

## Course Specification of Clinical Training: Internal Medicine I

I. Course Identification and General Information:						
1	Course Title:	Clinical Training: Internal Medicine I				
2	Course Code & Number:	B1101691				
3	Credit hours:	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
				5		5
4	Study level/ semester at which this course is offered:	Sixth Year: First Semester				
5	Pre –requisite (if any):	All courses of pharmacology and Therapeutics				
6	Co –requisite (if any):	No				
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English				
9	Location of teaching the course:					
10	Prepared By:	Abdulsalam Halboup				
11	Date of Approval					

### II. Course Description:

This rotation will expand therapeutic knowledge and necessary skills related to design a therapeutic plan for medical ill patient. The students will learn the systemic approach of proposing pharmaceutical care plan for cardiovascular, endocrine, renal, and pulmonary disorders. This rotation will be taught through attending rotation, discussing clinical cases based on daily follow-up, monitoring parameters in addition to pharmaceutical care plan evaluation. Studying therapeutic courses is prerequisite for this rotation.

### III. Course Objectives:

1. Integrate the pharmacotherapy principles and clinical experience and apply them at medical patients in the hospital setting.
2. Equip students with the required practical skills to enable them designing pharmaceutical care plan in order to improve patients' health outcomes.
3. Provide students with real clinical experience to be self-confident while communicating with other healthcare providers as well as the patients.
4. Encourage life-long learning via self-directed education process.

#### IV. Course Intended Learning Outcomes (CILOs):

##### Knowledge and Understanding:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Knowledge and Understanding PILOs	Knowledge and Understanding CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>A2.</b> Illustrate the fundamentals of social and behavioral sciences relevant to pharmacy, ethics of health care and its impact on their relationship with patients and other healthcare professionals.	a1. Describe the essential information of social and behavioral sciences to build professional relationship with patients as well as with other healthcare providers.
<b>A5.</b> Outline principles of clinical pharmacology, therapeutics and Pharmacovigilance.	a2. Explain the fundamentals of medication therapy, optimum use of cardiovascular drugs, and their safety profile.

##### Intellectual Skills:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Intellectual Skills PILOs	Intellectual Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>B3.</b> Solve problems to reduce drug therapy problems	<b>b1.</b> Propose appropriate therapeutic and monitoring plan to prevent drug therapy problems in medical care setting

##### Professional and Practical Skills

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Professional and Practical Skills PILOs	Professional and Practical Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>C4.</b> Carry out-patient physical assessment ethically	c1. Assess patients-related data to propose appropriate therapeutic plan and reduce drug related problems.
<b>C5.</b> Advise the patients and health care professionals for optimizing medicines use.	c2. Apply the effective use of medicine, provide timely and appropriate medication information to patients and healthcare professionals.

<b>Transferable (General) Skills:</b>	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Transferable (General) Skills PILOs	Transferable (General) Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>D1.</b> Communicate effectively and ethically with patients, public, and health care professionals	d1. Cooperate effectively with the patients and healthcare professionals using verbal and nonverbal communication skills about the effective use of medicine.
<b>D2.</b> Use information systems and computer software in order to enhance the delivery of pharmaceutical care,	d2. Utilize the obtained information from different resources to provide appropriate pharmaceutical interventions.
<b>D3.</b> Work effectively individually and in a team	d3. Have the ability to deliver medication-related advice individually and in groups.
<b>D4.</b> Have the skills of decision-making and time management and life- long learning	d4. Have the skills to make a timely and up to date therapeutic-related decision for endocrine, renal, or pulmonary disorders.

<b>V. Alignment Course Intended Learning Outcomes</b>		
<b>(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1. Describe the essential information of social and behavioral sciences to build professional relationship with patients as well as with other healthcare providers.	- Small practical session - Tutorial session - Seminars - Critical analysis - Field training	- Daily evaluation - Formal case presentation - Patient counseling - Assignment - Intervention provided.
a2. Explain the fundamentals of medication therapy, optimum use of cardiovascular drugs, and their safety profile.	- Use of advanced database searches - Independent study	- Weekly quiz - Final written examinations. -
<b>(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies

<p><b>b1.</b> Propose appropriate therapeutic and monitoring plan to prevent drug therapy problems in medical care setting.</p>	<ul style="list-style-type: none"> <li>- Small practical session</li> <li>- Tutorial session</li> <li>- Seminars</li> <li>- Critical analysis</li> <li>- Field training</li> <li>- Use of advanced database searches</li> <li>- Independent study</li> </ul>	<ul style="list-style-type: none"> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Patient counseling</li> <li>- Intervention provided.</li> <li>- Final written examinations</li> </ul>
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**(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:**

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
<p>c1. Assess patients-related data to propose appropriate therapeutic plan and reduce drug related problems.</p>	<ul style="list-style-type: none"> <li>- Collect and interpret the available subjective and objective data.</li> <li>- Review and monitor patient medication regimens focusing on the following: appropriateness of therapy, adverse drug reactions, and potential interactions.</li> </ul>	<ul style="list-style-type: none"> <li>- Patient counseling</li> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Assignment</li> <li>- Intervention provided.</li> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>
<p>c2. Apply the effective use of medicine, provide timely and appropriate medication information to patients and healthcare professionals.</p>	<ul style="list-style-type: none"> <li>- Critical reading</li> <li>- Small group discussions</li> <li>- Seminar</li> </ul>	

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

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
<p>d1. Cooperate effectively with the patients and healthcare professionals using verbal and nonverbal communication skills about the effective use of medicine.</p>	<ul style="list-style-type: none"> <li>- Oral presentations</li> <li>- Clinical training</li> <li>- Use of advanced database searches</li> <li>- Critical reading</li> </ul>	<ul style="list-style-type: none"> <li>- Patient counseling</li> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Assignment</li> <li>- Intervention provided.</li> </ul>
<p>d2. Utilize the obtained information from different resources to provide appropriate pharmaceutical interventions.</p>	<ul style="list-style-type: none"> <li>- Small group discussions</li> <li>- Seminars.</li> <li>- Clinical decision-making skills through group and individual tutorials</li> </ul>	<ul style="list-style-type: none"> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>
<p>d3. Have the ability to deliver medication-related advice individually and in groups.</p>	<ul style="list-style-type: none"> <li>-</li> </ul>	
<p>d4. Have the skills to make a timely and up to date therapeutic-related decision for endocrine,</p>		

renal, or pulmonary disorders.		
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## V. Course Content:

### A – Theoretical Aspect: Not applicable

Order	Units/Topics List	Sub Topics List	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1					
2		-			
3		-			
4		-			
5		-			
6		-			
7					
8		-			
9		-			
10		-			
11		-			
12		-			
13		-			
14	-				
Number of Weeks /and Units Per Semester					

<b>B – Case Studies and Practical Aspect:</b>				
Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1	<b>Cardiovascular Diseases:</b> Heart Failure (HF), Ischemic Heart Disease (IHD), Hypertension, Dyslipidemias Thromboembolic Disorders	1 <sup>st</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
2	<b>Endocrine disorders:</b> Diabetes Mellitus, Thyroid Disorders, Adrenal Gland Disorders	2 <sup>nd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
3	<b>Renal Disorders:</b> Acute Kidney Injury, Chronic and End-Stage Renal Disease, Fluids and Electrolytes, Acid–Base Disturbances	3 <sup>rd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
4	<b>Pulmonary Diseases:</b> COPD, Asthma	4 <sup>th</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
<b>Number of Weeks /and Units Per Semester</b>			<b>120 hrs</b>	

<b>VI. Teaching strategies of the course:</b>
<ol style="list-style-type: none"> <li>1. Informal cases studies</li> <li>2. Small practical discussion and individualized</li> <li>3. Tutorial session</li> <li>4. Seminars</li> <li>5. Critical analysis and reading</li> <li>6. Clinical training and decision-making skills</li> <li>7. Independent study</li> <li>8. Use of advanced database searches</li> <li>9. Individual supervision</li> <li>10. Collecting, interpreting, and integrating available information in disease state</li> <li>11. Review and monitor patient medication regimens</li> <li>12. Oral presentations</li> </ol>

VII. Assignments:				
No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	In-service	a1, a2, b1,c1,c2,d1,d2,d3,d4	3 <sup>rd</sup> -4 <sup>th</sup> week	5

VIII. Schedule of Assessment Tasks for Students During the Semester:					
No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Rotation Attendance	1 <sup>st</sup> -4 <sup>th</sup> week	10	10%	a2, b1,c1,c2,d1,d2,d3,d4
2	Daily Evaluation	1 <sup>st</sup> -4 <sup>th</sup> Week	15	15%	a1, a2, b1,c1,c2,d1,d2,d3,d4
3	Formal Case Presentation.	2 <sup>nd</sup> -4 <sup>th</sup> Week	20	20%	a1, a2, b1,c1,c2,d1,d2,d3,d4
4	Weekly Quiz	2 <sup>nd</sup> -4 <sup>th</sup> Week	10	10%	a2, b1,c1,c2 ,d3,d4
5	In-service	2 <sup>nd</sup> -4 <sup>th</sup> Week	5	5%	a1, a2, b1,c1,c2,d1,d2,d3,d4
6	Final writing examination	4 <sup>th</sup> Week	40	40%	a1, a2, b1,c1,c2 ,d3,d4
<b>Total</b>			<b>100</b>	<b>100%</b>	

## IX. Learning Resources:

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

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

- DiPiro, J. T. (2020). Pharmacotherapy: A pathophysiologic approach, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.
- Koda-Kimble, M. A., & Young, L. Y. (2018). Applied therapeutics: The clinical use of drugs, 11<sup>th</sup> edition. Baltimore, Md: Lippincott Williams & Wilkins, United States of America.

