	Quantification of microorganisms in air by settle plate and air sampler methods.	1	3	c1
8	Detection of aflatoxin B_1 from moldy grains using thin layer chromatography.	1	3	c1
9	Visits (at least two) to food processing units or any other organization dealing with advanced methods in food microbiology.	2	6	c1
Number of Weeks / hours Per Semester		14	42	

Course Specification

I. Course Identification and General Information:

1	**Course Title:**	**Food chemistry and Analyis**				
2	**Course Code &Number:**					
3	**Credit hours: 2**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	-	-	**2**
4	**Study level/ semester at which this course is offered:**	Second year/first semester				
5	**Pre –requisite:**	-				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

This course is designed to find the relationship of food composition and their resultant properties in foods. Also discuss beneficial and detrimental changes in foods that relate to chemical reactions that occur during processing, storage, and utilization. This course is designed to demonstrate and illustrate the chemical and physical properties of foods. The course shows the effects of processing, ingredients, and storage on food quality and food nutrient retention. Also this course will introduce student to food analysis, methods of sampling and handling of samples for analysis, preparation of standard solutions, Preparation of buffer solutions, Method of titration. Also determination of moisture, ash, fat, fibers, protein and sugars – Spectrophotometry and chromatography and their applications in foods analysis.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Water	• Water's importance in Food Chemistry • Phases of water • The role of water as a solvent in food systems • The concept of water activity	1	2	a1,a2,b1, b2
2	Simple Sugars and other Carbohydrates	• Carbohydrate classification • Carbohydrate nomenclature • Carbohydrate reactions (isomerization, caramelization, Maillard Browning, etc.)	1	2	a1,a2,b1, b2
3	Polysaccharides	• Major types of starch • The process of starch gelatinization • The process of staling • Modified starches and • other polysaccharides used in foods	1	2	a1,a2,b1, b2
4	Lipids	• Lipid classification and nomenclature • Reactions of lipids (hydrogenation, oxidation) • Lipids as emulsifiers	1	2	a1,a2,b1, b2
5	Proteins	• Amino acid nomenclature • Amino acid and protein interaction • External factors that influence protein systems in foods	1	2	a1,a2,b1, b2
6	Enzymes	• Enzyme kinetics • Important enzymes in food, and the role of the enzyme in the food system (role of enzymes in baking, brewing, HFCS production, cheese making, etc.)	1	2	a1,a2,b1, b2
7	Midterm exam	1	2		4
8	Introduction to Food Analysis	• Introduction • International Regulations and Standards Related to Food Analysis	1	2	a1,b1

		• Nutrition Labeling • Evaluation of Analytical Data • Sampling and Sample Preparation			
9	Compositional Analysis of Foods	• Moisture and Total Solids Analysis • Ash Analysis • Fat Analysis • Protein Analysis • Carbohydrate Analysis • Vitamin Analysis • Traditional Methods for Mineral Analysis	3	4	a1,a2
10	Chemical Properties and Characteristics of Foods	• pH and Titratable Acidity • Fat Characterization • Protein Separation and Characterization Procedures • Application of Enzymes in Food Analysis • Immunoassays ○ Analysis of Food Contaminants, Residues, and Chemical Constituents of Concern	2	4	a1,a3
11	Spectroscopy	• Basic Principles of Spectroscopy • Ultraviolet, Visible, and Fluorescence Spectroscopy • Infrared Spectroscopy • Atomic Absorption Spectroscopy, Atomic Emission Spectroscopy, and Inductively Coupled Plasma-Mass Spectrometry • Nuclear Magnetic Resonance • Mass Spectrometry	1	2	a1,a4
12	Chromatography	• Basic Principles of Chromatography • High-Performance Liquid Chromatography • Gas Chromatography	1	2	a1,a5
13	Final exam		1	2	a1,a2,b1,b2
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:				
Order	**Tasks/ Experiments**	**Number of Weeks**	**Contact hours**	**Learning Outcomes**
1	Water and Sugars analysis &test	1	2	c1
2	Polysaccharides and Lipids analysis & test	1	2	c1
3	Proteins and Enzymes analysis & test	1	2	c1
4	Nutrition Labeling Using a Computer Program	1	2	c1
5	Assessment of Accuracy and Precision	1	2	c1
6	Phenol-Sulfuric Acid Method for Total Carbohydrates	2	4	c1
7	Vitamin C Determination by Indophenol Method	1	2	c1
8	Complexometric Determination of Calcium	2	4	c1
9	Iron Determination in Meat Using Ferrozine Assay	1	2	c1
10	Standard Solutions and Titratable Acidity	1	2	c1
11	High Performance Liquid Chromatography	1	2	c1
	Final exam	1	2	c1
Number of Weeks / hours Per Semester		14	28	c1

Course Specification of Medical Parasitology

XIX.	Course Identification and General Information:					
1	Course Title:	Parasitology				
2	Course Number & Code:					
3	Credit hours:	C.H				Total
		Th.	Pr.	Tr.	Seminar.	
		1	2			2
4	Study level/ semester at which this course is offered:	Second level / 1st semester				
5	Prerequisite:	None				
	Co–requisite:	None				
7	Program (s) in which the course is offered:	BS.c Clinical Nutrition and Dietetics				
8	Language of teaching the course:	English				
9	Location of teaching the course:	The department theaters				
10	Prepared by:	Dr. Rashad Abdul-Ghani				
11	Date of approval:					

XX. Course Description:

This course provides undergraduate Clinical Nutrition and Dietetics students with the essential knowledge and understanding about different types of parasites prevalent in Yemen and the parasitic diseases caused by them. It focuses on the epidemiology, morphologic and infective stages , life cycle, mode(s) of transmission, pathogenesis and clinical features, diagnosis, treatment as well as prevention and control of medically important protozoa and helminths.

XI. Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect

Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Number of weeks	Contact hours
1	**Introduction**	a1; b1; d1–d3	Definitions and concepts of medical parasitology. Parasite and its types, host and its types & vector and its types. Types of parasite life cycles. Classification of medically important parasites.	1	1
2	***Entamoeba histolytica*** ***Balantidium coli***	a1, a2; b1, b2; d1–d3	Epidemiology, morphology, life cycle, pathogenesis and clinical features, diagnosis, treatment, prevention and control of *E. histolytica* and *B. coli*	1	1
3	**Pathogenic free-living amoebae** *Acanthameba* species *Naegleria fowleri*	a1, a2; b1, b2; d1–d3	Epidemiology, morphology, life cycle, pathogenesis and clinical features, diagnosis, treatment, prevention and control.	1	1
4	**Luminal flagellates** *Giardia lamblia* *Dientamoeba fragilis* *Trichomonas vaginalis*	a1–a3; b1, b2; d1–d3	Epidemiology, morphology, life cycle, pathogenesis and clinical features, diagnosis, treatment, prevention and control.	1	1
5	***Leishmania* species** ***Trypanosoma species***	a1–a3; b1, b2; d1–d3	Epidemiology, morphology, life cycle, pathogenesis and clinical features, diagnosis, treatment, prevention and control of: - *Leishmania* species causing cutaneous, mucocutaneous and	1	1

			visceral leishmaniasis. - African trypanosomes - *Trypanosoma cruzi*		
6	***Toxoplama gondii*** **Intestinal coccidians**	a1–a3; b1, b2; d1–d3	Epidemiology, morphology, life cycle, pathogenesis and clinical features, diagnosis, treatment, prevention and control of: - *T. gondii* - *Cryptosporidium* species - *Cyclospora cayetenesis* - *Cystoisospora belli*	1	1
7	**Mid-semester exam**	a1–a3	----------	1	1
8	**Malaria parasites**	a1–a3 b1, b2; d1–d3	Epidemiology, morphology, life cycle, pathogenesis and clinical features, diagnosis, treatment, prevention and control.	1	1
9	***Schistosoma mansoni*** ***Schistosoma haematobium***	a1–a3; b1, b2; d1–d3	Epidemiology, morphology, life cycle, pathogenesis and clinical features, diagnosis, treatment, prevention and control.	1	1
10	***Taenia saginata*** ***Taenia solium***	a1–a3; b1, b2; d1–d3	Epidemiology, morphology, life cycle, pathogenesis and clinical features, diagnosis, treatment, prevention and control.	1	1
11	***Hymenlepis nana*** ***Echinococcus granulosus***	a1–a3; b1, b2; d1–d3	Epidemiology, morphology, life cycle, pathogenesis and clinical features, diagnosis, treatment, prevention and control.	1	1
12	**Soil-transmitted helminths** - *Ascaris lumbricoides* - *Trichuris trichiura* - *Ancylostoma duodenale*	a1, a2; b1, b2; d1–d3	Epidemiology, morphology, life cycle, pathogenesis and clinical features, diagnosis, treatment, prevention and control.	1	1
13	***Strongyloides stercoralis*** ***Enterobius vermicularis***	a1, a2; b1, b2; d1–d3	Epidemiology, morphology, life cycle, pathogenesis and clinical features, diagnosis, treatment, prevention and control.	1	1

14	***Wuchereria bancrofti* *Onchocerca volvulus* *Dracunculus medinensis***	a1–a3; b1, b2; d1–d3	Epidemiology, morphology, life cycle, pathogenesis and clinical features, diagnosis, treatment, prevention and control.	2	2
15	**Final Exam**			1	1
Number of Weeks /and Units per Semester				**16**	**16**

b - Practical Aspect

Order	Tasks/ Experiments	CILOs (symbols)	Number of Weeks	Contact Hours
1	• ***E. histolytica & E. coli*** - Slide spots of trophozoites and cysts.	c1, c2	1	1
2	• ***G. lamblia & T. vaginalis*** - Slide spots of *G. lamblia* trophozoite and cyst. - Slide spot of *T. vaginalis* trophozoite.	c1, c2	1	1
3	• ***Leishmania* species& *Trypanosoma* species** - Slide spots of *Leishmania* species amastigote and promastigote and *Trypanosoma* species trypomastigotes.	c1, c2	1	2
4	• ***P. falciparum & P. vivax*** - Blood smears of erythrocytic stages of malaria parasites (ring stages, trophozoites, schizonts and gametocytes)	c1, c2	1	2
5	• ***S. mansoni & S. haematobium*** - Slide spots of adult worms and eggs. - Shells of snail intermediate hosts.	c1, c2	1	2
6	• ***T. saginata & T. solium*** - Jar specimens of adult worms and their body parts. - Slide spots of scolices, segments (immature, mature and gravid) and egg.	c1, c2	1	2
7	**Mid-semester exam**	c1, c2	1	2
8	• ***H. nana & E. granulosus*** - Slide spots of adult worms, scolices, segments (immature, mature and gravid) and eggs. - Jar specimens of hydatid cysts (different	c1, c2	1	2

	sizes). -			
10	• ***A. lumbricoides*** - Jar specimens of male and female adult worms. - Slide spots of eggs.	c1, c2	1	2
11	• ***T. trichiura & Ancylostoma duodenale*** - Slide spots of male and female adults and egg.	c1, c2	1	2
12	• ***E. vermicularis*** - Slide spots of male and female adult worms and egg.	c1, c2	1	2
13	• ***W. bancrofti & O. volvulus*** - Slide spots of *W. bancrofti* and *O. volvulus* microfilariae.	c1, c2	1	2
14	• **Final review**	c1, c2	1	2
15	• **Final exam**		1	2
	Number of Weeks / Units per Semester		**16**	**32**

9. *Courses specification 2nd year -2nd semester*

Course Specification

I. Course Identification and General Information:						
1	**Course Title:**	**Nutrition and Immunology**				
2	**Course Code &Number:**					
3	**Credit hours: 2**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	-	-	**2**
4	**Study level/ semester at which this course is offered:**	Second year/second semester				
5	**Pre –requisite:**	-				
6	**Co –requisite :**	-				

7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics
8	**Language of teaching the course:**	English
9	**Location of teaching the course:**	Faculty of Medical Science
10	**Prepared By:**	
11	**Date of Approval**	2020

II. Course Description:

This course will introduce student to basic concepts and principles of structure and function of immune system and its connection with nutrition. Also the significance of nutrition on immune system as well as on pathologic status caused by incorrect immune function.

V. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Evaluation of the Immune Function in the Nutritionally At-Risk Patient	• Introduction • Nutrients and Immunity in Specific Conditions • Clinical Evaluation of the Patient with Suspected Immunodeficiency • The Tier System	1	2	a1,b2
2	The Field Assessment of Nutrition	• Introduction • Assessing Nutritional Status	1	2	b3
3	The Pregnant and Lactating Woman	• Nutrition and Immunology During Pregnancy and Postpartum • Sample Collection for Investigations in Pregnant and Lactating Women • Evaluation of Nutritional Status	1	2	a1,a3

		• Evaluation of Immune Function or Infection			
4	Severe Malnutrition and Immunity	• Introduction • Nature of Severe Malnutrition • Reductive Adaptation • Effect of Malnutrition on the Immune Response • Effect of Acute Phase Response on Nutrition • Nature of the Problem to be Managed in Treating a Child With Severe • Malnutrition and Infection	1	2	a1,b2,b3
5	Infection, Immunity, and Vitamins	• Introduction • Single Vitamins and Immune Function • Multiple Micronutrient Supplementation	1	2	a1,b2,b3
6	Trace Elements/Minerals and Immunity	• Introduction • Mechanisms Under the Development of Essential Trace Elements and Mineral Deficiencies	1	2	a1,b2,b3
7		Midterm exam	1	2	a1,b2,b3
8	Dietary Fat and Immunity in Humans	• Introduction • Dietary n-3 Fatty Acids, Immune, and Inflammatory Responses • Effects of EPA and DHA	1	2	a1,b2,b3
9	Allergies and Nutrition	• Introduction • Foods That Cause Allergies	1	2	a1,b2,b3

		• The Diagnosis and Treatment of Food Allergies • The Effects of Foods on Allergies and Asthma			
10	Antioxidant Nutrition and Immunity	• Nutritional Biochemistry and Physiology of Dietary Antioxidants • Antioxidants and Immune Functions • Antioxidants and Infection • Antioxidant Nutrition and Developmental Immunology • Antioxidants and Autoimmune Disease • Dietary Antioxidants, Cancer, and Atherosclerosis • Sources of Dietary Antioxidants	1	2	a1,b2,b3
11	Probiotics and Prebiotics with Immunity	• Definitions • The Human Intestinal Microflora, the Mucosa, and the Gut-Associated Lymphoid Tissue (GALT) • Probiotics in Diarrhea Treatment and Prevention • Probiotics and Nonspecific Immune Responses • Probiotics in Allergy and Atopic Disease • Dose–Response • Probiotics for Normalizing the	1	2	a1,b2,b3

		Vaginal Microflora • Vaginal Microflora and HIV-1 Infection • Prebiotics and Symbiotics • Safety • Applicability in Developing Countries			
12	Malaria and Immunity	• Introduction • Malaria: The Parasite and the Disease • Naturally Acquired Immunity (NAI) • Malaria During Pregnancy • Malaria and Nutrition	1	2	a1,b2,b3
13	Acute Respiratory Infections	• Anatomical Classification and Pathology • WHO Clinical Classification • Etiologic Agents of Respiratory Disease • Respiratory Defenses Against Bacterial Invasion of the Lungs • Risk Factors • Interpretation of Etiologic Studies • Patterns of Disease in Developing Countries • Conjugate Polysaccharide Vaccines • Management of ARI by Peripheral Health Services in Developing Countries	1	2	a1,b2,b3
14	Diarrhea and Other Gastrointestina	• Diarrhea and Gastrointestinal Infections	1	2	a1,b2,b3

	l Diseases	• Immune Response to Persistent Diarrhea • Expanding the Malnutrition-Diarrhea Interaction Paradigm • Infant Feeding Patterns • Diarrheal Vaccines			
15	HIV	• Introduction • Causes of Malnutrition in HIV-Infected Individuals • Macronutrients • Micronutrients • Nutrition and HIV Disease Progression Among Children • Nutrition and HIV Transmission	1	2	a1,b2,b3
16		Final exam	1	2	a1,b2,b3
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
	Not applicable	-	-	-
Number of Weeks / hours Per Semester		-	-	

Course Specification

I. Course Identification and General Information:						
1	**Course Title:**	**Clinical Biochemistry Metabolism**				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	1	-	**3**
4	**Study level/ semester at which this course is offered:**	Second year/second semester				

5	**Pre –requisite:**	Nutritional Biochemistry & G. chemistry
6	**Co –requisite :**	-
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics
8	**Language of teaching the course:**	English
9	**Location of teaching the course:**	Faculty of medical Science
10	**Prepared By:**	
11	**Date of Approval**	2020

II. Course Description:

The course includes the study of carbohydrate, protein and fat metabolism. The course covers metabolic pathways of major nutrients, vitamins and minerals. Review concepts of energy conservation and expenditure through catabolic and anabolic pathways of intermediary metabolism. Understanding the role of vitamins and minerals in metabolism processes.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Introduction to metabolism	• Energetic components • General pathways in the body • Catabolism and anabolism • Types of energy, calorific value of food, BMR & factors affecting it.	1	2	a5
2	Carbohydrates metabolism	• Introduction • Biomedical importance • Brief outline of metabolism: Glycogenesis & glycogenolysis (in brief), Glycolysis, citric acid cycle & its significance,	1	2	a5

		HMP shunt & Gluconeogenesis (in brief) ○ Regulation of blood glucose level.			
3	Amino acids	• Definition • Essential & non essential amino acids. • Reaction of protein	1	2	a5
4	Proteins metabolism	• Introduction • Biomedical importance ○ Metabolism: Transformation, Decarboxylation, Ammonia formation & transport, Urea cycle.	2	4	a5
5	Lipids metabolism	• Introduction • Biomedical importance • Essential fatty acids, identification of fats & oils (saponification no, acid no, iodine no, acetyl no, reichertmiesel no. etc.) • Brief out line of metabolism: Beta oxidation of fatty acids, Ketosis, Cholesterol & its clinical significance • Lipoproteins in the blood composition & their functions in brief, Atherosclerosis.	1	2	a5
6		Midterm exam	1	2	a5

