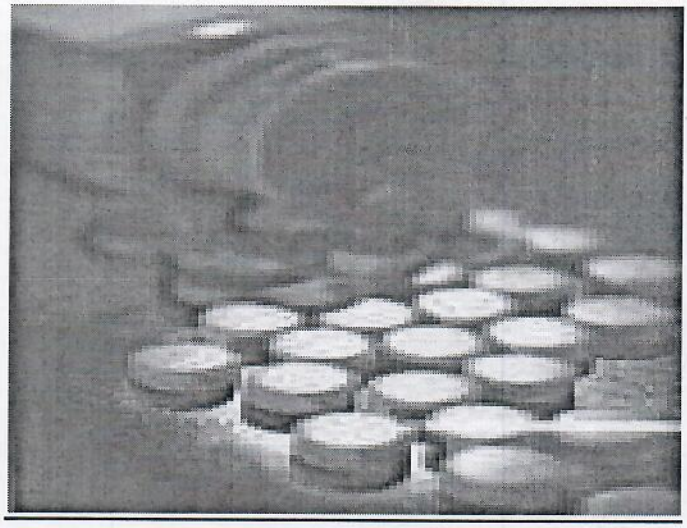
Pharmacy Technicians Diploma

Course Specification

منهج فني الصيدلة نظام ثلاث سنوات



مـقدمـة

يسعى برنامج دبلوم فنيي الصيدلة لتأهيل كوادر وطنية على درجة عالية من الكفاءة العلمية والمهنية للعمل في المجال الفني للصيدلة تحت إشراف الصيدلي المختص للقيام بالأعمال الآتية:

- المساعدة في عمليات صرف الدواء وتأمينه وتحضيره تحت إشراف الصيدلي المسئول
- المشاركة في تركيب الأدوية تحت إشراف صيدلي مختص
- استعمال المراجع العلمية ووسائل المعلومات الدوائية والطبية وطرق الاتصال والمشاركة الفعالة مع الفريق الطبي
- المشاركة في تحضير الأدوية والمحاليل الوريدية وكذلك التغذية الوريدية

هذا المنهج تم إعداده وتصميمه لطلاب فنيي الصيدلة نظام ثلاث سنوات بعناية واهتمام كبير من اجل أن يزود الطلاب بتعليم وتدريب ذو جودة عالية لتغطية كافة الاحتياجات المعرفية ويكسبه المهارات الذهنية والعملية حتى يتمكن من العمل بكفاءة في أي حقل من حقول مهنة الصيدلة.

Republic of Yemen

Ministry of Technical Education and Vocational Training

Supreme Council of Community Colleges

Applied College of Science & Technology

Thamar

الجمهورية اليمنية

وزارة التعليم الفني والتدريب المهني

المجلس الأعلى لكليات المجتمع

الكلية التطبيقية للعلوم والتكنولوجيا

ذمـــار

Course Specification of pharmacy law and Ethics

المقرر: قوانين واخلاقيات الصيدلة

الأهداف التعليمية:-

١. يكتسب المفاهيم العامة للأخلاقيات الجيدة وأثرها في حياة الفرد.
٢. يعدد مبادئ وتعاليم الإسلام ومصادرها وأسسها.
٣. يحدد الأخلاقيات التي يدعو الإسلام إليها ويتحلى بها.
٤. يشرح رأي الإسلام في القضايا المعاصرة ويقدم الحلول لها .
٥. يثقف المجتمع حول العادات الضارة التي ظهرت فيه.
٦. يلم بالقوانين الطبية واللوائح المنظمة للمهنة.
٧. يدرك أهميه تجنب الأخطاء في المهنة وعقوبتها وفق القانون والشرع.
٨. يتحلي بما يدعو إليه الإسلام من أخلاقيات وسلوك.
٩. يستشعر عظمه الله وشرعه في تنظيم الحياة للإنسان في هذه المعمورة.
١٠. يحفظ الصيغة الشرعية الرسمية لقسم التخرج.

الجمهورية اليمنية
وزارة التربيه و التعليم والبحث العلمي
الكلية التطبيقية للعلوم والتكنولوجيا ذمار

الوحدة	المحتوى	الساعات		
		النظري	العملي	المجموع
	•			
الأولى	• أسس العقيدة الإسلامية وأثرها التربوي(أركان الإسلام، الإيمان، والإحسان) • مصادر التشريع الإسلامي ومقاصدها • أخلاق يدعو الإسلام إليها : - الصدق - الأمانة - الإخلاص في العمل والعبادة - السرية - الإتقان في العمل - الأخلاق الفاضلة • الإسلام والمرأة • الشورى في الإسلام • حقوق الإنسان في الإسلام - هدى الإسلام في الصحة والحفاظ عليها • اثار الغزو الفكري	٤	-	٤
	• مفهوم وأهمية ومصادر علم أخلاقيات المهنة - المفهوم - الأهمية - المصادر	١	-	١
الثانية	الأبعاد الجديدة لعلم الأخلاقيات المهنية في نظر الإسلام: -أخلاقيات المهنة الصيدلانية - حكم الإسلام وأخلاقيات في : (الإجهاض،التجميل، نقل الدم والأعضاء ،الاستنساخ، منع الحمل، تشريح الجثث، الموت الرحيم، الدواء والصوم، الأدوية والإدمان،التداوي بالإعشاب والرقي.)	٢	-	٢

الوحدة	المحتوى	الساعات		
		النظري	العملي	المجموع
الثالثة	• المبادئ الأخلاقية الأساسية في الممارسة الصيدلانية : - مبدأ الإخلاص والولاء لله لما يخدم المريض. - مبدأ عدم الإضرار بالمريض -مبدأ قول الحقيقة والمحافظة على أسرار المريض - إخلاص النية لله في كل عمل تقوم به للمريض حتى تنال الأجر من الله	٢	-	
الرابعة	• العوامل المؤثرة على العلاقة بين الصيدلي والمريض : - المرض والمعرفة -الخصائص الشخصية لكل من الصيدلي والمريض -الإطار الذي تم فيه هذه العلاقة -لعلاقة الإيجابية/السلبية -العلاقة التوجيهية/المتعاونة المشاركة/ المتبادلة	٢	-	
الخامسة	• الخطأ الصيدلي في الممارسة الصيدلانية: - المقصود بالخطأ الصيدلاني - طبيعة الأخطاء الصيدلانية - كيف يمكن تجنب حدوث الخطأ الصيدلاني - تقييم الخطأ الصيدلاني	٢	-	
السادسة	• الإهمال الصيدلاني : - كيف ينشأ الإهمال - وجهة نظر المريض وعامة الناس تجاه الإهمال الصيدلاني - وجهة نظر المشتغلين في المجال الصيدلي تجاه الإهمال الصيدلاني - وجهة نظر القانون تجاه الإهمال الصيدلاني - كيفية التجنب للإهمال الصيدلاني • عقوبة المخالف السماوية والوضعية وفق القانون.	٣	-	
السابعة	• بعض المشكلات المعاصرة وكيفية حلها في الإسلام : - سوء التغذية - انتشار الأمراض حكم واثر ممارسه العادات الضارة : (المخدرات – المهدئات – اللواط -العادة السرية.....الخ)	٢	-	

		النظري	العملي	المجموع
الثامنة	القانون اليمني للصيدلة : • الإحكام والقوانين ا لقوانين المنظمة لمهنه الطب والصيدلة. • شروط ممارسه المهنة في لشريعة والقانون. • نظره الشرع والقانون في:(مكانه المرأة في المجال الصيدلي ، تيسير التكاليف الشرعية للمريض) • النص الشرعي والقانوني لقسم التخرج	٢		
	الإجمالي	١٣		١٣

طرق التدريس :-

- المحاضرات
- المناقشات الجماعية

الوسائل المستخدمة :-

- السبورة
- الشاشة
- جهاز العاكس الرأسي
- الملصقات

طرق التقييم :-

- الاختبارات ٢٠%
- التكاليف ٢٠%
- الامتحانات النهائية ٦٠%

الإجمالي ١٠٠%

المراجع :

- -الثقافة الإسلامية د/حسن الاهدل، د/ عبد الحكيم
- -الجريدة(المجلة) الرسمية المحلية للجمهورية اليمنية
- الموسوعة الفقهية الطبية د/ محمد احمد كنعان
- قانون الجرائم والعقوبات اليمني د/ على حسن الشرفي
- قانون مهنه الطب والصيدلة وزاره الشئون القانونية

Course specification of Arabic Language

الأهداف التعليمية:-

عند نهاية المقرر سيكون الطالب قادراً على أن:-

- يعدد أقسام الكلام والأخطاء الإملائية الشائعة
- يستخرج أسلوب الاستثناء و الحال والتمييز
- يقوم بالبحث في المعاجم عن أصول الكلمات
- يستطيع رسم الهمزة وعلامة الترقيم.
- يفرق بين المبتدأ والخبر
- يحدد النواحي الأدبية في الجوانب الشعرية
- يستخرج التوابع اللغوية.
- يتمكن من كتابه وقرءاه التقارير والرسائل العلمية بصوره بلاغيه ووضوح تام.

كما أن الطالب سيكون قادراً على أن :-

- يميز خصوصيات الابتهالات.
- يحدد خصوصيات الأدب المعاصر.
- يشرح معنى الأدب الجاهلي
- يذكر بعض أمثال العرب
- يستخرج أوجه البلاغة في خطبه حجه الوداع
- يذكر خصوصيات الشعر الحديث.

المفردات :

الوحدة	المحتوي	النظري	العملي	المجموع
الأولى	• أقسام الكلام والأخطاء اللغوية الإملائية الشائعة • من الأدب الجاهلي: - معلقه طرفه. - شعر الصعاليك (تأبط شرا) • من أمثال العرب • خطبه حجه الوداع • علامة الإعراب علامات الترقيم	٢		
الثانية	• المبتدأ والخبر • الشعر والأدب: - المقامة العلمية - سحر الربيع - رثاء الأندلس - قافلة لضياع(بدر شاكر)	٤		
الثالثة	• التوابع • الأدب المعاصر والابتهالات • أسلوب الاستثناء • الحال والتمييز • البحث في المعاجم • رسم الهمزة • نماذج من التقارير والرسائل العلمية.	٧		
	الإجمالي	١٣		

طرق التدريس :-

- المحاضرات
- المناقشات الجماعية

الوسائل المستخدمة :-

- السبورة
- الشاشة
- جهاز العاكس الرأس

طرق التقييم :-

○ - الاختبارات	٢٠%
○ - التكاليف	٢٠%
○ - الامتحانات النهائية	٦٠%
	١٠٠

COURS SPECIFICATION OF PHYSICAL PHARMACY

- PROFESSIONAL INFORMATION

1 – OVERALL AIMS OF COURSE

1. To make the students understand those physicochemical properties of drugs and excipients that could affect drug performance and the development of an efficacious dosage form.
2. To provide students with the ability to utilize these principles in the design of active drugs and pharmaceutical dosage forms.
3. To provide the students with the ability to analyze the relationship between the physicochemical principles, pharmaceutical formulations and biological activity of drugs.

2-INTENDED LEARNING OUTCOMES:-

a- KNOWLEDGE & UNDERSTANDING:

a1- Explain the significance of distribution phenomena in pharmaceutical systems and in the bioavailability of drugs

a2- Estimate the risk and importance of drug stability studies

a3- Discuss the different modes of drug decomposition

a4 -Describe the contribution of diffusional processes process of drug absorption

a5-Describe the origin and the consequences of the interfacial phenomenon

b- INTELLECTUAL SKILLS:-

b1 - Associate the extraction process variables with the theory of distribution to achieve an efficient extraction

b2- Predict possible complexation related problems in pharmaceutical systems based on chemical structures.

b3- Analyze pharmaceutical degradation data and relate it to drug stability

b4- Correlate permeability and diffusion properties of drug material to bioavailability

b5- Correlate the concepts of interfacial phenomena with the formulation and stability of colloidal preparations

c- PRACTICAL & PROFESSIONAL SKILLS

c1- Develop an extraction procedure

c2- Study and analyze drug complexes
c3- Estimate shelf lives and suitable storage conditions for a drug formulation
c4 -Specify the factors affecting the bioavailability of drug substances
c5- Relate the stability of colloidal dosage forms to the interfacial properties of its components.

d- GENERAL & TRANSFERABLE SKILLS:-

d1- Be able to do homework's and assignments
d2 - Work effectively in a team
d3- Handle experimental data and draw scientific conclusions

3- Contents

Unit	TOPIC	No. of hours	Lect	Pract.
Introduction	▪ Introduction & States of matter (gases, liquid, solid) ▪ Phase role	2	1	-
Units of measuring	▪ History of measuring ▪ Classification o Units of volume o Units of weight o Units of length o International units o Other units	4	2	2
Liquids	▪ Physical properties of liquids ▪ Types of solution ▪ Measuring methods in the rheology (viscosity, density)&important in pharmacy.	2	1	

Solids	▪ Particle size (change of particle size on drug flow and solubility) ▪ Measuring of powder flow(Angle of repose) ▪ Effect of lubricants on powder flow and compactability ▪ Solubility of solids o Determination of solubility ▪ Techniques of aqueous solubility determination of non-ionized, ionized and unstable drugs o Factors/ parameters affecting solubility o Enhancement of solubility and supersaturation	6	3	4
Gases	▪ Physical properties of gases ▪ Types of gases ▪ Liquefication of gases ▪ Pharmaceutical applications of gases	2	1	2
Surface tension	▪ Definition of Surface tension ▪ Surfactants (concepts and types) ▪ Critical micelle concentration(CMC) ▪ Pharmaceutical applications of surfactants	2	1	2
Adsorption	• Definition & Adsorption at solid surfaces • Application of adsorption (e.g. drug interaction)	2	1	2

Unit	TOPIC	No. of hours	Lect	Pract.
Drug and formulation stability	▪ Degradation mechanisms. ▪ Pharmaceutical stability problems (hydrolysis, oxidation, photo degradation, …) ▪ Determination of shelf life and recommended storage conditions.	4	2	4
	Total	26hr	13	16hr

4– Teaching and Learning Methods

4.1- Lectures
4.2- laboratory
4.3- Large or small group discussion
4.4- Small Group Projects
4.5- Independent Research
4.6- Workbook Assignments

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.4- Practical exam	to assess the practical skills.
5.5- Quizzes	to assess the knowledge & understanding
5.5- Workbook Assignments	to assess the general and transferable skills.

Weighting of Assessments

Participation& semester work	10 %
Mid-Term Examination	20 %
Practical practice	20%
Practical Examination	20 %
Final-term Examination	30 %
Total	100 %

6- List of References

6.1- Course Notes
Handouts
6.2- Essential Books (Text Books)

1. Aulton ME *Pharmaceutics: The Science Of Dosage Form Design* Livingstone, 1988
2. Collett D M And Aulton M E *Pharmaceutical Practice* Churchill Livingstone, 1990
3. Winfield and Richards *Pharmaceutical Practice*, 3rd Edn, 2004.

4. Carstensen, J. T., 1998. Pharmaceutical Preformulation, CRC Press, Inc., Florida
5. Carstensen, J. T., Rhodes, C.T., 2000. Drug Stability: Principles and Practices, Drugs and Pharm. Sci. Series, Vol. 43, 3rd edn., Marcel Dekker Inc., New York.
6. Carstensen, J. T., 1980. Solid Pharmaceuticals: Mechanical properties and Rate Phenomenon, Academic Press, New York.
7. Remington's Pharmaceutical Sciences.
8. Bently's Textbook of Pharmaceutics, Rawlins, E. A., 8th Edition, 1984, ELBS, London.

7- Facilities Required for Teaching and Learning

- White board & marker
- Over head projector
- Data show
- Lab (pharmaceutical materials, glass wares, balances, etc….)

Course Specifications Of Pharmaceutical technology I

- PROFESSIONAL INFORMATION

1 – OVERALL AIMS OF COURSE

1. To provide student with a detailed knowledge and understanding concerning preparation and controlling of various pharmaceutical dosage forms like solution, suspension and emulsion.
2. To provide the student with the knowledge about the basic principles of pharmaceutical formulation, compounding and dispensing.
3. To provide the student with the knowledge and understanding concerning the weights, measures and calculations used in pharmacy practice; the principles of drug administration; the principles of dosage form design; the factors influencing drug stability; the containers used for pharmaceutical products.

2 – INTENDED LEARNING OUTCOMES OF COURSE (ILOS)

a- KNOWLEDGE AND UNDERSTANDING:

a1- Describe the methods of preparation of pharmaceutical solution, suspension and emulsion.

a2- Define and enumerate the types of pharmaceutical dosage forms.

a3- Describe the components and types of prescription..
a4- Explain the principles of design and formulation of pharmaceutical solution, suspension and emulsion.
a5- Describe various methods used for evaluation of pharmaceutical solution, suspension and emulsion.
a6- Enumerate the factors affecting drug and dosage form stability.
a7- Mention the manufacturing process involved in the preparation of pharmaceutical solution, suspension and emulsion.

b- INTELLECTUAL SKILLS

b1-Recognize the instability of pharmaceutical dosage forms when occurred.

b2-Identify the drug manufacturing relating problems and solve it.

b3- Correctly apply the formulas and calculations used in pharmaceutical preparation and administration

b4- Appreciate the need for accuracy and thoroughness in manufacture of pharmaceutical products.

b5- Recognize the common pharmaceutical Latin abbreviations.

c- PROFESSIONAL AND PRACTICAL SKILLS

c1- Prepare some of medicated pharmaceutical solution, suspension an emulsion.

c2- Perform quality control for pharmaceutical dosage form.

c3- Be able to formulate good and stable dosage form like suspension, emulsion and suspension.

c4- Perform pharmaceutical calculation for compounding or dispensing.

d- GENERAL AND TRANSFERABLE SKILLS

d1. Work separately or in a team to research and prepare a scientific topic.

d2. Present clearly and effectively scientific topic in a tutorial or a staff meeting.