### 2- Essential References.

1. Lexicomp, (2020). Drug Information Handbook, 29<sup>th</sup> edition, Lexi-Comp, U.S.A
2. DiPiro, J. T. (2020). Pharmacotherapy: Handbook, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.
3. British national formulary (BNF), last edition, Pharmaceutical Press.
4. Philip Wiffen & els, (2017), Oxford Handbook of Clinical Pharmacy, 3<sup>rd</sup> edition.
5. Marie Chisholm-Burns (January 3, 2019), Pharmacotherapy Principles and Practice, 5<sup>th</sup> Edition, McGraw-Hill Education / Medical, United States of America

### 3- Electronic Materials and Web Sites etc.

1. [www.uptodate.com](http://www.uptodate.com)
2. [www.medscape.com](http://www.medscape.com)
3. [www.ncbi.nlm.nih.gov/pubmed](http://www.ncbi.nlm.nih.gov/pubmed)
4. <http://www.accp.com/>



## Course Specification of Clinical Training: Internal Medicine 2

I. Course Identification and General Information:						
1	Course Title:	Clinical Training: Internal Medicine 2				
2	Course Code & Number:	B1101692				
3	Credit hours:	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
				5		5
4	Study level/ semester at which this course is offered:	Sixth Year: First Semester				
5	Pre –requisite (if any):	All courses of pharmacology and Therapeutics				
6	Co –requisite (if any):	No				
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English				
9	Location of teaching the course:					
10	Prepared By:	Abdulsalam Halboup				
11	Date of Approval					

## II. Course Description:

This rotation will develop therapeutic knowledge and necessary skills related to design a therapeutic plan for medical ill patient. The students will learn the systemic approach of proposing pharmaceutical care plan for gastrointestinal, rheumatologic, neurologic and infectious diseases and disorders. This supervised clinical training will be taught through attending rotation, discussing clinical cases based on daily follow-up, monitoring parameters in addition to pharmaceutical care plan evaluation. Studying therapeutic courses is prerequisite for this rotation.

## III. Course Objectives:

1. Combine the pharmacotherapy principles and clinical experience and apply them at medical patients in the hospital setting.
2. Equip students with the required practical skills to enable them designing pharmaceutical care plan in order to improve patients' health outcomes.
3. Provide students with real clinical experience to be self-confident while communicating with other healthcare providers as well as the patients.
4. Encourage life-long learning via self-directed education process.

#### IV. Course Intended Learning Outcomes (CILOs):

##### Knowledge and Understanding:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Knowledge and Understanding PILOs	Knowledge and Understanding CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>A2.</b> Illustrate the fundamentals of social and behavioral sciences relevant to pharmacy, ethics of health care and its impact on their relationship with patients and other healthcare professionals.	a1. Describe the essential information of social and behavioral sciences to build professional relationship with patients as well as with other healthcare providers.
<b>A5.</b> Outline principles of clinical pharmacology, therapeutics and Pharmacovigilance.	a2. Explain the fundamentals of medication therapy, optimum use of gastrointestinal drugs, and their safety profile.

##### Intellectual Skills:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Intellectual Skills PILOs	Intellectual Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>B3.</b> Solve problems to reduce drug therapy problems	<b>b1.</b> Propose appropriate therapeutic and monitoring plan to prevent drug therapy problems in medical care setting.

##### Professional and Practical Skills

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Professional and Practical Skills PILOs	Professional and Practical Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>C4.</b> Carry out-patient physical assessment ethically	c1. Assess patients-related data to propose appropriate therapeutic plan and reduce drug related problems.
<b>C5.</b> Advise the patients and health care professionals for optimizing medicines use.	c2. Apply the effective use of medicine, provide timely and appropriate medication information to patients and healthcare professionals.

<b>Transferable (General) Skills:</b>	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Transferable (General) Skills PILOs	Transferable (General) Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>D1.</b> Communicate effectively and ethically with patients, public, and health care professionals	d1. Cooperate effectively with the patients and healthcare professionals using verbal and nonverbal communication skills about the effective use of medicine.
<b>D2.</b> Use information systems and computer software in order to enhance the delivery of pharmaceutical care,	d2. Utilize the obtained information from different resources to provide appropriate pharmaceutical interventions.
<b>D3.</b> Work effectively individually and in a team	d3. Have the ability to deliver medication-related advice individually and in groups.
<b>D4.</b> Have the skills of decision-making and time management and life- long learning	d4. Have the skills to make a timely and up to date therapeutic-related decision for rheumatologic, neurologic, or infectious diseases.

<b>V. Alignment Course Intended Learning Outcomes</b>		
<b>(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1. Describe the essential information of social and behavioral sciences to build professional relationship with patients as well as with other healthcare providers.	- Small practical session - Tutorial session - Seminars - Critical analysis - Field training	- Written examinations. - Daily evaluation - Formal case presentation - Patient counseling - Assignment - Intervention provided.
a2. Explain the fundamentals of medication therapy, optimum use of gastrointestinal drugs, and their safety profile.	- Use of advanced database searches - Independent study	
<b>(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies

<p><b>b1.</b> Propose appropriate therapeutic and monitoring plan to prevent drug therapy problems in medical care setting.</p>	<ul style="list-style-type: none"> <li>- Small practical session</li> <li>- Tutorial session</li> <li>- Seminars</li> <li>- Critical analysis</li> <li>- Field training</li> <li>- Use of advanced database searches</li> <li>- Independent study</li> </ul>	<ul style="list-style-type: none"> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Patient counseling</li> <li>- Intervention provided.</li> <li>- Final written examinations</li> </ul>
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**(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:**

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
<p>c1. Assess patients-related data to propose appropriate therapeutic plan and reduce drug related problems.</p>	<ul style="list-style-type: none"> <li>- Collect and interpret the available subjective and objective data.</li> </ul>	<ul style="list-style-type: none"> <li>- Patient counseling</li> <li>- Daily evaluation</li> <li>- Formal case presentation</li> </ul>
<p>c2. Apply the effective use of medicine, provide timely and appropriate medication information to patients and healthcare professionals.</p>	<ul style="list-style-type: none"> <li>- Review and monitor patient medication regimens focusing on the following: appropriateness of therapy, adverse drug reactions, and potential interactions.</li> <li>- Critical reading</li> <li>- Small group discussions</li> <li>- Seminar</li> </ul>	<ul style="list-style-type: none"> <li>- Assignment</li> <li>- Intervention provided.</li> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>

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

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
<p>d1. Cooperate effectively with the patients and healthcare professionals using verbal and nonverbal communication skills about the effective use of medicine.</p>	<ul style="list-style-type: none"> <li>- Oral presentations</li> <li>- Clinical training</li> <li>- Use of advanced database searches</li> </ul>	<ul style="list-style-type: none"> <li>- Patient counseling</li> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Assignment</li> <li>- Intervention provided.</li> </ul>
<p>d2. Utilize the obtained information from different resources to provide appropriate pharmaceutical interventions.</p>	<ul style="list-style-type: none"> <li>- Critical reading</li> <li>- Small group discussions</li> <li>- Seminars.</li> </ul>	<ul style="list-style-type: none"> <li>- Intervention provided.</li> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>
<p>d3. Have the ability to deliver medication-related advice individually and in groups.</p>	<ul style="list-style-type: none"> <li>- Clinical decision-making skills through group and individual tutorials</li> </ul>	
<p>d4. Have the skills to make a timely and up to date therapeutic-related decision for rheumatologic, neurologic, or infectious</p>		

diseases.		
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V. Course Content:					
A – Theoretical Aspect: Not applicable					
Order	Units/Topics List	Sub Topics List	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1					
2		-			
3		-			
4		-			
5		-			
6		-			
7					
8		-			
9		-			
10		-			
11		-			
12		-			
13		-			
14	-				
Number of Weeks /and Units Per Semester					