7	Enzymes	• Introduction • coenzymes, isoenzymes, properties, factors affecting enzyme action, enzyme inhibition, diagnostic value of serum enzymes • Creatinine kinase • Alkaline phosphatase, Acid phosphatase • LDH • SGOT • SGPT • Amylase • Lipase • Carbonic anhydrase etc.	2	4	a5
8	Acid base balance concepts & disorders	• Ph • Buffers • Acidosis • Alkalosis	1	2	a2
9	Nucleic acids	• Structure • Nucleotide metabolism • Replication • Transcription • Genetic code (in brief) elementary knowledge of biosynthesis of proteins.	1	2	a5
10	Vitamins	• Chemistry and biochemical role of fat soluble vitamins. A. D. E. and K. • Water soluble vitamins – B1, B2, B6 niacin and C.	2	4	a5

11	Water metabolism	• Distribution of fluids in the body • ECF • ICF • Water metabolism, dehydration. • Water and pH	1	2	a5
12	Minerals	• Biochemical role of inorganic elements • Calcium and phosphorus, iron and copper, output-regulatory	1	2	a5
13		Final exam	1	2	a1, a5
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1	The preparation of plasma and serum	1	3	c1
2	Estimation of glucose in urine by Benedict's methods	1	3	c1
3	Urine analysis - normal & abnormal constituents of urine	1	3	c1
4	Blood glucose estimation	1	3	c1
5	Detection of ketone bodies in urine and blood	1	3	c1
6	Determination of triglyceride in plasma	1	3	c1
7	Determination of cholesterol in plasma	1	3	c1
8	Identification of total proteins level in plasma	1	3	c1
9	Measurement of creatine in blood and urine	1	3	c1

10	Measurement of Urea in blood and urine	1	3	c1
11	Measurement of Uric acids in blood and urine	1	3	c1
Number of Weeks / hours Per Semester		13	39	

ourse Specification of Pathology

XXII. Course Identification and General Information:

1	**Course Title:**	**General Pathology**				
2	**Course Number & Code:**					
3	**Credit hours:**	**C.H**				**Total**
		Th.	**Pr.**	**Tr.**	**Seminar.**	
		2				2
4	**Study level/ semester at which this course is offered:**	Level 2 / semester 2				
5	**Prerequisite:**	Biology				
	Co–requisite:	Anatomy				
7	**Program (s) in which the course is offered:**	Bachelor degree of Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	The department theaters				
10	**Prepared by:**	Dr. Ebrahim moh. Al-Samet				
11	**Date of approval:**					

XIII. Course description:

This course is designed to enable students to acquire knowledge of pathology of various disease conditions and apply this knowledge in practice of **Clinical Nutrition and Dietetics**.

XIV. Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect

Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Number of weeks	Contact hours
1	**Introduction**	a1–a4;	▪ Importance of the study of pathology ▪ Definition of terms ▪ Methods and techniques ▪ Cellular and Tissue changes ▪ Infiltration and regeneration ▪ Inflammations and Infections ▪ Wound healing ▪ Vascular changes ▪ Cellular growth, Neoplasms ▪ Normal and Cancer cell ▪ Benign and Malignant growths ▪ In situ carcinoma Disturbances of fluid and electrolyte imbalance.	2	4
2	**Special pathology**	a1–a4; b1-3;d1,d3	▪ Pathological changes in disease conditions of various systems: ▪ Respiratory tract: - Tuberculosis,Bronchitis, Pleural effusion and pneumonia, Lung abscess, emphysema, bronchiectasis, Bronchial asthma,	6	12

			Chronic obstructive Pulmonary disease &tumours ▪ Cardiovascular system - Pericardial effusion - Rheumatic heart disease - Infective endocarditis, atherosclerosis, - Ischemia, infarction & aneurysm ▪ Gastro Intestinal Tract - Peptic ulcer, typhoid - Carcinoma of GI tract - buccal, Esophageal, - Gastric & intestinal ▪ Liver,Gall bladder & pancreas - Hepatitis, Chronic liver abscess, cirrhosis - Tumours of liver, gall bladder and pancreas, - Cholecystitis ▪ Kidneys & Urinary tract - Glomerulonephritis, pyelonephritis - Calculi, renal failure, renal		

			- carcinoma & cystitis ▪ Male genital systems - Cryptorchidism testicular - atrophy - Prostatic hyperplasia, Carcinoma Penis & - prostate ▪ Female genital system. - Fibroids - Carcinoma cervix and - Endometri - Vesicular mole, choriocarcinoma - Ectopic gestation - Ovarian cyst &tumours Cancer Bre ▪ Central Nervous system Hydrocephalus, - Meningitis, encephalitis, Vascular disorders thrombosis, embolism - Stroke, paraplegia, quadriplegia - Tumours, meningiomas gliomas ▪ Metastatictumour skeletal system - Bone healing, osteoporosis,		

			- osteomyelitis - Arthritis &tumours.		
	Mid-semester exam			1	2
3	Clinical pathology	a1,a3; d1–d3	▪ Various blood and bone marrow tests in assessment and monitoring of disease conditions - Hemoglobin, RBC, White cell & platelet counts - Bleeding time, clotting time and prothrombine time - Blood grouping and cross matching - Blood chemistry - Blood culture - Serological and immunological tests - Other blood tests - Examination of Bone marrow - Methods of collection of blood specimen for various clinical pathology,biochemistry, microbiology tests, inference and normal values	3	6
	Examination of body cavity fluids, transudates and exudates		▪ The laboratories tests used in CSF analysis ▪ Examination of other body cavity fluids, transudates and	2	4

			exudates sputum, wound discharge etc o Analysis of gastric and duodenal contents ▪ Analysis of semen-sperm count, motility and morphology and their importance in infertility ▪ Methods of collection of CSF and other cavity fluids specimen ▪ for various clinical pathology, biochemistry, microbiology tests, inference and normal values		
5	Urine and faeces	a1,a4; b2; d1–d3	▪ Urine - Physical characteristics - Analysis - Culture and sensitivity ▪ Faeces - Characteristics - Stool examination: occult blood, ova, parasite and cyst, reducing substance etc. Methods of collection for various tests, inference and normal values	1	2
7	Final exam	1	2	1	2
Number of Weeks /and Units per Semester				**16**	**32**

b - Practical Aspect				
Order	Tasks/ Experiments	CILOs (symbols)	Number of Weeks	Contact Hours
1	**Not applicable**			
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
Number of Weeks / Units per Semester			**14**	**28**

Course Specification

III. Course Identification and General Information:						
1	**Course Title:**	Nutrition needs and diet planning				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	1	-	**3**
4	**Study level/ semester at which this course is offered:**	Second year/second semester				
5	**Pre –requisite:**	Introduction to nutrition, Biochemistry1,11				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

IV. Course Description:

It provides the students with the recommended intake of these nutrients concerning the Dietary references intake, Measurement of Energy, Estimated Energy Requirement (EER) and factors that effect on energy needs. The course provides an understanding of the Diet-Planning Principles and diet planning systems used . The students learning how to calculate the meal according to the disease, age and nutrition status of the person

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Over view of nutrition: Dietary references intake:	• Definition of nutrition • Definition of diet planning. • Establishing Nutrient Recommendations • Estimated Average Requirements (EAR) Recommended Dietary Allowances (RDA) Adequate Intakes (AI) Tolerable Upper Intake Levels (UL) • Estimated Average Requirements (EAR) and Recommended Dietary Allowances (RDA) Compared. • Using nutrient recommendations • Comparing nutrients recommendations	2	4	a1, a3
2	Measurement of Energy	• Establishing Energy Recommendations • Estimated Energy Requirement (EER • Acceptable Macronutrient Distribution Ranges (AMDR) • Energy in: the calories food provides • Energy out: the	2	4	a1, a3

		calorie the body spends • Measurement of Resting Metabolic Rate • Components of energy expenditure • Estimation energy requirements • Total Energy Requirement (3 methods)			
3	Planning a Healthy Diet	• Diet-Planning Principles: Adequacy ,Balance kCalorie (Energy),Control Nutrient Density Moderation – Variety • Diet-Planning Guides • USDA Food Guide	1	2	a2, a4
4	Food composition tables and Food exchange list in Meal Planning	• Use of Food composition tables and Food exchange list in Meal Planning	1	2	a2, a4
5	Food pyramid and food plate in Meal Planning and Evaluation	• Development of a Food Guide • Food Guide for Selecting an Adequate Diet	1	2	a2, a4

	.	• Use of the Food Guide in Meal Planning and Evaluation • Use of Food pyramid and food plate			
6	Midterm exam	Midterm exam	،	2	a1, a4
7	Factors affecting food choice	• Understand the guidelines of meal planning • Seven items that you need to look at before planning meal s(Family Size – age - …… • Balanced diet • Factors influencing food choice			a2, a4
8	Food Labels	• The Ingredient List • Serving Sizes • Nutrition Facts • Daily Values for Food Labels • Calculate Personal Daily Values • Vegetarian Diets • Health Benefits • of Vegetarian Diets • Vegetarian Diet Planning	1	2	a2, a4
9	Effect of Preparation on Food Component	• Effect of Preparation on Food Component • Retention of Nutritive value during Preparation • Effects of Cooking on the Microbial Quality of Food	1	2	a4
10	Preparation of	• how to calculate the	1	2	a4

	diet Meal	meal according to the disease, age and nutrition status of the person			
11	Anemia	• Iron deficiency anemia causes, clinical findings, diagnosis • (case studies, meal plan).	1	2	a4
12	Final exam		1	2	a1, a4
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1	Dietary references intake	1	3	a1
2	Measurement of Energy	2	6	a1
3	Diet-Planning with use Food composition tables	1	3	a1, a4
4	Diet-Planning with use Food exchange list	1	3	a1, a4
5	Diet-Planning with use Food pyramid and food plate	1	3	a1, a4
6	Factors affecting food choice	1	3	a1, a4
7	Midterm exam	1	3	a1, a4
8	Food Labels	1	3	a1, a4
9	Vegetarian Diet Planning	1	3	a1, a4
10	Preparation of diet planning meal for healthy person	1	3	a1, a4
11	Preparation of diet planning meal for anemia patient	1	3	a1, a4
12	Final exam	1	2	a1, a4
Number of Weeks / hours Per Semester		13	39	

Course Specification

III. Course Identification and General Information:

1	**Course Title:**	**Nutrition Through Life Span**				
2	**Course Code &Number:**					
3	**Credit hours:**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-		-	**2**
4	**Study level/ semester at which this course is offered:**	Second year/second semester				
5	**Pre –requisite:**	Principle of Nutrition				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

IV. Course Description:

This course will introduce student to nutrition feeding styles during the different stages of human growth and study the daily nutritional requirements for all nutrients, and the physiological changes in each stage from gestation period until elderly.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Recommended Dietary Allowances	• RDA basis for requirement • Computation of allowance based on energy expenditure • Components of energy expenditure. • General concepts about growth and development through different stages of life.	1	2	a3

		• Basic principles of meal and menu planning ○ Factors to be considered in meal/menu planning.			
2	Nutrition during pregnancy	• Physiology changes in pregnancy • Nutritional allowances • Complications of pregnancy. • Factors (non-nutritional) affecting pregnancy outcome • Importance of adequate weight gain during pregnancy • Antenatal care and its schedule • Nutritional requirements during pregnancy and modification of existing diet and supplementation • Deficiency of nutrients, specially energy, iron folic acid, protein, calcium, iodine. • Common problems of pregnancy and their managements, specially - nausea, vomiting, pica, food aversions, pregnancy induced hypertension, obesity, diabetes.	2	6	a1,a2,a3, b4
3	Nutrition during	• Physiology of lactation	1	2	a1,a2,a3, b4

	Lactation	• Nutritional requirements during lactation • Dietary management • Food supplements • Galactogogues • Preparation for lactation. • Care and preparation of nipples during breast feeding.			
4	Nutrition during Infancy	• Growth and development of the infant • Infant physiology relevant to feeding and care • Breast feeding colostrum: ○ composition ○ importance in feeding • Breast feeding: ○ Initiations of breast feeding. ○ Advantages of exclusive breast feeding. ○ Basic principles of breast feeding. ○ Composition of breast milk.	2	4	a1,a2,a3, b4
5	Midterm exam		1	2	a1,a2,a3, b4
6	Supplementary foods	• Introduction of supplementary foods • Initiation and management of weaning • Baby-led weaning. • Bottle feeding:	2	4	a1,a2,a3

		○ Cow's milk ○ Circumstances under which bottle feeding is to be given. ○ Care & sterilization of bottles. ○ Preparation of formula. ○ Mixed feeding, breast feeding and artificial feeding.			
7	Nutrition in Preschool	• Growth and development of preschool children • Nutrition during preschool children. • Dietary allowances and supplementary foods.	1	2	a1,a2,a3, b4
8	Nutrition at School age	• Growth and development • Nutritional during school age • School lunch program • Factors to be considered in planning a menu • Food habits and nutritional requirement	1	2	a1,a2,a3, b4
9	Nutrition in Adolescence	• Physical and Physiological changes • Energy and Nutrient needs of adolescent. • Eating disorders.	1	2	a1,a2,a3, b4
10	Nutrition during Adults	• Nutrition for adults. • Basis for requirement. • Nutrition and work efficiency.	1	2	a1,a2,a3, b4

10	Nutrition in Geriatric	• The aging process • Physiological changes in aging • Energy and Nutrient needs of geriatric • Dietary Guidelines • Nutrition and work efficiency modifications in diet. • Psycho-social and economical factors affecting eating behavior.	2	4	a1,a2,a3, b4
11	Final exam		1	2	a1,a2,a3, b4
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1	Menu planning and food Exchange list	1	3	c1
2	Planning and preparation diet for adult men and women, during different activities - sedentary, moderate, heavy worker.	2-3	6	c4
3	Planning and preparation of balanced diet for a pregnant woman.	4	3	c4
4	Planning and preparation of balanced diet for Lactating women.	5	3	c4
5	Supplementary feeding - Preparation of weaning foods	6-7	6	c4
6	Planning and preparation of diet for toddler and preschool child	8	3	c4
7	Planning and preparation of meals/packed lunch	9	3	c4
8	Nutrition during adolescence - Preparation of meals Planning a diet for senior citizen - Preparation of meals	10	3	c4

9	Planning meals for middle income family - important consideration in planning meals.	11	3	c4
Number of Weeks / hours Per Semester		11	33	

*10.**Course Specification***

I. Course Identification and General Information:						
1	**Course Title:**	**Nutrition and physical activity**				
2	**Course Code &Number:**					
3	**Credit hours: 2**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	-	-	**2**
4	**Study level/ semester at which this course is offered:**	Second year/second semester				
5	**Pre –requisite:**	-				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

This course discusses the interrelationship of nutrition and exercise. It covers the metabolism of nutrients during exercise. It also covers body energy stores and weight control.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Health	• Concept of Health • Changing concepts definitions of health • Dimensions of health	2	4	a1,a2

		• Concept of well being • Determinants of health • Right to health • Indicators of health.			
2	Exercise and Health related fitness	• Health related fitness • Health promotion, and physical activity for health benefits. • Sports related fitness: o Role of nutrition in sports o Nutrition to athletic performance.	2	4	a1,a2
3	Body weight and composition for Health and Sports	• Ideal body weight • Values and limitations of the BMI • Composition of the body • Diet during training, prior to competition, during Dietary supplements after competition for sports.	2	4	a1,a2
4		Midterm exam	1	2	
5	Exercise performance:	• Energy expenditure during physical activity • Carbohydrate metabolism and performance • Fat metabolism and performance • Effect of exercise on protein requirements • Physique and sports performance.	3	6	a1,a2
6	Exercise programs	• Resistance exercise training • Aerobic exercise • Types of exercise • Effective for weight	3	6	a1,a2

		contrast, - dieting or exercise • Weight reduction programme for young athletes.			
7		Final exam	1	2	a1,a2
Number of Weeks /and Units Per Semester			**14**	**28**	

Course Specification

I. Course Identification and General Information:						
1	**Course Title:**	**Basic Pharmacology**				
2	**Course Code &Number:**					
3	**Credit hours: 2**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	-		2
4	**Study level/ semester at which this course is offered:**	Second year/Second semester				
5	**Pre –requisite:**	-				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Sciences				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

The course concern with general concepts about pharmacodynamics and pharmacokinetic principles involved in drug activity, termination of action, drug interactions and drug reactions.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Introduction to pharmacology	General Concepts Pharmacokinetics and Pharmacodynamics, Protein Binding; Partition Coefficients; PKA; Ionization; Tissue Uptake; Compartmentalization and Exponential Models Pharmacokinetics of Neuraxial Drug Administration: Epidural and Subarachnoid Tolerance and Tachyphylaxis Termination of Action Elimination; Biotransformation; Context-Sensitive Half-Time Impact of Renal Disease Impact of Hepatic Disease Drug Interactions Enzyme Induction and Inhibition Hepatic Blood Flow Drug Binding Alternative and Herbal Medicines: Perioperative Implications Drug Reactions (Anaphylactoid, Anaphylaxis, Idiosyncratic) Adverse effects of drugs	5	10	a1,b1,d1. d2

		Classification of drugs			
2	Ant-allergic (Antihistamines	Classification Mechanism of action Adverse effects Preparations Dose Routes and administration.	1	2	a1,b1,d1. d2
3		Midterm exam	1	2	a1,b1,d1. d2
4	Autonomic nervous system agents	Introduction to ANS Parasymathomimetic drugs Parasympatholytic drugs Sympathomimetic drugs Sympatholytic drugs	3	6	a1,b1
5	Antibacterial drugs	Classification, mechanism of action, spectrum of activity, dose, routes of administration and adverse, and side effects of Penicillin, Cephalosporins , Macrolides , Tetracyclines , Sulfonamides, Quinolones and Lincomycins drugs.	2	4	a1,b1,d1. d2
6	Antifungal drugs	Classification Mechanism of action Spectrum of activity Uses Dose Routes of administration Adverse and side effects	1	2	a1,b1,d1. d2
7	Antiviral drugs	Classification Mechanism of action Spectrum of activity Uses Dose Routes of administration Adverse and side effects	1	2	a1,b1,d1. d2
8		Final exam	1	2	a1,b1,d1.