3- Contents

Unit	TOPIC	No. of hours	Lect.	Pract.
Basic principles of compounding and dispensing	▪ Types of dosage forms • Definition of dosage forms • Routes of administration for systemic effects • Routes of administration for local effects • Types of dosage forms.	2	1	-
	▪ Weights and measures • Metric system • Imperial system • Apothecary system ▪ Calculation for compounding and dispensing • From master formula. • Dealing with percentage concentration • Concentration expressed as parts • Preparing dilutions	2	1	2
	▪ The prescription. • The model prescription • The legal requirements of a prescription • Types of prescriptions • Common pharmaceutical Latin abbreviations. ▪ Good practice in compounding and dispensing ▪ Dispensing procedure	2	1	2
	▪ Formulation of dispensed products • Study of physical properties of drug and its effect on formulation • Colour and flavor • Incompatibility ▪ Physical ▪ Chemical ▪ Storage and stability of dispensed products ▪ Containers used for pharmaceutical products • Glass, plastics, metals • Interactions between product and packaging • Influence of packaging on product stability.	4	2	4

Unit	TOPIC	No. of hr	Lect.	Pract.
Solutions	• Introduction • Formulation o Vehicles ▪ Types of water ▪ Solubility ▪ Other vehicles for solution o Other additives o Factors affecting solubility o Stability of solution • Classification of pharmaceutical solution • Solution for oral use ▪ Elixirs ▪ Linctuses ▪ Mixtures • Solution instilled into body cavities ▪ Mouth washes and gargles ▪ Nasal drops and sprays ▪ Ear drops ▪ Enemas ▪ Douches • Solutions for external use ▪ Lotions ▪ Liniments ▪ Paints ▪ Collodions ▪ Antiseptics	6	3	6
Suspensions	• Advantages and disadvantages • Pharmaceutical application of suspension • Types of suspensions o For oral use o For external use	4	2	4

	• Formulation of suspension • Difference between Flocculation, deflocculation.			

Unit	TOPIC	No. of hours	Lect.	Pract.
	• Factors affecting sedimentation rate of suspension. • Formulation of various types of suspensions. • suspension. • Formulation of various types of suspensions. • flocculating agents • Viscosity modifiers • Formulation additives Stability testing of suspension	2	1	2
Emulsion	• Emulsion types • Emulsion uses • Identification of emulsion type • Emulsion formulation ▪ Choice of emulsion type, and oil phase ▪ Emulsion consistency ▪ Choice of emulsifying agent • Preparation of emulsion • Classification of emulsifying agents • HLB system • Stability of emulsion • Stability testing of emulsion	4	2	4
Total		**26hr**	**13**	**26**

4– Teaching and Learning Methods

4.1- Lectures
4.2- Practical
4.3- Large or small group discussion
4.5- Small Group Projects
4.6- Independent Research
4.7- Workbook Assignments

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.4- Practical exam	to assess the practical skills.
5.5- Quizzes	to assess the knowledge & understanding

Weighting of Assessments

Participation& semester work	10 %
Mid-Term Examination	20 %
Practical practice	20%
Practical Examination	20 %
Final-term Examination	30 %
Total	100 %

6- List of References

6.1- Course Notes

Handouts

6.2- Essential Books (Text Books)

9. Pharmaceutical Calculations, Stoklosa, M. J. and Ansel, H. C., 1988, Lea and Febiger, USA.

10. Aulton ME *Pharmaceutics: The Science Of Dosage Form Design* Livingstone, 1988
11. Collett D M And Aulton M E *Pharmaceutical Practice* Churchill Livingstone, 1990
12. Winfield and Richards *Pharmaceutical Practice*, 3rd Edn, 2004.
13. S J Carter, *Cooper and Gunn's Dispensing for pharmaceutical students*, 12th Edn.
14. Martindale W *The Extra Pharmacopoeia* 30th Edn, Pharmaceutical Press, 1993
15. Pharmaceutical Press *The Pharmaceutical Codex* 12th Edn, Pharmaceutical Press, 1994
16. Remington's Pharmaceutical Sciences.

7- Facilities Required for Teaching and Learning

- White board & Marker
- Over head projector
- Data show
- Lab (pharmaceutical materials, glass wares, balances, etc….)

Course Specifications Of Analytical Chemistry

1 – Overall Aims of Course

1. To provide students all principles and fundamental of analysis .
2. To provide students with a strong ability to understand the chemistry and analytical technology which involved in various manufacturing and processing industries.
3. To provide student with high ability to use different types of analytical methods
4. To ensure that students be able to apply their knowledge to solve common analytical problems

2 – Intended Learning Outcomes of Course (ILOs)

a Knowledge and Understanding:

a1- Explain all principles about fundamental of analysis and methods of analysis

1. a2- describe the factor effect on analysis
2. a3- describe the different types of analysis (qualitative and quantitative analysis)

a4- Discuss the samples for qualitative analysis.

a5- Explain types of quantitative analysis (gravimetric methods, volumetric methods) and titration

a6- Discuss the over view of types of spectrometry and qualitative and quantitative uses.

a- Intellectual Skills

b1- solve problem in lab as well in class

b- Professional and Practical Skills

c1- perform different chemical analysis precisely during work .
c2 Use all apparatus and instrument that used in analysis

c- General and Transferable Skills

d1- Work in group team
d2- Participate in group discussion

3- Contents

Unit	Topic	No. of hrs	Lect.	Pract.
• **Introduction**	• fundamental and principle of analysis • A brief over view of analytical chemistry • An over view of the steps in analysis • Strength and concentration of solution	2	1	
• **Qualitative analysis**	**1-Analysis of anions:-** Carbonate, bicarbonate and mixtures sulphur salts ,halides salts, phosphoric acid and mixture, nitrate , nitrite salts **2- Analysis of cations:-** Silver groups, copper, arsenic group, iron group, zinc group, alkaline group, magnesium group.	8	4	8

• **Quantitative analysis**	• Gravimetric methods of analysis
	• Volumetric methods of analysis
	• Percentage composition (by volume , by weight), morality , normality.
	• General consider of titration
	  • Type of titration
	  1. Acid - base titration
	  2. Precipitation titration
	  3. Complex titration
	  4. Oxidation reduction titration
	  5. Potentiometric titration
	• General overview for types of Spectrophotometry (UV,VIS, IR, NMR) , qualitative and quantitative use
		16	8	8

Total		**26hr**	**13**	**16hrs**

4– Teaching and Learning Methods

4.1- lecture
4.2- discussion in groups
4.3 –researching in groups for topics course as assignments

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.4- Practical exam	to assess the practical skills.
5.5- Quizzes	to assess the knowledge & understanding

Weighting of Assessments

Participation& semester work	10 %
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Total	100 %

6- List of References

6.1- Course Notes
Handouts

6.2- Essential Books (Text Books)

- Vogel's quantitative chemical analysis 6th edition by J. Mendham , R.C Denney.
- John H. kennedy. Analytical chemistry principles , Harcourt brace.
- Douglas A. Skoog. Donlad M. West . analytical chemistry 3rd edition Saunders.

7- Facilities Required for Teaching and Learning

- White board & Marker
- Over head projector
- Data show
- Lab (pharmaceutical materials, glass wares, balances, etc….)

Course Specification of Anatomy

1-AIMS OF THE COURSE:

Provide the students with the knowledge and understanding about the general gross human anatomy and ability to identify the structures of commonly anatomical parts.

2-INTENDED LEARNING OUTCOMES:

a-KNOWLEDGE and UNDERSTANDING:

a1. Describe the anatomic parts of the human body.
a2. Describe the different parts of alimentary canal.
a3. Describe & explain the anatomy of nervous system, respiratory, urinary, reproductive, endocrine & cardiovascular system.
a4. Describe the anatomy of sense organs.

b-INTELLECTUAL SKILLS:

b1. Recognize the different anatomical parts of the body.

d-GENERAL SKILLS AND ATTITUDE

d1. Present clearly and effectively scientific topic .

3-COURSE CONTENTS:

Unit	Topic	No. of hours	Lecture	Practical
Cell	• Structure of cell, function of its components with special reference to mitochondria and microsomes. • Cancer cells	2	1	_
Tissues	• Elementary tissues of the body. ○ Epithelial tissue	2	1	

	○ Muscular tissue ○ Connective tissue ○ Nervous tissue_			
Skeleton	• Structure and classification • Bones of upper and lower limb • Joints	2	1	
Respiratory system	• Structure • The lungs and bronchioles	2	1	
Digestive system	• The mouth cavity • Esophagus • Stomach, liver spleen and pancreas • Intestine • Appendix • Rectum	2	1	

Unit	Topic	No. of hours	Lecture	Practical
Nervous system	• Structure and Classification • Structure of spinal cord • Spinal nerves • The autonomic nervous system ○ Sympathetic ○ Parasympathetic	4	2	
Cardiovascular system	• The heart • Blood vessels	2	1	
Urinary system	• the kidney • ureter • urinary bladder	2	1	_
Endocrine system	• **Anatomy of endocrine glands** ○ Thyroid ○ Pancreas ○ Pituitary	4	2	_

	○ Adrenal glands ○ Gonads			
Sense organs	• **Anatomy of** ○ Eye ○ Ear ○ Nose ○ Skin	2	1	–
Reproductive system:	• **Female:** ▪ The uterus ▪ The vagina ▪ The ovary ▪ Anatomy of the breast • **Male :** ▪ The testis ▪ Scrotum ▪ The penis	2	1	–
Total		**26hr**	**13**	—

4– Teaching and Learning Methods

4.1- Lectures

4.2- Tutorials

4.4- Large or small group discussion

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.5- Quizzes	to assess the knowledge & understanding
5.5- Workbook Assignments	to assess the general and transferable skills.

Weighting of Assessments

Semester work and reports	20 %
Mid-Term Examination	20 %
Final-term Examination	30 %
Total	100 %

6- List of References

6.1- Course Notes

Handout Texts

6.2- Essential Books (Text Books)

6.3- Recommended Books

1- Ross and Wilson anatomy and physiology in heath and illness by Anne wangh – Allison grant .

6.4- Periodicals, Web Sites … etc

7- Facilities Required for Teaching and Learning

* White board & Markers.
* Over head projector.
* Data show.

Course Specification Of Physiology

1-AIMS OF THE COURSE:

1. Acquire an appropriate functional background of cells, tissues, organs& systems.
2. Integrate physiological data & mechanisms with the ongoing basic sciences: anatomy, histology& biochemistry and clinical applications.
3. Explore in detail the functions of the autonomic, the neuromuscular, the respiratory and the cardiovascular systems as well as their integration to achieve homeostasis.

2-INTENDED LEARNING OUTCOMES:

a-KNOWLEDGE and UNDERSTANDING:

a1. Describe the cellular functions at the organelle and molecular level.
a2. Describe & explain the function of the nerve cell the nerve & muscle fiber grossly & the molecular level.
a3. Describe & explain function of the autonomic nervous system, different component of blood, the respiratory & cardiovascular system both grossly and molecular level.
a4. Describe some biophysical laws & their relation to physiology.

b-INTELLECTUAL SKILLS:

b1. Interpret the most important physiological laboratory results (blood, respiratory, neuromuscular), to distinguish a physiological from pathological condition.
b2. Comment, on some clinical parameters such as: ABP, ECG, nerve conduction velocity pulmonary functions for a normal individual.
b3. Integrate physiology with other basic and clinical sciences.

d-GENERAL SKILLS AND ATTITUDES:

d1. Work separately or in a team to research and prepare a scientific topic.
d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.
d3. Present physiological data in a graphical form.

3-COURSE CONTENTS:

Unit	Topic	No. of hours	Lecture	Practical
Cell	• Brief account on cell structure	2	1	—
Blood and lymph	• Composition and function of blood • Blood groups • Blood coagulation • Anemia's • White blood cells and immunity • Lymph formation and function • Lymph channels	4	2	
Cardiovascular system	• Heart and blood vessels:- • function of heart • Cardiac cycle (blood circulation) • Blood pressure and its regulation • ECG: methods of recording, normal record and common abnormalities.	2	1	
Respiratory system	• Physiology of respiration. • Control of respiration • Hypoxia, cyanosis and dyspnea • Pulmonary function tests	2	1	

Unit	Topic	No. of hours	Lecture	Practical
Digestive system	• Function of digestive organs. • Movements of alimentary canal • Role of enzymes in digestive process	2	1	—
Nervous system	• Neurons and Neurotransmitters • Synapses • Ganglion • Membrane potential • Impulse generation and conduction • Reflex arc • Function of central nervous system. • Autonomic nervous system	2	1	
Muscular system	• Physiology of muscle contraction • Movement of muscles. • Muscular disorder	2	1	
Urinary system	-Function of urinary organs. -Fluid & electrolytes balances.	2	1	
Endocrine system	• Physiology of endocrine glands o Thyroid o Pancreas o Pituitary o Adrenal glands o Gonads	2	1	
Physiology of special senses	• Function of: Skin, Eye, Ear, Nose, and Tongue. • Physiology smell, taste, vision, hearing and pain.	2	1	
Reproductive system:	• **Female** ▪ Function of Ovaries, Fallopian tube, Uterus, Vagina, menstrual cycle, menopause. ▪ Function of Breast. • **Male :** ▪ Functions of Epidielymis, prostate glands ▪ Functions of Vas deference seminal vesicles.	4	2	
Total		**26hr**	**13**	—

4– Teaching and Learning Methods

4.1- Lectures
4.2- Large or small group discussion
4.4- Independent Research
4.5- Workbook Assignments

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.5- Quizzes	to assess the knowledge & understanding
5.5- Workbook Assignments	to assess the general and transferable skills.

Weighting of Assessments

Semester work and reports	20 %
Mid-Term Examination	20 %
Final-term Examination	30 %
Total	100 %

6- List of References

6.1- Course Notes

Handout Texts

6.2- Essential Books (Text Books)

1. Guyton : Textbook of Medical Physiology
2. Ganong: Review of Medical Physiology.

6.3- Recommended Books

- medical physiology by Vernon B. mountcastle 12th edition
- anatomy and physiology by anne wangh ,ross and Wilson allison grant

6.4- Periodicals, Web Sites … etc

7- Facilities Required for Teaching and Learning

* White board & Markers.
* Over head projector.
* Data show

Course Specifications Of English

1 – OVERALL AIMS OF COURSE

1. Provide the student with basic principles in English language including reading, writing, listening and grammar with some medical terms.
2. To improve the students for reading, extracting and handling the information from some short passages.

2 – INTENDED LEARNING OUTCOMES OF COURSE (ILOS)

a- KNOWLEDGE AND UNDERSTANDING:

a1- correct the mistakes in grammar in some passages.
a2- Extract the information from some short passages.
a3- Define some medical terms.

b- INTELLECTUAL SKILLS

b1- Use correct verbs and grammar in writing.

c-PROFESSIONAL AND PRACTICAL SKILLS

c1- Write reports and letters use good language and grammars.

d- GENERAL AND TRANSFERABLE SKILLS

d1 Interact effectively with patients, the public and health professionals.

d2- Reflect on the use of communication skills in counter prescribing.

3- CONTENTS

	TOPIC	No. of hours	Lect.	Pract.
Reading	• Preventive medicine • Infectious diseases • How body fight infection • Nutrition • Malnutrition • Smoking • Tropical diseases	2	1	—
Grammar	• Verb tenses ▪ Simple present ▪ Simple past ▪ Present continuous ▪ Present perfect ▪ Past perfect ▪ Active and passive voice	6	3	—
Writing	▪ Report writing ▪ Letter Writing: • Applications / communications such as business correspondences • Official communications and acknowledgements.	2	1	—
listening	• Rabies • Heat stroke • Heat exhaustion • Harmful effect of sun on the skin.	2	1	—
Medical terminology	• **Introduction** o Definition o Composition of medical terms • **Pharmaceutical Terminology:** - Pharmaceutical dosage forms. - Drug administration. - Calculation of drug dosage forms. -Scientific terms dealing with drug dispensing, registration, storage and control of drugs.	14	7	-
Total		**26hr**	**13**	—

4– Teaching and Learning Methods

4.1- Lectures
4.2- Group discussion
4.4- Seminars
4.5- Reports

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding

Weighting of Assessments

Participation& semester work	20	
Mid-Term Examination	20	%
Final-term Examination	60	%
Total	100	%

6- List of References

6.1- Course Notes
Handouts
6.2- Essential Books (Text Books)
Library Book
6.3- Recommended Books

7- Facilities Required for Teaching and Learning

- White board & Marker
- Over head projector
- Data show
- Lab (pharmaceutical materials, glass wares, balances, etc….)

Course Specifications Of Botany

1 – Overall Aims of Course

Acquire background about different parts ,cells, sits of storage ,secretory system of the plants .

Identify the general taxonomy of plants

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

a1- Describe different parts of plant

a2- Identify different cells and secretory system

a3- Explain the taxonomy

a4-Defin different pathways and metabolism present in plant

b- Intellectual Skills

b1-Make taxonomy of plants and describe them

b2-List different physiological pathways in plant.

b3-Identify different cells and its functions.

c- Professional and Practical Skills

c1- Identify different types of cells and systems under microscope

c2- Differential between dicots and monocots

c3- Prepare slides contain different plant tissues

3- Contents

Unit	Topic	No. of hours	Lecture	Practical
I	• **Morphology** o Diversity of plant life o Parts of flowering plants ▪ Seed ▪ Stem ▪ Fruit ▪ Flowers ▪ Leaves ▪ Root and rhizomes	8	4	4

II	• **Histology** o Cell and other cell content o Tissue system o Anatomy of root in di and monocotyledons o Anatomy of stem in di and monocotyledons o Anatomy of leaves in di and monocotyledons	8	4	4
III	• **Physiology of plants** o Nutrition o Respiration o Photosynthesis o Transpiration o Metabolism	2	1	1
VI	• **Taxonomy** o Division and general description o Alga o Bacteria o Fungi o Bryophyte o Betrediophytes o Gymnosperms o Angiosperms o Selected families of dicotyledons o Selected families of monocotyledons	8	4	4
Total		**26hr**	**13hr**	**13 hrs**

4– Teaching and Learning Methods

4.1-lectures
4.2-discussion group
4.3- practical lab

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.4- Practical exam	to assess the practical skills.
5.5- Quizzes	to assess the knowledge & understanding

Weighting of Assessments

Participation& semester work	10 %
Mid-Term Examination	20 %
Practical practice	20%
Practical Examination	20 %
Final-term Examination	30 %
Total	100 %

6- List of References

6.1- Course Notes
Handouts ; General plant Books
6.2- Essential Books (Text Books)
- Periodicals, Web Sites … etc

7- Facilities Required for Teaching and Learning

- White board & Marker
- Over head projector
- Data show
- Lab materials , slide, etc….)