<b>B – Case Studies and Practical Aspect:</b>				
Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1	<b>Gastrointestinal Disorders:</b> Peptic Ulcer Disease (PUD), Gastroesophageal Reflux Disease (GERD), Inflammatory Bowel Disease (IBD), Nausea and Vomiting, Constipation, Diarrhea, and Irritable Bowel Syndrome, Portal Hypertension and Cirrhosis, Pancreatitis, Viral Hepatitis	1 <sup>st</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
2	<b>Rheumatology Disorders:</b> Gout and Hyperuricemia, Osteoarthritis, Rheumatoid Arthritis, Osteoporosis, Systemic lupus erythematosus (SLE)	2 <sup>nd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
3	<b>Neurology Diseases:</b> Pain Management, Stroke, headache, Epilepsy	3 <sup>rd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
4	<b>Infectious Diseases:</b> Respiratory tract infections, Tuberculosis, UTI	4 <sup>th</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
<b>Number of Weeks /and Units Per Semester</b>			<b>120 hrs</b>	

## VI. Teaching strategies of the course:

1. Informal cases studies
2. Small practical discussion and individualized
3. Tutorial session
4. Seminars
5. Critical analysis and reading
6. Clinical training and decision-making skills
7. Independent study
8. Use of advanced database searches
9. Individual supervision
10. Collecting, interpreting, and integrating available information in disease state
11. Review and monitor patient medication regimens
12. Oral presentations

## VII. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	In-service	a1, a2, b1,c1,c2,d1,d2,d3,d4	3 <sup>rd</sup> -4 <sup>th</sup> week	5

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

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Rotation Attendance	1 <sup>st</sup> -4 <sup>th</sup> week	10	10%	a2, b1,c1,c2,d1,d2,d3,d4
2	Daily Evaluation	1 <sup>st</sup> -4 <sup>th</sup> Week	15	15%	a1, a2, b1,c1,c2,d1,d2,d3,d4
3	Formal Case Presentation.	2 <sup>nd</sup> -4 <sup>th</sup> Week	20	20%	a1, a2, b1,c1,c2,d1,d2,d3,d4

4	Weekly Quiz	2 <sup>nd</sup> -4 <sup>th</sup> Week	10	10%	a2, b1,c1,c2 ,d3,d4
5	In-service	2 <sup>nd</sup> -4 <sup>th</sup> Week	5	5%	a1, a2, b1,c1,c2,d1,d2,d3,d4
6	Final writing examination	4 <sup>th</sup> Week	40	40%	a1, a2, b1,c1,c2 ,d3,d4
<b>Total</b>			<b>100</b>	<b>100%</b>	

<b>IX. Learning Resources:</b>	
<ul style="list-style-type: none"> <li>• <i>Written in the following order: ( Author - Year of publication - Title - Edition - Place of publication - Publisher).</i></li> </ul>	
<b>1- Required Textbook(s) (maximum two ).</b>	
	<ul style="list-style-type: none"> <li>• DiPiro, J. T. (2020). Pharmacotherapy: A pathophysiologic approach, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.</li> <li>• Koda-Kimble, M. A., &amp; Young, L. Y. (2018). Applied therapeutics: The clinical use of drugs, 11<sup>th</sup> edition. Baltimore, Md: Lippincott Williams &amp; Wilkins, United States of America.</li> </ul>
<b>2- Essential References.</b>	
	<ol style="list-style-type: none"> <li>1. Lexicomp, (2020). Drug Information Handbook, 29<sup>th</sup> edition, Lexi-Comp, U.S.A</li> <li>2. DiPiro, J. T. (2020). Pharmacotherapy: Handbook, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.</li> <li>3. British national formulary (BNF), last edition, Pharmaceutical Press.</li> <li>4. Philip Wiffen &amp; els, (2017), Oxford Handbook of Clinical Pharmacy, 3<sup>rd</sup> edition.</li> <li>5. Marie Chisholm-Burns (January 3, 2019), Pharmacotherapy Principles and Practice, 5<sup>th</sup> Edition, McGraw-Hill Education / Medical, United States of America</li> </ol>
<b>3- Electronic Materials and Web Sites etc.</b>	
	<ol style="list-style-type: none"> <li>1. <a href="http://www.uptodate.com">www.uptodate.com</a></li> <li>2. <a href="http://www.medscape.com">www.medscape.com</a></li> <li>3. <a href="http://www.ncbi.nlm.nih.gov/pubmed">www.ncbi.nlm.nih.gov/pubmed</a></li> <li>4. <a href="http://www.accp.com/">http://www.accp.com/</a></li> </ol>



## Course Specification of Clinical Training: infectious diseases

I. Course Identification and General Information:						
1	Course Title:	Clinical Training: Infectious diseases				
2	Course Code & Number:	B1101693				
3	Credit hours:	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
				4		4
4	Study level/ semester at which this course is offered:	Sixth Year: First Semester				
5	Pre –requisite (if any):	All courses of pharmacology and Therapeutics				
6	Co –requisite (if any):	No				
7	Program (s) in which the course is offered:	Pharma D				
8	Language of teaching the course:	English				
9	Location of teaching the course:					
10	Prepared By:	Abdulsalam Halboup				
11	Date of Approval					

## II. Course Description:

This clinical course will equip students with clinical therapeutic and diagnosis knowledge of different types infectious diseases in order to select the appropriate antibiotics. The students will learn the systemic approach of designing appropriate pharmaceutical care plan for each type of infectious diseases in different hospital settings. This course will be taught through supervised clinical case discussion, based on daily follow-up, laboratory investigations, and pharmaceutical care plan evaluation. Studying pharmacology therapeutic courses is prerequisite for this rotation.

## III. Course Objectives:

1. Equip student with practical skills to demonstrate an understanding of selecting the appropriate antibiotics to treat either hospital acquired or community acquired infections.
2. Prepare students to be able to differentiate between different types of infectious diseases based on patient's assessment and laboratory investigations.
3. Equip students with the required practical skills to enable them designing pharmaceutical care plan in order to improve patients' health outcomes.
4. Provide students with clinical experience to be self-confident while communicating with other healthcare providers as well as the patients and their caregivers.

#### IV. Course Intended Learning Outcomes (CILOs):

##### Knowledge and Understanding:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Knowledge and Understanding PILOs	Knowledge and Understanding CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>A2.</b> Illustrate the fundamentals of social and behavioral sciences relevant to pharmacy, ethics of health care and its impact on their relationship with patients and other healthcare professionals.	a1. outline the essential information of social and behavioral sciences to build professional relationship with patients as well as with other healthcare providers.
<b>A5.</b> Outline principles of clinical pharmacology, therapeutics and Pharmacovigilance.	a2. discuss the fundamentals of medication therapy, optimum use of antibiotics, and their safety profile.

##### Intellectual Skills:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Intellectual Skills PILOs	Intellectual Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>B3.</b> Solve problems to reduce drug therapy problems	b1. Design appropriate therapeutic and monitoring plan to enhance bacterial eradication and prevent drug therapy problems.

##### Professional and Practical Skills

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Professional and Practical Skills PILOs	Professional and Practical Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>C4.</b> Carry out-patient physical assessment ethically	c1. Assess patients-related data to propose appropriate antibiotic-treatment plan.
<b>C5.</b> Advise the patients and health care professionals for optimizing medicines use.	c2. Apply the effective use of medicine, provide timely and appropriate antibiotic information to patients and healthcare professionals.

<b>Transferable (General) Skills:</b>	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Transferable (General) Skills PILOs	Transferable (General) Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>D1.</b> Communicate effectively and ethically with patients, public, and health care professionals	d1. Cooperate effectively with the patients and healthcare professionals using verbal and nonverbal communication skills.
<b>D2.</b> Use information systems and computer software in order to enhance the delivery of pharmaceutical care.	d2. Summarize the obtained information from different resources to provide appropriate pharmaceutical interventions.
<b>D3.</b> Work effectively individually and in a team	d3. show the ability to provide medication-related advice individually and in groups.
<b>D4.</b> Have the skills of decision-making and time management and life- long learning.	d4. Have the skills to make a timely and up to date therapeutic-related decision for different types of infectious diseases.