				d2
Number of Weeks /and Units Per Semester		**15**	**30**	

*11.**Courses specification 3rd year 1st semester***

Course Specification

V. Course Identification and General Information:						
1	**Course Title:**	**Inborn Errors of Metabolism**				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-		-	**2**
4	**Study level/ semester at which this course is offered:**	Third year/first semester				
5	**Pre –requisite:**	Nutrition Through Life Span				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

VI. Course Description:
It provides the students with the basic information concerning the biochemical pathways, path physiology, and possible factors that are involved in the development of different inborn errors of metabolic diseases of neonatal and newly born infants. The course provides an understanding of the major clinical manifestations of inborn errors of metabolism provides the basis for knowing when to consider the diagnosis and intervention with the appropriate medical and nutritional therapies, and that by omitting the offending nutrients from the neonate, and infant formulae, and diet.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Introduction toInborn errors metabolism	• Introduction • Definition of IEM. • Definition / cut – off value • Causes of IEM	1	2	a1
2	Amino acids metabolism Disorders	• Phenylketonuria, • (includes clinically significant hyperphenylalaninemia variants) • Maple syrup urine disease • Homocystinuria • Tyrosinemia of IEM.	2	4	a1a4
3	Carbohydrates Disorders	• Galactosemia • Glycogen storage disorder. Type 1 • Type 11 • Type 111 • Type 1v • Type v • Type v1 • Hereditary fructose intolerance (fructose 1- phosphate aldolase deficiency , fructose 1- 6 bisphosphatase deficiency, fructose kinase deficiency,	3	6	a1a4
4	Fatty acids oxidation Defects	• Medium -chain actyl co A dehydrogenase deficiency, • Long - chain hydroxyacyl - co A dehydrogenase	2	4	a1a4

		deficiency, • Trifunctional protein deficiency type 1 • Trifunctional protein deficiency type 2 (mitochondrial Trifunctional protein deficiency) • Carnitine uptake defects (primary Carnitine deficiency) • Vary Long - chain acyl - co A dehydrogenase deficiency,			
5		Midterm exam	1	2	a1a4
6	Organic acidsdisorder (AKAorganic acidurias ororganic acidemia	• Isovaleric acidemia • 3- Methelcrotonyl- co A carboxylase deficiency, • Glutaric acidemia type 1 • glutaric acidemia type 2 • 3- hydroxy -3- methelglutaryl- co A lyase deficiency, • Multiple carboxy lase deficiency ((Biotinidase deficiency. H0lo carboxy lase synthetase deficiency Methylmalonic acidemia Propionic acidemia Beta – ketothiolase deficiency	2	4	a1a4
7	lysosomal storage	• Fabry diseases (alfa galactosidase A	1	2	

	diseases	deficiency • Gauhere disease glucocerebrosidase deficiency • Pompe disease (Glycogen disease storage(type II, alfa glucosidase deficiency			a1a4
8	Disorder of the mitochondrial	Disorder of the mitochondrial function	1	2	a1a4
9	Urea cycle Disorders	• Citrullinemia • Argininosuccinic aciduria • Carbamomyl phosphatase deficiency	1	2	a1a4
10	Disorder of purine and pyrimidine metabolism	• Disorder of purine and pyrimidine metabolism	1	2	a1a4
11		Final exam	1	2	a1,a4
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:				
Order	**Tasks/ Experiments**	**Number of Weeks**	**Contact hours**	**Learning Outcomes**
1	Not applicable			
Number of Weeks / hours Per Semester				

Course Specification

I. Course Identification and General Information:						
1	**Course Title:**	**Community Nutrition**				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	1	-	**3**
4	**Study level/ semester at which this course is offered:**	Third year/first semester				
5	**Pre –requisite:**	Principles of Nutrition				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Sciences				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

The course is designed to enable students to understand the importance of nutrition in national progress and the significance of assessment of nutritional states. The course also aims to recognize the solutions to overcome problems of malnutrition in the community and the role of national and international agencies in this area.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Introduction to community and health	• Concept of Community and health • Factors affecting health of the	1	2	a1,a2

		Community • Factors essential for optimum health of the Community.			
2	Nutrition and health in National Development Malnutrition	• Definition • Etiology • Signs& Symptoms • Prevalence of malnutrition - Under nutrition and Over nutrition • Balance between food and population growth.	1	2	a2
3	Nutritionaldisorders Confronting our country	• Protein-Energy malnutrition (PEM): ○ Epidemiology ○ Prevalence ○ classification ▪ Kwashiorkor and Marasmus : ○ Etiology ○ Symptoms ○ Pathological changes ○ Biochemical changes ○ Dietary treatment for PEM • Nutritional Anaemias : ○ Prevalence ○ Etiology ○ Signs &symptoms ○ Prophylaxis. • Iodine Deficiency Disorder (IDD): ○ Etiology ○ Prevalence ○ Symptoms ○ prophylaxis	3	6	a2

		• Fluorosis : o Etiology o Prevalence o Symptoms o prophylaxis • Vitamin A deficiency: o Etiology o Prevalence o Symptoms o Prophylaxis • Vitamin D deficiency, Rickets and Osteomalacia: o Etiology o Prevalence o Symptoms o Prophylaxis			
4		Midterm exam	1	2	a1,a2,a4
5	Methods of assessing nutritional status of the Community	• Sampling techniques, Identifications of risk groups, • Direct assessment - Diet surveys, anthropometric, clinical and biochemical estimation. • Indirect assessment- Food balance sheet, ecological parameters and vital statistics, use of growth chart.	3	6	a4
6	Improvement of nutrition of a community	• Modern methods of improvement or nutritional quality of food, food fortification, enrichment and nutrient supplementations. • Nutrition education	1	2	a3,a5

		themes and messages in nutrition and health, Antenatal and postnatal care. • Methods of demonstrations, nutrition exhibitions and visual aids.			
7	Nutritional and infection relationship	• Immunization and its importance • Food borne infection and intoxication diseases, foods involved, methods of prevention • Infestation of food borne diseases, Outbreak, Prevention signs and control of infection.	1	2	a2,b1
8	National and International organizations in community nutrition	• ICDS • SNP • ANP • FAO • WHO • UNICEF • CARE • ICMR • ICAR • CSIR • NIN • CFTRI • Others	2	4	b2
9	Community nutrition programme planning	• Identification of problem • Analysis of causes • Resources constraints • Selection of interventions • Setting a strategy	1	2	a2,b2

		• Implementations and evaluation of the programme.			
10	Breast feeding and Weaning foods	• Breast feeding and its implications • Hazards of bottle feeding - Review. • Planning, formulating and preparing. Importance of correct and timely weaning - Review.	1	2	a1,a5
11	Final exam		1	2	a1,a2,a3, a4,a5,b1, b2
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1	Diet and nutrition surveys: • Identifying vulnerable and at risk group. • Diet survey for breast-feeding and weaning practices of specific groups. • Use of anthropometric measurements in children.	1-2	6	c1
2	Conduct of Clinical assessment & signs of nutrient deficiencies specially: • PEM (Kwashiorkor, marasmus), vitamin A deficiencies, Anaemias (iron, folic and vit. B12 deficiencies), Iodine deficiency, and Vit D, Rickets.	3-4	6	c1
3	Estimation of food and nutrient intake: • Household food consumption data, adult consumption unit, 24 hours dietary recall, 24 hours	5-6	6	c1

	record. • Weighment method, food diaries, food frequency data, use of each of the above, information available through each individual, collection of data, estimation of intakes.			
4	Methods of extension used in community: • Preparation of visual aids-charts, posters models, etc, for exhibition. • Lecture and Method Demonstration to target groups.	7-8	6	c2
5	Field visits to : • Observe the working of nutrition programs. • Hospitals to observe nutritional deficiencies.	9-11	9	c1
6	Final exam	12-13	6	c1,c2
Number of Weeks / hours Per Semester		13	39	

I. II. Course Identification and General Information:

1	**Course Title:**	**Clinical Nutrition I**				
2	**Course Code &Number:**					
3	**Credit hours: 4**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	2	-	**4**
4	**Study level/ semester at which this course is offered:**	Third year/First semester				
5	**Pre –requisite:**	Anatomy and histology, Principle of Nutrition & Nutrition Through Life Cycle				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Sciences				
10	**Prepared By:**					

11	**Date of Approval**	2020

III. Course Description:

This course will introduce student to know the types of diet used in the treatment of some chronic diseases (e.g overweight and underweight conditions, Upper GI tract disease, Gastro - intestinal disorders, Anaemias, Diseases of the liver, and gall, bladder). The practical part of the course includes hospital visits to be more familiar with the diet therapy of the diseases that covers in the theoretical part of the course.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Introduction to diet therapy	• Concepts of diet therapy • Therapeutic adaptations of normal diet • Growth and source of dietetics • Purpose and Principles therapeutic diets • Classification of the therapeutic diets. • Goals of Diet Therapy. • Team approach to health care.	1	3	a1,a2,d1

		• Recommended Dietary Allowances: definition, factors, use; Nutrition care plan: o Nutrition Assessment of needs o Diagnosis o Intervention o Monitoring o Evaluation. • Concepts of Dietician • Role of Dietitian in the hospital and community • Education and personal qualification • Professional ethics and obligation.			
2	Routine hospital diets	• Preoperative and postoperative diets • study and review of hospital diet: o Regular o Light o Soft o Fluid	1	3	a4
3	Enteral and Parenteral nutrition	• Enteral nutrition: o Oral feeding, Tubes & techniques of delivery, Clinical uses & formulation, complications of enteral nutrition, • Parenteral Nutrition: o Venous access o Nutrition formulation.	1	3	a3

4	Energy modifications and nutritional care for weight management	• Identifying the overweight and obese ○ Etiological factors ○ Prevention and treatment ○ Diet in overweight and underweight conditions. • Low energy diets, balanced energy reduction and behavioural modifications • Underweight : ○ Etiology assessment ○ high energy diets for weight gain ○ Anorexia nervosa	2	6	a5
5		Midterm exam	1	2	a1,a2,a3, a4, a5,d1
6	Medical Nutritional Therapy for upper intestinal tract.	• Introduction to GIT, Oesophagtis:- types, etiology, symptoms and nutritional care. • Hiatal hernia:- pathophysiology, symptoms and nutritional care. • Gastritis:- types, etiology, symptoms and nutritional care. • Nutritional care after Tonsillectomy, Dumping syndrome. • Gastric and Duodenal Ulcers:- pathophysiology, etiology, symptoms, medical therapy and nutritional care.	3	9	a5

7	Medical Nutritional Therapy for lower intestinal tract	• Diet in peptic ulcer: ○ symptoms, clinical findings, treatment ○ Dietary Management, adequate nutrition, amount of food, and intervals of feeding, chemically and mechanically irrigating foods, four stage diet (Liquid, soft, convalescent, liberalized diet). • Diet in disturbances of small intestine and colon. • Diarrhoea- (child and adult):- classification, modification of diet, fibre, residue, Fluids & nutritional adequacy. • Constipation, Flatulence: - dietary considerations. • Ulcerative colitis (adults): symptoms, Dietary management. • Spruce, coeliac disease: disaccharide intolerance and dietary treatment.	3	9	a5
8	Diet for Anaemia	• Causes, signs and symptoms, Pathogenesis, diagnosis and dietary management of Nutritional Anaemias (Iron, folic acid, sickle cell anemia and macrocytic anemia) • Protein –energy	3	9	a5

		deficiency: ○ Causes ○ signs and symptoms ○ Classifications ○ Complications ○ Dietary management • Iodine, Vit D, Vit b12 and Vit A deficiency: ○ Signs and symptoms ○ complications ○ dietary management			
9		Final exam	1	2	a1,a2,a3, a4, a5,d1
Number of Weeks /and Units Per Semester			**16**	**46**	

B – Practical/clinical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1	Standardization of common food preparations.	1	3	c1
2	Planning, preparation and calculation of following diets : • Normal diet. • Liquid diet • Soft/semi solid diets. • High protein diets. • caloric diet • Low fat and High and low caloric diets.	1	3	c1
3	Planning and preparing of diets for the following conditions / stages: • Obesity and underweight.	2	6	c1
4	Planning and preparing of diets for the following conditions / stages: • lower intestinal tract	3	9	c1

5	Planning and preparing of diets for the following conditions / stages: • upper intestinal tract	3	9	c1
6	Planning and preparing of diets for the following conditions / stages: • Anemias.	2	6	c1
7	Visit to the dietary department of hospital.	1	3	c1
8	Final exam	2	6	c1
Number of Weeks / hours Per Semester		15	45	

Course Specification

I. Course Identification and General Information:						
1	**Course Title:**	**Food Analysis**				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	1	-	**3**
4	**Study level/ semester at which this course is offered:**	Third year/first semester				
5	**Pre –requisite:**	Principle of Food Science				
6	**Co –requisite :**	**-**				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Sciences				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

This course will introduce student to food analysis, methods of sampling and handling of samples for analysis, preparation of standard solutions, Preparation of buffer solutions, Method of titration. Also determination of moisture, ash, fat, fibers, protein and sugars – Spectrophotometry and chromatography and their applications in foods analysis.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Introduction to Food Analysis	• Introduction • International Regulations and Standards Related to Food Analysis • Nutrition Labeling • Evaluation of Analytical Data • Sampling and Sample Preparation	1	2	a1,b1
2	Compositional Analysis of Foods	• Moisture and Total Solids Analysis • Ash Analysis • Fat Analysis • Protein Analysis • Carbohydrate Analysis	4	8	a1,a2

		• Vitamin Analysis • Traditional Methods for Mineral Analysis			
3	Chemical Properties and Characteristics of Foods	• pH and Titratable Acidity • Fat Characterization • Protein Separation and Characterization Procedures • Application of Enzymes in Food Analysis • Immunoassays ○ Analysis of Food Contaminants, Residues, and Chemical Constituents of Concern	3	6	a1,a3
4		Midterm exam	1	2	a1,a2,a3, b1
5	Spectroscopy	• Basic Principles of Spectroscopy • Ultraviolet, Visible, and Fluorescence Spectroscopy • Infrared Spectroscopy • Atomic Absorption Spectroscopy, Atomic Emission Spectroscopy, and Inductively Coupled Plasma-Mass Spectrometry • Nuclear Magnetic Resonance • Mass Spectrometry	2	4	a1,a4
6	Chromatography	• Basic Principles of Chromatography • High-Performance Liquid	2	4	a1,a5

		Chromatography • Gas Chromatography			
7	Physical Properties of Foods	• Rheological Principles for Food Analysis • Thermal Analysis • Color Analysis	2	4	b1,b2
8		Final exam	1	2	a1,a2,a3, a4,a5,b1, b2
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1	Nutrition Labeling Using a Computer Program	1	2	d1
2	Assessment of Accuracy and Precision	1	2	c1
3	Determination of Moisture Content	2	2	c1
4	Determination of Fat Content	1	2	c1
5	Protein Nitrogen Determination	2	2	c2
6	Phenol-Sulfuric Acid Method for Total Carbohydrates	1	2	c2
7	Vitamin C Determination by Indophenol Method	2	2	c2
8	Complexometric Determination of Calcium	2	2	c2
9	Iron Determination in Meat Using Ferrozine Assay	1	2	c1
10	Sodium and Potassium Determinations by Atomic Absorption Spectroscopy and Inductively Coupled Plasma-Atomic Emission Spectroscopy	1	2	c1
11	Standard Solutions and Titratable Acidity	1	2	c2
12	Fat Characterization	1	2	c2
13	High Performance Liquid Chromatography	1	2	c2

Number of Weeks / hours Per Semester	14	28	

XV. Course Content:

l – Course Topics/Items:

a – Theoretical Aspect

Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Number of weeks	Contact hours
1	**Introduction**	a1, c3, d1-3	Definitions, Data Visualization Stem-and-Leaf Plot Samples And Populations	1	2
2	**Location Parameters**	a1, a2, d1-3	Mode, Median, Mean, Spread Parameters: Range, Variance, Covariance, Frequency Distributions, Bias, Precision, and Accuracy	1	2
3	**Design of Experiments and Collection of Data**	a1, a3, c3, b3, d1-3	Sampling By Questionnaire, Sampling In The Chemical Laboratory Sampling In Biological and Clinical Experiments	1	2
4	**Design and Conduct Of Clinical Trials**	a1, a3, b3, c1,d1-3	Allocation of Patients in randomized design, crossover design	2	4
5	**Mid Exam**	a1-3, b3		1	2
6	**The Binomial And Normal Probability Distributions**	a3, b1, b3, c1,d1-3	The Binomial Distribution, The Normal Distribution, Computing Probabilitiesfrom The Normal Distribution, Normal Approximation To The Binomial Distribution	1	2
7	**Estimation And Statistical Inference and Data Transformations**	a3, b1, b3, c1, d1-3	Estimation And Confidence Intervals, Statistical Inference And The T Distribution, T Test, Construct A Null Hypothesis Construct An Alternative Hypothesis, Choose The Level Of Significance T, Beta Error And Power, Choose A Sample, Determine Whether The Test Should Be One- Or	6	12