Course Specifications Of First Aids

1 – Overall Aims of Course

At the end of the course ,the student should be able to perform basic s of first aid in different emergency cases

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

a1- Explain the important basics of first aid (A,B,C,D)

a2- Identify important first aid steps for different important emergency cases

b- Intellectual Skills

b1- Differentiate between different cases and it's First Aid

c- Professional and Practical Skills

c1- Deal properly and rapidly with different (critical)emergency cases with needed precaution .....

d- General and Transferable Skills

d1- Deal with patient in polyclinic

d2- give advice in different cases

1- Contents

Units	Topic	No. of hours	Lecture	Practical
I	• **Introduction** o Concept of first aid o Objective of first aider o Responsibilities of fist aider	1	1	2
II	• **Hemorrhage and cut wounds** o External bleeding o Cuts wound	1	1	2
III	• **Shock** o Definition o Types o First aid treatment of shock • **Unconsciousness** o Definition o First aid treatment o Heart massage • **Epileptic fits** o -first aid treatment	2	2	4
IV	• **Splint and bandage** o Aims of bandaging in first aid o Aim of splinting o Methods of apply bandages	1	1	2
V	• **Fractures and dislocation** o A-definition of fractures o Types of fractures o Signs and symptoms o First aid treatment • **B-definition of dislocation** o The first aid treatment	3	3	6
VI	• **Burns and scalds** o Heat burns o Chemical scalds	1	1	2

	○ first aid treatment			
VII	• **Asphyxia** ○ Artificial respiration ○ P.R	1	1	2
Units	**Topic**	**No. of hours**	**Lecture**	**Practical**
VIII	• **Poisoning** ○ Types ○ Cause ○ Classification ○ Treatment	2	2	4
Total		**16hrs**	**16**	24

4– Teaching and Learning Methods

4.1-lectures

4.2-discussion group

5- Student Assessment Methods

1- Participation& semester work to assess intellectual skills

2- Mid term exam to assess the knowledge & understanding

3-Final term exam to assess the knowledge & understanding

Weighting of Assessments

Semester Work	10 %
Mid-Term Examination	20 %
PEACRICAL PRACTISE	20%
PRACTICAL EXAM	20%
Final-term Examination	30 %
Total	100%

Any formative only assessments

6- List of References

6.1- Course Notes

General First Aide.

6.2- Essential Books (Text Books)

Library book of First Aide.

- Periodicals, Web Sites … etc

7- Facilities Required for Teaching and Learning

* White board & Markers.
* Over head projector

Course Specification of Psychology

1-Overall AIMS OF THE COURSE:

Acquire an appropriate functional background of Personality, Psychological- Functions, Affective Emotional Processes ,Behavioral processes, Clinical Psychological

a-KNOWLEDGE &UNDERSTANDING

1. Describe & explain the Personality, Psychological- Functions, Affective Emotional Processes ,Behavioral processes
2. Describe the normal state of psychology
   Discuss how diseases affect the drugs to normal state of psychology

b-INTELLECTUAL SKILLS:

1. Interpret the most important clinical psychology results .
2. Integrate psychology with other basic and clinical sciences.
3-Relate the signs and symptoms to the basis of diseases.

c-PRACTICAL SKILLS:

1. Perform different between normal & other state.
2. Present psychology scientific data in a graphical form.

d-GENERAL SKILLS AND ATTITUDES:

1. Work separately or in a team to research and prepare a scientific topic.
2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

3- Content:

UNIT	TOPIC	NO. OF HOURS	LEC	PRAC
Introduction to Psychology	- Definition - Subject of Psychology - Objectives and principles of Psychology - The five movements that formed Psychology - The four recent points of view of modern psychology.	2	2	—
Personality	-Definition - Characteristics - Factors affecting personality	2	2	—

	- Types of personality - Training session			
Psycho-mental processes (Psychological-Functions)	- Cognitive processes - Sensation and recognition - Attention and concentration - Thinking - Memory - Training session	3	3	—
Clinical Psychological	- The concept of health and illness - Formation of illness idea - Patients reaction to drugs -Responsibilities of Pharmacy technician towards the patient. - Training session	3	3	—
Affective Emotional Processes :	**A. Affection:** - Nature and types - Affection and Psychological disorders - Anxiety and its effect on learning **B. Motivation:** -Types of motivations - Motivation disorders - The range of effect on psychological behavior	2	2	—
Behavioral processes (Psycho-motive)	- Definition of learning - Types and methods of learning	١	١	—
Total		**13**	**13**	—

4– Teaching and Learning Methods

1- Lectures
2- Discussion
3- problem Solving.

5- Student Assessment Methods:

1- Participation& semester work to assess intellectual skills
2- Mid term exam to assess the knowledge & understanding
3-Final term exam to assess the knowledge & understanding

7- Weighting of Assessments

- Semester work exam	20%
-Mid term exam	20%
-Final term exam	60%
Total	100%

List of References ٨-

.1- Course Notes

2- Essential Books (Text Books)

1. A.Rahman Adas and Muhyieddeen Tonq. (Introduction to Psychology 2nd edition.1986 - John Wiley & Sons inc. London.
2. Annie Altschul and Helensinclair ,psychology for Nurses, 6th edition,1986, Bailliere -Tindall London.

3- Periodicals, Web Sites … etc

9- Facilities Required for Teaching and Learning

* White board & Markers.
* Over head projector.
* Data show

Course Specifications Pharmaceutical Technology II

1 – OVERALL AIMS OF COURSE

4. To provide student with a detailed knowledge and understanding concerning preparation and controlling of various pharmaceutical parenteral preparation
5. To provide the student with the knowledge about the theoretical principles outlined in the syllabus in relation to design and formulation of a semisolid preparation like ointments, creams and pastes.
6. Ability in applying their theoretical knowledge to the formulation of proprietary dosage forms discussed in this syllabus and an understanding of the manufacturing processes involved in the preparation aerosols and suppositories.

2 – INTENDED LEARNING OUTCOMES OF COURSE (ILOS)

a- KNOWLEDGE AND UNDERSTANDING:

a1- Explain of pharmaceutical packaging, pre-formulation and the formulation of injectable products.
a2- Describe various methods for evaluation of Parenteral dosage forms.
a3- Describe the characteristics of the Parenteral and semisolid dosage forms and explain how these characteristics affect the action of the drug.
a4- Describe the principles of design and formulation of pharmaceutical semisolid dosage forms.
a5- Classify the bases used in suppository preparation.
a6- Describe the methods of preparation of suppositories.
a7- Define and describe different types of ophthalmic preparation.

b- INTELLECTUAL SKILLS

b1-Choose the best base in semisolid preparation.
b2-Identify the drug manufacturing relating problems and solve it.
b2-Calculate the displacement value in suppository preparation.

c- PROFESSIONAL AND PRACTICAL SKILLS

c1- Prepare of ointments, creams, pastes and suppositories.
c2- perform quality control for pharmaceutical dosage form.
c3- Be able to formulate good and stable dosage form like ointments, creams and suppositories.

d- GENERAL AND TRANSFERABLE SKILLS

d1. Work separately or in a team to research and prepare a scientific topic.
d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting .

3- Contents

Unit	Topic	No. of hours	Lect.	Pract.
I	**Parenteral preparation** • Pre-formulation factors o Route of administration of injection o Water for injection o Pyrogenecity o Non-aqueous vehicles o Isotonicity and methods of adjustment • Formulation details o Formulation of injection (the vehicles, osmotic pressure, pH, specific gravity, suspension for injection, emulsion for injection) o Containers and closures selection • Prefilling treatment o Washing of containers and closures o Preparation of solution and suspension o Filling and closing ampoules and vials o Infusion fluids o Equipments for large scale manufacture and evaluation of particulate matter. • Aseptic techniques o Sources of contamination and methods of prevention o Design of aseptic area o Laminar flow benches services and maintenance.	6	3	2
II	**Ophthalmic preparation** • Principles of ocular drug absorption. • Ophthalmic solution. • Ophthalmic suspension. • Ophthalmic ointments. • Ocuserts (ophthalmic inserts) • Examples of drugs used to treat certain eye diseases.	4	2	2

Unit	Topic	No. of hours	Lect.	Pract.
III	**Therapeutic aerosols** • Definition and uses of therapeutic aerosols. • Instability of aerosols • Deposition of aerosols in the human respiratory tract. • Formulation and generation of aerosols ○ Pressurized packages ▪ Type of propellants ▪ Containers ▪ Formulation aspects ▪ Performance of pressurized packages as inhalation aerosol generators ○ Air-blast nebulizers ○ Dry powder generators • Methods of preparation • Evaluation methods ○ Leaking and pressure testing of containers. ○ Output, drug concentration and dose delivered ○ Size analysis	6	3	6
IV	**Semisolid dosage forms** • Skin anatomy and physiology • Percutaneous absorption and factors affecting it. • **Ointments** ▪ Classification of ointment bases ▪ Additives included in ointment bases ▪ Methods of Preparation of ointments and packaging. ▪ Some examples of medicated ointments • **Creams**	6	3	6

	▪ definition ▪ Classification of creams ▪ Some examples of medicated creams			

Unit	Topic	No. of hours	Lect.	Pract.
	• **Pastes** ▪ Definition ▪ Composition ▪ Examples of medicated pastes • **Gels** ▪ Composition and uses ▪ Evaluation of drug release from ointment and cream bases			
V	**Suppositories** • Introduction • Advantages and disadvantages • Anatomy and physiology of rectum • Factors affecting rectal drug absorption. • Shapes and size of suppositories. • Types of suppository bases. • Methods of Preparation of suppositories. • Displacement value • Calibration of suppository mould with bases.	4	2	4
Total		**26hr**	**16**	**16hrs**

4– Teaching and Learning Methods

4.1- Lectures
4.2- Practical
4.3- Large or small group discussion
4.4- Small Group Projects
4.5- Independent Research
4.6- Workbook Assignments

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.4- Practical exam	to assess the practical skills.
5.5- Quizzes	to assess the knowledge & understanding
5.5- Workbook Assignments	to assess the general and transferable skills.

Weighting of Assessments

Participation& semester work	10 %
Mid-Term Examination	20 %
Practical practise	20%
Practical Examination	20 %
Final-term Examination	30 %
Total	100 %

6- List of References

6.1- Course Notes

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6.2- Essential Books (Text Books)

17. Aulton ME *Pharmaceutics: The Science Of Dosage Form Design* Livingstone, 1988
18. Collett D M And Aulton M E *Pharmaceutical Practice* Churchill Livingstone, 1990
19. Winfield and Richards *Pharmaceutical Practice*, 3rd Edn, 2004.
20. S J Carter, *Cooper and Gunn's Dispensing for pharmaceutical students*, 12th Edn.
21. Martindale W *The Extra Pharmacopoeia* 30th Edn, Pharmaceutical Press, 1993
22. Pharmaceutical Press *The Pharmaceutical Codex* 12th Edn, Pharmaceutical Press, 1994
23. Remington's Pharmaceutical Sciences.

7- Facilities Required for Teaching and Learning

- White board & Markers
- Over head projector
- Data show
- Lab (pharmaceutical materials, glass wares, balances, etc….)

Course Specifications for Community health.

1 – Overall Aims of Course

* This course is designed to provide the student with knowledge, skills and attitudes in the field of environmental health & Nutrition. Also to help the student to acquire knowledge, skills and attitudes in the field of health education and Family planning, enable him/her to participate efficiently in solving some of health problems affecting the community. understand the constituents of the food for the daily requirements of the body in health and illness and their sources, functions and deficiencies. participate effectively in the health education process & Family planning .

2 – Intended Learning Outcomes of Course (ILOs):

a- Knowledge and Understanding:

a1- Identify health problems available in the environment that affect the community.
a2. Undertake the necessary steps for solving some of health problems affecting the environment and the community.
a3.Understand knowledge in proper Nutrition.
a4. Recognize the constituents of food, their sources, functions, deficiencies and daily requirements in health and illness.

b- Intellectual Skills

b1- Prepare simple Materials for the purpose of health education.

C- Professional and Practical Skills

c1- Accepts Attitude on health team working.
c2- Participate in health education activities in his field.

d- General and Transferable Skills

d1- Advice patients, workers….etc about the proper family planning method
d2- Communicate effectively with clients.

3- Contents

Unit	Topic	No.of hrs	Lecture	Practical
ENVIRONMENTAL HEALTH				
Health Conceptions and Personal Health:	A. **Health conception** of health. • Public health. • Environment. • Environmental health B. **Personal health** :- • Food and drink. • Clothing.- cleanliness. • Physical exercises. • Rest and sleep. - habits. • Personal protection against infectious diseases. • Periodic medical examination.	**2 hrs**	**1**	—
Water and Food Hygiene :	A. **Water ;** • Importance of water. • Composition of water. • Water requirement for man. • Sources of water. • Hard and soft water. • Contamination of water. • Diseases transmitted by water. • Steps for treating water. B. **Food hygiene :** • Definition of food • Definition of food hygiene. • Preservation of food. • General requirements relating to food premises. • Cleanliness of equipment.	**2hrs**	**1**	—

Unit	Topic	No.of hrs	Lecture	Practical

	B. Disposal of Human wastes • Sanitary principles of waste disposal • Methods of disposal			
	NUTRITION			
Introduction to Nutrition:	• Definitions and advantages of basic food groups. • Energy: basal metabolic rate, food energy. • Water: importance, functions.	**2 hrs**	**1**	—
Nutrients (constituent of food) :-	**A) Carbohydrates** **B) Fats (lipid)** **C)Proteins** • Definitions, classifications, sources • Metabolism digestion, functions, • Recommended daily dietary allowance(RDDA) **D) Vitamins:** • Water soluble vitamins and C • Fat soluble vitamins: A.D.E.K • Source,function,RDDA,defeciency **E)Minerals:-** • Macro minerals: • Calcium, phosphorus, sodium Magnesium, sulfur, potassium • And chlorine. • Microminerals:iron, iodine, fluorine, manganese and zinc • Functions and sources	**4 hrs**	**2**	—
- Food composition table (Nutritive values).	• Food groups • Nutritional problems or diseases • Related to a specific Nutrient	**2 hrs**	**1**	—

Unit	Topic	No.of hrs	Lecture	Practical
	HEALTH EDUCATION			
Introduction to	**Definitions :**			

health education:	• Health Education and some related definitions to H.E. **Health Behaviour & H.E.** • Health, illness and behavior. • Changes in behavior. • Helping people to lead healthier Lives.	**2 hrs**	**1**	—
H.E. with Individuals & with Groups :	**H.E. with Individuals** : • The purpose of counseling • Rules for counseling • Different types of counseling • Facilitating decisions and follow through. **Health Education with Groups :** • What is a group. • Formal groups and informal gatherings. • Behaviour informal groups. • The value of group education. • Education with informal group.	**2hrs**	**1**	—
Communicating the Health Message:	**- Methods and Media.** • Health talks. • Posters. • Radio. • Television etc.	**2 hrs**	**1**	—
FAMILY PLANNING				
Introduction to family planning:	• Definitions ,Goals ,Fundamentals. • Advantage of F.P in Society, Health, Economics.	**2 hrs**	**1**	—

Unit	Topic	No.of hrs	Lecture	Practical
	• Rules for counseling • Importance, Religions views	**2 hrs**	**1**	
Maternal &Child	**- Maternal care:**			

Care:	• pre natal, labor & post natal care. **-Child care:** • Safety Childhood.			—
Type of F.P. Tools:	- Definition ,Classifications , • Mode of action, Uses. • Advantage- Disadvantage of each tool.	**2 hrs**	**1**	—
Sexual Diseases:	- Types - Cure - how to prevent Some late stage diseases.	**2 hrs**	**1**	—
Total		**26 hrs**	**13**	—

4– Teaching and Learning Methods

4.1- Lectures, Discussion.

4.2- Role - Play.

5- Student Assessment Methods

Evaluation of the students will be done by:

5.1 Semester Work. to assess Intellectual ,General and Transferable Skills

5.2 Reports. to assess Intellectual , Professional and Practical Skills.

5.3 MCQs& Examination. to assess Knowledge, Understanding ,Professional Skills.

Weighting of Assessments

Semester Work.	20 %
Med term Examination	20%
Final Examination	60 %
Total	100%

Any formative only assessments.

6- List of References

6.1- Course Notes

Handout .

6.2- Essential Books (Text Books)

Library books

6.3- Recommended Books

1. Community health Nursing (Promoting & protecting the puplic health) Allender , Judith.
2. Use of guidlines for making pregnancy safer and family planning, W.H.O
3. Evad.Wilson and others (Principles of Nutrition) 4th edition.

Wilcy & Sons - New York.
4. Kranse and Mahan (Food,Nutrition and Diet Therapt) 7th edition W.B. Saundars Company - Philadelphia.
5- World Health Organization - Amanual on health education in primary health Care - W.H.O. Geneva - 1988.
6. John Gibson, Health Personal and Communal. 4th edition 1976. Faber and Faber - London and Boston.

6.4- Periodicals, Web Sites … etc

7- Facilities Required for Teaching and Learning

* White board & Markers.
* Over head projector.
* Books -handouts.
* Posters.
* Flannel graphs.

Course Specifications Of Medical Terminology

1 – OVERALL AIMS OF COURSE

1. Provide the student with basic principles in English language including reading, writing, listening and grammar with some medical terms.
1. To improve the students for reading, extracting and handling the information from some short passages.

2 – INTENDED LEARNING OUTCOMES OF COURSE (ILOS)

a- KNOWLEDGE AND UNDERSTANDING:

a1- Correct the mistakes in grammar in some passages.

a2- Extract the information from some short passages.

a3- Define some medical terms.

b- INTELLECTUAL SKILLS

b1- Use correct verbs and grammar in writing.

c-PROFESSIONAL AND PRACTICAL SKILLS

c1- Write reports and letters Correctly empty of grammatical defects

2- GENERAL AND TRANSFERABLE SKILLS

d1- Interact effectively with patients, the public and health professionals.