<b>V. Alignment Course Intended Learning Outcomes</b>		
<b>(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1. outline the essential information of social and behavioral sciences to build professional relationship with patients as well as with other healthcare providers.	- Small practical session - Tutorial session - Seminars - Critical analysis - Field training	- Daily evaluation - Formal case presentation - Patient counseling - Assignment - Intervention provided.
a2. discuss the fundamentals of medication therapy, optimum use of antibiotics, and their safety profile.	- Use of advanced database searches - Independent study	- Weekly quiz - Final written examinations.
<b>(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies

<p>b1. Design appropriate therapeutic and monitoring plan to enhance bacterial eradication and prevent drug therapy problems.</p>	<ul style="list-style-type: none"> <li>- Small practical session</li> <li>- Tutorial session</li> <li>- Seminars</li> <li>- Critical analysis</li> <li>- Field training</li> <li>- Use of advanced database searches</li> <li>- Independent study</li> </ul>	<ul style="list-style-type: none"> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Patient counseling</li> <li>- Intervention provided.</li> <li>- Final written examinations</li> </ul>
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**(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:**

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
<p>c1. Assess patients-related data to propose appropriate antibiotic-treatment plan.</p>	<ul style="list-style-type: none"> <li>- Collect and interpret the available subjective and objective data.</li> </ul>	<ul style="list-style-type: none"> <li>- Patient counseling</li> <li>- Daily evaluation</li> <li>- Formal case presentation</li> </ul>
<p>c2. Apply the effective use of medicine, provide timely and appropriate antibiotic information to patients and healthcare professionals.</p>	<ul style="list-style-type: none"> <li>- Review and monitor patient medication regimens focusing on the following: appropriateness of therapy, adverse drug reactions, and potential interactions.</li> <li>- Critical reading</li> <li>- Small group discussions</li> <li>- Seminar</li> </ul>	<ul style="list-style-type: none"> <li>- Assignment</li> <li>- Intervention provided.</li> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>

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

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
<p>d1. Cooperate effectively with the patients and healthcare professionals using verbal and nonverbal communication skills.</p>	<ul style="list-style-type: none"> <li>- Oral presentations</li> <li>- Clinical training</li> <li>- Use of advanced database searches</li> </ul>	<ul style="list-style-type: none"> <li>- Patient counseling</li> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Assignment</li> </ul>
<p>d2. Summarize the obtained information from different resources to provide appropriate pharmaceutical interventions.</p>	<ul style="list-style-type: none"> <li>- Critical reading</li> <li>- Small group discussions</li> <li>- Seminars.</li> </ul>	<ul style="list-style-type: none"> <li>- Intervention provided.</li> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>
<p>d3. show the ability to provide medication-related advice individually and in groups.</p>	<ul style="list-style-type: none"> <li>- Clinical decision-making skills through group and individual tutorials</li> </ul>	
<p>d4. Have the skills to make a timely and up to date therapeutic-related decision for different types of infectious diseases.</p>		

## V. Course Content:

### A – Theoretical Aspect: Not applicable

Order	Units/Topics List	Sub Topics List	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1					
2		-			
3		-			
4		-			
5		-			
6		-			
7					
8		-			
9		-			
10		-			
11		-			
12		-			
13		-			
14	-				
<b>Number of Weeks /and Units Per Semester</b>					

<b>B – Case Studies and Practical Aspect:</b>				
Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1	Intra-abdominal infections, Gastrointestinal infection including C. difficile diarrhea, Sepsis and Septic Shock, Infective Endocarditis	1 <sup>st</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
2	Skin and soft tissue infections, Central nervous system infection, Febrile neutropenic patient,	2 <sup>nd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
3	Upper respiratory tract infection, lower respiratory tract infection including pneumonia, Tuberculosis, Urinary-tract infections and prostatitis, osteomyelitis	3 <sup>rd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
4	Superficial Fungal Infections, Invasive Fungal Infections, Drug fever, Antimicrobial Prophylaxis in Surgery	4 <sup>th</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
<b>Number of Weeks /and Units Per Semester</b>			<b>120 hrs</b>	

<b>VI. Teaching strategies of the course:</b>	
<ol style="list-style-type: none"> <li>1. Informal cases studies</li> <li>2. Small practical discussion and individualized</li> <li>3. Tutorial session</li> <li>4. Seminars</li> <li>5. Critical analysis and reading</li> <li>6. Clinical training and decision-making skills</li> <li>7. Independent study</li> <li>8. Use of advanced database searches</li> <li>9. Individual supervision</li> <li>10. Collecting, interpreting, and integrating available information in disease state</li> <li>11. Review and monitor patient medication regimens</li> <li>12. Oral presentations</li> </ol>	

<b>VII. Assignments:</b>				
No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	In-service	a1, a2, b1,c1,c2,d1,d2,d3,d4	3 <sup>rd</sup> –4 <sup>th</sup> week	5

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

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Rotation Attendance	1 <sup>st</sup> -4 <sup>th</sup> week	10	10%	a2, b1,c1,c2,d1,d2,d3,d4
2	Daily Evaluation	1 <sup>st</sup> -4 <sup>th</sup> Week	15	15%	a1, a2, b1,c1,c2,d1,d2,d3,d4
3	Formal Case Presentation.	2 <sup>nd</sup> -4 <sup>th</sup> Week	20	20%	a1, a2, b1,c1,c2,d1,d2,d3,d4
4	Weekly Quiz	2 <sup>nd</sup> -4 <sup>th</sup> Week	10	10%	a2, b1,c1,c2 ,d3,d4
5	In-service	2 <sup>nd</sup> -4 <sup>th</sup> Week	5	5%	a1, a2, b1,c1,c2,d1,d2,d3,d4
6	Final writing examination	4 <sup>th</sup> Week	40	40%	a1, a2, b1,c1,c2 ,d3,d4
<b>Total</b>			<b>100</b>	<b>100%</b>	

<b>IX. Learning Resources:</b>	
<ul style="list-style-type: none"> <li>• <i>Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).</i></li> </ul>	
<b>1- Required Textbook(s) (maximum two ).</b>	
	<ul style="list-style-type: none"> <li>• DiPiro, J. T. (2020). Pharmacotherapy: A pathophysiologic approach, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.</li> <li>• Koda-Kimble, M. A., &amp; Young, L. Y. (2018). Applied therapeutics: The clinical use of drugs, 11<sup>th</sup> edition. Baltimore, Md: Lippincott Williams &amp; Wilkins, United States of America.</li> </ul>
<b>2- Essential References.</b>	
	<ol style="list-style-type: none"> <li>1. Lexicomp, (2020). Drug Information Handbook, 29<sup>th</sup> edition, Lexi-Comp, U.S.A</li> <li>2. DiPiro, J. T. (2020). Pharmacotherapy: Handbook, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.</li> <li>3. British national formulary (BNF), last edition, Pharmaceutical Press.</li> <li>4. Philip Wiffen &amp; els, (2017), Oxford Handbook of Clinical Pharmacy, 3<sup>rd</sup> edition.</li> <li>5. Marie Chisholm-Burns (January 3, 2019), Pharmacotherapy Principles and Practice, 5<sup>th</sup> Edition, McGraw-Hill Education / Medical, United States of America</li> </ol>
<b>3- Electronic Materials and Web Sites etc.</b>	
	<ol style="list-style-type: none"> <li>1. <a href="http://www.uptodate.com">www.uptodate.com</a></li> <li>2. <a href="http://www.medscape.com">www.medscape.com</a></li> <li>3. <a href="http://www.ncbi.nlm.nih.gov/pubmed">www.ncbi.nlm.nih.gov/pubmed</a></li> <li>4. <a href="http://www.accp.com/">http://www.accp.com/</a></li> </ol>



## Course Specification of Clinical Training: CVD

I. Course Identification and General Information:						
1	Course Title:	Clinical Training: CVD				
2	Course Code & Number:	B1101694				
3	Credit hours:	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
				5		5
4	Study level/ semester at which this course is offered:	Sixth Year: First Semester				
5	Pre –requisite (if any):	All courses of pharmacology and Therapeutics				
6	Co –requisite (if any):	No				
7	Program (s) in which the course is offered:	Pharma D				
8	Language of teaching the course:	English				
9	Location of teaching the course:					
10	Prepared By:	Abdulsalam Halboup				
11	Date of Approval					

## II. Course Description:

This clinical training will integrate therapeutic knowledge with clinical skills that required in proposing therapeutic care plan for patients suffering from cardiovascular diseases. This supervised training will include all cardiovascular-related diseases encountered in hospital setting. This course will be taught through attending rotation and discussing clinical cases based on daily follow-up, monitoring parameters as well as evaluating pharmaceutical care plan. Studying pharmacology and therapeutic courses is prerequisite for this rotation.

## III. Course Objectives:

1. Combine the principles of therapeutics with the clinical experience and apply them to design effective pharmaceutical care plan for patients in the cardiovascular unit.
2. Equip students with the effective communication skills to be able to interact professionally with health care providers as well as patients.
3. Provide students with real clinical experience to recognize clinical presentation and complication of different cardiovascular diseases and differentiate between them.
4. Encourage life-long learning via self-directed education process.

#### IV. Course Intended Learning Outcomes (CILOs):

##### Knowledge and Understanding:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Knowledge and Understanding PILOs	Knowledge and Understanding CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>A2.</b> Illustrate the fundamentals of social and behavioral sciences relevant to pharmacy, ethics of health care and its impact on their relationship with patients and other healthcare professionals.	a1. Compile the essential information of social and behavioral sciences to build professional relationship with healthcare providers and patients.
<b>A5.</b> Outline principles of clinical pharmacology, therapeutics and Pharmacovigilance.	a2. evaluate the fundamentals of medication therapy, optimum use of cardiovascular drugs, and their safety profile.