			Two-Sided, Make Observations And Construct A T Test, Two Independent Sample T Test, Paired T Test, Testsfor Proportions, Chi-Square Test, The F Distribution And Testsof Significance, Analysisof Variance (Anova) And Experimental Design, Multiple Comparisons In Anova, Other Anova Designs Common To Pharmaceutical Problems, Crossover Design, Nonparametric Testsof Significance, Exact Tests, Rejection Of Aberrant Observations		
	SPSS program	a1, b2, c2, d1-3	Using of SPSSprogram inanalysis of data	2	4
8	**Final Exam**	a1-3, b1-3, c1, c3		1	2
Number of Weeks /and Units Per Semester				**16**	**32**

Course Specification of Biostatistic

XXVI. Course Identification and General Information:

1	**Course Title**	Biostatistics				
2	**Course Number & Code:**					
3	**Credit hours:**	**C.H**				**Total**
		Th.	**Pr.**	**Tr.**	**Seminar.**	
		2				2
4	**Study level/ semester at which this course is offered:**	Level 3 /semester 1				
5	**Pre –requisite (if any):**	-				
6	**Co –requisite (if any):**					
7	**Program (s) in which the course is offered:**	Bachelor degree of Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	The Department theaters				
10	**Prepared by:**	Dr. Taha Abdul-Aziz kaid				

11	**Date of approval:**	

VII. Course description:

This required course introduces and provides the students with major concepts of Biostatistics which include the basic principles of for the collection, analysis, variability on the interpretation of research findings and presentation of data in all areas of pharmaceutical sciences. Also it is give the student'sapplication skill in uses the different Biostatisticstechnique such as SPSS program in analysis of data.the

Course Specification

I. Course Identification and General Information:

1	**Course Title:**	**Nutritional Assessment**				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	1	-	**3**
4	**Study level/ semester at which this course is offered:**	Third year/First semester				
5	**Pre –requisite:**	Basic Nutrition &Nutrition Through Life Span				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

In this course the student learns the different methods for assessing the nutritional status, which covers dietary, anthropometric, biochemical and clinical assessment of the nutrition status. Also the course trains the student on the usage of new technology including dietary analyses soft wares.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Nutritional Assessment	• Meaning • Need • Objectives • Importance • Historical information • Health history • Socioeconomic history • Diet history	1	2	a1
2	Nutrition care process and Nutrition screening	• Nutrition care process steeps • Nutrition imbalance • Nutrition screening	1	2	a1
3	Evaluation of nutritional indices	• References distribution • References limit • Cut of point	1	2	a1
4	Nutritional assessment methods	• Anthropometry assessment: o Need and importance o Standard for reference • Use of growth chart: Meaning, WHO Chart, and charts used in Yemen, uses, meaning of reference curve and growth curve. • Indices growth measurements • Techniques of measuring head circumference, chest circumference, mid-	2	4	a2,a4

		arm circumference, Head circumference for age, weight for age, weight for height, height for age, weight change. and chest			
5	Anthropometry assessment of body composition	• Measurement of skin folds thickness • Calculation of skin folds thickness	1	2	a2,a4
6		Midterm exam	1	2	a1,a2,a4
7	Weight, waist, height and hip	• Measure Weight, waist, height and hip • Calculation of BMI, Waist, waist to hip, waist to height ratio	1	2	a2, a4
8	Methods of assessing foods composition of individual	• Twenty four recall methods • Repeat twenty four recall methods	1	2	a3
9	Estimated food records	• Weighting food records • Calculation of food from food composition data • Food frequency questionnaire • Measuring food consumption by telephone and photograph	1	2	a3
10	Clinical assessment and signs	• Need & Importance • Medical history • Physical examination • Nutritional anthropometry • Identifying signs of PEM, anemias, vitamin A deficiency and iodine deficiency	2	4	a2,a4,b1

		• Interpretation of descriptive list of clinical signs.			
11	Biochemical assessment	• Biochemical tests • Biophysical methods. • Nature indicator • Criteria for selectin and interpretation • Cut point of some nutrients	1	2	a2
12	Nutritional assessment system	• Introduction to nutrition survey and surveillance • Need and importance to survey • Methods of dietary survey • Interpretation • Nutritional surveillance cycle • Nutritional surveillance in Yemen • Program coverage • Stage of program coverage	2	4	a3
13		Final exam	1	2	a1,a2,a3, a4, b1
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1	Visit of health center and apply the following: Anthropometric Measurement of infant : • Length, weight, circumference of chest, mid - upper arm circumference, precautions to be taken.	12	36	c1,c2,c3

	• Comparison with norms and interpretation of the nutritional assessment data and its significance Weight for age, height for age, weight for height, Z scores, body Mass Index (BMI) Waist - Hip Ratio (WHR). • Growth charts : o Plotting of growth charts o Growth monitoring and promotion. • Clinical assessment and signs of nutrient deficiencies specially: o PEM (Kwashiorkor, marasmus) o Vitamin A deficiencies o Anaemia (iron, folic and vit. B12 deficiencies) o Iodine deficiency o Vit D, Rickets, Oestomelacia.			
2	Final exam	2	6	c1,c2,c3
Number of Weeks / hours Per Semester		14	42	

Course Specification

I. Course Identification and General Information:						
1	**Course Title:**	**Advance Human Nutrition**				
2	**Course Code &Number:**					
3	**Credit hours: 2**	**C.H**				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	-	-	**2**
4	**Study level/ semester at which this course is offered:**	Third year/ First semester				
5	**Pre –requisite:**	Principle of Nutrition				
6	**Co –requisite :**	**-**				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					

11	Date of Approval	2020

II. Course Description:

This course will introduce student to concepts and principles of basic nutrition. Also identify the major properties, functions, and important food sources of the nutrients.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Introduction to Human Nutrition:	• A Global Perspective on Food and Nutrition • Orientation to human nutrition • An integrated approach • A conceptional framework for the study of nutrition • Relationship between nutrition and health • Nutrients: the basics • Global malnutrition • Perspectives on the future	1	3	a2
2	Body Composition	• Five levels of body composition • Relationships between different levels of body composition • Body composition techniques • Direct methods • Indirect methods • Doubly indirect methods	1	3	a3

3	Energy Metabolism	• Definition and conceptualization of energy balance • Energy intake • Energy expenditure • Factors that influence energy expenditure • Energy requirements • Energy balance in various conditions • Obesity • Perspectives on the future	1	3	a6,d1
4	Water	• Total body water • Function of water in the body • Hormones that regulate fluid and Electrolytes • Water requirements • Water balance & effect ofdeficiency • Condition increase water consumption • Body water distribution and exchange	1	3	a3,d1
5	Nutrition and Metabolism of Proteins and Amino Acids	• A historical perspective • Classification of amino acids • Biology of protein and amino acid requirements • Estimation of protein and amino acid requirements • Meeting protein and amino acid needs • Factors other than diet	1	3	a1,a4,d1

		affecting protein and amino acid requirements • Perspectives on the future			
6	Nutrition and Metabolism of Lipids	• The history of lipids in human nutrition • Terminology of dietary fats Lipids • Lipids as components of the diet • Digestion, absorption, and transport of dietary fat • Circulating lipids: lipoprotein structures and metabolism • Body lipid pools • Long-chain fatty acid metabolism • Nutritional regulation of long-chain fatty acid profiles and metabolism • Nutritional and metabolic effects of dietary fatty acids • Cholesterol synthesis and regulation • Effect of diet on serum lipids and lipoproteins	2	6	a1,a4,d1
7		Midterm exam	1	2	a1,a2,a3, a4,a5,d1
8	Digestion and Metabolism of Carbohydrates	• Carbohydrates in foods • Digestive fate of dietary carbohydrates • Nonglycemic carbohydrates • Carbohydrates and	1	3	a1,a4,d1

		dental caries • Perspectives on the future			
9	Vitamins	• Absorption and metabolism • Metabolic functions • Deficiency • Toxicity	1	3	a1,a4,a5, d1
10	Minerals and Trace Elements	• Absorption, transport, and tissue distribution • Metabolic function and essentiality • Deficiency symptoms • Toxicity • Assessing status • Micronutrient interactions • Genetic diseases	1	3	a1,a4,a5, d1
11	Dietary Reference Standards	• Terminology and conceptual approaches to setting nutrient recommendations • Interpretation and uses of dietary recommendations • The use of reference values to assess the adequacy of the nutrient intakes of population groups • Methods used to determine requirements and set dietary recommendations • Methods used to determine requirements • Perspectives on the future	2	6	b1,d1

12	Measuring Food Intake	• Assessment of nutritional status • Indirect measurement of food intake • Direct measures of food intake • Sources of error in dietary studies • Repeatability and validity • Evaluation of food intake data	1	3	b2,d1
13	Food and Nutrition: Policy and Regulatory Issues	• Reference points in human nutrition • Exploration of dietary patterns • Options to change food and nutrient intakes • Global players in food and nutrition regulation • Perspectives on the future	1	3	d2
14		Final exam	1	2	a1,a2,a3, a4,a5,a6, b1,b2,d1, d2
Number of Weeks /and Units Per Semester			**16**	**46**	

*12.**Courses specification 3rd year 2nd semester***

Course Specification

I. Course Identification and General Information:

1	**Course Title:**	**Nutritional Epidemiology**				
2	**Course Code &Number:**					
3	**Credit hours: 2**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	-	-	2
4	**Study level/ semester at which this course is offered:**	Third year/second semester				
5	**Pre –requisite:**	-				
6	**Co –requisite :**	Clinical Nutrition I				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

This course focuses on the pattern of occurrence of communicable and non-communicable disease of significance importance in the community and its effect on national health status. Also the course will be introduced the essential epidemiological terminologies and control and prevention methods to communicable and non-communicable disease.

III. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Introduction to epidemiology	▪ The historical context. ▪ Definition of epidemiology ▪ Objectives of epidemiology. ▪ Uses of epidemiology	1	**2**	a1

2	Concepts of Disease Occurrence	▪ Epidemiologic Triangle (Triad) ▪ Epidemiologic Concepts	1	**2**	a2
3	Chain of Infection	▪ Reservoir ▪ Portal of exit ▪ Modes of transmission ▪ Portal of entry ▪ Host	1	**2**	a2
4	Levels of prevention	▪ Definition of prevention ▪ Levels of prevention: - Primary prevention - Secondary prevention - Tertiary prevention	1	**2**	b2
5	Methods of control of communicable diseases	▪ Main methods of control - Elimination of Reservoir of Infection - Interruption of Transmission - Protection of the Susceptible Host ▪ The general methods for the control of communicable diseases - Preventive Measures - Control of Patient, Contact and Environment - Epidemic Measures - International Measures ▪ The nursing function in the control of communicable diseases.	1	**2**	b2
6	Measures of risk	▪ Frequency Measures ▪ Morbidity Frequency Measures ▪ Mortality Frequency Measures ▪ Natality (Birth) Measures ▪ Measures of Association	1	2	b1
7	Midterm exam		1	2	a1, a2, b1,b2, c1

8	Methods of surveillance in epidemiology	▪ Definition ▪ The scope of surveillance ▪ Uses of surveillance ▪ Principles of surveillance ▪ Sources of data ▪ Surveillance in practice ▪ Analysis and interpretation of surveillance data ▪ Factors that influence effectiveness of surveillance systems	1	**2**	a3
9	Screening	▪ Definition of screening , A screening test and A diagnostic test ▪ Purpose of screening ▪ Criteria for disease or problem suitable for screening ▪ Types of screening ▪ Characteristics of a Good Screening Test ▪ Evaluation of screening test o Validity o Sensitivity o Specificity	1	**2**	a3
10	Investigation of epidemics	▪ Definition of an Outbreak ▪ The purpose of investigating ▪ Steps ▪ procedure for the investigation An outbreak	1	2	a3
11	Types of epidemiological studies	▪ Observation epidemiology ▪ Experimental epidemiology	5	10	b1
12		Final exam	1	2	a1, a2, a3, b1,b2
Number of Weeks /and Units Per Semester			**16**	**32**	

Course Specification

I.	Course Identification and General Information:					
1	**Course Title:**	**Clinical Nutrition II**				
2	**Course Code &Number:**					
3	**Credit hours: 4**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	2	-	**4**
4	**Study level/ semester at which this course is offered:**	Third year/ Second semester				
5	**Pre –requisite:**	Anatomy and histology& Nutrition Through Life Cycle				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

At the end of this course the student knows the types of diet used in the treatment of some chronic diseases (e.g. diabetes and the chronic diseases of the renal, allergies and heart and arteries), and knows the factors that might help in getting these diseases (e.g. obesity, genetic, bad dietary habits and smoking). The practical part of the course includes hospital visits to be more familiar with the diet therapy of the diseases that covers in the theoretical part of the course. The course gives the opportunity to the students for planning, treatment and follow-up patients for the following cases: coronary heart diseases, diabetes, diseases of the renal, etc.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes

1	Medical Nutritional Therapy in diseases of the liver, gall bladder and pancreas . ,	• Introduction to nutrient metabolism in the liver • Hepatitis: o types, o etiology o symptoms o nutritional care • Cirrhosis: o Pathophysiology o Etiology o symptoms o Nutritional care. • Dietary treatment in Hepatic Encephalopathy, Diseases of the Gall bladder and Pancreatitis.	2	6	a1,b1,b2 ,d1
2	Medical Nutritional Therapy in Diabetes mellitus	• Definition • Incidence • Classification • Pathophysiology • Etiology • Diagnosis • Signs and Symptoms • Complications in (brief). • Management of Diabetes mellitus, Insulin – types, action, Dietary treatment, Diabetic emergencies, Artificial sweeteners.	2	6	a1,b1,b2 ,d1
3	Medical Nutritional Therapy in Cardiovascular diseases	• Important, Concept, Etiology, Dietary management in Coronary Heart Diseases, Congestive cardiac failure, Nutritional Care,	2	6	a1,b1,b2 ,d1

		Lipoproteins, Hyperlipedemia's / Hyperlipoproteinemia's. • Causes and dietary treatment of Ischemic Heart Disease • Prevention and Nutritional Care of cardiovascular diseases			
4		Midterm exam	1	2	a1,b1,b2 ,d1
5	Medical Nutritional Therapy in Hypertension	• Classification • Types • Etiology • Nutritional Care in Hypertension.	1	3	a1,b1,b2 ,d1
6	Medical Nutritional Therapy in Renal diseases	• Basic renal function • Symptoms and dietary treatment in acute and chronic glomerulonephritis, Nephrosis, renal failure, dialysis. • Urinary calculi-causes & treatment, acid and alkali producing and neutral foods and dietary treatment.	2	6	a1,b1,b2 ,d1
7	Medical Nutritional Therapy in allergy	• Definition • Classification • Symptoms • Diagnostic tests • Dietary management in allergy. • Elimination diet and desensitization.	1	3	a1,b1,b2 ,d1
8	Medical Nutritional therapy in	• Etiology • Pathophysiology	2	6	

	diseases of musculo-skeletal system	• Medical Nutritional therapy in diseases of musculoskeletal system: Rheumatoid & osteoarthritis, gout, osteomalacia & osteoporosis.			a1,b1,b2 ,d1
9	Medical Nutritional Therapy in immunodeficiency disorders & HIV/AIDS	• Aetiological factors • Symptoms • Diagnostic tests • Dietary Management.	2	6	a1,b1,b2 ,d1
10		Final exam	1	2	a1,b1,b2 ,d1
Number of Weeks /and Units Per Semester			**16**	**46**	

B – Practical/clinical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1	• Planning and preparation of diets for insulin dependent Diabetes Mellitus. • Planning snacks, deserts and beverages for diabetes. • Meal Exchange List	2	6	c1
2	Planning and preparing of diets for the following conditions / stages: • Liver disease.	2	6	c1
3	Planning and preparing of diets for the following conditions / stages: • Hypertension	1	3	c1
4	Planning and preparing of diets for the following conditions / stages: • Atherosclerosis	1	3	c1
5	Planning and preparing of diets for the following conditions / stages: • Coronary Heart disease	1	3	c1
6	Planning and preparing of diets for the following conditions / stages:			

	• Kidney failure • Kidney transplant • Renal complication • Kidney stones • Nephritis and Nephrosis	2	6	c1
7	Planning and preparing of diets for the following conditions / stages: • Musculo-skeletal system	2	6	c1
8	Planning and preparing of diets for the following conditions / stages: • HIV/AIDS	1	3	c1
9	Visit to the dietary department of hospital.	2	6	c1
Number of Weeks / hours Per Semester		14	42	

Course Specification

i. Course Identification and General Information:						
1	**Course Title:**	Nutrition and Health In Emergency				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	1	-	**3**
4	**Study level/ semester at which this course is offered:**	Third year/second semester				
5	**Pre –requisite:**	Nutrition throughlife span& nutritional assessment				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

ii. Course Description:
The course aims to provide an overview of nutrition during humanitarian emergencies. The topics studied will include a general review of the different types of malnutrition, their direct and underlying causes, measuring malnutrition at the population in Yemen and individual levels, and common nutritional interventions. Complementary issues addressed, the Sphere guidelines and infant and young child feeding

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Introduction and concept	• The humanitarian system: roles, responsibilities and coordination	1	2	a2
2		• Understanding malnutrition.	1	2	a3
3		• Micronutrient malnutrition	1	2	a1
4		• Causes ,symptom sigh of malnutrition, indicators of malnutrition.	1	2	a2
5	Nutrition needs assessment and analysis	• Measuring malnutrition: individual assessment	1	2	a2, a3
6		• Measuring malnutrition: population assessment	1	2	a3
7		Midterm exam	1	2	a1, a5
8		• Health assessment and	1	1	

	Nutrition needs assessment and analysis	the link with nutrition			a3
9		• Food security assessment and the link with nutrition •	1	2	a3
10		• Nutrition information and surveillance systems	1	2	a3
11	Interventions to prevent and treat malnutrition	• General food distribution	2	2	a4
13		• Management of severe acute malnutrition(Yemen CEMAM protocol)	1	2	a4
14		• Micronutrient interventions • :Health interventions	1	2	a4
15		• Infant and young child feeding and Nutrition of elderly people in • emergencies Therapeutic feeding (TFCs), Community based therapeutic care • Working with communities in emergencies	1	2	a4
15	Monitoring, evaluation and accountability.	• Monitoring, evaluation and accountability. • Monitoring and evaluation, Humanitarian standards and • accountability	1	2	a4