D2- Reflect on the use of communication skills in counter prescribing.

3- CONTENTS

Unit	Topic	No. of hours	Lect.	Pract.
Reading	• Immunity and immunization • Foods for thought • Malaria • Cholera • Epidemic diseases	4	2	—
Grammar	▪ Punctuation ▪ Articles ▪ Phrases ▪ Conditionals ▪ Prepositions	4	2	—
Writing	▪ Report writing ▪ Letter Writing: • Applications / communications such as business correspondences • Official communications and acknowledgements.	6	3	—
listening	• Anemia • Losing weight • Safe water and foods	2	1	—
Medical Terminology	• **Pharmacological Terminology:** ▪ Classification of drug actions, pharmacokinetics, and systemic classification of drugs. ▪ Autonomic, CNS, cardiovascular, and renal system. ▪ Chemotherapy, locally acting, vitamins and hormones. **Pathology and Diagnosis:** - Infectious diseases. - Rheumatic diseases. - Peptic ulcers. - Surgical operations. - Skin diseases. - Gynecological diseases. - Laboratory investigational terms.	10	5	—

	Other familiar medical terms and abbreviations			
Total		**26hr**	**13**	**—**

4– Teaching and Learning Methods

4.1- Lectures
4.2- Group discussion
4.4- Seminars
4.5- Reports

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding

Weighting of Assessments

Participation& semester work	20	%
Mid-Term Examination	20	%
Final-term Examination	60	%
Total	100	%

6- List of References

6.1- Course Notes
Handouts.

6.2- Essential Books (Text Books)

6.3- Recommended Books

7- Facilities Required for Teaching and Learning

* White board & Markers.
* Over head projector.
* Data show

Republic of Yemen

Ministry of Technical Education and Vocational Training

Supreme Council of Community Colleges

Applied College of Science & Technology

Thamar

الجمهورية اليمنية

وزاره التعليم الفني والتدريب المهني

المجلس الأعلى لكليات المجتمع

الكلية التطبيقية للعلوم والتكنولوجيا

ذمـــار

Course Specification of Pharmacognosy and Photochemistry 1

1 – Overall Aims of Course

At the end of the course, the student will acquire scientific knowledge about Pharmacognosy in general and Phytochemistry specially , crude plants and there cultivation ,collection storage ,package and adulteration ,classification of plants according to active constituents and its latencies names and important therapeutic uses

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

a1- Define crude drugs and how to protect its active constituents

a2- Recognize latencies nomenclatures of medicinal plants

a3- Determine importance of medicinal and therapeutic activity of different active constituents in plants.

a4-Expline how plants used as drugs

a5- Identify different drugs containing active constituents from natural origin

b- Intellectual Skills

b1- Explain how to deal with crude drugs

b2- Different between Pharmacognosy and Phytochemistry

c- Professional and Practical Skills

c1- Integrate his knowledge in cultivation and collection of medicinal

c2- Recognize different natural herbal medicine in pharmacies

c3– Deal with different drugs and by its key elements and its adulteration under microscope

d- General and Transferable Skills

d1- Give advice about natural plant and its active constituents used as drugs

d2- Advice people to use different herbs as drugs for different disease

3- Contents

Unit	Topic	No. of hours	Lecture	Practical
I	**Introduction** The scope of Pharmacognosy , and history the crude drugs , its collection , cultivation , storage package and adulteration	4	2	2
II	**Drugs of Animal origin** - Honey - Yellow bee wax , white Bee wax - Cod liver oil - Wool fat - Gelatin - Chalk	4	2	4

Unit	Topic	No. of hours	Lecture	Practical
III	**Phytochemistry** **<u>Glycosides</u>** Introduction and definition • Linkage • Function in plants • Activity **a) Steroidal (cardiac Glycosides)** • Definition and Introduction • Chief drugs Containing cardiac glycosides			

	• ((Origin, family , Active Constituents and uses)) • Digitalis purpurea • Strophanthus *** Bufadinolides** Squill **b) Anthraquinons** ○ Definitions and Introduction ○ Chief drugs Containing Anthraquinons ○ ((Origin, family , Active Constituents and uses)) ▪ Senna ▪ Cascara ▪ Frangula ▪ Rhubarb ▪ Aloe **c) Saponin** • Definition Introduction • Chief drugs Containing Saponin • ((Origin, family , Active Constituents and uses)) • Natural steroidal saponin	8	4	8

Unit	Topic	No. of hours	Lecture	Practical
	- Liquorices - Senega - Horse chestnut - Ginseng **d) Cyanogenetic Glycoside** • Introduction • Chief drugs Containing Cyanogenetic Glycoside ((Origin, family , Active Constituents and uses)) • Cherry laurel • Bitter almond • Lin seed **e) Glucosinolate** • Introduction & definition • Chief drugs Containing Glucosinolate ((Origin, family , Active Constituents and uses)) o Mustard seed o Black m.s o White m.s **f) Flavonoids** • Definition and Introduction • Chief drugs Containing Flavonoids ((Origin, family , Active Constituents and uses)) 1. Ruta 2. Citroflavonoids			
IV	**Volatile oil :-** Introduction and definition - Camphor Turpentine - Funnel	4	2	4

	- Anise - Thyme			

Unit	Topic	No. of hours	Lecture	Practical
	- Eucalyptus - Juniper - Peppermint - Clove - Ammivisnaga	2	1	2
V	**Tannins** • Introduction and definition • Galls • Hamamelis barks and leaves	4	2	2
Total		**32hrs**	**16**	**16hrs**

4– Teaching and Learning Methods

4.1-Lectures
4.2- Seminar
4.3- medicinal plant collection
4.4- practical

5- Student Assessment Methods

5.1- Participation& semester work — to assess intellectual skills
5.2- Mid term exam — to assess the knowledge & understanding
5.3-Final term exam — to assess the knowledge & understanding
5.4- Practical exam — to assess the practical skills.
5.5- Quizzes — to assess the knowledge & understanding

Weighting of Assessments

Participation& semester work	10 %
Mid-Term Examination	20 %
Practical practise	20%
Practical Examination	20 %
Final-term Examination	30 %
Total	100 %

6- List of References

6.1- Course Notes
Handouts

6.2- Essential Books (Text Books)

1. Pharmacognosy Trease and Evans
2. Pharmacognosy Varro E. Tyler

6.3- Recommended Books

النباتات الطبية والعطرية في اليمن
(محمد الدبعي)

7- Facilities Required for Teaching and Learning

- White board & Marker
- Over head projector
- Data show
- Lab materials , slide, etc….)

Course Specifications Of Computer

:

1- Course Aims:

Acquiring essential skills for using application Programs as Word, Excel, Windows and internet.

2- Intended learning outcomes from the course:

a- Knowledge and understanding:

- Describe hardware and soft ware components
- Recognize software programs :

Word , Excel , Windows , Power point , Internet

b- Intellectual skills:

b1- Differentiate between making Table in word and in Excel

b2- Design power point slide

- Recognize software programs :
- Word , Excel , Windows , Power point , Internet

c- Professional skills:

- Apply different programs in very good ability

d-General and transferable skills:

- Use computer programs in different fields.

3- Course content:

Unit	Topic	No. of hours	Lecture	Practical hours
I	**Introduction:** **Definition input, out put deices** • Memory • Gradations of computer Storage media **Windows (2000):** • How to use mouse ,fundamentals and rules • How to create directory , copy it , files or folders • How to create icons, short cut to any programs • Control panels and its components or icons	1 1	1 1	2 2
II	**Word (office xp):** **1-Definition of view page, application** • Title bar • Main new bar • Standard tool bar • Formatting tool bar • Write English paragraph , Arabic and convert from language to another **2-Creat table and its usage** **3-Save, Save as functions** **4-Exit from program**	6	3	6
III	**Excel** **Definition**			

	• Title bar • Main new bar • Slandered tool bar • Formatting bar	2	1	2

Unit	Topic	No. of hours	Lecture	Practical hours
IV	**Power point** :- how to make slide for presentation	2	1	4
V	**Internet and Communication**	1	1	2
Total		**13hr**	**13**	**18hr**

4. Teaching and learning methods:

- Practical
- Dissuasion

5- Student Assessment Methods:

1- Participation& semester work to assess intellectual skills
2- Mid term exam to assess the knowledge & understanding
3-Final term exam to assess the knowledge & understanding

Weighting of Assessments

- Semester work exam	10%
-Mid term exam	20%
Practical practise	20%
Practical exam	20%
-Final term exam	30%
Total	100%

6. List of textbooks & references:

- Computer
- Lagrange and Nancy Lang
- Fowth edition , 2000 by hall, Inc, new jersey- Ust
- Windos 2000 for dummices

- Andy Rath bone – 1998 by ID6 books
- Won wide, Inc USA

7. Facilities required for teaching & learning:

- White board & marker
- Book hand out
- Data show
- Computer

Course Specification Template For Pathology

1-AIMS OF THE COURSE:

1. Acquire an appropriate background of pharmacology, microbiology……..ect.
2. Integrate pathological data &effect of diseases on the body.
3. Follow the rapidly changing deferent function by diseases.

2-INTENDED LEARNING OUTCOMES:

KNOWLEDGE and UNDERSTANDING:

At the end of the course the student is expected to be able to :

a1. Recognize abnormal changes in human body
a2. Identify the needs of drugs. To adjust the abnormality of human.
a3. Describe & explain the causes of diseases.
a4. Describe & explain the symptoms of diseases.
a5. Describe & explain the different between normal state & diseases state.
a6. Describe some pathological poses & their relation to diseases.
a7- Describe affect the drugs on diseases,

b-INTELLECTUAL SKILLS:

b1. Interpret the most important of pathology.
b3. Integrate pathology and clinical sciences.
b3-Relate the signs and symptoms to different diseases.

c-PRACTICAL SKILLS:

c1. Perform the indication of patient for diseases
c2. Perform solve problems of diseases

d-GENERAL SKILLS AND ATTITUDES:

d1. Work separately of different diseases by scientific topic
d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

3-COURSE CONTENTS:

Unit	Topic	No. of hours	Lec.	Pract.
Introduction :	**Path physiology of immunity** • Infection process. • Transplantation of immunity. • Immunosuppression	2	1	—
Disorder of acid-base equilibrium:	• Metabolic acidosis with Alkalosis • Respirator acidosis with alkalosis • Dehydration and Hyper hydration • Edema and Ascites • Sodium and Calcium disorder • Depolarization and re-polarization of cell membrane.	2	1	—
Disorder of metabolism :	• Metabolic disorder protein • Metabolic disorder of saccharides • Metabolic disorder Lipids. • Metabolic disorder Vitamins	2	1	—
Pathophysiology of Thermoregulation Centre	• Pathophysiological effect of warmth. • Pathophysiological effect of cold	2	1	—
Pathophysiology of Blood :	• Plastic anemia • Granulocytopenia • Pathophysiology of Erythrocyte	2	1	—

Unit	Topic	No. of hours	Lecture	Practical
	• Leucaemia • Disorder of homeostasis.			
Pathophysiology of Cardovascular System:	• Pathophysiology of CHF. • Pathophysiology of Metabolism of myocardium. • Disorder of coronary circulation	2	1	—
Breathing pathophysiology :	• Ventilation disorder • Diffusion disorder • Pulmonary circulation disorder • Bronchial asthma	2	1	—
Urinary System :	• Kidney disorder • Renal hypertension	2	1	—
Digestive System :	• GIT disorder: • Stomach	2	1	—
Liver, Biliary , System :	Liver disorder: • hepatitis. • Icterus • Biliary system disorder	2	1	—
Endocrine System : Hormons	• Hypophysis / Adenohypohysis • Diabetes Mellitus • Pituitary and Thyroid gland	2	1	—
Disorders of Joints :	• Rickets • Tumors bones	2	1	—
Sexual transmitted disease	• AIDS • Gonorrhea • Syphilis	2	1	—
Total		**26hr**	**13**	—

4- Teaching and Learning Methods:

1- Lectures
3- Discussion

5- Student Assessment Methods:

1- Participation& semester work to assess intellectual skills
2- Mid term exam to assess the knowledge & understanding
3-Final term exam to assess the knowledge & understanding
4- Practical exam to assess the practical skills.

Weighting of Assessments

-Semester work	20%
-Mid term exam	20%
-Final term exam	60%
Total	100%

6- List of References:

-Essential pathology
-Basic pathology
-Epidemic pathology
- Genital pathology
Endocrine pathology
- Periodicals, Web Sites … etc

7- Facilities Required for Teaching and Learning

* White board & Markers.
* Over head projector.
*Data show

Course Specifications Of Organic Chemistry

Overall Aims of Course

1. To provide all knowledge about concept of chemistry and how to formed drug formula from individual atoms.
2. To provide the properties of the constituent atoms and how its influence by molecular structure and reactivity .
3. To understanding fundamental concepts of chemical bonds.
4. To gain knowledge about intamolecular active force.
5. To know how to nomenclature each group of organic chemicals

2 – Intended Learning Outcomes of Course (ILOs)

Knowledge and Understanding:

1. Describe basic chemical principles including the structure of the atom, chemical bonding and the periodic table, and also apply the concept of orbital hybridization
2. Describe the concept of functional groups and how these groups give rise to characteristic properties
3. Describe the stereoisomer.
4. Describe how the reactivity of organic compounds can be related to Lewis and hybridization models for bonding.
5. Describe the classification of organic molecules
6. Explain how to nomenclature of organic compounds.

Intellectual Skills

1. Able to solve problem depend on given in formation
2. Nomenclature the different groups of compounds

Professional and Practical Skills

1. Prepare different types of drugs from organic compounds
2. Modify some compounds to get required group of drugs

General and Transferable Skills

1- Work in teams in researching groups
2 – Analyze and evaluate different data

3- Contents

Unit	Topic	No.hrs	Lecture	Practical
• Introduction to general chemistry	• Periodic table of elements • Mendeleev's periodic table • Modern periodic table.	4hrs	2	—
• Types of chemical bonds • Electro distribution in atoms • Intramolecular active force	• Ionic bonds, covalent bonds, metallic bonds. • Lewis electron and orbital hybridization . • Vander Waals force • Hydrogen bonding force	6hrs	3	2
• Classification of organic molecules • Stereoisomer	• Types of Hydrocarbons (aliphatic and aromatic), cyclic and uncyclic , saturated and unsaturated. stereoisomer's	8hrs	4	4

• **Nomenclature of organic compounds**	• Structure , reaction and nomenclature of aliphatic hydrocarbons, Alkanes, alkenes, alkynes, alcohol, ether, aldehydes, ketones, alky halides, carboxylic acids, amines • Structure , reaction and nomenclature of aromatic hydrocarbons, Benzene, phenol, halogen derivatives of benzene. • Structure , reaction and nomenclature of heterocyclic groups, amino acids and carbohydrates	**8 hrs**	**4**	**8**
Total		**26hr**	**13**	**14hr**

4– Teaching and Learning Methods

4.1- lecture
4.2- Discussion in groups
4.3 – Researching in groups for different topics as assignments

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.4- Practical exam	to assess the practical skills.
5.5- Quizzes	to assess the knowledge & understanding
5.5- Workbook Assignments	to assess the general and transferable skills.

Weighting of Assessments

Participation& semester work		10 %
Mid-Term Examination		20 %
Practical practies	20%	
Practical Examination	20 %	
Final-term Examination	30 %	
Total		100 %

6- List of References

6.1- Course Notes
Handouts

6.2- Essential Books (Text Books)

JG Smith, Organic Chemistry, McGraw-Hill, New York USA.
PY Bruice, Organic Chemistry, Fifth Edition, Pearson Prentice Hall,, New Jersey USA

7- Facilities Required for Teaching and Learning

- White board & Markers
- Over head projector
- Data show
- Lab (pharmaceutical materials, glass wares, balances, etc….)

Course Specifications Of Pharmacology I

1 – Overall Aims of Course

1. Giving knowledge about the pharmacokinetic of drugs (absorption, distribution, metabolism and excretion).
2. To provide the student with the knowledge concerning Pharmacodynamic of drugs (mechanism of drug action & their biological effects on different body organs and drug-protein binding) and dosage form of drugs (advantages & disadvantages).
3. To provide the student with the knowledge concerning use & their side effects (drug toxicity, abuse, and their misuse).
4. Giving the types of drug-drug interactions.

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

a1- Define the drugs affecting Eye.
a2- Identify action and indication of the drugs.
a3- Recognize the side effects of various drugs .
a4- Explain Mechanism of action of drugs affecting autonomic nervous system.
a5- Identify the abbreviations used in pharmacology.

b-Intellectual Skills

b1- list precaution to be taken for each drug.
b2- Deal with patient when side effect occurred.

c- Professional and Practical Skills

c1- Perform some experiments in pharmacology.

d- General and Transferable Skills

d1- Present scientific topics in seminar.
d2- work as team.

3- Contents

Unit	Topic	No. of hours	lecture	Practical
Introduction	• General pharmacology Definitions. • Drug source & classification. • Pharmacokinetic:-Absorption, Distribution, bio transformation & Excretion. • Routes of drugs administration • Pharmacodynamics: – o Theory of receptor o drug-protein binding • Adverse drug effects. • Drug-drug interaction.	12	6	4
Autonomic Nervous System	• Introduction to A.N.S. • Sympathomimetic agents. • Sympatholytic agents. • Parasympathomimetic agents. • Parasympatholytic agents. • Drugs acting on ganglia	10	5	4
Pharmacology of Eye	• Drugs used in glaucoma • Mydriatics. • Miotics. • Miscellaneous ophthalmic drugs.	4	2	2
Total		**26hr**	**13**	**10hr**

4– Teaching and Learning Methods

4.1- Lectures
4.2- Group discussion.
4.3- practical

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.4- Practical exam	to assess the practical skills.