##### Intellectual Skills:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Intellectual Skills PILOs	Intellectual Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>B3.</b> Solve problems to reduce drug therapy problems	<b>b1.</b> Apply appropriate therapeutic and monitoring plan to prevent drug therapy problems in cardiac care unit.

##### Professional and Practical Skills

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Professional and Practical Skills PILOs	Professional and Practical Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>C4.</b> Carry out-patient physical assessment ethically	c1. assess patients-related data to predict appropriate therapeutic plan and reduce drug related problems.
<b>C5.</b> Advise the patients and health care professionals for optimizing medicines use.	c2. Demonstrate the effective use of medicine, provide timely and appropriate medication information to patients and healthcare professionals.

### Transferable (General) Skills:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Transferable (General) Skills PILOs	Transferable (General) Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>D1.</b> Communicate effectively and ethically with patients, public, and health care professionals	d1. Interact effectively with the patients and healthcare professionals using verbal and nonverbal communication skills.
<b>D2.</b> Use information systems and computer software in order to enhance the delivery of pharmaceutical care,	d2. Utilize drug information resources to provide appropriate pharmaceutical interventions.
<b>D3.</b> Work effectively individually and in a team	d3. Have the ability to deliver medication-related advice individually and in groups.
<b>D4.</b> Have the skills of decision-making and time management and life- long learning.	d4. Demonstrate the ability to make a timely and up to date therapeutic-related decision for cardiovascular diseases.

## V. Alignment Course Intended Learning Outcomes

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

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1. Compile the essential information of social and behavioral sciences to build professional relationship with healthcare providers and patients.	- Small practical session - Tutorial session - Seminars - Critical analysis	- Daily evaluation - Formal case presentation - Patient counseling - Assignment
a2. evaluate the fundamentals of medication therapy, optimum use of cardiovascular drugs, and their safety profile.	- Field training - Use of advanced database searches - Independent study	- Intervention provided. - Weekly quiz - Final written examinations

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

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
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<p><b>b1.</b> Apply appropriate therapeutic and monitoring plan to prevent drug therapy problems in cardiac care unit.</p>	<ul style="list-style-type: none"> <li>- Small practical session</li> <li>- Tutorial session</li> <li>- Seminars</li> <li>- Critical analysis</li> <li>- Field training</li> <li>- Use of advanced database searches</li> <li>- Independent study</li> </ul>	<ul style="list-style-type: none"> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Patient counseling</li> <li>- Intervention provided.</li> <li>- Final written examinations</li> </ul>
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**(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:**

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
<p>c1. assess patients-related data to predict appropriate therapeutic plan and reduce drug related problems.</p>	<ul style="list-style-type: none"> <li>- Collect and interpret the available subjective and objective data.</li> </ul>	<ul style="list-style-type: none"> <li>- Patient counseling</li> <li>- Daily evaluation</li> <li>- Formal case presentation</li> </ul>
<p>c2. Demonstrate the effective use of medicine, provide timely and appropriate medication information to patients and healthcare professionals.</p>	<ul style="list-style-type: none"> <li>- Review and monitor patient medication regimens focusing on the following: appropriateness of therapy, adverse drug reactions, and potential interactions.</li> <li>- Critical reading</li> <li>- Small group discussions</li> <li>- Seminar</li> </ul>	<ul style="list-style-type: none"> <li>- Assignment</li> <li>- Intervention provided.</li> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>

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

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
<p>d1. Interact effectively with the patients and healthcare professionals using verbal and nonverbal communication skills.</p>	<ul style="list-style-type: none"> <li>- Oral presentations</li> <li>- Clinical training</li> <li>- Use of advanced database searches</li> </ul>	<ul style="list-style-type: none"> <li>- Patient counseling</li> <li>- Daily evaluation</li> <li>- Formal case presentation</li> </ul>
<p>d2. Utilize drug information resources to provide appropriate pharmaceutical interventions.</p>	<ul style="list-style-type: none"> <li>- Critical reading</li> <li>- Small group discussions</li> </ul>	<ul style="list-style-type: none"> <li>- Assignment</li> <li>- Intervention provided.</li> </ul>
<p>d3. Have the ability to deliver medication-related advice individually and in groups.</p>	<ul style="list-style-type: none"> <li>- Seminars.</li> <li>- Clinical decision-making skills through group and individual tutorials</li> </ul>	<ul style="list-style-type: none"> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>
<p>d4. Demonstrate the ability to make a timely and up to date therapeutic-related decision for cardiovascular diseases.</p>		

## V. Course Content:

### A – Theoretical Aspect: Not applicable

Order	Units/Topics List	Sub Topics List	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1					
2		-			
3		-			
4		-			
5		-			
6		-			
7					
8		-			
9		-			
10		-			
11		-			
12		-			
13		-			
14	-				
<b>Number of Weeks /and Units Per Semester</b>					

<b>B – Case Studies and Practical Aspect:</b>				
Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1	<b>Cardiovascular Diseases:</b> Hypertension, Stroke, Dyslipidemias	1 <sup>st</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
2	Acute coronary syndrome (ACS), Ischemic Heart Disease (IHD),	2 <sup>nd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
3	Heart Failure (HF), hypovolemic shock	3 <sup>rd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
4	Arrhythmia, Venous Thromboembolism (VTE) including PE and DVT	4 <sup>th</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
<b>Number of Weeks /and Units Per Semester</b>			<b>120 hrs</b>	

<b>VI. Teaching strategies of the course:</b>
<ol style="list-style-type: none"> <li>1. Informal cases studies</li> <li>2. Small practical discussion</li> <li>3. Tutorial session</li> <li>4. Formal case discussion</li> <li>5. Clinical training and decision-making skills</li> <li>6. Independent study</li> <li>7. Use of advanced database searches</li> <li>8. Individual supervision</li> <li>9. Collecting, interpreting, and integrating available information in disease state</li> <li>10. Review and monitor patient medication regimens</li> <li>11. Oral presentations</li> </ol>

<b>VII. Assignments:</b>				
No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	In-service	a1, a2, b1,c1,c2,d1,d2,d3,d4	3 <sup>rd</sup> –4 <sup>th</sup> week	5

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

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Rotation Attendance	1 <sup>st</sup> -4 <sup>th</sup> week	10	10%	a2, b1,c1,c2,d1,d2,d3,d4
2	Daily Evaluation	1 <sup>st</sup> -4 <sup>th</sup> Week	15	15%	a1, a2, b1,c1,c2,d1,d2,d3,d4
3	Formal Case Presentation.	2 <sup>nd</sup> -4 <sup>th</sup> Week	20	20%	a1, a2, b1,c1,c2,d1,d2,d3,d4
4	Weekly Quiz	2 <sup>nd</sup> -4 <sup>th</sup> Week	10	10%	a2, b1,c1,c2 ,d3,d4
5	In-service	2 <sup>nd</sup> -4 <sup>th</sup> Week	5	5%	a1, a2, b1,c1,c2,d1,d2,d3,d4
6	Final writing examination	4 <sup>th</sup> Week	40	40%	a1, a2, b1,c1,c2 ,d3,d4
<b>Total</b>			<b>100</b>	<b>100%</b>	

### IX. Learning Resources:

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

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

- DiPiro, J. T. (2020). Pharmacotherapy: A pathophysiologic approach, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.
- Koda-Kimble, M. A., & Young, L. Y. (2018). Applied therapeutics: The clinical use of drugs, 11<sup>th</sup>

	edition. Baltimore, Md: Lippincott Williams & Wilkins, United States of America.
<b>2- Essential References.</b>	
	<ol style="list-style-type: none"><li>1. Lexicomp, (2020). Drug Information Handbook, 29<sup>th</sup> edition, Lexi-Comp, U.S.A</li><li>2. DiPiro, J. T. (2020). Pharmacotherapy: Handbook, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.</li><li>3. British national formulary (BNF), last edition, Pharmaceutical Press.</li><li>4. Philip Wiffen &amp; els, (2017), Oxford Handbook of Clinical Pharmacy, 3<sup>rd</sup> edition.</li><li>5. Marie Chisholm-Burns (January 3, 2019), Pharmacotherapy Principles and Practice, 5<sup>th</sup> Edition, McGraw-Hill Education / Medical, United States of America</li></ol>
<b>3- Electronic Materials and Web Sites etc.</b>	
	<ol style="list-style-type: none"><li>1. <a href="http://www.uptodate.com">www.uptodate.com</a></li><li>2. <a href="http://www.medscape.com">www.medscape.com</a></li><li>3. <a href="http://www.ncbi.nlm.nih.gov/pubmed">www.ncbi.nlm.nih.gov/pubmed</a></li><li>4. <a href="http://www.accp.com/">http://www.accp.com/</a></li></ol>



## Course Specification of Clinical Training: Pediatrics

I. Course Identification and General Information:						
1	Course Title:	Clinical Training: Pediatrics				
2	Course Code & Number:	B1101695				
3	Credit hours:	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
				4		4
4	Study level/ semester at which this course is offered:	Sixth Year: First Semester				
5	Pre –requisite (if any):	All courses of pharmacology and Therapeutics				
6	Co –requisite (if any):	No				
7	Program (s) in which the course is offered:	Pharma D				
8	Language of teaching the course:	English				
9	Location of teaching the course:					
10	Prepared By:	Abdulsalam Halboup				
11	Date of Approval					

## II. Course Description:

This course will provide student with therapeutic and diagnosis knowledge as well as the practical skills for designing a therapeutic plan for pediatric and neonatal patients in hospital setting. This course will emphasize on common pediatric diseases, weight-based dosing, and monitoring plan. Pediatric course will be taught through discussing clinical pediatric cases based on daily follow-up, monitoring parameters as well as evaluating the appropriate pharmaceutical care plan. Studying pharmacology and therapeutic courses is prerequisite for this rotation.