16	Final exam	1	2	a1,a5
Number of Weeks /and Units Per Semester		**16**	**32**	

B – Practical/clinical Aspect:				
Order	**Tasks/ Experiments**	**Number of Weeks**	**Contact hours**	**Learning Outcomes**
1	Practical should be in the field to practice what they have in the theory part(Field visits)	1	3	a1,a5
Number of Weeks / hours Per Semester		13	39	

Course Specification

I. Course Identification and General Information:

1	**Course Title:**	**Drug-Nutrient Interactions**				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	1	-	**3**
4	**Study level/ semester at which this course is offered:**	Third year/second semester				
5	**Pre –requisite:**	Advance Human Nutrition				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

This course will introduce student to concepts and principles of pharmacology such as drug delivery, administration, dosage forms, pharmacokinetics, pharmacodynamics and biopharmaceutics drug interactions. Also review nutritional status in drug regimens and metabolic disorders and drugs.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes

1	Pharmacy: Basic Concepts	• Background View of Drugs
		• The Perfect Medication
		• Drug Delivery and Administration
		• Dosage Forms
		  ○ Pills and Powders
		  ○ Tablets, Capsules, and High Tech
		  ○ Liquids
		  ○ Rectal Dosage Forms
		  ○ Topical Agents
		  ○ Injections
		  ○ Pharmaceutical Elegance: Coats to Disguise, Protect, and Increase Duration
		• Compounding: What's Old Is New Again
		• Pharmacokinetics
		  ○ Absorption
		  ○ Distribution
		  ○ Metabolism
		  ○ Elimination
		• Pharmacodynamics
		• Reference Materials
		  ○ Textbooks and References
		  ○ Drugs Manuals
			1	2	a1

		and References ○ Internet-Based Resources			
2	Biopharmaceutics of Orally	• Ingested Products • Pharmacokinetic Parameters ○ Rate of Absorption (K_A) ○ Maximal Drug Concentration (C_{MAX}) ○ Area under the Plasma Concentration vs. Time Curve (AUC) • Gastrointestinal Physiological Response to Ingested Food and Liquids Gastric Emptying Rate ○ Solids ○ Liquids • Intestinal Transit • Drug Dissolution • Complexation and Degradation	1	2	a1
3	Drug Interactions: Basic Concepts	• Overview • Types and Mechanisms of Drug–Drug and Drug–Nutrient Interactions ○ Drug Interaction	1	2	a2,a4

		Risk Factors and the Unknown • Unclassified Interactions ○ Effects of Nutritional Status on Drugs ○ Effects of Drugs on Nutritional Status • Reference Materials ○ Textbooks and References ○ Drugs Manuals and References ○ Internet-Based Resources			
4	Nutrition and Metabolism	• Ingestion and Absorption Concepts • Absorption and Digestion • Digestion ○ Factors Affecting/Regulating Digestion ○ Carbohydrates ○ Proteins ○ Fat ○ Dietary Fat and Drug Absorption • Metabolism ○ Carbohydrates ○ Protein Metabolism ○ Fat Transportation and Metabolism • Elimination/Excretion • Drug Elimination/ Excretion	1	2	a3
5	Food and Nutrition	• Nutrient Recommendations	1	2	

	Update	• Uses of the DRIs
		• Dietary Guidelines for Planning
		  ○ Food Pyramids
		  ○ Cancer Guidelines
		• Assessment of Diet Quality
		• Nutrition Labeling and Health Claims
		• Functional Foods
		• Food Safety
		• Consumer Health Information (CHI)
		• Future Trends
					a2

6	Monitoring Nutritional Status in Drug Regimens	• Major Drug-Induced Malnutrition
		• Nutrients Commonly Affected by Drugs
		• Clinical or Medical History
		• Drug History
		• Diet History
		• Physical Examination for Drug-Induced Malnutrition
		• Malabsorption
		• Anemias
		• Neuropathies
		• Dermatitis
		• Bone Diseases
		• Gastrointestinal Diseases
		• Chronic Diseases
		• Side Effects and Impact on Dietary Intake by Drug Category
		  ○ Analgesics
		  ○ Antibiotics
		  ○ Antituberculars
		  ○ Antiprotozoals
			1	2	a2,a4,a5

		○ Anticonvulsants ○ Antineoplastics ○ Hypoglycemic Agents ○ Cardiovascular Agents • Diuretics • Antiarrhythmics			
7		Midterm exam	1	2	a1,a2,a3, a4
8	Gastrointestinal and Metabolic Disorders and Drugs	• Medications Used to Treat Disorders of the Mouth and Throat • Gastrointestinal Disease States ○ Gastroesophageal Reflux Disease (GERD) ○ Peptic Ulcer Disease ▪ PUD Manifestations ▪ Treatment of PUD • Nausea and Vomiting ▪ Treatment of Nausea and Vomiting • Diarrhea ▪ Causes of Diarrhea ▪ Agents to Treat Diarrhea ▪ Specific Agents of Choice • Constipation ▪ Treatment of Constipation ▪ Bowel Preparation Agents for Surgery or GI Procedures	2	4	A2,a3,a4, a5,b1

		▪ Polyethylene Glycol Electrolyte Solution ▪ Erythromycin ▪ Oral Electrolyte Replacements • Pancreatitis ▪ Treatment of Pancreatitis • Inflammatory Bowel Disease ▪ Motility Agents ▪ Miscellaneous GI Tract Agents • Appetite Enhancers ▪ Anabolic Steroids (FDA Label Indicated) • Enzyme Replacements ○ Drugs to Treat Metabolic Disorders ▪ Insulin ▪ Oral Hypoglycemic Agents ▪ Sulfonylureas ▪ Biguanides: Metformin (Glucophage ®) ▪ Alpha-Glucosidase Inhibitors ▪ Thiazolidinediones ▪ Lipid Control Agents ○ Agents to Treat Lipid Disorders			

		• Drugs Affecting Fluid Balance ○ Diuretics ▪ Loop Diuretics ▪ Thiazide and Related Diuretics ▪ Potassium-Sparing Diuretics ▪ Carbonic Anhydrase Inhibitors ○ Corticosteroids ○ Nonsteroidal Antiinflammatory Drugs (NSAIDs) ○ Antihypertensive Agents ○ High Sodium Content Medications and Dietary Supplements • Diabetes Insipidus ○ Treatment ▪ Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIADH) ▪ Chronic Treatment of SIADH			
9	Drug Interactions in Nutrition Support	• Drug-Induced Metabolic Alterations in Nutrition Support Patients • Drug Interactions Specific to Patients Receiving Parenteral	1	2	

		Nutri • Drug Interactions Specific to Patients Receiving Enteral Nutrition o Drug Absorption and Feeding Tube Position Issues • Medication Dosage Form Issues • Admixing Drugs with the Enteral Feeding Formula • Medications Clogging the Feeding Tube • Enteral Tube Feeding Intolerance: Medication Culprits • Monitoring and Management Strategies for Drug Interactions in Nutrition • Support Patients			a4
10	Alcohol and Nutrition	• Kinetics o Bioavailability o Distribution o Biotransformation • Alcohol Consumption Patterns o Type of Alcohol Consumed o Alcoholism o Ethnic Difference o Possible Co-occurrence of Alcohol and Sweet Preference o Age and Gender Differences • Effects of Alcohol	1	2	a4

		Consumption on Nutrition ○ Epidemiological Studies ○ Animal Models ○ Carbohydrates ○ Lipids ○ Amino Acids • Effect of Ethanol Ingestion on Particular Nutrients ○ Thiamin ○ Riboflavin ○ Biotin ○ Folate ○ Vitamin B 6 ○ Vitamin C ○ Vitamin A ○ Calcium ○ Zinc and Iron ○ Phosphorus and Magnesium • Alcohol and Disease Induction ○ Alcohol Liver Disease (ALD) ○ Alcohol Metabolism ○ Alcohol Dehydrogenase (ADH) Pathway ○ Gastric ADH ○ Microsomal Ethanol Oxidizing System (MEOS) ○ Catalase			
11	Nutrition and Drug Regimens in Older Persons	• Drug Usage Overview • Nutritional Assessment Overview • Cost-Effective Prevention in the Elderly	1	2	

		• Basic Definitions in Nutrition Assessment • Incorporation of Nutritional Assessment into the Traditional • History/Physical/Laboratory Examination • Identifying Those Who Need Nutrition Support • Nutrition Support, Supplementation, and Replacement • Overview of Nutrition Support • Indications for Nutrition Support • Energy and Protein Requirements • Nutrition Support — Walking the Talk • Four Stages of Nutrition Support • Adverse Drug Effects on Nutritional Health			a2,a4
12	Non-prescription Drug and Nutrient Interactions	• Effect of Food/Nutrients on Medication Absorption • Effect of Food/Nutrients on Medication Metabolism • Effect of Food/Nutrients on Medication Excretion • Effect of Medication on Food/Nutrient Absorption • Effect of Medication	1	2	a2,a3,a4

		on Food/Nutrient Metabolism • Effect of Medication on Food/Nutrient Excretion			
13	Obesity and Appetite Drugs	• Defining of Obesity • Etiology of Obesity • Management of Obesity • Over the Counter Medications o Phenylpropanolamine o Benzocaine o OTC Product Selection Guidelines • Prescription Appetite Suppressant Drugs o Noradrenergic Agents o Serotonergic Agents o Digestive Inhibitor	1	2	a4,a5
14	Herbal and Dietary Supplement Interactions with Drugs	• Hypericum perforatum • Garlic (Allium sativum) • Milk Thistle (Silybum marianum) • Licorice (Glycyrrhiza glabra) • Disconnect between In Vitro and In Vivo Findings • Culinary Herbs and Mineral Supplements	1	2	a4
15		Final exam	1	2	a1,a2,a3, a4,a5,b1
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:				
Order	**Tasks/ Experiments**	**Number of Weeks**	**Contact hours**	**Learning Outcomes**
1	Givestudent practice toidentify patients at increased risk for drug-nutrient interaction due to pharmacokinetics, patient health status, and medication related factors	3	6	c1
2	Develop a plan to prevent, identify or treat nutritional deficiencies or altered medication responses due to these interaction	2	4	c1
3	Demonstrate and understanding of the essential elements required for interprofessional collaboration.	1	2	c1
4	Final exam	1	2	
Number of Weeks / hours Per Semester		7	14	

Course Specification

I. Course Identification and General Information:						
1	**Course Title:**	**Functional Foods**				
2	**Course Code &Number:**					
3	**Credit hours: 2**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-		-	**2**
4	**Study level/ semester at which this course is offered:**	Third year/second semester				
5	**Pre –requisite:**	Principle of Food Sciences &Food Analysis				
6	**Co –requisite :**	**-**				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

This course is introducing student to uunderstand the basic concepts and principles of functional food and nutraceuticals. Also this courses introduce student to nomenclature surrounding functional foods, nutraceuticals and food based bioactive.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Introduction	• Definition, history and market and international issues • Awareness of functional foods • Evolution of health care and functional foods • Health claims approved by FDA • Human body system and functional foods • US regulations on - nutraceutical and functional food • Market	1	2	a1,a2
2	Antioxidants and antioxidant rich food	• Autoxidation • Antioxidants • Natural antioxidants • Chemical classification of food antioxidants • Classification of antioxidants based on their function • Classification of antioxidants based on the site of synthesis • Foods rich in	2	4	a2,b1

		antioxidants			
3	Dietary fiber and dietary fiber rich foods	• Definition • Chemistry of dietary fiber • Physical properties of dietary fiber • Classification of dietary fiber • Analysis of dietary fiber • Dietary fiber metabolism in gastrointestinal tract • Physiological functions of dietary fiber • Properties and physiological effects of selected non digestible polysaccharides (NDP) and non-digestible oligosaccharides • Properties of isolated fiber in food applications • Worldwide fiber recommendations and intake • Beneficial claims for DF	2	4	a2,b1
4	Prebiotics and carbohydrate□based nutraceuticals	• Introduction • Chemistry of fructans • Inulin • Sources of Prebiotics • Types of prebiotics other than inulin and FOS • Beneficial effects of	1	2	a2,b1

		prebiotics on health • Prebiotics in infant health and nutrition			
5	Probiotics – Friendly Creatures	• Introduction • Probiotics and general health • Probiotics for oral health • Sources of probiotics	1	2	a1,a2,b1
6	Midterm exam		1	2	a1,a2,b1
7	Symbiotics	• Beneficial effects of symbiotics on lipid metabolism • Examples of symbiotic foods	1	2	a2,b1
8	Lipid□based nutraceuticals	• Chemistry and nomenclature • Dietary sources • Health Implication	1	2	a2,b1
9	Vitamins and minerals as functional ingredients (nutraceuticals)	• Vitamins ▪ Fat Soluble Vitamins ▪ Water Soluble Vitamins • Minerals ▪ Macrominerals ▪ Trace Minerals	2	4	a2,b1
10	Nutraceuticals of other sources	• Soy food products and their health benefits • Other food as sources of nutraceuticals	1	2	a2,b1
11	Sports Drinks	• History and background • Sports drinks market • Considerations in the formulation of sports drinks • Sports drinks processing technology	2	4	a2,b1

		• Exercise and nutrient requirements • Future developments in sports drinks			
12	Human Milk and Infant Formula	• Proteins and peptide□based nutr aceuticals • Lipids in human milk • Carbohydrates in human milk • Vitamins in human milk • Minerals in human milk • Biological functions of human milk	1	2	a2,b1
13	Infant Formula	• Ingredient selection for infant formula • Formulation aspects of infant formula • Infant formula processing • Recent developments in infant formula formulation			
14		Final exam	1	2	a1,a2,b1
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:				
Order	**Tasks/ Experiments**	**Number of Weeks**	**Contact hours**	**Learning Outcomes**
1	Extraction of polyphenol and other bioactive compound from different foods	2	6	c1, c2
2	Determination total polyphenol	2	6	c1, c2
3	Determination of antioxidant activity using deferent assays	2	6	c1, c2
4	Preparation dietary fiber from different sources	2	6	c1, c2
5	Determination non-digestibility and	2		

	fermentation of dietary fiber		6	c1, c2
6	Study viability and activity of probiotic	2	6	c1, c2
7	Study activity of probiotic in present of prebiotic	2	6	c1, c2
Number of Weeks / hours Per Semester		14	42	

Course Specification

VII. Course Identification and General Information:						
1	**Course Title:**	**Socio-Cultural Aspects of Food and Nutrition**				
2	**Course Code &Number:**					
3	**Credit hours: 2**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-		-	**2**
4	**Study level/ semester at which this course is offered:**	Third year/second semester				
5	**Pre –requisite:**	Introduction to nutrition				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

VIII. Course Description:

The purpose of the course is to explain the influence of socio-cultural factors (economical, political, environmental, structural, product value and habits etc...) on food and nutrition. The course also exposes the student to the role of food taboos, food restrictions and food choices and preferences in shaping lives of individuals and groups. The impact of socioeconomic development on food habits and cultural patterns will be presented in the second section, while the significant role of women in food production, processing and distribution and the influence of this role on food and nutrition will be discussed in the third section. The course also aimed to equip the student with the knowledge and skills concerning traditional foods from different Yemini tribes The last section will cover the role of food in the development and prevention of diet- related diseases

and diseases associated with changes in life styles and cultural patterns.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	View of the social and cultural concepts.	• Introduction: viewing of the social and cultural concepts., Society and community; Definitions of society and community, Types of societies and communities	1	2	a1
2	Stages of development and its impact on food and nutrition	• Social organization, social interaction and social structure, • Elements of social structure: social status, social roles, social groups, social networks and social institutions, • Changes in social structure	1	2	a1
3	Stages of development and its impact on food and nutrition	• Social stratification and social mobility, Definition of Social stratification • .,Principles of social stratification	1	2	a1
4	Role of women in food production, processing and distribution	• Social mobility, Culture, What is culture?, Cultural components.	2	4	a4, a2

5	Role of women in food production, processing and distribution	• Food in culture and cultural food patterns, Causes of cultural changes	1	2	**a4, a2** a1
6	The effect of food habits and traditions on nutrition	• What is development?, Stages of development and modes of livelihood • ,Nutrition in traditional societies	2	4	**a4, a2** a1
7	The effect of food habits and traditions on nutrition	• Food production ,Food processing and preparation, Food distribution and marketing, • Basic needs approach and the role of women in basic needs	1	2	a1
8	Midterm exam		1	2	a7
9	The effect of food habits and traditions on nutrition	• **Food habits: personal beliefs and social influences, Social functions of food in** • **the society** •	1	2	a3
10	Food and health.	• **Impact of urbanization on food habits and nutrition status**	2	4	a6
11	Food and health.	• **Determinants of food choices, Changing food habits and life sty**	1	2	33, a5, a6

12	Food and health.	• **Food taboo and food restriction** • **Pregnancy and child taboos**			33, a5, a6
13	**Seminars**	• **Seminars on food cultures among different tribes in Yemen..**	1	2	a1,a7
14	Final exam		1	2	a1,a7
Number of Weeks /and Units Per Semester			**16**	**32**	

Course Specification of Research Methodology

VI. Course Identification and General Information:

1	**Course Title:**	**Research Methodology**					
2	**Course Number & Code:**						
3	**Credit hours:**	**C.H**				**Total**	
		Th.	**Pr.**	**Tr.**	**Seminar.**		
		2	**-**			**2**	
4	**Study level/ semester at which this course is offered:**	Level 3 /semester 2					
5	**Pre -requisite (if any):**	**Biostatistics**					
6	**Co -requisite (if any):**	Nil					
7	**Program (s) in which the course is offered:**	Bachelor degree of Clinical Nutrition and Dietetics					
8	**Language of teaching the course:**	English					
9	**Location of teaching the course:**	The Department theaters					
10	**Prepared by:**	Dr. Ahmed Abu-Taleb					
11	**Date of approval:**						

VII. Course description:

- This course introduces and discusses approaches, strategies and data collection methods relating to research in medical sciences. Students will consider how to select the appropriate methodology for use in a study to be performed. Additionally, these students will learn how to identify problems, development of theory, derivation of empirically testable hypotheses, and the analysis of quantitative and qualitative data. Finally, this course elucidates the requirements for scientific writing, considering aspects related to language, writing style, and

lay-out. To culminate this final stage, students will learn to write a comprehensive research proposal that may be conducted in the future.