Weighting of Assessments

Semester work	10%
Mid-Term Examination	20%
Practical practise	20%
Final-term Examination	30%
Practical Examination	20%
Total	100%

6- List of References

6.1- Course Notes
Handouts
6.2- Essential Books (Text Books)

- Rang, Dale and Ritter Pharmacology (2000)
- Katzung –Basic and Clinical Pharmacology (2001)
- Laurence, Bennett and Brown-Clinical pharmacology (1997)
- Goodman & Gilman's- The pharmacological basic of therapeutics
  - (1995)
- British National Formulary (BNF) (2002)
- Lippincot's pharmacology

6.3- Recommended Books
6.4- Periodicals, Web Sites … etc

7- Facilities Required for Teaching and Learning

- White board & Markers
- Over head projector
- Data show

Course Specification Of Biochemistry

1-AIMS OF THE COURSE:

1. Acquire an appropriate functional background of carbohydrates, lipids, proteins& enzymes.
2. Integrate biochemistry data & mechanisms with the ongoing basic sciences: botany, nutrition, pharmacology, physiology and clinical applications.
3. Develop the basic scientific research skills as well as effective communication and team work attitudes.

2-INTENDED LEARNING OUTCOMES:

a- KNOWLEDGE and UNDERSTANDING:

a1. Describe & explain the function, classification, molecular structures of carbohydrate, lipids, proteins& enzymes.
a2. Describe & explain the metabolic pathways of carbohydrates, lipids, proteins& enzymes.
a3. Describe & explain in molecular terms all chemical process of living cells.
a4. Describe some biophysical laws & their relation to biochemistry.

b-INTELLECTUAL SKILLS:

b1. Interpret the most important biochemistry laboratory results (blood, cholesterol, TG….).
b3. Integrate biochemistry with other basic and clinical sciences.
b3-Relate the signs and symptoms to the molecular basis of diseases.

c-PRACTICAL SKILLS:

c1. Perform hematological tests: estimation of blood Hb, bleeding & clotting times & blood group.

d-GENERAL SKILLS AND ATTITUDES:

d1. Work separately or in a team to research and prepare a scientific topic.
d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

3-COURSE CONTENTS:

Unit	Topic	No. Of Hours	Lecture	Practical
Introduction	• The Chemistry of carbon Atom, o Definition o Composition with low Molecular weight. o Composition of small units o Amino Acids - simple sugar. • Classification: carbohydrate,lipid,protein…….ect	2	1	—
Carbohydrate metabolism	• Glycolysis • Citric acid cycle • Glycogenesis and glycogenolysis • Hexose monophosphate shunt • Uric acid pathway • Blood sugar and its regulation. • **Tests used to diagnose and manage diabetes mellitus.**	6	3	6
Lipid metabolism	• Oxidation of fatty acids • Biosynthesis of fats • Ketogenesis and ketosis • Metabolism of cholesterol • Essential fatty acid and eicosanodis phospholipids • Sphingolipids. • lipid disorders	6	3	6
Metabolism of amino acid and proteins	• General biochemical reaction of amino acids like o Transamination o Deamination o Decarboxylation.	8	4	8

Unit	Topic	No. Of Hours	Lecture	Practical
	• Amino acids and plasma proteins Aminoacidurea, albumin and immunoglobulins • Metabolism of sulfur containing amino acids. • Urea cycle • Nitrogen balance Biosynthesis of salts and bile pigments			
Metabolism of nucleic acids	• Biosynthesis and catabolism of purines and pyrimidines containing nucleotides.	4	2	-
Total		**26hr**	**13**	**20hr**

4- Teaching and Learning Methods:

1- Lectures
2- Discussion
3- Lab. Work

5- Student Assessment Methods:

1- Participation& semester work — to assess intellectual skills
2- Mid term exam — to assess the knowledge & understanding
3-Final term exam — to assess the knowledge & understanding
4- Practical exam — to assess the practical skills.

Weighting of Assessments

-Semester work	10%
-Mid term exam	20%
-Practical exam	20%
-Final term exam	50%
Total	100%

6- List of References

.1- Course Notes

-Handout Texts

.2- Essential Books (Text Books)

-Harpers review of biochemistry / Lippincot's Biochemistry

3- Periodicals, Web Sites … etc

7- Facilities Required for Teaching and Learning

* White board & Markers.
* Over head projector.
* Lab instruments.

Course Specifications of Pharmaceutical Technology III

1 – OVERALL AIMS OF COURSE

1. To provide student with a detailed knowledge and understanding solid dosage forms like tablets and capsules.
2. To provide the student with the knowledge about the theoretical principles outlined in the syllabus in relation to pre-formulation concepts, design and formulation of a solid dosage forms.
3. Ability in applying their theoretical knowledge to the formulation of proprietary dosage forms discussed in this syllabus and an understanding of the manufacturing processes involved in the preparation of solid dosage forms.

2 – INTENDED LEARNING OUTCOMES OF COURSE (ILOS)

a- KNOWLEDGE AND UNDERSTANDING:

a1- Demonstrate the tableting methods.

a2- Explain the principles of pre-formulation of pharmaceutical dosage forms.

a3- Describe effect excipients on the physical properties of solid dosage form.

a4- Explain the principles of design and formulation of pharmaceutical solid dosage forms.

a5-Define the coating methods for tablets and capsules and its equipments.

a6- Enumerate the problems occur during tablet preparation process and the methods used to overcome it.

a7- Describe the disintegration and dissolution of drug formulations

b- INTELLECTUAL SKILLS

b1- Choose the best method to obtain a good and stable preparation.

b2-Identify the drug manufacturing relating problems and solve it.

b2- Correctly choose the excipients to make good pharmaceutical product.

c-PROFESSIONAL AND PRACTICAL SKILLS

c1- Prepare of tablet and capsule.

c2- Perform quality control for pharmaceutical dosage form.

c3- Formulate a cosmetic preparation.

d- GENERAL AND TRANSFERABLE SKILLS

d1. Work separately or in a team to research and prepare a scientific topic.

d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting.

3- Contents

Unit	TOPIC	No. of hours	Lect.	Pract.
Powders and granules	• Types of powders • Advantages and disadvantages of powders, • Cachets and Tablet triturates. • Preparation of different types of powders encountered in prescriptions. • Weighing methods, possible errors in weighing • Minimum weighable amounts and weighing of material below the minimum weighable amount • Geometric dilution and proper usage and care of dispensing balance. • Granules • Effervescent granules ▪ Formulation ▪ preparation	4	2	2
Solid dosage form	• **Compressed tablets** ▪ Introduction ▪ Advantages and disadvantages. ▪ Types of compressed tablets. ▪ Tableting methods ○ Direct compression ○ Dry granulation ○ Wet granulation ▪ Technology of production of granules on large scale by various techniques. ▪ Tablet excipients ▪ Large scale production of tablets. ▪ Tablet press machines ▪ Problems encountered during tablet formulation. ▪ Standards quality control tests for tablets. ▪ Tablet coating ○ Types of coating	4	2	4

	○ Film forming materials ○ Common polymers used for tablet coating. ○ Formulation of coating solution			

Unit	TOPIC	No. of hours	Lect.	Pract.
	○ Equipments for coating Coating process evaluation of coated tablets.			
	• **Hard and soft gelatin capsules** ▪ Hard gelatin capsules ○ Advantages and disadvantages ○ Composition of capsule shell ○ Selection of capsule size. ○ Excipients used in hard gelatin capsule formulation. ○ Enteric coating of capsules. ○ Capsule filling process. ○ Storage of hard gelatin capsules. ▪ Soft gelatin capsules ○ Advantage and disadvantages. ○ Capsule shell composition. ○ Shapes and sizes. ○ Soft gelatin capsule formulation. • Soft gelatin capsule filling process.	6	3	6
Sustained release oral dosage forms	• Introduction. • Advantages and disadvantages. • Drugs that can be good candidates for sustained release formulation. • Methods to obtain sustained release ○ Pharmaceutical ○ Chemical ○ Biopharmaceutical	4	2	-

Unit	TOPIC	No. of hours	Lect.	Pract.
Microcapsulation	• Types of microcapsules • Importance of microencapsulation in pharmacy • Micro-capsulation by o Phase separation co-aservation multiorifice o Spray drying o Spray congealing o Polymerization o Complex emulsion o Air suspension technique o Coating pan and other techniques.	4	2	4
Cosmeticology and cosmetic preparation	• Fundamentals of cosmetic science • Formulation • Preparation • Formulation and manufacture of perfumes • Cosmetics for o Skin o Hair o Facial • Deodorants • Antiperspirants • Shampoos, Hair dressing and Hair removers • Dentifrice and Manicure preparation like o Nail polish o Lipsticks etc.	4	2	2
Total		**26hr**	**13**	**18hr**

4– Teaching and Learning Methods

4.1- Lectures
4.2- Practical
4.3- Large or small group discussion
4.4- Small Group Projects
4.5- Independent Research

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.4- Practical exam	to assess the practical skills.
5.5- Quizzes	to assess the knowledge & understanding
5.5- Workbook Assignments	to assess the general and transferable skills.

Weighting of Assessments

Participation& semester work	10 %
Mid-Term Examination	20 %
Practical practies	20%
Practical Examination	20 %
Final-term Examination	30 %
Total	100 %

6- List of References

6.1- Course Notes
Handouts.
6.2- Essential Books (Text Books)

4. Aulton ME *Pharmaceutics: The Science Of Dosage Form Design* Livingstone, 1988
5. Collett D M And Aulton M E *Pharmaceutical Practice* Churchill Livingstone, 1990
6. Winfield and Richards Pharmaceutical Practice, 3rd Edn, 2004.
7. S J Carter, Cooper and Gunn's Dispensing for pharmaceutical students, 12th Edn.

8. Martindale W *The Extra Pharmacopoeia* 30th Edn, Pharmaceutical Press, 1993
9. Pharmaceutical Press *The Pharmaceutical Codex* 12th Edn, Pharmaceutical Press, 1994
10. Remington's Pharmaceutical Sciences.

7- Facilities Required for Teaching and Learning

- White board & Marker
- Over head projector
- Data show
- Lab (pharmaceutical materials, glass wares, balances, etc….)

Course Specifications Of Scientific Research Methodology

1 – Overall Aims of Course

*This course is designed to help and provide student with scientific knowledge skill and attitudes them to under take the step of scientific research

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding

a1- Explain the basic concept of research
a2- Identify the general concepts sample , and planning for sample collection

b- Intellectual Skills

b1- Describe different method of information collection, and select the most appropriate method according to the need of research

c-Professional and Practical Skills

c1.Utilize the step of the research process and explain the basic of research

d-General and Transferable Skills

d1-Prepare of final report including recommendation for implementation of the research finding
d2-Evaluate and management plan for scientific research.

3- Contents:

Unit	Topic	No. Of hour	Practical
INTRODUCTION	• Definition of scientific research • Type of research	1	2
Research Methodology	• Definition and identification of the problem • Ethical issues in research	1	2
Collection of information	• Research Method • Scientific observation	2	4

	• Questionnaire • Interview		
Presentation of results	• interpretation of result • conclusion and result	2	4
Writing report	• Title • Acknowledgement • Table of content • Introduction • Aim of study • Material and Method • Result • Discussion • Conclusion • Recommendation • Reference • Summary • Appendix	7	14
Total		**13**	**26hr**

4– Teaching and Learning Methods

4.1-Lecture
4.2-Group discussion
4.3-Seminar

5- Student Assessment Methods

5.1- Semester Work. to assess Intellectual ,General and Transferable Skill
5.2- Writs. Research. to assess Knowledge and Understanding skill
5.3-Mid-Term Exam. to assess …knowledge,understanding,professional and practical skill..
5.4-Final Exam to assess knowledge, understanding, professional and practical skill

Weighting of Assessments

Mid-Term Examination	20%
Final-term Examination	60%
Semester Work	10 %
Writing report	10%
Total	100%

Any formative only assessments

6- List of References

6.1- Course Notes

.....Handout texts.....

6.2- Essential Books (Text Books)

أساليب البحث العلمي في العلوم الاجتماعية والإنسانية
*-مناهج البحث العلمي
*-كيف تكتب بحثا أو رسالة (دراسة منهجية)
*- أساسيات البحث العلمي.

7- Facilities Required for Teaching and Learning

*White board & marker
* Data show

Course Specifications For Medical Equipment and Materials

1 – Overall Aims of Course

At the end of the course the student will acquire knowledge and skill in most types of medical equipment and material to enable him to meet the need in his field

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

a1- Identify the types of medical instrument and material -
a2- Identify how care with all type of this equipment
a3- Classify of the medical equipment and materials

b- Intellectual Skills

b1-Recognize the all type of medical equipments ant material and its used
b2- Differentiate between types of surgical instrument
b3- Differentiate between the instruments for any medical department

c- Professional and Practical Skills

c1- Handle with care all medical instrument-

d- General and Transferable Skills

3- Contents

Unit	Topic	No. of hours	Lecture	Practical
I	• **INTRODUCTION** • Physical and chemical properties of materials ▪ Rubber and plastic ▪ Glass ▪ Metals ▪ Fibers	1	1	——
	• **Metals (stainless steel)** • Surgical instruments • Forceps (all type with its used) • Scissors (all types with its used) • Circumcision Instruments • Other surgical instruments (stitch	4	4	

	needle, surgical blade) • Syringes and Needles • Containers • Other metal instruments			
	• **Glass (types and uses)** • Containers for drugs • Lenses • Slides • Others	1	1	
	• **Fibers and cotton (types, uses)** • **Surgical dressing** ▪ **Gauze** ▪ **Adsorption cotton** ▪ **Stitch threads** ▪ **Bandages** ▪ **Adhesive tapes (plasters)**	1	1	
II	• **Rubber and plastic** • Vial covers (types and uses) • Plastic containers (types and uses) • Catheters (types and uses) • Others (canula, butterfly, syringes, glove,…..etc)	2	2	—
III	• **Equipments (principle, types, uses,)** ○ Suction equipments ○ Sphygmomanometer ○ Thermometers (medical ,non-medical) ○ Electrical equipment (autoclave, oven, incubators,) ○ Nebulizers	4	4	—
Total		**13hr**	**13**	—

4– Teaching and Learning Methods

4.1-lectures
4.2-Demonstration
4.3-Visiting to medical supply store

5- Student Assessment Methods

5.1-Semester Work & presentation — to assess Intellectual, General and Transferable Skill.
5.2- Mid term Examination — to assess knowledge and understanding
5.3- final exam (M.S Q) — to assess knowledge and understanding

Weighting of Assessments

Semester Work	20%
Mid-Term Examination	20%
Final-term Examination	60%
Total	100%

Any formative only assessments

6- List of References

6.3- Recommended Books
Health catalogue for drug fund…

7- Facilities Required for Teaching and Learning

* White board& marker
* Over head projector
* Data show

Course Specifications Of Microbiology And Parasitology

1-Aim of the course

1. To educate students about the basic features of general bacteriology, virology and Parasitology.
2. To familiarize students with the common infections and diseases of medical importance, their microbial causes, as well as laboratory diagnosis, treatment, prevention and control of such diseases.
3. To enable students to study the antimicrobial agents

2) Intended learning outcomes (ILOs)

a- Knowledge and Understanding:

a1- Explain the general bacterial morphology.
a2- Identify the host parasite relationship and microbial pathogenesis.
a4- Describe the morphology, culture, antigenic structure and virulence factors of microorganisms of medical importance.
a5- Recognize the most important infectious clinical conditions and outline the diagnosis, treatment, prevention and control of the most likely organisms causing such diseases.
a6- Describe the basics of antimicrobial agents (classification mode of action and uses)
a7- Describe the most important methods of Sterilization and disinfection.
a8- Identify the impact of molecular technology in microbiology and immunology.
a9- Recognize the properties of viruses, pathogenesis, diagnosis and prevention

b- Intellectual Skills:

b1- Interpret results of microbiological, serological tests.
b2- Categorize a microorganism as a bacterium, virus according to standard taxonomy.

c- Professional and Practical Skills

c1- Identify medically important bacteria based on microscopic examination of stained preparations.
c2- Perform a Gram stain and a Ziehl-Neelsen stain and identify, according to morphology and characteristics, stained preparations.
c3- Identify culture media and biochemical tests commonly used for bacterial identification and distinguish positive and negative results.
c4- Perform MIC and MBC by serial dilution method and by agar diffusion method

d- General and Transferable Skills

d1- Appreciate the danger of handling and use of infectious agents on community and environment as a part of their ethical heritage.

3) Contents:

Unit	Topic	No. of hours	Lecture	Practical
I	**Introduction** • Definition of microbiology • Importance • Classification of microbial agents	2	1	——
II	**Systematic Bacteriology** • Staphylococci • Streptococci • Niesseria • Non-spore forming gram positive bacilli. • Spore forming gram positive bacilli • Mycobacterium • Vibrio • Mycoplasma and Ureaplasma • Chlamydia • Rickettsiae • Spirochaetes	8	4	8
III	**Systematic virology** • Picornaviruses • Orthomyxoviruses, paramyxoviruses • Rubella virus, Rabies virus • Arboviruses • herpesviruses • adenoviruses • Hepatitis viruses • Tumor viruses	8	4	8
IV	**3- Antimicrobial agents** • Antibiotics • Classification			

	• Mode of action • Cell wall inhibitors • Cell membrane inhibitors • Anti-metabolites Antimicrobials that interfere with DNA • Antimicrobials that interfere with protein synthesis	2	1	2

Unit	Topic	No. of hours	Lecture	Practical
	• Mechanisms of resistance • Antiviral agents • Antifungal agents			
V	**Parasitology** • Introduction • Transmission routes • Classification of parasites ○ Amoebiasis ○ Giardiasis ○ Trichomoniasis ○ Ascariasis ○ Schistosomiasis ○ Taenia sp. ○ Malaria • Anti-parasitic drugs	6	3	6
Total		**26hr**	**13**	**26 hrs**

4- Teaching and Learning Methods

4.1 Lecture
4.2 Practical class
4.3 Small group discussion with case study and problem solving
4.4 Seminar
4.5 Self-study

5- Student Assessment Methods

5.1 MCQ and short assay to assess knowledge and understanding
5.2 Problem solving to assess knowledge and understanding and Intellectual Skills
5.3 Practical exam to assess Professional and Practical Skills
5.4 Reports & seminar to assess General and Transferable Skills

Weighting of Assessments

Semester Work	10 %
Mid-Term Examination	20 %
Practical practies	20%
Practical Examination	20 %
Final-term Examination	30 %
Total	100%

6- List of References

6.1- Pharmaceutical microbiology. Hugo
6.2 – principles of microbiology by alice lorraine smith , 7th edotion , saint louis .