## III. Course Objectives:

1. Integrate the principles of therapeutics and the clinical skills and implement them enhance pediatric health outcomes in the hospital setting.
2. Equip students with the practical skills that enable them designing pharmaceutical care plan for different types of pediatric diseases.
3. Provide students with real clinical experience to make them self-confident while communicating with other healthcare providers as well as the patients.
4. Equip student with experience in collecting and analyzing data and make interventions and recommendations accordingly.

#### IV. Course Intended Learning Outcomes (CILOs):

##### Knowledge and Understanding:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Knowledge and Understanding PILOs	Knowledge and Understanding CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>A2.</b> Illustrate the fundamentals of social and behavioral sciences relevant to pharmacy, ethics of health care and its impact on their relationship with patients and other healthcare professionals.	a1. outline the essential information of social and behavioral sciences to build professional relationship with patients as well as with other healthcare providers.
<b>A5.</b> Outline principles of clinical pharmacology, therapeutics and Pharmacovigilance.	a2. discuss the fundamentals of pediatric medications, their optimum use, and safety profile.

##### Intellectual Skills:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Intellectual Skills PILOs	Intellectual Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>B3.</b> Solve problems to reduce drug therapy problems	b1. Design appropriate therapeutic and monitoring plan to enhance pediatric health outcomes and prevent drug therapy problems.

##### Professional and Practical Skills

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Professional and Practical Skills PILOs	Professional and Practical Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>C4.</b> Carry out-patient physical assessment ethically	c1. Assess pediatric-related data to formulate appropriate pediatric care plan.
<b>C5.</b> Advise the patients and health care professionals for optimizing medicines use.	c2. Apply the effective use of medicine, provide timely and appropriate medication information to patients and healthcare professionals.

<b>Transferable (General) Skills:</b>	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Transferable (General) Skills PILOs	Transferable (General) Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>D1.</b> Communicate effectively and ethically with patients, public, and health care professionals	d1. Cooperate effectively with the patients' care giver and healthcare professionals using verbal and nonverbal communication skills.
<b>D2.</b> Use information systems and computer software in order to enhance the delivery of pharmaceutical care,	d2. Criticize the different information resources to provide the appropriate pharmaceutical interventions
<b>D3.</b> Work effectively individually and in a team	d3. Have the ability to deliver medication-related advice individually and in groups.
<b>D4.</b> Have the skills of decision-making and time management and life- long learning	d4. Have the skills to make a timely and up to date therapeutic-related decision for different types of pediatric diseases.

<b>V. Alignment Course Intended Learning Outcomes</b>		
<b>(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1. outline the essential information of social and behavioral sciences to build professional relationship with patients as well as with other healthcare providers.	- Small practical session - Tutorial session - Seminars - Critical analysis - Field training	- Daily evaluation - Formal case presentation - Patient counseling - Assignment - Intervention provided.
a2. discuss the fundamentals of pediatric medications, their optimum use, and safety profile.	- Use of advanced database searches - Independent study	- Weekly quiz - Final written examinations. -
<b>(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies

<p>b1. Design appropriate therapeutic and monitoring plan to enhance pediatric health outcomes and prevent drug therapy problems.</p>	<ul style="list-style-type: none"> <li>- Small practical session</li> <li>- Tutorial session</li> <li>- Seminars</li> <li>- Critical analysis</li> <li>- Field training</li> <li>- Use of advanced database searches</li> <li>- Independent study</li> </ul>	<ul style="list-style-type: none"> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Patient counseling</li> <li>- Intervention provided.</li> <li>- Final written examinations</li> </ul>
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**(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:**

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
<p>c1. Assess pediatric-related data to formulate appropriate pediatric care plan.</p>	<ul style="list-style-type: none"> <li>- Collect and interpret the available subjective and objective data.</li> <li>- Review and monitor patient medication regimens focusing on the following: appropriateness of therapy, adverse drug reactions, and potential interactions.</li> <li>- Critical reading</li> <li>- Small group discussions</li> <li>- Seminar</li> </ul>	<ul style="list-style-type: none"> <li>- Patient counseling</li> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Assignment</li> <li>- Intervention provided.</li> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>
<p>c2. Apply the effective use of medicine, provide timely and appropriate medication information to patients and healthcare professionals.</p>		

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

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
<p>d1. Cooperate effectively with the patients' care giver and healthcare professionals using verbal and nonverbal communication skills.</p>	<ul style="list-style-type: none"> <li>- Oral presentations</li> <li>- Clinical training</li> <li>- Use of advanced database searches</li> <li>- Critical reading</li> <li>- Small group discussions</li> <li>- Seminars.</li> <li>- Clinical decision-making skills through group and individual tutorials</li> </ul>	<ul style="list-style-type: none"> <li>- Patient and family counseling</li> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Assignment</li> <li>- Intervention provided.</li> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>
<p>d2. Criticize the different information resources to provide the appropriate pharmaceutical interventions</p>		
<p>d3. Have the ability to deliver medication-related advice individually and in groups.</p>		
<p>d4. Have the skills to make a timely and up to date therapeutic-related decision for different types of pediatric diseases.</p>		

## V. Course Content:

### A – Theoretical Aspect: Not applicable

Order	Units/Topics List	Sub Topics List	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1					
2		-			
3		-			
4		-			
5		-			
6		-			
7					
8		-			
9		-			
10		-			
11		-			
12		-			
13		-			
14	-				
<b>Number of Weeks /and Units Per Semester</b>					

<b>B – Case Studies and Practical Aspect:</b>				
Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1	Upper and lower respiratory tract infection, meningitis, UTI, sepsis, gastroenteritis, vaccination	1 <sup>st</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
2	Attention-deficit/hyperactivity disorder, Thalassemia, G6PD deficiency, ITP, rheumatic fever	2 <sup>nd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
3	Asthma, whooping cough, DKA, Pediatric enuresis, Congenital Heart Diseases, Traumatic Brain Injury, Burns	3 <sup>rd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
4	Febrile seizure, Nephrotic syndrome, constipation, Kawasaki	4 <sup>th</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
<b>Number of Weeks /and Units Per Semester</b>			<b>120 hrs</b>	

<b>VI. Teaching strategies of the course:</b>	
<ol style="list-style-type: none"> <li>1. Informal cases studies</li> <li>2. Small practical discussion and individualized</li> <li>3. Tutorial session</li> <li>4. Seminars</li> <li>5. Critical analysis and reading</li> <li>6. Clinical training and decision-making skills</li> <li>7. Independent study</li> <li>8. Use of advanced database searches</li> <li>9. Individual supervision</li> <li>10. Collecting, interpreting, and integrating available information in disease state</li> <li>11. Review and monitor patient medication regimens</li> <li>12. Oral presentations</li> </ol>	

<b>VII. Assignments:</b>				
No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	In-service	a1, a2, b1,c1,c2,d1,d2,d3,d4	3 <sup>rd</sup> –4 <sup>th</sup> week	5

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

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Rotation Attendance	1 <sup>st</sup> -4 <sup>th</sup> week	10	10%	a2, b1,c1,c2,d1,d2,d3,d4
2	Daily Evaluation	1 <sup>st</sup> -4 <sup>th</sup> Week	15	15%	a1, a2, b1,c1,c2,d1,d2,d3,d4
3	Formal Case Presentation.	2 <sup>nd</sup> -4 <sup>th</sup> Week	20	20%	a1, a2, b1,c1,c2,d1,d2,d3,d4
4	Weekly Quiz	2 <sup>nd</sup> -4 <sup>th</sup> Week	10	10%	a2, b1,c1,c2 ,d3,d4
5	In-service	2 <sup>nd</sup> -4 <sup>th</sup> Week	5	5%	a1, a2, b1,c1,c2,d1,d2,d3,d4
6	Final writing examination	4 <sup>th</sup> Week	40	40%	a1, a2, b1,c1,c2 ,d3,d4
<b>Total</b>			<b>100</b>	<b>100%</b>	

## IX. Learning Resources:

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

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

- DiPiro, J. T. (2020). Pharmacotherapy: A pathophysiologic approach, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.
- Koda-Kimble, M. A., & Young, L. Y. (2018). Applied therapeutics: The clinical use of drugs, 11<sup>th</sup> edition. Baltimore, Md: Lippincott Williams & Wilkins, United States of America.