VIII. Course Content:

1 - Course Topics/Items:

1 - Theoretical Aspect

Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Number of weeks	Contact hours
1-2	- **Introduction to Principle Concept of Research Methodology.**	a1-a7 b3 c1;c5 d1;d3	- Definition of Research - Characteristics of Research - Objectives of Research - Nature of Research - Importance of Research - Relevance of Research - Restrictions in Research - Research Process - Types of Research	2	4
3	- **Hypothesis**	a1-a5 b1;b3 c1-c3 d1-d2	- Meaning - Nature & Characteristics - Significance of Hypothesis - Types of Hypothesis - Sources of Hypothesis - Characteristics of Good Hypothesis	1	2
4-5	- **Types and Methods of Research**	a1-a7 b1-b3 c2-c3 d1-d3	- Pure and Applied Research - Exploratory or Formulate Research - Descriptive Research - Diagnostic Research - Evaluation Studies - Survey and case studies - Experimental Research - Analytical Study or Statistical Method	2	4
6-7	- **Sampling**	a2-a6 b1 c3-c4 d1-d2	- Aims of Sampling - Characteristics of Good Sample - Basis of Sampling - Advantages of Sampling - Limitations of Sampling - Sampling Techniques or Methods - Probability Sampling Methods - Non-Probability Sampling Methods	2	4

			- Sample Design and Choice of Sampling Technique		
8	- **Midterm Exam**			1	2
9	- **Review of Literature**	a3-a6 b1;b3 c1;c3 d1-d3	- Meaning of Review of Literature - Objectives of Review of Literature - Sources of Literature - Conduct the Review of Literature	1	2
10	- **Questionnaire Design**	a4-a7 b1;b3 c3-c4 d1-d2	- Introduction - Techniques for Designing Questionnaires - Types of Questions - Questionnaire construction	1	2
11	- **Methods and Techniques of Data Collection**	a3-a7 b1-b3 c3-c4 d1-d2	- Introduction - Distinction between primary data and secondary data - Data collection procedure for Primary data - Methods of data collection	1	2
12	- **Quantitative and Qualitative Tools**	a7 b2 c3 d1-d2	- Definition of Central Tendency - Characteristics of Central Tendency - Types of Measures of Central Tendencya. Mean b. Median c. Mode - Measures Dispersion	1	2
13	- **Report Writing**	a1-a7 b1-b3 c2-c4 d1-d3	- Meaning and Purpose of a Research Report - Characteristics and function of report - Types of report - Planning Report Writing		2
14	- **Review**	a1-a7	- General review		2
Number of Weeks /and Units Per Semester				**14**	**28**

13. *Courses specification 4th year 1st semester*

Course Specification

I. Course Identification and General Information:

1	**Course Title:**	**Food Control and Legislation**				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	1	-	**3**
4	**Study level/ semester at which this course is offered:**	Fourth year/first semester				
5	**Pre –requisite:**	Food Microbiology& Food analysis				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

This course will introduce student to concepts and principles of food hygiene, sanitation, and safety during food processing unit operations and HACCP. Also health hazards (biological, chemical, physical) associated with foods, Food premises sanitation, and preparation and prevention and control methods.

In practical part student will skills in methods and evaluation of microbiological food safety, chemical food safety, and personal, food plant and food packaging hygiene.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Characterization of Food Safety and Risks	• Definition of Food Safety and Hygiene • Characterization of Food Hazards • Importance of hygiene • Risk Analysis Frameworks for Chemical and Microbial Hazards • Dose-Response Modeling for Microbial Risk • Exposure Assessment of Microbial Food Hazards • Exposure and Dose-Response Modeling for Food Chemical Risk Assessment • Economic Consequences of Foodborne Hazards	2	4	a1,a2,a3
2	Food Hazards: Biological	• Prevalence of Foodborne Pathogens • Physiology and Survival of Foodborne Pathogens in Various Food Systems • Characteristics of Biological Hazards in Foods • Contemporary Monitoring Methods	2	4	a3,b2
3	Food Hazards: Chemical and Physical	• Hazards from Natural Origins • Chemical and	2	4	a3,b2

		Physical Hazards Produced During Food Processing, Storage, and Preparation • Hazards Associated with Nutrient Fortification • Monitoring Chemical Hazards: Regulatory Information • Hazards Resulting from Environmental, Industrial, and Agricultural Contaminants			
4		Midterm exam	1	2	a1,a2,a3, b2
5	Systems for Food Safety Surveillance and Risk Prevention	• Implementation of FSLS Regulatory Programs for Pathogen Reduction • Advances in Food Hygiene: Use of Intervention Strategies • Use of Surveillance Networks • Hazard Analysis Critical Control Point (HACCP)	2	4	a2
6	Food Safety Operations in Food Processing, Handling, and Distribution	• Food Plant Hygiene • Personal Hygiene • Food Safety Control Systems in Food Processing • Food Safety and hygiene in related to Innovative Food Packaging • Safe Handling of Fresh-Cut Produce	2	4	a2,b1

		and Salads • Good Manufacturing Practices: Prerequisites for Food Safety and Hygiene			
7	Food Safety in Retail Foods	• Commercial Food Service Establishments: The Principles of Modern Food Hygiene • Institutional Food Service Operations • Food Service at Temporary Events and Casual Public Gatherings	1	2	a2
8	World-Wide Food Safety Issues	• International Organization for Standardization IS0 9000 and Related Standards • impact of food safety and Hygiene on world trade issues • Sanitary Regulations: GMPs • United States Import/Export Regulation and Certification • European Union Regulations With an Emphasis on Genetically Modified Foods • FAO/WHO Food Standards Program: Codex Alimentarius	2	4	a2,a3,d1
9		Final exam	1	2	a1,a2,a3, b1,b2,d1
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:				
Order	**Tasks/ Experiments**	**Number of Weeks**	**Contact hours**	**Learning Outcomes**
1	Comparison of methods for food traceability	1	2	c1
2	The system of "qualified presumption of safety "in the safety assessment of microorganisms used.	1	2	c2
3	Methods and evaluation of microbiological food safety.	1	2	c3
4	Methods and chemical food safety	1	2	c3
5	Methods for evaluation and assessment of risks.	1	2	c3
6	Methods of personal hygiene	1	2	c3
7	Methods of food plant hygiene	1	2	c3
8	Methods of food packaging hygiene	1	2	c3
Number of Weeks / hours Per Semester		8	16	

Course Specification of First Aid

IX. Course Identification and General Information:

1	**Course Title:**	**First Aid**				
2	**Course Number & Code:**					
3	**Credit hours:**	**C.H**				**Total**
		Th.	**Pr.**	**Tr.**	**Seminar.**	
		2	2			3
4	**Study level/ semester at which this course is offered:**	Level 4/Semester 1				
5	**Pre -requisite (if any):**	Anatomy and Physiology				
6	**Co -requisite (if any):**	None				
7	**Program (s) in which the course is offered:**	Bachelor degree of Clinical Nutrition & Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	The Department theaters				
10	**Prepared by:**	Dr. Adel Ahmed Al Mutawakel				
11	**Date of approval:**					

X. Course description:

This course is designed to provide the Clinical Nutritional student with knowledge, skills and attitudes in the field of first aid enabling him/her to rescue injured persons and chronic patients in emergency situations as well.

XI. Course Content:

1 - Course Topics/Items:

a - Theoretical Aspect

Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Number of weeks	Contact hour
1	Introduction in first aid	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	Overview, purposes and importance of first aid, first aid principles, primary (DR ABC) and secondary (SAMPLE) screening, triage, history, signs and symptoms	1	2
2	Cardiopulmonary Resuscitation (CPR)	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	definition, technique and principles of mouth to mouth breathing and cardiac massage for infant, child and adult,	1	2
3	Awareness and level of conscious	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	Definition of coma, causes of coma, levels of responses (AVPU), Glasgow Conscious Scale (GCS), severe head injuries and stroke	1	2
4	Airway and breathing problems	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	Anatomy and physiology overview for respiratory system, assessment, principles, correct position for airway, first aid for obstruction of airway, asphyxia, aspiration, allergy, bronchial asthma, diphtheria, oxygenation, drowning, lungs injuries and ribs fracture	1	2
5	Circulation problems	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	Anatomy and physiology overview for cardiovascular system, assessment, principles, first aid for angina pectoris, heart attack, left ventricle failure and chock	1	2
6	Wounds and bleeding	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	Definitions of wounds, types of wounds, first aid for wounds, definition of bleeding, types of wounds, first aid for bleeding, bandages and wound dressing, remove foreign bodies from wounds, first aid for bleeding of nose, ears, vagina and anus, first aid for eyes injuries, first in amputation and crush cases,	1	2
7	Poisoning	a1, a2, a3,	Definition and types of poisons.	1	2

		b1, b2, b3, c1, c2, c3, d1, d2	Routes of entering of poisons, signs and symptoms of poisoning, first aid for poisoning.		
8	**Midterm exam**	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	Written evaluation (long and short answer question)	1	2
9	Burns	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	Anatomy and physiology overview of skin, definition of burns, determine risks of burns (SCALD Rule), causes of burns, first aid for burns	1	2
10	Bone, joints and muscles problems	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	Anatomy and physiology overview of bones, joints and muscles, definitions of bone fracture, causes of bone fractures, types of bone fractures, investigation of bone fracture, signs and symptoms of bone fracture, first aid for bone fractures, dislocation: definition; causes; signs and symptoms; investigation; first aid, spinal injuries: definition; causes; signs and symptoms; investigation; first aid; transport and moving patient with spinal injuries	1	2
11	Temperature disturbance	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	Anatomy and physiology of hypothalamus, normal temperature of human body, measuring body temperature, hyperthermia: hot stroke; definition; causes; signs and symptoms; investigation; first aid, hypothermia: cold biting; definition; causes; signs and symptoms; investigation; first aid	1	2
12	Diabetic coma	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	Anatomy and physiology of pancreas, hyperglycemia: definition; causes; signs and symptoms; investigation; first aid; hypoglycemia: definition; causes; signs and symptoms; investigation; first aid	1	2
13	Epilepsy and convulsions	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	Anatomy and physiology of central nervous system, epilepsy: definition; causes; types; signs and symptoms; investigation; first aid, convulsion: definition; causes; types; signs and symptoms; investigation; first aid	1	2
14	Animal and insect bits	a1, a2, a3, b1, b2, b3, c1, c2, c3,	Snack, dogs, scorpions, spiders bits: definition; risks; signs and symptoms; investigation; first aid	1	2

		d1, d2			
Number of Weeks /and Units Per Semester				**14**	**28**

b - Practical Aspect

Order	Tasks/ Experiments	CILOs (symbols)	Number of Weeks	Contact Hours
1	Primary and secondary screening	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	1	2
2	Cardiopulmonary Resuscitation (CPR)	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	1	2
3	Severe head injuries	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	1	2
4	Airway and breathing problems	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	1	2
5	Circulation problems	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	1	2
6	Wounds and bleeding	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	1	2
7	Midterm exam	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	1	2
8	Poisoning and burns	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	1	2
9	Bone, joints and muscles problems	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	1	2
10	Temperature disturbance	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	1	2
11	Diabetic coma	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	1	2
13	Epilepsy and convulsions	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	1	2
14	Animal and insect bits	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2	1	2
Number of Weeks /and Units Per Semester			**14**	**28**

Course Specification

Course Identification and General Information: .I						
1	**Course Title:**	**Nutritional education and counselling**				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	1	-	**3**
4	**Study level/ semester at which this course is offered:**	Fourth year/first semester				
5	**Pre –requisite:**	Nutrition and Physical Activity, Advance Human Nutrition& Nutrition Assessment				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

The course includes applying communication skills in the planning and implementing of nutrition education programs. The course includes the important of nutrition education in improving the dietary habits of individuals to protect them from diseases, and also to the methods of dietary counselling for patients, healthy individuals, small groups and communities.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Introduction	• Definitions of Counselling – Guidance • Purposes of nutritional counseling	1	2	a1

		• Role of counseling in guidance • Scope of counselling • Principles of counseling • The client counsellor relationship • Characteristics of an effective counselor • Dimensions of Counsellor functioning • Responsibilities of the nutrition counseller • Practitioner v/s client managed care • Conceptualizing entrepreneur skills and behaviour • Communication and negotiation skills. • Ethical issues in counseling.			
2	Counselling Skills	• Group and individual counseling, Diet counseling- different methods , the physical set-up, the dietitian's tools and records. • Handling the patient and the patient's family during counseling. Principle of family counseling. • Practical experience	1	2	a1

		in personal counseling and diet counseling			
3	Practical consideration in giving dietary advice and counselling	• Factors affecting and individual food choice. • Communication of dietary advice • Consideration of behaviour modification • Motivation.	1	2	a1
4	Techniques of counseling	• Direct and Indirect counseling • Techniques of individual management - play technique - psychochoma and group therapy – psychotherapy	2	4	a2
5	Behavioral therapy and Behavior modification	• Remedial and family therapy and Parent counseling • Use of drugs in the treatment of behavior problems • Techniques and follow up procedures.	1	2	a2
6	Midterm exam		1	2	a1,a2
7	Approaches to Counselling	• The Directive approach • Humanistic approach • Roger's Client centered approach • Behavioristic approach • Existential approach • The Minnesota	2	4	a2

		point of view • The Eclectic approach.			
8	The Counselling Process	• Assessing dietary habits • Identifying change need • Setting goal • Making dietary change • Identifying barriers to change	1	2	a2
9	Educational Guidance	• Guidance needs related to education • Aptitudes and Interests • Guidance at school level • Guidance towards life goals • Educational counseling.	1	2	a2
10	Vocational Guidance	• Theories of vocational development • The vocational counseling process • Exploration and contract setting • The state of critical decision.	2	4	a2
11	Teaching aids used by dietitians	• Charts, leaflets, posters etc., • Preparation of teaching material for patients suffering from Malnutrition, Obesity etc,	2	4	b1
12	Final exam		1	2	a1,a2,b1

Number of Weeks /and Units Per Semester	16	32	

B – Practical/clinical Aspect:				
Order	**Tasks/ Experiments**	**Number of Weeks**	**Contact hours**	**Learning Outcomes**
1	Teaching aids • Charts, leaflets, posters etc.,	4	12	b1,c1
2	Preparation of teaching material for patients suffering from energy - protein Malnutrition, anemias, Obesity etc,	4	12	b1,c1
Number of Weeks / hours Per Semester		8	24	

Course Specification

III. Course Identification and General Information:

1	**Course Title:**	**Economy and Nutrition**				
2	**Course Code &Number:**					
3	**Credit hours: 2**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	-	-	**2**
4	**Study level/ semester at which this course is offered:**	Fourth year/ first semester				
5	**Pre –requisite:**	Nutrition Through Life span				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

IV. Course Description:

This course equips students with the economic analysis methods most widely used in food and nutrition policy, to explain and predict food consumption and production choices, market interactions and government interventions in the food system. We use the analytical diagrams and data-visualization methods taught in standard courses on the principles of economics, applied to current news stories and data sources about

food and nutrition problems in the United States and around the world.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Introduction and housekeeping. ,	•	1	2	a3, b1, b2 c1,d1
2	What is economics? How is it useful?	•	1	2	a3, b1, b2 c1,d1
3	Market equilibrium and social welfare	•	1	2	a3, b1, b2 c1,d1
4	Government regulation and taxes	•	1	2	a3, b1, b2 c1,d1
5	Consumer behavior and food demand	•	1	2	a3, b1, b2 c1,d1
6	Farm production & food supply	•	2	4	a3, b1, b2 c1,d1,
7	Market structure	•	2	4	a3, b1, b2 c1,d1
8	Midterm exam		1	2	a3, b1, b2 c1,d1

9	Market failure and collective action	•	1	2	a3, b1, b2 c1,d1
10	Poverty, safety nets and risk	•	1	2	a3, b1, b2 c1,d1
11	Recessions, unemployment & inflation	•	1	2	a3, b1, b2 c1,d1
12	Growth, investment and agriculture	•	1	2	a3, b1, b2 c1,d1
13	Globalization, trade and the food system	•	1	2	a3, b1, b2 c1,d1
14	Final exam		1	2	a3, b1, b2 c1,d1
Number of Weeks /and Units Per Semester			**16**	**32**	