7- Facilities Required for Teaching and Learning

1. Overhead projectors white board and markers.
2. Data show.
3. Slides and computer presentations used during teaching.
4. Microscope slides, laboratory instruments .

Republic of Yemen
Ministry of Technical Education and Vocational Training
Supreme Council of Community Colleges
Applied College of Science & Technology
Thamar

الجمهورية اليمنية
وزارة التعليم الفني والتدريب المهني
المجلس الأعلى لكليات المجتمع
الكلية التطبيقية للعلوم والتكنولوجيا
ذمـــار

Course Specification Of Pharmacognosy And Phytochemistry 2

1 – Overall Aims of Course

The student by the end of the course should be able to, identify different plants with there Latin name , Maine active constituents and uses

Also how to extract and purify such active constituents to be used therapeutically

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

a1-Identify different active constituents with there source and there uses

a2- Explain describe different methods of extraction of active constituents

a3- Identification and screen active constituents in plants .

b- Intellectual Skills

b1-Identify different plants and herbs as medicine and its uses

b2- Recognize the different dosage forms of natural plants used as drugs .....

c- Professional and Practical Skills

c1-Use different herbal remedies for treatment of different disease .....

c2-Utilize different methods for identify and screening the active constituents have therapeutic activity

d- General and Transferable Skills

d1- Give advice to patient and other heath profession about use of natural plant as medicine

3- Contents

Unit	Topic	No. of hours	Lecture	Practical
I	o **Alkaloids** **- Introduction and definition** o **Leaves Alkaloids** - Atropa belladona - Datura - Hyoscyamus - Tobacco	2	1	2

	- Ephedra - Tea - Cacao - Catha - Jaborandi **Barks** - Cinchona - Pomegranate **Root and Rhizome** - Rauwolfia root - Ipeca cuanha **Fruit** - opium - capsaicin	8	4	8

Unit	Topic	No. of hours	Lecture	Practical
	- Ergot - Curare - Seed - Nux vomica - Colchicum - Calabar - Fenugreek - Castor oil seed	2	1	2
II	o **Fixed oils** - Olive Oil - Sesame oil - Corn oil - Iodized oil - Lanoline	4	2	2
III	o **Resins** **Introduction and definition** **Resins** - Colophony			

	- Podophyllum - Jalap - Cannabis **Oleoresins** - Turpentine **Oleo – gum – resin** - Myrrh - Asafetida **Balsams** - Storax - Peru	4	2	4
IV	**Chromatography**	2	1	2
V	**Extraction and Identification**	2	1	2
VI	**Quality control**	2	1	2
Total		**26hr**	**13**	**26hr**

4– Teaching and Learning Methods

4.1-lectures
4.2-group discussion
4.3-research
4.4-seminar

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.4- Practical exam	to assess the practical skills.
5.5- Quizzes	to assess the knowledge & understanding
5.5- Workbook Assignments	to assess the general and transferable skills.

Weighting of Assessments

Participation& semester work	10 %
Mid-Term Examination	20 %
Practical Examination	20 %
Final-term Examination	50 %
Total	100 %

6- List of References

6.1- Course Notes

handouts

6.2- Essential Books (Text Books)

parmacognosy trase and evans

Pharmacognosy varro E.tyler

7- Facilities Required for Teaching and Learning

5. Overhead projectors white board and markers.
6. Data show.
7. Slides and computer presentations used during teaching.
8. Microscope slides, laboratory instruments .

Course Specifications Of Pharmacology II

1 – Overall Aims of Course

Providing the student with the knowledge and understanding about the mechanism of action, therapeutic uses, side effect and contraindication of drugs affecting gastrointestinal tract, cardiovascular and respiratory system.

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

a1- Define the drugs affecting GIT, cardiovascular and respiratory system.
a4- Explain Mechanism of these drugs.
a5- Explain adverse effects of these drugs..

b-Intellectual Skills

b1- list precaution to be taken for each drug.
b2- Deal with patient when side effect occurred.

c- Professional and Practical Skills

c1- Perform some experiments in pharmacology.

d- General and Transferable Skills

d1- Present scientific topics in seminars.
d2- Work as team.

3- Contents

Unit	Topic	No. of hours	Lecture	Practical
I G.I.T	• Antiulcer and antacid drugs • Emetics and antiemetic drugs • Liver disease and gallstones • Constipation & laxatives • Diarrhea & anti-diarrheal agents • Inflammatory bowel disease (IBD). • Anorexigenic agents • Appetizers. • Digestants. • Carminatives	8	4	4

II Cardiovascular System (C.V.S)	• Antihypertensive agents. • Drugs used in treatment of heart failure. • Anti-anginal agents. • Anti-arrhythmic agents. • Drugs for shock • Hypolipidaemic agents	12	6	4
III Respiratory System (R.S)	• Cough therapy • Respiratory stimulants • Drugs used in treatment of Bronchial Asthma. • Drugs used in treatment of Rhinitis.	6	3	-
Total		**26hr**	**13**	**8hr**

4– Teaching and Learning Methods

4.1- Lectures
4.2- Group discussion.
4.3- practical

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.4- Practical exam	to assess the practical skills.

Weighting of Assessments

Semester work	10%
Mid-Term Examination	20%
Practical practies	20%
Final-term Examination	30%
Practical Examination	20%
Total	100%

6- List of References

6.1- Course Notes

Handouts

6.2- Essential Books (Text Books)

- Rang, Dale and Ritter Pharmacology (2000)
- Katzung –Basic and Clinical Pharmacology (2001)
- Laurence, Bennett and Brown-Clinical pharmacology (1997)
- Goodman & Gilman's- The pharmacological basic of therapeutics
  - (1995)
- British National Formulary (BNF) (2002)

7- Facilities Required for Teaching and Learning

- White board & Markers
- Over head projector
- Data show

Course Specifications Of biopharmaceutical

1 – Overall Aims of Course

To provide the students with the knowledge and understanding concerning Biopharmaceutics studies including drug absorption, distribution, metabolism and elimination.

2 – Intended Learning Outcomes of Course (ILOs)

a- KNOWLEDGE AND UNDERSTANDING:

a1. Explain the effects of various physicochemical, biochemical, physiological and pathological processes on the kinetics and extent of drug absorption, distribution, and elimination

a2. Explain the effects of dosage form design and routes of drug administration on therapeutic drug levels optimization.

a3-Differentiate between passive diffusion, facilitated diffusion, and active transport.

a4-Identify how various physicochemical characteristics of drugs influence their biotransport.

a5-Describe the significance and impact of the first-pass effect after oral administration.

a6-Describe how formulation characteristics influence the disposition and action drugs after various routes of administration (especially via the pulmonary and ophthalmic routes).

a7- Outline the effect of physiological factors in the gastrointestinal tract on drug absorption.

a8-Be able to apply these principles to describe the effects of gastric emptying rate, segments of the GI tract, and intestinal blood flow on drug absorption

b- INTELLECTUAL SKILLS

b1- Design of bioavailability and bioequivalence studies.

b3- Able to use empirical pharmacokinetic models to devise and optimize dosage regimens.

c- PROFESSIONAL AND PRACTICAL SKILLS

c1- Able to adjust and optimize the dose and dosage regimen.

c2- Estimation of drug half life

d- GENERAL AND TRANSFERABLE SKILLS

d1. Work separately or in a team to research and prepare a scientific topic.

d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting.

3- Contents

Unit	Topic	No. of hours	Lecture	Practical
I	• **GIT absorption of drugs** o Mechanism o Physiological factors affecting oral absorption o Physical-Chemical factors affecting oral absorption o Formulation factors affecting oral absorption o Techniques for the GIT absorption assessment	8	4	8
II	• **Biopharmaceutics study of drugs** o Introduction to Biopharmaceutics o Distribution o Metabolism o Elimination o Blood level concentration o Biological half life o Elimination rate constant o Apparent volume of distribution	10	5	10
III	• **Bioavailability and bioequivalence** o Definition o Method of determination of bioavailability using blood and urine excretion data. o Protocol design of bioavailability assessment. o Methods of bioequivalence determination	8	4	8
Total		**26hr**	**13**	**26hr**

4– Teaching and Learning Methods

4.1- Lectures
4.2- Practical
4.3- Large or small group discussion
4.4- Small Group Projects
4.5- Independent Research
4.6- Workbook Assignments

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.4- Practical exam	to assess the practical skills.
5.5- Quizzes	to assess the knowledge & understanding
5.5- Workbook Assignments	to assess the general and transferable skills.

Weighting of Assessments

Participation& semester work	10 %
Mid-Term Examination	20 %
Practical ptacties	20%
Practical Examination	20 %
Final-term Examination	30 %
Total	100 %

Any formative only assessments

6- List of References

6.1- Course Notes

Handouts

6.2- Essential Books (Text Books)

1. Handbook of Basic Pharmacokinetics-Ritschel, W.A.,Drug Intelligence Publication, M Hamilton, 1977.
2. Fundamentals of Clinical Pharmacokinetics-Wagner,J.C.,Drug Intelligence Publication, M.Hamilton, 1975.
3. Remington's Pharmaceutical Sciences - Gennaro A.R., ed., 19th Edition, Mack Publishing Co., Easton, PA. 1995. Clinical Pharmacokinetics - Rowland, M. & Tozer,N., 2nd,edition, Lea and Febiger, Philadelphia, 1989.
4. Pharmacokinetics-Gibaldi M. & Perrier, D., 2nd ed., Marcel Dekker, New York, 1982. Pharmacokinetics for the Pharmaceutical Scientist-Wagner, J.C., Technomic Publishing AG, Switzerland, 1993.
5. Biopharmaceutics and Pharmacokinetics-Notari, R.E., 2nd ed., Marcel Dekker, New York, 1975.

7- Facilities Required for Teaching and Learning

- White board.
- Over head projector
- Data show
- Lab (pharmaceutical materials, glass wares, balances, etc….)

Course Specifications Of pharmaceutical Chemistry I

1 – OVERALL AIMS OF COURSE

1- To provide the knowledge about chemistry of drugs with special references to their pharmaceutical and medicinal use.
2- To provide the knowledge about structure activity relationship .
3- To correlate medical chemistry facts with manufacture of drugs & clinical application

2-INTENDED LEARNING OUTCOMES:

A- KNOWLEDGE & UNDERSTANDING:

a1-Describe the principles of medicinal chemistry.
a2- Describe the basic principles of mechanism action for active groups in pharmaceutics chemistry
a3-Explain the different reaction between active groups in pharmaceutics chemistry special in preparations of drugs
-Explain nomenclature of medical group.
a4- Explain the active group structure and roles in each group of activity compounds.
a5- Describe how the chemical modification effects on activity of drugs.

B- INTELLECTUAL SKILLS

b1- Determine mode of action , structure of active group in different group of compound drugs .
b2- Classification of medical compound drugs according to medical used& active group.

C-PROFESSIONAL AND PRACTICAL SKILLS

c1- Gain ability to nomenclature the chemical compound s and its derivatives
c2- Synthesis different drugs from chemical materials

d- GENERAL AND TRANSFERABLE SKILLS

d1. Work in team

d2.Participate in group discussion

3- Content

Unit	Topic	No .of hour	Lect.	practical
Basic and principle of medicinal chemistry	• Physicochemical aspect's (optical – geometric) and drug receptors • Concept of prodrugs	2	1	-
Drug acting at synaptic and neuro- effector junction sites.	• Synthesis, Mode of action , uses, structure activity relationship for cholinergic, anticholinergic and anit-cholinesterase (neostigmine, physostigmine, pilocarpine, atropine.) • Adrenergic drug (ephedrine, amphetamine, terbutaline)	8	4	8
Drug acting on central nervous system	Synthesis, Mode of action , uses, structure activity relationship for o General anesthetics(thiopental, methohexital) o Local anesthetics (lignocaine, benzocaine) o Hypnotic , sedative(Phenobarbital, pentobarbitone) o opioid analgesics (pethidine,methadone,pentazocine)	6	3	6
Anticonvulsants, anti-parkinsonism, CNS stimulants	• Synthesis, Mode of action , uses, structure activity relationship for (phenytoin , carbamazepine, valporic acid, levodopa, carbidopa, niketamide)	6	3	6
Drug acting as psychopharmacological agents	• Synthesis, Mode of action , uses, structure activity relationship for antidepressant (meprobamate, chlordiazepoxide), antispasmodic and antiulcer drug(dicyclomine, lansoprazole, omeprazole)	4	2	4
Total		**26hr**	**13**	**24hr**

4– Teaching and Learning Methods

4.1- lecture

4.2- discussion in groups

4.3 –researching in groups for topics course as assignments

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.4- Practical exam	to assess the practical skills.

Weighing of Assessments

Semester Work (assignments)	10%
Practical Examination	20%
Practical practies	20%
Mid-Term Examination	20%
Final-term Examination	30 %
Total	100%

***- List of References**

1. Wilso; Gisvold, Doerge, Text book of organic medical pharmaceutical chemistry 7th edition –J . B. Lippincot.
2. Remington's pharmaceutical sciences,
3. An introduction to medicinal chemistry by Graham L. Patrick.

Facilities Required for Teaching and Learning

* White board & Markers.
* Over head projector.

Lab Glass wares, Chemicals , Instruments.

Course Specifications Of Pharmacology III

1 – Overall Aims of Course

Providing the student with the knowledge and understanding about the mechanism of action, therapeutic uses, side effect and contraindication of drugs affecting endocrine system and blood.

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

a1- Define the drugs affecting endocrine system and blood.
a2- Identify action and indication of the drugs.
a3- Recognize the side effects of these drugs .
a4- Explain Mechanism of these drugs.
a5- classify anti-inflammatory agents

b-Intellectual Skills

b1- list precaution to be taken for each drug.
b2- Deal with patient when side effect occurred.

c- Professional and Practical Skills

c1- Perform some experiments in pharmacology.

d- General and Transferable Skills

d1- Present scientific topics in seminars.
d2- Work as team.

3- Contents

Unit	Topic	No. of hours	Lecture	Practical
Autocoids	• Histamine & antihistamines • Serotonin agonists & antagonists. • Eicosanoids, and their uses • PAF, bradykinin • Drugs for treatment of migraine headache	6	3	
Endocrine System	• Hypothalamic & pituitary gland. • Thyroid and anti-thyroid drugs. • Glucagon and adrenocortical steroids • Insulin &oral hypoglycemic agents. • Sex hormones. o Female sex hormones. o Male sex hormones. • Contraceptives. • Pituitary hormones	14	7	
Blood	• Haematinic &Haemostatic. • Drugs used in anemia • Coagulants, Anticoagulants & fibrinolytics. • Anti-hyperlipidemic. • Drugs used in treatment of gout. • Plasma expanders	6	3	
Total		**26hr**	**13**	

4– Teaching and Learning Methods

4.1- Lectures
4.2- Group discussion.
4.3- practical
4.4- assignments

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.4- Practical exam	to assess the practical skills.

Weighting of Assessments

Semester Work	20%
Mid-Term Examination	20%
Final-term Examination	60%
Total	100%

6- List of References

6.1- Course Notes

6.2- Essential Books (Text Books)

- Rang, Dale and Ritter Pharmacology (2000)
- Katzung –Basic and Clinical Pharmacology (2001)
- Laurence, Bennett and Brown-Clinical pharmacology (1997)
- Goodman & Gilman's- The pharmacological basic of therapeutics
  - (1995)
- British National Formulary (BNF) (2002)

7- Facilities Required for Teaching and Learning

* White board & Markers.
* Over head projector.
* Data show.
* Animals , Rabbit and mice.

Course Specifications for Toxicology

1 – Overall Aims of Course

* This course is designed to provide the student with the necessary knowledge and skills in toxicology to enable them to deal with toxic substances and to discover their effects and also their severity on man, animals and plants.

2 – Intended Learning Outcomes of Course (ILOs)

a-Knowledge and Understanding:

a1- Design of toxic agents to main groups.
a2- Explain different type of Plant, Corrosive, Narcotics, Volatile groups.
a3- Identify the chemical and physical properties of toxic substances.
a4- Mention the effects and severity of chemicals, and air pollutions on man, animal and plants...

b- Intellectual Skills

b1- Differentiate between extraction and identification methods
b2- Deals with this toxic agents in the laboratory, by safe handling of chemicals, avoid hazards associated with use.
b3- Analyzes and carry out test for toxic agents relating to qualitative &quantities' information.

c. Professional and Practical Skills

c1- Study Toxic sample to analyze & determines type of toxic agents.
c2- Takes biological sample to analyze of toxic agents.

d- General and Transferable Skills

d1- Advice patients, workers….etc about the physical properties, hazards, safety steps when deals with this poisons.
d2-Accepts Attitude on working in a team to prepare a scientific topic and reports.
d3-Manages, controls time and organize his work.