### 2- Essential References.

1. Lexicomp, (2020). Drug Information Handbook, 29<sup>th</sup> edition, Lexi-Comp, U.S.A
2. DiPiro, J. T. (2020). Pharmacotherapy: Handbook, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.
3. British national formulary (BNF), last edition, Pharmaceutical Press.
4. Philip Wiffen & els, (2017), Oxford Handbook of Clinical Pharmacy, 3<sup>rd</sup> edition.
5. Marie Chisholm-Burns (January 3, 2019), Pharmacotherapy Principles and Practice, 5<sup>th</sup> Edition, McGraw-Hill Education / Medical, United States of America

### 3- Electronic Materials and Web Sites etc.

1. [www.uptodate.com](http://www.uptodate.com)
2. [www.medscape.com](http://www.medscape.com)
3. [www.ncbi.nlm.nih.gov/pubmed](http://www.ncbi.nlm.nih.gov/pubmed)
4. <http://www.accp.com/>



## Course Specification of Clinical Training: Critical Care

I. Course Identification and General Information:						
1	Course Title:	Clinical Training: Critical Care				
2	Course Code & Number:	B1101696				
3	Credit hours:	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
				4		4
4	Study level/ semester at which this course is offered:	Sixth Year: Second Semester				
5	Pre –requisite:	All courses of pharmacology and Therapeutics				
6	Co –requisite:	No				
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English				
9	Location of teaching the course:					
10	Prepared By:	Abdulsalam Halboup				
11	Date of Approval					

## II. Course Description:

Critical care training course is designed to provide students with required knowledge and skills to deal with critical ill patients in the ICU. In this course, student will have the opportunity to learn different types of critical cases including pulmonary, renal, neurology, infection, and gastroenterology cases. This course will be taught through supervised clinical case discussion, proposing pharmaceutical treatment regimen, laboratory investigations and designing specific supportive care plan. Studying pharmacology and therapeutic courses is prerequisite for this rotation.

## III. Course Objectives:

1. Equip students with practical skills and competence to demonstrate an understanding of selecting the appropriate pharmacotherapy regimen for critical ill patients.
2. Prepare students to be able to improve the quality of life and provide advanced pharmaceutical care for patients in critical care unit.
3. provide students with the required practical skills to enable them recognizing drug-related problems and the suitable supportive care.
4. Encourage students to establish professional relationship and self-confidence to make them able to interact effectively with healthcare team and patients.

#### IV. Course Intended Learning Outcomes (CILOs):

##### Knowledge and Understanding:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Knowledge and Understanding PILOs	Knowledge and Understanding CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>A2.</b> Illustrate the fundamentals of social and behavioral sciences relevant to pharmacy, ethics of health care and its impact on their relationship with patients and other healthcare professionals.	a1. Determine the essential information of social and behavioral sciences to build professional relationship with critical care team and the patients.
<b>A5.</b> Outline principles of clinical pharmacology, therapeutics and Pharmacovigilance.	a2. Illustrate the fundamentals of critical care medicine, drug therapy management, and adverse effect reporting.

##### Intellectual Skills:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Intellectual Skills PILOs	Intellectual Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>B3.</b> Solve problems to reduce drug therapy problems	b1. Propose appropriate therapeutic plan and provide a close monitoring plan to reduce drug therapy problems.

##### Professional and Practical Skills

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Professional and Practical Skills PILOs	Professional and Practical Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>C4.</b> Carry out-patient physical assessment ethically	c1. Assess patients-related data to select the appropriate therapy for critical ill patients.
<b>C5.</b> Advise the patients and health care professionals for optimizing medicines use.	c2. provide the healthcare professionals and patients with timely and updated information about the effective use of medicine.

<b>Transferable (General) Skills:</b>	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Transferable (General) Skills PILOs	Transferable (General) Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>D1.</b> Communicate effectively and ethically with patients, public, and health care professionals	d1. interact effectively with the healthcare providers, patient, and public using verbal/nonverbal communication skills.
<b>D2.</b> Use information systems and computer software in order to enhance the delivery of pharmaceutical care.	d2. analyze drug-related data to provide the evidence-based recommendations for critical ill patients.
<b>D3.</b> Work effectively individually and in a team	d3. Demonstrate the ability to provide therapeutic-related advice individually and in groups.
<b>D4.</b> Have the skills of decision-making and time management and life- long learning.	d4. Have the skills to make a timely and up to date therapeutic-related decision for critical ill patients.

<b>V. Alignment Course Intended Learning Outcomes</b>		
<b>(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1. Determine the essential information of social and behavioral sciences to build professional relationship with critical care team and the patients.	- Small practical session - Tutorial session - Seminars - Critical analysis	- Daily evaluation - Formal case presentation - Patient counseling - Assignment assessment
a2. Illustrate the fundamentals of critical care medicine, drug therapy management, and adverse effect reporting.	- Field training - Use of advanced database searches - Independent study	- Quality of the provided Intervention. - Weekly quiz - Final written examinations.
<b>(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
b1. Propose appropriate therapeutic plan and provide a close monitoring plan to reduce drug therapy problems.	- Small practical session - Tutorial session - Seminars - Critical analysis - Field training	- Daily evaluation - Formal case presentation - Patient counseling - Intervention provided. - Final written

	<ul style="list-style-type: none"> <li>- Use of advanced database searches</li> <li>- Independent study</li> </ul>	examinations
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<b>(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
c1. Assess patients-related data to select the appropriate therapy for critical ill patients.	<ul style="list-style-type: none"> <li>- Collect and interpret the available subjective and objective data.</li> <li>- Review and monitor patient medication regimens focusing on the following: appropriateness of therapy, adverse drug reactions, and potential interactions.</li> <li>- Critical reading</li> <li>- Small group discussions</li> <li>- Seminar</li> </ul>	<ul style="list-style-type: none"> <li>- Patient counseling</li> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Assignment</li> <li>- Intervention provided.</li> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>
c2. provide the healthcare professionals and patients with timely and updated information about the effective use of medicine.		

<b>(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
d1. interact effectively with the healthcare providers, patient, and public using verbal/nonverbal communication skills.	<ul style="list-style-type: none"> <li>- Oral presentations</li> <li>- Clinical training</li> <li>- Use of advanced database searches</li> <li>- Critical reading</li> <li>- Small group discussions</li> <li>- Seminars.</li> <li>- Clinical decision-making skills through group and individual tutorials</li> </ul>	<ul style="list-style-type: none"> <li>- Patient counseling</li> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Assignment</li> <li>- Intervention provided.</li> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>
d2. analyze drug-related data to provide the evidence-based recommendations for critical ill patients.		
d3. Demonstrate the ability to provide therapeutic-related advice individually and in groups.		
d4. Have the skills to make a timely and up to date therapeutic-related decision for critical ill patients.		

## V. Course Content:

### A – Theoretical Aspect: Not applicable

Order	Units/Topics List	Sub Topics List	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1					
2		-			
3		-			
4		-			
5		-			
6		-			
7					
8		-			
9		-			
10		-			
11		-			
12		-			
13		-			
14	-				
<b>Number of Weeks /and Units Per Semester</b>					

<b>B – Case Studies and Practical Aspect:</b>				
Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1	<b>Gastroenterology</b> upper and lower gastrointestinal bleeding, Severe pancreatitis, Liver failure, Hepatorenal syndrome, Cirrhosis Complications	1 <sup>st</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
2	<b>Neurology</b> Traumatic brain injury, Status epilepticus, Ischemic stroke, Subarachnoid hemorrhage, Intracerebral hemorrhage	2 <sup>nd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
3	<b>Renal &amp; Infectious Diseases</b> Acute renal failure, Acid-base disorder, Fluid and electrolyte disorders, Sepsis, Ventilator Associated Pneumonia, hospital Acquired Pneumonia, Intraabdominal Infections, Meningitis, Catheter Related Infections	3 <sup>rd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
4	<b>Pulmonary</b> Acute respiratory distress syndrome, acute lung injury, asthma exacerbation, COPD exacerbation, Pulmonary embolism	4 <sup>th</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
<b>Number of Weeks /and Units Per Semester</b>			<b>120 hrs</b>	