Course Specification

i. Course Identification and General Information:						
1	**Course Title:**	Maternal and Childhood Nutrition				
2	**Course Code &Number:**					
3	**Credit hours: 2**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-		-	**2**
4	**Study level/ semester at which this course is offered:**	Fourth year/first semester				
5	**Pre –requisite:**	Nutrition Through life span				
6	**Co –requisite :**	**-**				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

ii. Course Description:
The course content focuses on the nutrition during early stages of the life cycle: gestation, lactation, infancy, preschool, school age and adolescence. Topics include the fetal growth and nutritional requirements, breast and formula feeding of infants, infant weaning, and eating behaviors that lead to normal growth, growth faltering, and malnutrition.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	• Review: Concept of nutrition.	• Nutritional requirements during pregnancy. • Nutritional requirements during lactation. • Nutritional requirements during childhood.	1	2	a6
2	Complications of Pregnancy with Dietary Implications:	• Nausea and vomiting (morning sickness). • Heartburn. • Constipation and hemorrhoids. • Edema and leg-cramps. • Anemia. • Diabetes mellitus. • Pregnancy-induced hypertension. • Vaginal infections	1	2	a2
3	• High-Risk Pregnancies :	• Malnutrition and pregnancy • Malnutrition and fertility. • Malnutrition and early	1	2	a5

		pregnancy. • Malnutrition and fetal development. • Food assistance programs. • Maternal health. • The mother's age • Pregnancy in adolescents. • Pregnancy in older women.			
4	Impact of Nutritional Deficiencies or Excess on Human Pregnancy Outcome.	Life-style Factors that Impact on Pregnancy Outcome. Alcohol. Caffeine. Smoking. Exercise. Artificial sweeteners. Other diet and health concerns..	1	2	a2
5	Premature and Low-Birth Weight Infants	• Nutritional Support of Premature and Low-Birth Weight Infants: Enteral and • Parenteral Nutrition.	1	2	a3
6	Breastfeeding an Infant.	• Preparation. • The technique; breast feeding "learned behavior". • Value of breastfeeding /benefits of breastfeeding. • Duration of breastfeeding. • Exercise and breastfeeding. • Failure to thrive in breast-fed infants. • Other problems of breastfeeding.	1	2	a6

		• Maternal health and breastfeeding.			
7	Midterm exam		1	2	a1, a6
8	Artificial feeding and position of the baby during feeding	• Why other feeding can be harmful? • How to hold the baby? • Breastfeeding Newborns. • When breastfeeding infants. • Breastfeeding and child-spacing. • Common concerns in breastfeeding • Fear there is not enough milk. • Nipple concerns and problems. • Pain and swelling in the breasts. • Special situations • Babies with special needs can breastfeed. • HIV/AIDS and breastfeeding. • When a woman becomes pregnant	1	1	a6
9	Milk.	• Human milk: Anti-infective factors. • Cow's milk. • Comparison between the composition of human and cow's milk.	1	2	a1

		• Association between cow's milk and incidence of diabetes. • Goat's milk. • Changes in Mothers' Milk Composition during Lactation and Factors Influencing • the Occurred Changes.			
10	Drugs Excreted in Human Milk and their Effect on Mothers' and Infants' Health.	Formula-Feeding.	1	2	a6
11	Assessing nutritional adequacy	• Assessing nutritional adequacy	2	4	a5
12	Home-made Baby Food and Commercial Baby Food	• Home-made Baby Food and Commercial Baby Food	1	2	c1
13	Nutrition in Childhood	• Vitamin-mineral supplements. • Food intake patterns. • Factors influencing food intake • Family environment. • Social trends. • Media messages. • Peer influence. • Illness or disease. • Meal time with toddlers. • Introducing new foods. • Planning children's meals. • Hunger and behavior.	1	2	a6 a1

		• Picky eating.			
14	• Nutritional Concerns in Childhood	• Hunger and malnutrition. • Underweight and failure to thrive. • Malnutrition-lead connection. • Iron deficiency. • Food allergy and intolerance. • Calcium and bone health. • Autism spectrum disorders.	1	2	a6, a1. a5
15	• Growth and Developme nt in Children.	• Growth patterns. • Catch-up growth. • Growth references. • Assessing growth; • Assessment of body size and growth rate	1	2	a6, a1. a5
	Malnutrition	• Malnutrition and infection. • The impact of under nutrition during pregnancy or early childhood on cognitive • and behavioral development.(Malnutrition in Yemen). • Malnutrition and Diarrhea • Malnutrition and Acute Lower Respiratory Infections. • Malnutrition and Measles. • Malnutrition and			

		Malaria. • (Students should obtain data from the Ministry of Health).			
16		Final exam	1	2	a1,a7
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:				
Order	**Tasks/ Experiments**	**Number of Weeks**	**Contact hours**	**Learning Outcomes**
1	No Practical			
Number of Weeks / hours Per Semester				

14.Course Specification

I. Course Identification and General Information:						
1	**Course Title:**	**Research project**				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		-	-	-	3	**3**
4	**Study level/ semester at which this course is offered:**	Fourth year/ first semester				
5	**Pre –requisite:**	Some of courses				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

Research project allows the students to practically implement the theoretical knowledge as a small research study.

III. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
	Not applicable	-	-	-	-
Number of Weeks /and Units Per Semester					

B - Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes
1	The course will include selection of a topic, selecting the research design, planning and implementation of the research project, analysis of the results and presentation of the work as a written research project.	16	48	b1,c1
Number of Weeks /and Units Per Semester		16	48	

15. ***Courses specification 4th year 2nd semester***

16.

17. ***Course Specification***

I. Course Identification and General Information:

1	Course Title:	Current Trends in Nutrition and Dietetics				
2	Course Code &Number:					
3	Credit hours: 2	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
			2	-	-	2

4	**Study level/ semester at which this course is offered:**	Fourth year/ Second semester
5	**Pre –requisite:**	-
6	**Co –requisite :**	-
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics
8	**Language of teaching the course:**	English
9	**Location of teaching the course:**	Faculty of Medical Science
10	**Prepared By:**	
11	**Date of Approval**	2020

II. Course Description:

This course is designed to enable students to develop an understanding of current issues in nutrition and dietetics. The students will use learning and teaching methods and technology in presentation the topics, discussion and feedback.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
	Not applicable	-	-	-	-
Number of Weeks /and Units Per Semester			-	-	

B – Clinical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1	• Selection of a topic in current trends in Clinical Nutrition and Dietetics in in health and disease status • Selection the scientific methods of written • Presentation of the seminar as a written project. • Use learning and teaching methods and technology in presentation the topics	14	14	c1,d1,d2

	• Discussion and feedback. • Supervisor evaluation and decision			
2	Supervisor evaluation and decision	-	-	-
Number of Weeks / hours Per Semester		14	14	

Course Specification

I. Course Identification and General Information:

1	**Course Title:**	**Food Services Management**				
2	**Course Code &Number:**					
3	**Credit hours: 2**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	-	-	**2**
4	**Study level/ semester at which this course is offered:**	Fourth year/Second semester				
5	**Pre –requisite:**	Food Processing, communication skills				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

This course is introduces student to uunderstand the basic concepts and principles of management in food services. Accept responsibilities in catering establishment and hospitals and become conscientious caterer and food service administrator.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes

1	Food service	• Classification of food service: ○ Method of Processing: Types of food service systems: Conventional systems, Commissary system, read prepared system and assembly – service system. ○ Styles of Service: Service of food- self service, tray service, Waiter – Waitress Service and portable service. • Meal Planning; ○ Menu: Types of menu, Principles involved in menu Planning: Yemen and Western, menu planner, why menu Planning; techniques in writing menu card.	2	4	a1
2	Food services Industry	• Types of catering - history of development - commercial - Hotel, Motel, Restaurant, Cafeteria and Chain hotels. • Welfare: Hospital, School lunch, Residential	1	2	a1,d1

		establishment and Industrial catering. • Transport: Air, Rail, Sea and Space, Miscellaneous - Contract and outdoor.			
3	Physical plant	• Place of art in everyday life - Importance of good taste - objectives of Interior design. • Design elements - types of design - principles of design - Harmony, Proportion, balance rhythm and emphasis. • Layer of food service units - Planning of areas as work units with relevant spacing.	1	2	a1
4	Quantity Food Purchasing and Storage.	• Purchasing: Purchasing officer, duties, purchasing procedure, selection of supplier, methods of purchasing, purchase specifications. • Receiving: Procedure and forms. • Storing and issuing: Objectives, types of store records, and stores issues.	1	2	a1
5	Quantity Food Production and Service.	• Quality standards and control • Standardization of recipes • Portion control: Utilization of left over	1	2	a1

		foods. • Ways and means of creating good atmosphere (Interior decoration) • Informal and formal service styles (Table Service)			
6	Food Cost Control	• Principles of food cost control • elements of cost-food cost • labour cost and over head expenses; why good cost control; factors responsible for losses in a food service industry; methods of controlling goods costs leading to profit; costing of dishes, meals and events; methods of pricing items.	1	2	a1
7		Midterm exam	1	2	a1,d1
8	Equipments and Furnishings	• Equipment need; Classification of equipment, factors involved in selection of equipments; purchase of equipment, operational know-how, care and maintenance of equipments; dining room furnishings. • Materials Used: Base materials used in the manufacture of equipments, materials	1	2	a1

		used for finishes, materials used in the manufacture of dining room furnishings.			
9	Principles of Resource Management	• Definition, Management Process: planning, controlling evaluating goals, values and standards. • Decision making: concepts, types of decisions, steps in decision making, methods of resolving conflicts. • Resource Management: Classification, characteristics, factors affecting the use of resources. • Management of time, energy and money: Time management - Time norms, plans and time management.	2	4	a2
10	Principles of Resource Management	• Energy management - Fatigue: types and causes of fatigue - principles and techniques Mundel's class of changes - work simplification. Personal management, recruitment and selection. • Induction, training: Supervision and Dismissal of employees - Legal controls - Labor	2	4	a2

		policies and welfare measures. • Money management: Types of income - management process applicable to money - planning, controlling and evaluating - the use of income - elements of buy man ship. • Cost control, food cost, labor overheads and projects.			
11	The tools of management	• Function of management • Managerial management • The requisites managerial management skills • Managerial activities and roles • Tools of management • The functions performed by manager	1	2	a1
12	The computer in catering:	• Use of computer for the control of : o Stock o Recipes o Menus.	1	2	d2
13		Final exam	1	2	a1,a2,d1, d2
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:				
Order	**Tasks/ Experiments**	**Number of Weeks**	**Contact hours**	**Learning Outcomes**
1	• Visiting star hotels to gain practical knowledge on the styles of food service. o Work simplification: food preparation, Calculating work unit, time norms etc. o Costing, accounting, budgeting, purchase. o Storekeeping: Listing and management of food items in the store. o Personnel recruitment: Preparations of a project and report making. o Maintenance of the clothing for persons and staff involved in kitchen area. o Prepare an inventory for evaluating staffs personal hygiene.	2	6	c1
2	• Table setting and service: o Appraising and drawing silver cutlery and crockery Folding of Napkins o Laying of table cloth, table mats o Arrangement of cover and table o Appointment according to the menu o Serving food at the table clearing of the table.	4	12	c1, c2
3	• Standardization any 3 selected quantity recipes and their preparation.	2	6	c1, c2

	• Calculation of nutritive value, yield of cost per serving – size of serving.			
4	• Quantity Cookery: Preparation of Yemen and Western menu for 20 members.	2	6	c2
5	• Organizing, preparing and serving one special meals for 20 members.	2	6	c2
6	• The computer in catering for the control of: o Stock o Recipes o Menus.	2	6	d2
Number of Weeks / hours Per Semester		14	42	

Course Specification

I. Course Identification and General Information:						
1	**Course Title:**	**Nutritional for people of special demands**				
2	**Course Code &Number:**					
3	**Credit hours: 2**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	-	-	**2**
4	**Study level/ semester at which this course is offered:**	Fourth year/Second semester				
5	**Pre –requisite:**	Clinical Nutrition I & Clinical NutritionII				
6	**Co –requisite :**	**-**				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

Students in this course study in deep the dietary management of acute diseases, in which the diet plays an important role in the treatment, relieving or in the prevention of those diseases. Also the course covers the role of nutrition in the treatment of metabolic stress cases (e.g. burns, surgery, injuries, cancer) and the metabolic changes that occurs after exposure to a metabolic stress stimulus (. The practical part of the course include presenting some class-case studies and hospital visits to teach the student on how to obtain the information from the medical record, analyze it, and how to write a nutrition report, and also to be more familiar with the diet therapy of the diseases that covers in the theoretical part of the course.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Nutrition support in metabolic disorders	• Nutrition support in metabolic disorders.	1	2	a1,d1,d2
2	Nutrition in surgery	• Surgical conditions • Dietary guidelines in Pre-Operative and Post-Operative conditions.	1	2	a1,d1,d2
3	Diet in cancer	• Symptoms • Risk factors • modification of diet in cancer • Nutritional problems of cancer therapy • Role of antioxidants in the prevention of degenerative diseases	1	2	a1,d1,d2
4	Diet in burns	• Etiology • symptoms • Complications • Dietary treatment.	1	2	a1,d1,d2
5	Diet in fever	• Pathophysiology of	2		a1,d1,d2

	and infections	fever and metabolic changes during fever. • Types of fever. • Dietary guidelines for fever and infections.		4	
6	Midterm exam		1	2	a1,d1,d2
7	Nutrient drug interaction	• Etiology • Symptoms • Complications • Dietary treatment	2	4	a1,b1,d1, d2
8	Diet in Trauma	• Etiology • Symptoms • Complications • Dietary treatment.	1	2	a1,d1,d2
9	Diet in influenza, typhoid fever and Tuberculosis	• Etiology • Symptoms • Complications • Dietary treatment.	2	4	a1,d1,d2
10	Feeding the patients with Psychological conditions	• Assessment of patient needs. • feeding the patient	1	2	a1,d1,d2
11	Feeding infants & children	• Problems in feeding children in hospitals. • Feeding infants & children	1	2	a1,d1,d2
12	Nutrition & diet clinics	• Patients' checkup and dietary counseling • Educating the patient and follow up.	1	2	a2,d1,d2
13	Final exam		1	2	a1,a2,b1, d2,d1
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:				
Order	**Tasks/ Experiments**	**Number of Weeks**	**Contact hours**	**Learning Outcomes**
1	Presenting some class-case studies and hospital visits to teach the student on how to obtain the information from the medical record, analyze it, and how to write a nutrition report.	1	3	c1
2	Planning and preparing of diets for the Cancer	1	3	c1
3	Planning and preparing of diets for the Burns	2	6	c1
4	Planning and preparing of diets for the Trauma	1	3	c1
5	Planning and preparing of diets in influenza, typhoid fever and Tuberculosis	2	6	c1
6	Planning and preparing of diets for the Fever and infections	1	3	c1
7	Planning and preparing of diets for the Surgical conditions	1	3	c1
8	Planning and preparing of diets for the Metabolic disorders.	1	3	c1
9	Planning and preparing of diets for the Addictive behaviour in anorexia, nervosa, bulimia & alcoholism.	1	3	c1
10	Planning and preparing of diets for the Drug interaction.	1	3	c1
11	Planning and preparing of diets for the Psychology patient	1	3	c1
12	Final exam	2	6	c1
Number of Weeks / hours Per Semester		15	45	

Course Specification

Course Identification and General Information:						
1	**Course Title:**	**Public Health Nutrition**				
2	**Course Code &Number:**					
3	**Credit hours: 2**	C.H				TOTAL
		Th.	Seminar	Pr.	Tr.	
		2	-	-	-	2
4	**Study level/ semester at which this course is offered:**	Fourth year/Second semester				
5	**Pre –requisite:**	Community Nutrition,NutritionalAssessment				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

Course Description:

This course is designed for students to practice public health for the individuals, families and communities at both urban and rural settings by using concept and principles of prevention, promotion and maintenance of health.

Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Introduction to public health	• Definition of Community, Health, and public health. • Factors essential for optimal Community health • Factors affecting the health of any community • Community health problems	1	2	a1
2	Primary health care	• Concepts of PHC • Importance of PHC • Elements of PHC • Principles of PHC	1	2	a1,d1,d1
3	Reproductive health	• Définition • Objective • Components • Family planning : definition, objectives and Methods of family planning	2	4	a1,b1,d1, d1
4	Expended program on imunization in Yemen	• Definition • Immunity • Expended program on immunisation in Yemen : • Immunisation of neonatal in Yemen • Immunisation of reproductive age females in Yemen	1	2	a4,d1,d2
5	School health program	• Definition • Components of School health program • Health education in the school • Growth monitoring in the school • Assessment of students' health status and identification of health problems (case finding) • Case referral • First aid in the school • Nature of growth and development of the school-aged child • Needs and problems common to the school-aged child • School environment	1	2	a2,b1,d1, d2
6		Midterm exam	1	2	a1,a2,b1,d 1,d2
7	Environmental health	• Introduction • Concepts related to environmental health • Components of environment • Physical • Biological • Social • Major environmental problems • Effect of environmental hazards on people's health	2	4	a1,b1,d1, d2

		• **Water**
		• Introduction
		• Purposes of water
		• Requirement of water
		• Safe and wholesome water (Characteristicsof clean water)
		• Sources of water supply
		  ○ Rain water
		  ○ Surface water
		  ○ Ground water
		• Water pollution:
		• Sources of water pollution
		• Hazard of Water pollution:
		• Biological hazards:-
		  ○ water borne diseases
		  ○ Water-based disease
		  ○ Water-washed diseases
		  ○ Water-breeding diseases
		• Chemical hazards
		• Purification of water
		• Purification of water on a large scales
		  ○ Storage
		  ○ Filtration
		  ○ Disinfection
		• Purification of water on a small scales
		  ○ Boiling
		  ○ Chemical
		  ○ Domestic
		• **Refuse disposal:**
		• Types
		• Hazards of waste
		• Methods of refuse disposal			

8	Occupational health and safety	• Definition • Aims • Hazards and problems • Protective measures and devices	1	2	a2,b1,b3

9	Epidemiology of common Communicable Diseases	• Magnitude of communicable disease in Yemen, both general and specific
		• General and specific factors associated with communicable diseases
		• Epidemiology of:
		  ○ Tuberculosis
		  ○ Malaria
		  ○ Schistosomiasis
		  ○ Dengue Fever
		  ○ Cholera
		• Prevention and control of communicable diseases
			3	6	a3,b1,d1, d2

10	Epidemiology a of non-communicable diseases	• Overview of key chronic diseases in Yemen
		• Epidemiology of:
		  ○ Diabetes
		  ○ Accident and injuries
		  ○ Cancer
			2	4	a3,b1,d1, d2