3- Contents

Unit	Topic	No. of hours	Lecture	Practical
Introduction	-Introduction to Toxicology. - History & Scope of toxicology. - Classification of toxic agents.	2	1	—
Toxicology evaluation	a. Toxic dynamic. b. Dose - response relationship in Toxicity.	2	1	—
Management of Poisoning :	a)General characters, Symptom Treatment and Haemodialysis. b) Antidote Therapy.	2	1	—
Household poisons :	a. Cosmetics. b. Food poisoning (milk –Fish) - Botulism, Bacterial. Chemical food Poisson	2	1	—
Industrial Poisons:	a. General prevention of Poisoning. B. Corrosive: acid, base, phenol. C. Gas poison: General Characters, toxicity mechanism of action, source, fatal □ Dose poisoning. □ Antidotes for the following: □ Carbon monoxide □ Cyanides □ D. Heavy metals poisoning: General characters, source ,action route & fatal dose, antidotes: □ Lead □ Arsenic □ Mercury	4	2	4
Pesticides :	- Organophosphorouse comp.	2	1	2
Drug toxicology:	General characters , Fatal dose, action , antidotes: - Barbiturate drug poison. - Analgesics poison (Aspirin & Paracetamol). nzodiazepines groups	2	1	2
Animal poisoning	General characters ,Route & Fatal dose, action , antidotes: Snake bite ,Scorpion stings Black widow spider	2	1	----
Environmental of community Poisoning :	* Air pollution by Radiations. - Plastic poisons. * Plants poisons General characters, source ,	8	4	4

	Fatal dose & route of poison , action , antidotes : - Atropine group - Nicotine's & amphetamine - Hashish (cannabis) - Strychnine *Narcotic substances General characters, action, fatal dose, route of poisons, antidotes : - Opium Morphine derivatives Cocaine & Heroine. - Alcohol's : Methanol & Ethanol			
Total		**26 hrs**	**13**	**12hr**

4– Teaching and Learning Methods

4.1- Lectures.
4.2- Group discussion, outside activities.
4.3- Seminars.
4.4- Lab skills

6

5- Student Assessment Methods

Evaluation of the students will be done by:

5.1 Participation& Semester work	to assess Intellectual , Transferable Skills
5.2 Reports.	to assess Intellectual Skills.
5.3 Evaluation sheet.	to assess Understanding and Practical Skills
5.4 Practical exam	to assess the practical skills.
5.5 MCQs& Examination	to assess Knowledge, Professional Skills

Weighting of Assessments

Semister Work.	10 %
Mid term Examination	20%
Practical practies	20%
Practical Examination	20%
Final Examination	30 %
Total	100%

Any formative only assessments.

6- List of References

6.1- Course Notes

Handout .

6.2- Essential Books (Text Books)

(1) R.E. Gosselin & H.C. Hodge - Clinical Toxicology - 4th edition Baltimore Williams & Wilking.

(2) R.H. Derisbach - HandBook of poisoning - 9th edition -Lange Medical.

(3) Handbook of poisoning : Diagnosis & treatment 8th e.d. Robert.H.D resbach, MD,PhD.

6.3- Recommended Books

Library books

7- Facilities Required for Teaching and Learning

* White board & Markers.
* Over head projector.
* Books -handouts.
* Data show

Course Specifications for Health staticis.

1 – Overall Aims of Course

* This course is designed to give student general aspect about knowledge and skills enabling them to follow the basic rules in health statistics in them field.

.2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

a1- Explain concepts and importance of Statistical data.

b- Intellectual Skills

b1- follow the basic rules in health statistics in his field.

b2- Professional and Practical Skills

b3- Analyze and interoperate statistical data in researches.

d- General and Transferable Skills

d1- Classify and tabulate statistical data

3- Contents

Topic		No. of hours	Lecture	Practical
Concepts and Importance of statistical Data:	* **Introduction, definitions :** - Statistical science. - Health and vital statistics. - The statistics. **importance of data :** - For planning. - For use.	1	1	—
Classification and Tabulation of Statistical Data :	- Variables quality and quantity. - frequency distribution tables: - Single kind. - Double kinds. **Variable quantitative tables:-** - Continuous categories. - Discrete categories. - Absolute numbers. **Ordinary Tables :-** - simple - Multiple - compound **Graphs :-** - Frequency :- - Histogram Frequency. - Polygene Frequency. - Curve. - Simple bars. - linked bars. - Component part bars. - Line graph. - Pie - graph.	7	7	—
Analyising and Interpretation of Statistical Data :	**- measures of central tendency** Average. - mean. - median- mode **- Dispersion Measures:** - absolute range - standard deviation	5	5	—
Total		**13hr**	**13**	—

4– Teaching and Learning Methods

4.1- Lectures
4.2- Discussion
4.3- Problem solving.

5- Student Assessment Methods

5.1 Semester Work. to assess Intellectual ,General and Transferable Skills
5.2 MCQs to assess Knowledge, Understanding ,Professional Skills
5.3 Problem solving. to assess Knowledge, Understanding , Intellectual Skills

Weighting of Assessments

Semester Work.	20 %
Med term Examination	20%
Final Examination	60 %
Total	100%

Any formative only assessments.

6- List of References

6.1- Course Notes
Handout .
6.2- Essential Books (Text Books)
1. Dr. Mukhtar Mahmood El-Hanis " Methods of Social Statistics".
Moasa Shabab El-Gamaa - Egypt.
2. Dr.Fathi A/Aziz Abo - Redha. " Statistical Methods in Social Science"
6.3- Recommended Books
Library books

7- Facilities Required for Teaching and Learning

* White board & Markers.
* Over head projector.
* Books -handouts.
* Data show .

Course Specification Of Clinical Pharmacy1+2

1 – Overall Aims of Course

1. Giving knowledge about the diagnosis of disease.
2. Analysis all information about patient's state according to patient history, clinical features and laboratory findings.
3. Solve the given case according to the correct therapeutic way.
4. Detect the complications of the drug and diseases.
5. Recognize the safety of drugs in special groups like children, elderly and pregnancy.

2 – Intended Learning Outcomes of Course (ILOs)

e- Knowledge and Understanding:

a1- Define the Epidemiology, Etiology, Risk factors for particular condition under study.
a2- Recognize the Clinical features & laboratory tests for each case study .
a3- Mention the therapeutic approaches, both pharmacological and non-pharmacological in details .
a4- Identify Mechanism of these drugs.
a5- Explain the reasons of clinical complications &drug interaction .
a6- Explain the principals of human anatomy, histology, pathology and physiology that relevant to clinical pharmacokinetic of drugs.
a7-Acquire knowledge about drugs and their uses therapeutically concerning their identities, safety, optimum use in medication and contraindications
a8- mention the correct diagnosis of diseases.
a9-Recognition of disease state, pathology and management of symptoms.
a10- Get knowledge about recent researches, articles and advanced studies on drugs treating many diseases.

b- Intellectual Skills

b1- list precaution to be taken for each prescribed drugs individually or in combination.
b2 -Explain how to deal with patient when side effect occurred.
b3-The student can diagnosed disease according to their manifestations, investigations and physical examinations
b4-Interpret the clinical features and the diseases related to them.

b5-Solve the case studies according to the therapeutic way.
b6-Interpret patient and clinical data, including patient records held within practice settings.
b7- Writing a report for criticizing of suitable drugs for each case.

c- Professional and Practical Skills

c1-Acquire skills to diagnosed the case studies precisely.
c2-Evaluate critically observations and measurements, in terms of their significance and theory underlying them.
c3-Give advises for the patients and others on the safe and effective use of medicines
c4- Acquire the skill of drug monitoring therapy.

d-General and Transferable Skills

d1-Improve the communications with the patients or physicians.
d2- Great a management plan for drugs administration..
d3-Interact effectively with patients, the public and health care professionals; including communication both written and oral.
d4-Behave with an ethical attitude and approach.

3- Contents

Unit	Topic	No. of hours	Lecture	Practical
Introduction	• Definition • Some medical and pharmaceutical abbreviation • Monitoring of therapy	2	1	-
The Cardiovascular System.	• Hypertension. • Angina pectoris. • Congestive heart failure. • Acute myocardial infraction. • Thrombo-embolic diseases.	8	4	4
Respiratory System.	• Bronchial asthma • Chronic obstructive pulmonary disease (COPD) • Upper respiratory infections	8	4	4

	(URI) • Tuberculosis			
Gastrointestinal System.	• Peptic ulcers and gastritis	4	2	2
The Endocrine System.	• Diabetes mellitus • Thyroid and Parathyroid disease	6	3	3
Renal System.	• Renal failure. • Urinary tract infections. • urinary lethiasis	4	2	3
Total hours		**32hrs**	**16**	**16hrs**

4– Teaching and Learning Methods

4.1- Lectures, Discussion.
4.2- Group discussion.
4.3- visiting hospital to take patient history and medication profile.

5- Student Assessment Methods

5.1- Participation& semester work — to assess intellectual skills
5.2- Mid term exam — to assess the knowledge & understanding
5.3-Final term exam — to assess the knowledge & understanding

Weighting of Assessments for every semester

Participation and Semester Work	20 %
Mid-Term Examination	20 %
Final-term Examination	60 %
Total	100%

6- List of References

6.1- Course Notes

Handout Texts

6.2- Essential Books (Text Books)

1. Walker and Edwards (eds). Clinical Pharmacy and Therapeutics Third edition (2003).
2. Applied Therapeutics: The Clinical Use of drugs. Koda-kimble.

6.3- Recommended Books

Library Books

7- Facilities Required for Teaching and Learning

- White board & Markers.
- Data show.

Course Specifications For Quality Control

1 – Overall Aims of Course

* This course is designed to give student general aspect about differents quality tests which involved in various manufacturing and processing drugs industries. ,provide him with high ability to use different types of quality control methods & use different types of spectroscopy methods of drugs analysis.

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

a1- Define Quality control in drugs manufacturing.
a2- Explain different type of Quality control .

b- Intellectual Skills

b1- Differentiate between different methods of drugs preperations and analysis.
b2- Use the necessary knowledge to maintain the quality of drugs.

c-Professional and Practical Skills

c1- Analyzes and carry out test for drugs relating to qualitative &quantities' information.
c2- Integrate the quality of drugs in his field by following the basic rules of drugs quality control .

d- General and Transferable Skills

d1- Accepts Attitude on team working.
d2- Manages, controls time and organize his work.

3- Contents

Unit	Topic	No. of hours	Lecture	Practical
Introduction	• Quality control Definition • Types of quality control. • G. M.P as a type of Q.C. • I.S.O in drug manufacturing.	4	2	2
In processes Quality control	• sampling: • Solid R.M. &Liquid R.M	4	2	4

(Raw Materials)	• Analysis: Physical &Chemical tests • Packaging Materials analysis			
Examples of Physical Quality control on:	• syrup & suspensions: o pH, density, viscosity, sedimentation. • tablets & capsules: o Weight variation, hardness, friability, disintegration, dissolution. • Cream & ointments: o weight variation, homogenisty.	6	3	6
Examples of Chemical Quality control	• Spectrophotometric method (UV,VIS,IR,&NMR) theory , principle of work. • Qualitative and quantitative use .	6	3	6
Chromatography and general concept of extraction	• chromatography , types of chromatography • general concept of extraction - H.P.L.C, Column & Gas chromatography. • Thin layer Chromatography.	6	3	6
Total		**26hr**	**13**	**24hr**

4– Teaching and Learning Methods

4.1- Lectures.
4.2- Group discussion.
4.3- Visiting of pharmaceutical industries

5- Student Assessment Methods

Evaluation of the students will be done by:

5.1 Participation& Semester work to assess Intellectual ,General Skills
5.2 Reports to assess Intellectual ,General and Transferable Skills
5.3 Practical exam to assess the practical skills.
5.4 MCQs& Examination to assess Knowledge, Professional Skills

Weighting of Assessments

Semester Work.	10 %
Mid term Examination	20%
Practical practies	20%
Practical Examination	20%
Final Examination	30 %
Total	100%

Any formative only assessments.

6- List of References

6.1- Course Notes

Handout .

6.2- Essential Books (Text Books)

Library books

6.3- Recommended Books

(1) World Health Organization -Technical report-Specification for pharmacetical preperation - 2th edition. W.H.O. Geneva - 1992.

(2) Quality system for Medical Imaging (W.H.O)

7- Facilities Required for Teaching and Learning

* White board & Markers.
* Over head projector.
* Books -handouts.
* Data show

Course Specifications Of pharmaceutical Chemistry II

1 – OVERALL AIMS OF COURSE

1- To provide the knowledge of chemistry of drugs with and their pharmaceutical and medicinal use.
2- To provide the knowledge about structure activity relationship .
3- To correlate medical chemistry facts with manufactuer drugs & clinical application

2-INTENDED LEARNING OUTCOMES:

A- KNOWLEDGE & UNDERSTANDING:

a1-Describe the principles of medicinal chemistry.
a2- Describe the basic principles of mechanism action for active groups in pharmaceutics chemistry
a3-Explain the different reaction between active groups in pharmaceutics chemistry special in preparations of drugs
-Explain nomenclature of medical group.
a4- Explain the active group structure and roles in each group of medicine compounds.
a5- Describe how the chemical modification affects the activity of drugs.

B- INTELLECTUAL SKILLS

b1- Be able to synthesis different medical compound drugs from chemical materials
b2- Determine mode of action , structure of active group in different group of compound drugs .

C-PROFESSIONAL AND PRACTICAL SKILLS

c1- Gain ability to nomenclature the chemical compound s and its derivatives
c2- Classification of medical compound drugs according to medically used& active group.

d- GENERAL AND TRANSFERABLE SKILLS

d1. Work in team
d2. Participate in group discussion

3- Content

unit	Topic	No .of hour	Lect.	practical
Cardiovascular agents	Synthesis, Mode of action , uses, structure activity relationship for • Anti-anginal drugs • Vasodilators • anti-arrhythmic, • Antihypertensive • Anticoagulants, • Anti-hyperlipidaemics	6	3	4
Drug acting as antihistamines	Synthesis, Mode of action , uses, structure activity relationship for • H1 antagonists (diphenhydramine, promethazine, cetrizine), • H2 antagonists (ranitidine, famotidine)	4	2	4
Drug acting as analgesic and antipyretics	Synthesis, Mode of action , uses, structure activity relationship for • Aspirin, mefeanamic acid, ibuprofen, diclofenac.	6	3	6
Drug acting as antibacterial	Synthesis, Mode of action , uses, structure activity relationship for • sulphamethoxazole, sulphadiazine , sulphacetamide, nalidixic acid	4	2	4
Drug acting as diuretics	Synthesis, Mode of action , uses, structure activity relationship for • (acetazolamide, chlorthiazide, furosemide, spironolactone	4	3	4
Total		**26hr**	**13**	**22hr**

4– Teaching and Learning Methods

4.1- lecture

4.2- discussion in groups

4.3 –researching in groups for topics course as assignments

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.4- Practical exam	to assess the practical skills.

Weighing of Assessments

Semester Work (assignments)	10%
Mid-Term Examination	20%
Practical practies	20%
Practical exam	20%
Final-term Examination	30 %
Total	100%

*- List of References

4. Wilso; Gisvold, Doerge, Text book of organic medical pharmaceutical chemistry 7th edition –J . B. Lippincot.
5. Remington's pharmaceutical sciences,
6. An introduction to medicinal chemistry by Graham L. Patrick.

Facilities Required for Teaching and Learning

* White board & Markers.
* Over head projector.
* Glass wares, Chemicals
* Data show.

Course Specifications Of Pharmacology IV

1– Overall Aims of Course

Providing the student with the knowledge and understanding about the mechanism of action, therapeutic uses, side effect and contraindication of drugs affecting gastrointestinal tract, cardiovascular and respiratory

A-Intended Learning Outcomes of Course (ILOs)

a-Knowledge and Understanding:

a1- Define the drugs affecting central nervous system
a2- Explain the action and indication of these drugs.
a3- Classify and mention the uses and adverse effects of diuretics

b-Intellectual Skills

b1- list precaution to be taken for each drug.
b2 - deal with patient when side effect occurred.

c- Professional and Practical Skills

c1- Perform some experiments in pharmacology.

d- General and Transferable Skills

d1- Present scientific topics in seminars.
d2- work as team.

3- Contents

Unit	Topic	No. of hours	Lecture	Practical
Urogenital system	• Diuretics • Oxytocics and uterine relaxants	4	2	
Central Nervous System (C.N.S)	• C.N.S. Stimulants. • Sedatives &hypnotics. • Antipsychotic, Neuroleptic agents. • Anti-anxiety agents • Antidepressant agents. • Anti-parkinsonism. • Antiepileptic agents. • Opioid analgesics. • General anesthetics. • Local anesthetics.	22	11	

	• Alcohols (Ethyl alcohol, Methyl alcohol). • Skeletal muscle relaxants & Anti-spastic agents. • Analgesics, antipyretics and anti-inflammatory agents. • Narcotic analgesics and antagonists.			
Total		**26hr**	**13**	

4– Teaching and Learning Methods

4.1- Lectures
4.2- Group discussion.
4.3- practical
4.4- assignments

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.4- Practical exam	to assess the practical skills.

Weighting of Assessments

Semester work	20%
Mid-Term Examination	20%
Final-term Examination	60%
Total	100%

6- List of References

6.1- Course Notes
Handouts
6.2- Essential Books (Text Books)

- Rang, Dale and Ritter Pharmacology (2000)
- Katzung –Basic and Clinical Pharmacology (2001)
- Laurence, Bennett and Brown-Clinical pharmacology (1997)
- Goodman & Gilman's- The pharmacological basic of therapeutics (1995)

- British National Formulary (BNF) (2002)

6.3- Recommended Books
Library Book

7- Facilities Required for Teaching and Learning

* White board & Markers.
* Over head projector.
* Data show.

Course Specifications Of Pharmaceutical Microbiology

1-Aim of the course

4. To enable the students to practice the principles of sterilization and infection control.
5. To provide the students with the knowledge and understanding about the principles of immunity and immunization.

2) Intended learning outcomes (ILOs)

a- Knowledge and Understanding:

a1- Describe the most important methods of Sterilization and disinfection.
a2- Identify the impact of immunity and immunization.
a3-Differentiate between active and passive immunity.
a4- Define hypersensitivity reaction.
a5-Explain the physiology of the immune system, its beneficial role, as well as its detrimental role in hypersensitivity, autoimmunity and transplant rejection.

b- Intellectual Skills:

b1- Recognize the hypersensitivity reaction.
b3- Appreciate the danger of handling and use of infectious agents on community and environment as a part of their ethical heritage

c- Professional and Practical Skills

d- General and Transferable Skills

d1- Appreciate the danger of handling and use of infectious agents on community and environment as a part of their ethical heritage.
d2- work in team or separately.