12		Final exam	1	3	a1,a2,a3, b1,d1,d2
		Number of Weeks /and Units Per Semester	**16**	**32**	

Course Specification

I. Course Identification and General Information:

1	**Course Title:**	**Food Processing**				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	1	-	**3**
4	**Study level/ semester at which this course is offered:**	Fourth year/second semester				
5	**Pre –requisite:**	Principle of Food Sciences &Food Analysis				
6	**Co –requisite :**	**-**				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

This course will introduce student to concepts and principles of food processing. Methods of processing different food, production procedures and raw materials preparation.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
1	Introduction	• Introduction to food industry and food processing • Concept of processing • Importance of processing • Milk Quality and Composition: o Milk Proteins o Milk Lipids o Milk Carbohydrates and Other Organic Compounds	1	2	a1,a3
2	Dairy Processing	• Pasteurization • Sterilization • Ultra heat treatment	1	2	a3
3	Cheese Processing	• Categories of Cheese • Coagulation Type • Ripening Method. • Texture • Raw Materials Preparation: o Pretreatment of Milk o Unripened, Acid-coagulated Milk • Curd Formation o Initial Ripening of Milk o Enzymatic Coagulation of the Milk Proteins o Cutting, Cooking, Salting, and Forming of the	1	2	a3

		Curd • Chemistry of Cheese Ripening/Aging ○ Metabolism of Carbohydrate and Lactic Acid ○ Changes in Protein ○ Changes in Lipids			
4	Yogurt Processing	• Raw Materials Preparation ○ Dairy Ingredients ○ Yogurt Starters ○ Sweeteners ○ Stabilizers ○ Fruit Preparations for Flavoring Yogurt • Processing ○ Production of Yogurt Starters ○ Mix Preparation ○ Heat Treatment ○ Homogenization ○ Fermentation - Contribution of the Culture to Yogurt Texture and Flavor - Changes in Milk Constituents	1	2	a2, a3
5	Butter Processing	• Definitions of dairy spreads • Definition of Butter • Sweet and Sour cream butter • Butter making • Churning	1	2	a2, a3
6	Ice cream Processing	• Raw Materials Preparation • Processing Stage 1	1	2	a2, a3

		○ Blending ○ Pasteurization ○ Homogenization ○ Cooling • Processing Stage 2 ○ Flavoring and Coloring ○ Freezing ○ Packaging ○ Hardening ○ Frozen Storage • Finished Product			
7		Midterm exam	1	2	a1,a2,a3
8	Meat, Fish , poultry and Egg Processing	• Meat Processing • Fish Processing • poultry Processing • Egg Processing.	1	2	a2, a3
9	Non-alcoholic Carbonated Beverages	• Background Information ○ Carbonation Science ○ Process Overview • Raw Materials Preparation ○ Concentrate ○ Water ○ Sweetener ○ CO2 • Syrup Preparation • Carbonation • Filling, Sealing, and Packing • Quality Control and Assurance • Finished Product	1	2	a2, a3
10	Cacao Processing	• Cacao butter • Chocolate	1	2	a2, a3
11	Bread Processing	• Yeast leaven bread • Background Information:	1	2	a2, a3

		○ White-pan Bread Quality Criteria • Raw Materials Preparation ○ Wheat Selection ○ Wheat Kernel Structure ○ Milling • Postmilling Treatments ○ Flour Selection and Functionality ○ Proteins ○ Carbohydrates ○ Lipids • Other Essential Bread Ingredients ○ Water ○ Yeast ○ Salt • Optional Ingredients ○ Sugar ○ Fats ○ Yeast Foods ○ Surfactants ○ Mold Inhibitors ○ Milk Products • Bread Production Procedures ○ Sponge and Dough Procedures ○ Sponge Formation and Fermentation ○ Adding and Mixing the Nonsponge Ingredients ○ Dough Development ○ Dough Makeup ○ Dough Division and Rounding			

		○ Intermediate Proof ○ Sheeting, Molding, and Panning ○ Final Proofing • Finished Product ○ Baking ○ Staling			
12	MuffinsProcessing	• Raw Materials Preparation: Selection and Scaling of ○ Ingredients ○ Flour ○ Sugar ○ Fat ○ Leavening Agents ○ Whole Eggs ○ Nonfat Dry Milk Powder ○ Sodium Chloride ○ Liquids ○ Additional Ingredients • Processing ○ Stage 1: Mixing ○ Stage 2: Depositing ○ Stage 3: Baking ○ Stage 4: Cooling ○ Stage 5: Packaging	1	2	a2, a3
13	Oil Processing	• Background Information • Raw Materials Preparation ○ Extraction ○ Rendering of Animal Fat ○ Rendering of Marine Fats (Oils) ○ Extraction of Plant Fats • Optional Processing	1	2	a2, a3

		Steps ○ Dewaxing ○ Hydrogenation ○ Interesterification ○ Winterizing/Fractionation ○ Plasticizing/ ○ Tempering • Finished Product			
14	Jam, jellies and orange juice Processing	• Jam Processing • Jellies Processing • Orange juice Processing	1	2	a2, a3
15	Vegetable: Tomato Processing	• Background Information • Raw Materials Preparation ○ Grading ○ Washing ○ Sorting ○ Coring and Trimming • Canned Whole or Sliced Tomato Production ○ Peeling ○ Manual Sorting ○ Filling, Additives and Containers ○ Exhausting and Sealing ○ Canning/Retorting ○ Cooling	1	2	a2, a3
16		Final exam	1	2	a1,a2,a3,
Number of Weeks /and Units Per Semester			**16**	**32**	

B – Practical/clinical Aspect:				
Order	**Tasks/ Experiments**	**Number of Weeks**	**Contact hours**	**Learning Outcomes**
1	Preparation of sterilized and pasteurized milk	2	4	c1

2	Preparation of soft cheese	1	2	c1
3	Preparation of yoghurt	1	2	c1
4	Preparation of cake, biscuits and cookies	3	6	c1
5	Preparation of jam and jellies	2	4	c1
6	Preparation of dehydrate products	1	2	c1
7	Visit to a well-established bakery unit, and different factory of food.	2	4	c2
8	Final exam	2	4	c1,c2
Number of Weeks / hours Per Semester		14	28	c1,c2

V. Teaching strategies of the course:

1. Lecture - Discussion
2. Practical session

VI. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	Write about bakery	a2	5-10	5

*18.**Course Specification***

III. Course Identification and General Information:

1	**Course Title:**	**Special Topics in Nutrition and Dietetics (Seminar)**				
2	**Course Code &Number:**					
3	**Credit hours: 2**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		-	2	-	-	**2**
4	**Study level/ semester at which this course is offered:**	Fourth year/ Second semester				
5	**Pre –requisite:**	-				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the**	English				

	course:	
9	**Location of teaching the course:**	Faculty of Medical Science
10	**Prepared By:**	
11	**Date of Approval**	2020

IV. Course Description:

This course is designed to enable students to develop an understanding of basic concepts and principles of written and presenting a seminar that related to Clinical Nutrition and Dietetics . The students will use learning and teaching methods and technology in presentation the topics, discussion and feedback.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
	Not applicable	-	-	-	-
Number of Weeks /and Units Per Semester			-	-	

B – Clinical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1	• Selection of a topic in Clinical Nutrition and Dietetics in in health and disease status • Selection the scientific methods of written • Presentation of the seminar as a written project. • Use learning and teaching methods and technology in presentation the topics • Discussion and feedback. • Supervisor evaluation and decision	14	14	c1,d1,d2
2	Supervisor evaluation and decision	-	-	-

Number of Weeks / hours Per Semester	14	14	

Course Specification

I. Course Identification and General Information:						
1	**Course Title:**	**Internship in Clinical Nutrition I**				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		-	-	-	3	**3**
4	**Study level/ semester at which this course is offered:**	Internship				
5	**Pre –requisite:**	Clinical Nutrition I				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

The students have to spend 3 credit hours/week in training and practicing clinical nutrition in a form of training rounds in approved hospital wards and specialized health centers, under joint academic supervision of the of Applied Medical Sciences and administrative supervision of the staff members of hospital wards and specialized diseases. This course will gives the student opportunity to acquire the skills that necessary to practicing as a clinical nutrition specialized. The course gives the opportunity to the students for planning, treatment and follow-up patients for the following cases (e.g overweight and underweight conditions, Upper GI tract disease, febrile conditions, Gastro - intestinal disorders, Anaemias, Diseases of the liver, and gall, bladder).

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
	Not applicable	-	-	-	-
Number of Weeks /and Units Per Semester			-	-	

B – Clinical Aspect:				
Order	**Tasks/ Experiments**	**Number of Weeks**	**Contact hours**	**Learning Outcomes**
1	Enteral and Parenteral nutrition	1	3	c1,d1,d2,d3
2	Energy modifications and nutritional care for weight management	1	3	c1,d1,d2,d3
3	Diet in cancer	2	6	c1,d1,d2,d3
4	Medical Nutritional Therapy for burns and Trauma	2	6	c1,d1,d2,d3
5	Diet in fever, infectionsand Surgical conditions	1	3	c1,d1,d2,d3
6	Medical Nutritional Therapy for lower intestinal tract disease	2	6	c1,d1,d2,d3
7	Medical Nutritional Therapy for Upper intestinal tract disease	2	6	c1,d1,d2,d3
8	Diet for Anaemias	2	6	c1,d1,d2,d3
9	Final exam	1	3	c1,d1,d2,d3
Number of Weeks / hours Per Semester		14	42	

Course Specification

V. Course Identification and General Information:						
1	**Course Title:**	**Internship in Clinical Nutrition II**				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		-	-	-	3	**3**
4	**Study level/ semester at which this course is offered:**	Internship				
5	**Pre –requisite:**	Clinical Nutrition II				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					

11	Date of Approval	2020

VI. Course Description:

The students have to spend 3 credit hours/week in training and practicing clinical nutrition in a form of training rounds in approved hospital wards and specialized health centers, under joint academic supervision of the of Applied Medical Sciences and administrative supervision of the staff members of hospital wards and specialized diseases. This course will gives the student opportunity to acquire the skills that necessary to practicing as a clinical nutrition specialized. The course gives the opportunity to the students for planning, treatment and follow-up patients for the following cases coronary heart diseases, diabetes, diseases of the renal, etc.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
	Not applicable	-	-	-	-
Number of Weeks /and Units Per Semester			-	-	

B – Clinical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1	Medical Nutritional Therapy in diseases of the liver, gall bladder and pancreas	2	6	c1,d1,d2,d3
2	Medical Nutritional Therapy in Diabetes mellitus	2	6	c1,d1,d2,d3
3	Medical Nutritional Therapy in Cardiovascular diseases	2	6	c1,d1,d2,d3
4	Medical Nutritional Therapy in Hypertension	1	3	c1,d1,d2,d3
5	Medical Nutritional Therapy in Renal diseases	3	9	c1,d1,d2,d3
6	Medical Nutritional Therapy in allergy	1	3	c1,d1,d2,d3
7	Medical Nutritional therapy in diseases of musculo-skeletal system	2	6	c1,d1,d2,d3
8	Medical Nutritional Therapy in	1		c1,d1,d2,d3

	immunodeficiency disorders & HIV/AIDS		3	
9	Final exam	1	3	c1,d1,d2,d3
Number of Weeks / hours Per Semester		15	45	

Course Specification

I. Course Identification and General Information:

1	**Course Title:**	**Internship in food services management**				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		-	-	-	3	3
4	**Study level/ semester at which this course is offered:**	Internship				
5	**Pre –requisite:**	Food Services Management				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

II. Course Description:

The students have to spend 3 credit hours/week in training and practicing food services management in a form of training rounds in approved hospital wards and specialized health centers, under joint academic supervision of the of Applied Medical Sciences and administrative supervision of the staff members of hospital wards and specialized diseases. This course will gives the student opportunity to acquire the skills that necessary to practicing as a food services management specialized.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes

	Not applicable	-	-	-	-
Number of Weeks /and Units Per Semester			-	-	

B – Clinical Aspect:				
Order	**Tasks/ Experiments**	**Number of Weeks**	**Contact hours**	**Learning Outcomes**
1	• Training on the styles of food service	2	6	c1,d1,d2,d3,d4
2	• Table setting and service	2	6	c1,d1,d2,d3,d4
3	• Standardization any 3 selected quantity recipes and their preparation. • Calculation of nutritive value, yield of cost per serving – size of serving.	2	6	c1,d1,d2,d3,d4
4	• Quantity Cookery: Preparation of Yemen and Western menu for 20 members.	2	6	c1,d1,d2,d3,d4
5	• Organizing, preparing and serving one special meals for 20 members.	2	6	c1,d1,d2,d3,d4
6	Final exam	2	6	c1,d1,d2,d3,d4
Number of Weeks / hours Per Semester		12	36	

Course Specification

I. Course Identification and General Information:						
1	**Course Title:**	**Internship in nutritional counselling**				
2	**Course Code &Number:**	**CND26**				
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		-	-	-	3	3
4	**Study level/ semester at which this course is offered:**	**Internship**				
5	**Pre –requisite:**	Nutritional Education and Patient Counseling				

6	**Co –requisite :**	-
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics
8	**Language of teaching the course:**	English
9	**Location of teaching the course:**	Faculty of Medical Science
10	**Prepared By:**	
11	**Date of Approval**	2020

II. Course Description:

The students have to spend 3 credit hours/week in training and practicing of nutrition education and counselling in a form of training rounds in approved hospital wards and specialized health centers, under joint academic supervision of the of Applied Medical Sciences and administrative supervision of the staff members of hospital wards and specialized diseases. This course will gives the student opportunity to acquire the skills that necessary to practicing of communication skills in the planning and implementing of nutrition education programs.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
	Not applicable	-	-	-	-
Number of Weeks /and Units Per Semester			-	-	

B – Clinical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1	• Improving the dietary habits of individuals to protect them from diseases • Use methods of dietary counselling for patients, healthy individuals, small groups and communities. • Teaching aids • Preparation of teaching material for patients	12	36	c1,d1,d2,d3

2	Final exam	2	6	c1,d1,d2,d3
Number of Weeks / hours Per Semester		14	42	

Course Specification

VII. Course Identification and General Information:

1	**Course Title:**	**Dietetic Internship in the Wards**				
2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	F Tr.	
		-	-	-	3	**3**
4	**Study level/ semester at which this course is offered:**	**Internship**				
5	**Pre –requisite:**	Some of courses				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

III. Course Description:

The students have to spend 3 credit hours/week in training and practicing clinical nutrition in a form of training rounds in approved hospital wards and specialized health centers, under joint academic supervision of the of Applied Medical Sciences and administrative supervision of the staff members of hospital wards and specialized diseases. This course will gives the student opportunity to acquire the skills that necessary to practicing as a clinical nutrition specialized.

The course gives the opportunity to the students for planning, treatment and follow-up patients for the following cases coronary heart diseases, diabetes, diseases of the renal, etc.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
	Not applicable	-	-	-	-
Number of Weeks /and Units Per Semester			-	-	

B – Clinical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1	Medical Nutritional Therapy in diseases of the liver, gall bladder and pancreas	2	6	c1,d1,d2,d3
2	Medical Nutritional Therapy in Diabetes mellitus	2	6	c1,d1,d2,d3
3	Medical Nutritional Therapy in Cardiovascular diseases	2	6	c1,d1,d2,d3
4	Medical Nutritional Therapy in Hypertension	1	3	c1,d1,d2,d3
5	Medical Nutritional Therapy in Renal diseases	3	9	c1,d1,d2,d3
6	Medical Nutritional Therapy in allergy	1	3	c1,d1,d2,d3
7	Medical Nutritional therapy in diseases of musculo-skeletal system	2	6	c1,d1,d2,d3
8	Medical Nutritional Therapy in immunodeficiency disorders & HIV/AIDS	1	3	c1,d1,d2,d3
9	Final exam	1	3	c1,d1,d2,d3
Number of Weeks / hours Per Semester		15	45	

Course Specification

IX. Course Identification and General Information:

1	**Course Title:**	**Dietetics Internship in Special Units**

2	**Course Code &Number:**					
3	**Credit hours: 3**	C.H				TOTAL
		Th.	Seminar	Pr	F Tr.	
		-	-	-	3	**3**
4	**Study level/ semester at which this course is offered:**	Internship				
5	**Pre –requisite:**	Some of courses				
6	**Co –requisite :**	-				
7	**Program (s) in which the course is offered:**	Clinical Nutrition and Dietetics				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Medical Science				
10	**Prepared By:**					
11	**Date of Approval**	2020				

X. Course Description:

The students have to spend 3 credit hours/week in training and practicing clinical nutrition in a form of training rounds in approved Special Units of hospital and specialized health centers, under joint academic supervision of the of Applied Medical Sciences and administrative supervision of the staff members of hospital wards and specialized diseases. This course will gives the student opportunity to acquire the skills that necessary to practicing as a clinical nutrition specialized. The course gives the opportunity to the students for planning, treatment and follow-up patients for the following cases coronary heart diseases, diabetes, diseases of the renal, etc.

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	No. of Weeks	Contact hours	Learning Outcomes
	Not applicable	-	-	-	-
Number of Weeks /and Units Per Semester			-	-	

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1	Medical Nutritional Therapy in	2		

	diseases of the liver, gall bladder and pancreas		6	c1,d1,d2,d3
2	Medical Nutritional Therapy in Diabetes mellitus	2	6	c1,d1,d2,d3
3	Medical Nutritional Therapy in Cardiovascular diseases	2	6	c1,d1,d2,d3
4	Medical Nutritional Therapy in Hypertension	1	3	c1,d1,d2,d3
5	Medical Nutritional Therapy in Renal diseases	3	9	c1,d1,d2,d3
6	Medical Nutritional Therapy in allergy	1	3	c1,d1,d2,d3
7	Medical Nutritional therapy in diseases of musculo-skeletal system	2	6	c1,d1,d2,d3
8	Medical Nutritional Therapy in immunodeficiency disorders & HIV/AIDS	1	3	c1,d1,d2,d3
9	Final exam	1	3	c1,d1,d2,d3
Number of Weeks / hours Per Semester		15	45	