3) Contents:

Unit	Topic	No. of hours	Lecture	Practical
I	**Immunology and Immunological Preparations:** • Principles • Antigens and haptens • Immune system • Immunodeficiency • Cellular and humoral immunity • Immunological tolerance • Antigen-antibody reactions and their applications. • Hypersensitivity • Active and passive immunization products, their preparation, standardization and storage.	7	7	
II	**Sterilization** • Sterilization methods and mechanisms • validation of sterilization methods • sterility testing of pharmaceutical products	4	4	
III	**Disinfection** • Factors influencing disinfectants • Dynamics of disinfection • Evaluation of disinfectants and antiseptics.	2	2	
Total		**13hr**	**13**	

4– Teaching and Learning Methods

4.1- Lectures
4.2- Small Group Projects
4.3- Independent Research
4.4- Workbook Assignments

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.5- Quizzes	to assess the knowledge & understanding
5.5- Workbook Assignments	to assess the general and transferable skills.

Weighting of Assessments

Semester work and reports	20 %
Mid-Term Examination	20 %
Final-term Examination	60 %
Total	100%

6- List of References

6.1- Pharmaceutical microbiology. Hugo
- Recommended book.
- Library book.

7- Facilities Required for Teaching and Learning

Overhead projector
7. 2 Data show
7.3 Slides and computer presentations used during teaching

Course Specifications of pharmacy management and leading businesses

1 – Overall Aims of Course

This course is designed to provide student knowledge about basis principles of administration and medical supply to develop an ability in planning, organization, making orders, fill an order –form and also pharmaceutical services handling and keeping drug and medical equipments.

2 – Intended Learning Outcomes of Course (ILOs)

d- Knowledge and Understanding:

a1- Define the administration and medical supply.
a2-Plan and organize pharmaceutical services
a3-Make regular inventories and mention equipment
a4-keep records and mention well organized system and report
a5-make order from stock and fill-in order form-

b- Intellectual Skills

b1-planning be able to make drug planning to a hospital pharmacy
b2-control and regular stock

c- Professional and Practical Skills

c1-Differntiate between pharmaceutical administration and other department
c2-Reciveivang and distribution drug and other medical instruments.
c3-Train how to buy his supplies

d- General and Transferable Skills

d1-Apply administration
d2-Evaluate a management plan for pharmacy administration
d3-Great a management plan for drug stores

3- Contents

Unit	Topic	No. of hours	Lecture	Practical
Introduction about administration	• The nature and function of administration • Organization and function of pharmaceutical services in Yemen • The relation between pharmacy and another health department • Pharmaceutical by laws in Yemen • Office organization • Index • Filing • Reporting • Corresponding • Budgeting –Organization-- • Scheduling of duty time • Equipment managing • Purchasing-	12	6	—
Store and srore keeper	• Preparation and selection of stock item • Cleaning and re-arrangement of stock • Stock count and making the inventory • Calculation of minimum of and maximum stock level	4	2	—
Ordering Procedure	• Making order from stock • Danger of over stock • Checking • Fill an order form • Buying • Receiving and checking • Unpacking	4	2	—

	• Discrepancy report • Objectives • Type			

Unit	Topic	No. of hours	Lecture	Practical
Inventory control **Store of stock**	• Stock temperature • Storage of chemicals • Storage of pharmaceutical form • Pharmacy storage • Storage store • Storage of medical equipments • Alteration of drug when poor storage • use of antioxidants, preservatives and other • Physico-chemical laws in stability of drug	6	3	—
Total		**26hr**	**13**	—

4– Teaching and Learning Methods

4.1-Lectures, discussion
4.2-visiting medical supply store and hospitals

5- Student Assessment Methods

5.1- Semester work to assess Intellectual, General and Transferable skill
5.2- Write report about visiting to assess knowledge, understanding. Professional skill
5.3- Mid term Exam assess knowledge, understanding. Professional and practical skill.
5.4- Final Exam. to assess knowledge, understanding. Professional and practical skill

Weighting of Assessments

Semester Work	20 %
Mid-Term Examination	20 %
Final-term Examination	60 %
Total	100%

6- List of References

6.1- Course Notes
Handouts
6.2- Essential Books (Text Books)
The drug fund for medical supply catalogue.
6.3- Recommended book:-
Library Book

7- Facilities Required for Teaching and Learning

* white board-marker.
* Data show.
* Over head projector.

Course Specifications Of Community Pharmacy

1 – OVERALL AIMS OF COURSE

3. Provide the student with roles of community pharmacist
4. Learn the student with the methods of patient assessment and care as they relate specifically to the drug and non-drug management of minor ailments.
5. The student able to asses the pathogenesis, clinical features, management and treatment outcomes of some disorders.
6. Provide the student with the knowledge about prescription and non-prescription drugs.

2 – INTENDED LEARNING OUTCOMES OF COURSE (ILOS)

A- KNOWLEDGE AND UNDERSTANDING:

a1- Explain the roles of community pharmacist.
a2- Enumerate the non-prescription drugs.
a3- Describe the method of patient assessment and care.
a4- Describe the hospital pharmacy organization and hospital pharmacist responsibilities.
a6- Explain the process of therapy drug monitoring.

b- INTELLECTUAL SKILLS

b1- Differentiate the symptoms of different causing diseases.
b2- Select the correct OTC drug for different cases.
b3- Determines the patient case for treatment or referring to the physician.
b4- Integrate the basic science required to asses the pathogenesis, clinical features, management and treatment outcomes of some disorders.

c- PROFESSIONAL AND PRACTICAL SKILLS

c1- Diagnose and treatment of some minor illnesses.
c2- Dispense the drug prescription.
c3- Manage the drug adverse effect or drug interaction.
c4- Prepare intravenous admixture

d- GENERAL AND TRANSFERABLE SKILLS

d1 Interact effectively with patients, the public and health professionals.
d2- Reflect on the use of communication skills in counter prescribing.
d3- Be able to analyze published literature

3- CONTENTS

Unit	TOPICS	No. of hours	Lecture	Practical
I	**The practice of community pharmacy** • Definitions • Roles of community pharmacist • Adverse drug reactions and drug interactions	2	1	
II	**Non-prescription drugs:** • Introduction • Types	2	1	2
III	**In each of the following topics it covers the *pathogenesis, clinical features, management and treatment outcomes as well as the recommendation and the cases that need referral to physician*)** o Pain (internal and external analgesics) o Cough o Diarrhea o Constipation o Common cold o Hemorrhoids'. o Gastritis, indigestion, and gastro-esophageal reflux distress o Insomnia o Allergy o Infestations; ear, nose and throat conditions (like sore throat o Genitourinary tract infections (volvovaginal candidiais, vaginitis) o Skin disorders (eczema, scabies, head lice) o Wounds o Burns o Irritable bowel syndrome	12	6	10

	○ Girdiasis, amoebisis, ascariasis and pin worm infestation. ○ Hair loss ○ Oral contraceptives			

Unit	TOPICS	No. of hours	Lecture	Practical
IV	**Hospital pharmacy** • Definition • Structure and Organization • Hospital pharmacist responsibilities • Types of drug distribution • Hospital formulary • Pharmacy and therapeutic committee • Intravenous admixture • Therapy drug monitoring (TDM)	10	5	8
Total		**26hr**	**13**	**18hrs**

4– Teaching and Learning Methods

4.1- Lectures
4.2- Visiting to community pharmacies and hospitals
4.3- Group discussion
4.4- Seminars
4.5- Reports

5- Student Assessment Methods

5.1- Participation& semester work — to assess intellectual skills
5.2- Mid term exam — to assess the knowledge & understanding
5.3-Final term exam — to assess the knowledge & understanding

Weighting of Assessments

Participation& semester work	10%
Mid-Term Examination	20%
Practical practies	20%
Practical Examination	20%
Final-term Examination	30%
Total	100%

6- List of References

6.1- Course Notes

6.2- Essential Books (Text Books)

1. **Handbook of Non-Prescription drugs, Tim Covington, American Pharmaceutical Association.**

6.3- Recommended Books

Library Book

7- Facilities Required for Teaching and Learning

- White board & Markers.
- Over head projector.
- Data show.

Course Specifications of Pharmacology V

1 – Overall Aims of Course

Providing the student with the knowledge and understanding about chemotherapy.

– Intended Learning Outcomes of Course (ILOs)

Knowledge and Understanding:

a1- Define and describe the antifungal drugs.
a2- Explain the action and indication chemotherapeutics agents.
a3- Classify antibiotics.
a4- Enumerate the anti-malarial agents.
a5- Explain the chemotherapy of tuberculosis.
a7- Define the antiviral, Anthelmintics and antiprotozoal drugs.
a8- Classify anticancer drugs and describe its adverse effects.

b-Intellectual Skills

b1- list precaution to be taken for each drug.
b2 - Deal with patient when side effect occurred.

c- Professional and Practical Skills

c1- Perform some experiments in pharmacology.

d- General and Transferable Skills

d1- Present scientific topics in seminars.
d2- Work as team.

Unit	Topic	No. of hours	Lecture	Practical
Introduction	General principles of chemotherapy	2	1	—
Antimicrobials	Classification of antimicrobial agents • Folate antagonists ▪ Inhibitors of folate synthesis (sulfonamides) ▪ Inhibitors of folate reduction ▪ (trimethoprim) • Inhibitors of cell wall synthesis ○ Beta lactam antibiotics ○ Penicillin ○ Cephalosporin ○ Carbapenems ○ monobactams ○ B- lactamase inhibitors • Protein synthesis inhibitors ○ Chloramphenicol ○ Tetracycline ○ Macrolides ○ Clindamycin. ○ Amino glycosides &Spectinomycines. • Quinolones ○ Quinolones ○ Fluroquinolones • Urinary tract antiseptics.. • Chemotherapy of tuberculosis • Chemotherapy of leprosy	10	5	4
Anti-protozoal agents	▪ Leishmaniasis ▪ Trypanosomiasis ▪ Toxoplasmosis ▪ Giardiasis and amoebisis	2	1	
Anti -fungal agents.	▪ Drugs for subcutaneous and systemic mycoses. ▪ Drugs for superficial mycoses.	2	1	

3- Contents

Unit	Topic	No. of hours	Lecture	Practical
Antiviral agents.	• Antiviral drugs for respiratory virus infection • Antiviral drugs for herpes and cytomegalovirus infection • Antiviral drugs for human immunodeficiency virus (HIV) infection. • Antiviral drugs for hepatitis • Antiviral drugs for leukemia.	2	1	
Anti- malarial agents	▪ Life cycle of malarial parasite ▪ Tissue schizonticides ▪ Blood schizonticides ▪ Blood schizonticides and sporonticide	2	1	
Anthelmintic drugs.	• Chemotherapy of Nematiodes • Chemotherapy of Trematodes • Chemotherapy of Cestodes	2	1	
Chemotherapy of cancer and immunosuppressant drugs	▪ Principles of cancer chemotherapy ▪ Adverse effects of anticancer drugs. ▪ Anticancer drugs o Anti-metabolites o Antibiotics o Alkylating agents o Microtubule inhibitors. o Steroid hormones and theirantagonists. o Others o Cisplatin o Etoposide o Procarbazines o Asparaginase o Interferons.	4	2	
Total		**26hr**	**13**	

4– Teaching and Learning Methods

4.1- Lectures

4.2- Group discussion.

4.3- practical
4.4- assignments

5- Student Assessment Methods

5.1- Participation& semester work	to assess intellectual skills
5.2- Mid term exam	to assess the knowledge & understanding
5.3-Final term exam	to assess the knowledge & understanding
5.4- Practical exam	to assess the practical skills.

Weighting of Assessments

Semester work	20%
Mid-Term Examination	20%
Final-term Examination	60%
Total	100%

6- List of References

6.1- Course Notes
hand out

6.2- Essential Books (Text Books)

- Rang, Dale and Ritter Pharmacology (2000)
- Katzung –Basic and Clinical Pharmacology (2001)
- Laurence, Bennett and Brown-Clinical pharmacology (1997)
- Goodman & Gilman's- The pharmacological basic of therapeutics
  - (1995)
- British National Formulary (BNF) (2002)

6.3- Recommended Books
Library book

7- Facilities Required for Teaching and Learning

* White board & Markers.
* Over head projector.
* Data show.

Course title: structured practical experimental program 1+2+3

1 – OVERALL AIMS OF COURSE

1. Able to apply academic knowledge to real-world applications of pharmacy in an industrial setting.
2. Able to analyze, interpret and report scientific and/or commercial information.
3. Able demonstrate professional attitudes to work including reliability, planning and time management skills,
4. The ability to operate as part of a team and to respond to leadership
5. Ability to investigate, analyze and critically assess aspects `of the professional practice of pharmacy in hospital and community pharmacy.
6. To develop students' confidence and competency to

- Care for patients with non-pharmacological strategies and non-prescription medications.
- Care for patients with health-promotion and immunization and other disease- prevention activities.
- Educate patients about the roles and responsibilities of pharmacists
- Self-assess and document activities.

2-INTENDED LEARNING OUT COMES

b- INTELLECTUAL SKILLS

b1- The ability to apply problem solving skill

b2- Intellectual independence

b3-Investigate, analyze and critically assess aspects of the professional practice of pharmacy in their organization at the area of work

b4-Analyze interpret and report scientific and/or commercial information

c-PROFESSIONAL AND PRACTICAL SKILLS

c1- Dispensing of medicines to individual patients with due regard for the legal, therapeutic and professional requirements

c2- Recording of prescriptions and patient details.

c3- Apply academic knowledge to real-world applications of pharmacy in an industrial setting.

d- GENERAL AND TRANSFERABLE SKILLS

d1- The ability to work effectively and safely in a clinical and laboratory environment

d2- An appreciation of the relationships existing between drugs, medicines and patients

d3- To develop the concept of professionalism and the responsibilities associated with being a professional.

d4-To develop the culture and ethics of pharmacy as it relates to the total health-care setting.

d5-Demonstrate appropriate communication skills.

3- Content

Topic		No .of hour	Practical
Drug Industry Training	• Students are intended to practice in any pharmaceutical company to acquire the skills for :- ○ Quality control of pharmaceutical dosage forms. ○ Manufacturing process of different types of pharmaceutical dosage forms. ○ Pharmaceutical research and development.	120	
Hospital Training	Hospital visit to • Identify drug-related problems for some patients from information available in hospital charts. • Create therapeutic plans to address the drug-related problems • Discuss the therapeutic plans with a hospital pharmacist • process of adverse drug reaction reporting and analysis • Understanding of policies and procedures relating to distribution and administration of drugs to patients in hospitals. • steps involved in preparation of intermittent and continuous infusions, total parenteral nutrition, and chemotherapy • Unit dose Interpret/ check medication	140	

	orders for completeness, appropriateness, and accuracy •		
Community Pharmacy Training	• Experiences counseling patients about non-prescription medications • Health-promotion and disease-prevention strategies • The roles and responsibilities of pharmacists. • Students are encouraged to form a long-term professional relationship with one or more patients with chronic medical conditions. • Students are encouraged to design and implement their own health-promotion and disease-prevention programs. • Know the generic and brand names of drugs.	124	

4– Teaching and Learning Methods

4.1- Lectures

4.2- Tutorials

5- Student Assessment Methods

5.1- Essay assignments to assess intellectual skills

5.3-Final oral/written exam to assess the knowledge & understanding

5.3- laboratory and other written reports to assess practical/professional and general transferable skills.

Weighting of Assessments

Essay assignments	30	%
Laboratory and other written reports	40	%
Final oral/written exam	30	%
Total	100	%

*- List of References

***- Facilities Required for Teaching and Learning**

* White board & Markers.

* Over head projector.

Course Coordinator:

Head of Department:

Date: / /

الجمهورية اليمنية
وزارة التربيه و التعليم والبحث العلمي
الكلية التطبيقية للعلوم والتكنولوجيا ذمار

Course Specifications of Graduation Project

1 – OVERALL AIMS OF COURSE

1. To apply research skills into a research study, undertake fieldwork and present a dissertation.
2. Summarizes and provides a final integration of knowledge, skills and attitudes developed during the five years in subjects related to pharmacy
3. Each student carries out a project relevant to current pharmaceutical development and practice in the hospital, community and pharmaceutical industry and/or research laboratory, and writes a critical report of relevant knowledge, novel observations and findings.

2-INTENDED LEARNING OUT COMES:

a- KNOWLEDGE & UNDERSTANDING:

a1-Define the Principles of research planning and design
a2- Describe principles of basics of experimental design and analysis.

b- INTELLECTUAL SKILLS

b1- Identify suitable research topics.
b2- Undertake independent research.
b3- Be able to do Critical review and analysis of related literature.

c-PROFESSIONAL AND PRACTICAL SKILLS

c1- Design research study
c2- Perform method validation and presentation of research report.
c3- Write the research proposal and theses.

d- GENERAL AND TRANSFERABLE SKILLS

d1-Demonstrate appropriate communication skills.

d2- Present clearly and effectively scientific topic in a tutorial or a staff meeting.

d3- Work separately or in a team to research and prepare a scientific topic.

3- Content

Topic	No .of hour	Lecture	practical
• Development of a research protocol • Fieldwork and data analysis	2	2	
• This research project course involves the generation of new scientific information and a review and understanding of the scientific literature. • The research may be conducted in a laboratory, hospital, community pharmacy, pharmaceutical company, etc., depending on the project and the supervisor. • Students are divided into groups and each group is working together. • Students are expected to work approximately 72 hours. This will include working in the laboratory, etc., reading or searching literature, and writing up the research project. • Fields of study available may include: o Medicinal chemistry o Pharmaceutics o Biopharmaceutics and Pharmacokinetics o Pharmacology o Community pharmacy o Toxicology. o Pharmacognosy o Biochemistry o Industrial pharmacy	11	11	
Total	**13hr**	**13**	

4– Teaching and Learning Methods

4.1- Research
4.2- Tutorials

5- Student Assessment Methods

1- Dissertation

Assessment Schedule

At the end of the semester week 18

Weighting of Assessments

Dissertation Evaluation 100 %

For dissertation evaluation

Evaluation of student performance is as follows:

	Components	Grade distribution	
		Supervisor	Reviewer
1	Identification of problem	15	5
2	Quality of work (carefulness)	15	5
3	Data analysis	5	5
4	Write-up (style, grammar)	10	10
5	Theses examination	15	15
		60	40
Total hours		100	