<b>VI. Teaching strategies of the course:</b>
<ol style="list-style-type: none"> <li>1. Informal cases studies</li> <li>2. Small practical discussion and individualized</li> <li>3. Tutorial session</li> <li>4. Seminars</li> <li>5. Critical analysis and reading</li> <li>6. Clinical training and decision-making skills</li> <li>7. Independent study</li> <li>8. Use of advanced database searches</li> <li>9. Individual supervision</li> <li>10. Collecting, interpreting, and integrating available information in disease state</li> <li>11. Review and monitor patient medication regimens</li> <li>12. Oral presentations</li> </ol>

VII. Assignments:				
No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	In-service	a1, a2, b1,c1,c2,d1,d2,d3,d4	3 <sup>rd</sup> -4 <sup>th</sup> week	5

VIII. Schedule of Assessment Tasks for Students During the Semester:					
No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Rotation Attendance	1 <sup>st</sup> -4 <sup>th</sup> week	10	10%	a2, b1,c1,c2,d1,d2,d3,d4
2	Daily Evaluation	1 <sup>st</sup> -4 <sup>th</sup> Week	15	15%	a1, a2, b1, c1, c2, d1, d2, d3, d4
3	Formal Case Presentation.	2 <sup>nd</sup> -4 <sup>th</sup> Week	20	20%	a1, a2, b1,c1,c2,d1,d2,d3,d4
4	Weekly Quiz	2 <sup>nd</sup> -4 <sup>th</sup> Week	10	10%	a2, b1, c1, c2, d3, d4
5	In-service	2 <sup>nd</sup> -4 <sup>th</sup> Week	5	5%	a1, a2, b1,c1,c2,d1,d2,d3,d4
6	Final writing exam	4 <sup>th</sup> Week	40	40%	a1, a2, b1,c1,c2, d3,d4
<b>Total</b>			<b>100</b>	<b>100%</b>	

<b>IX. Learning Resources:</b>	
<ul style="list-style-type: none"><li>• <i>Written in the following order: (Author - Year of publication - Title - Edition - Place of publication - Publisher).</i></li></ul>	
<b>1- Required Textbook(s) (maximum two ).</b>	
	<ul style="list-style-type: none"><li>• DiPiro, J. T. (2020). Pharmacotherapy: A pathophysiologic approach, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.</li><li>• Koda-Kimble, M. A., &amp; Young, L. Y. (2018). Applied therapeutics: The clinical use of drugs, 11<sup>th</sup> edition. Baltimore, Md: Lippincott Williams &amp; Wilkins, United States of America.</li></ul>
<b>2- Essential References.</b>	
	<ol style="list-style-type: none"><li>1. Lexicomp, (2020). Drug Information Handbook, 29<sup>th</sup> edition, Lexi-Comp, U.S.A</li><li>2. DiPiro, J. T. (2020). Pharmacotherapy: Handbook, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.</li><li>3. British national formulary (BNF), last edition, Pharmaceutical Press.</li><li>4. Philip Wiffen &amp; els, (2017), Oxford Handbook of Clinical Pharmacy, 3<sup>rd</sup> edition.</li><li>5. Marie Chisholm-Burns (January 3, 2019), Pharmacotherapy Principles and Practice, 5<sup>th</sup> Edition, McGraw-Hill Education / Medical, United States of America</li></ol>
<b>3- Electronic Materials and Web Sites etc.</b>	
	<ol style="list-style-type: none"><li>1. <a href="http://www.uptodate.com">www.uptodate.com</a></li><li>2. <a href="http://www.medscape.com">www.medscape.com</a></li><li>3. <a href="http://www.ncbi.nlm.nih.gov/pubmed">www.ncbi.nlm.nih.gov/pubmed</a></li><li>4. <a href="http://www.accp.com/">http://www.accp.com/</a></li></ol>



## Course Specification of Clinical Training: Ambulatory Care

I. Course Identification and General Information:						
1	Course Title:	Clinical Training: Ambulatory Care				
2	Course Code & Number:	B1101697				
3	Credit hours:	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
				4		4
4	Study level/ semester at which this course is offered:	Sixth Year: Second Semester				
5	Pre –requisite:	All courses of pharmacology and Therapeutics				
6	Co –requisite:	No				
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English				
9	Location of teaching the course:					
10	Prepared By:	Abdulsalam Halboup				
11	Date of Approval					

## II. Course Description:

Ambulatory training course will provide students with therapeutic and work-up knowledge of different types of chronic diseases encountered in outpatient setting. This course will provide an insight of the systemic approach of designing appropriate pharmaceutical care plan for cardiovascular, endocrine, respiratory, bone-joints, and dermatological disorders in ambulatory care setting. This course will be taught through supervised clinical case discussion, based on daily follow-up, laboratory investigations, and pharmaceutical care plan evaluation. Studying pharmacology and therapeutic courses is prerequisite for this rotation.

## III. Course Objectives:

1. Equip student with practical skills to demonstrate an understanding of selecting the appropriate medication to treat patients in ambulatory care setting.
2. Prepare students to be able to optimize medication, calculate dose, interpret laboratory results, and recognize drug therapy problems.
3. Equip students with the required practical skills to enable them designing pharmaceutical care plan in order to improve patients' health outcomes.
4. Help students to gain communicating skills and self-confidence to be able to communicate effectively with other healthcare providers and patients.

#### IV. Course Intended Learning Outcomes (CILOs):

##### Knowledge and Understanding:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Knowledge and Understanding PILOs	Knowledge and Understanding CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>A2.</b> Illustrate the fundamentals of social and behavioral sciences relevant to pharmacy, ethics of health care and its impact on their relationship with patients and other healthcare professionals.	a1. Outline the essential information of social and behavioral sciences to build professional relationship with patients as well as with other healthcare providers.
<b>A5.</b> Outline principles of clinical pharmacology, therapeutics and Pharmacovigilance.	a2. Discuss the fundamentals of medication therapy, medication optimization and their safety profile.

##### Intellectual Skills:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Intellectual Skills PILOs	Intellectual Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>B3.</b> Solve problems to reduce drug therapy problems	b1. Formulate appropriate therapeutic and monitoring plan to enhance medication therapy and prevent drug therapy problems.

##### Professional and Practical Skills

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Professional and Practical Skills PILOs	Professional and Practical Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>C4.</b> Carry out-patient physical assessment ethically	c1. Assess patients-related data to propose appropriate medication-treatment plan.
<b>C5.</b> Advise the patients and health care professionals for optimizing medicines use.	c2. Implement the effective use of medicine, provide timely and updated medication information to patients and healthcare professionals.

<b>Transferable (General) Skills:</b>	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Transferable (General) Skills PILOs	Transferable (General) Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>D1.</b> Communicate effectively and ethically with patients, public, and health care professionals	d1. Cooperate effectively with the patients and healthcare professionals using verbal and nonverbal communication skills.
<b>D2.</b> Use information systems and computer software in order to enhance the delivery of pharmaceutical care.	d2. Validate the obtained information from different resources to provide evidence-based pharmaceutical interventions.
<b>D3.</b> Work effectively individually and in a team	d3. Demonstrate the ability to provide medication-related advice individually and in groups.
<b>D4.</b> Have the skills of decision-making and time management and life- long learning.	d4. Have the skills to make a timely and up to date therapeutic-related decision for different types of outpatient diseases and disorders.

<b>V. Alignment Course Intended Learning Outcomes</b>		
<b>(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1. Outline the essential information of social and behavioral sciences to build professional relationship with patients as well as with other healthcare providers.	- Small practical session - Tutorial session - Seminars - Critical analysis - Field training - Use of advanced database searches - Independent study	- Daily evaluation - Formal case presentation - Patient counseling - Assignment assessment - Quality of the provided Intervention. - Weekly quiz - Final written examinations.
a2. Discuss the fundamentals of medication therapy, medication optimization and their safety profile.		
<b>(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies

<p>b1. Formulate appropriate therapeutic and monitoring plan to enhance medication therapy and prevent drug therapy problems.</p>	<ul style="list-style-type: none"> <li>- Small practical session</li> <li>- Tutorial session</li> <li>- Seminars</li> <li>- Critical analysis</li> <li>- Field training</li> <li>- Use of advanced database searches</li> <li>- Independent study</li> </ul>	<ul style="list-style-type: none"> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Patient counseling</li> <li>- Intervention provided.</li> <li>- Final written examinations</li> </ul>
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**(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:**

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
<p>c1. Assess patients-related data to propose appropriate medication-treatment plan.</p>	<ul style="list-style-type: none"> <li>- Collect and interpret the available subjective and objective data.</li> </ul>	<ul style="list-style-type: none"> <li>- Patient counseling</li> <li>- Daily evaluation</li> <li>- Formal case presentation</li> </ul>
<p>c2. Implement the effective use of medicine, provide timely and updated medication information to patients and healthcare professionals.</p>	<ul style="list-style-type: none"> <li>- Review and monitor patient medication regimens focusing on the following: appropriateness of therapy, adverse drug reactions, and potential interactions.</li> <li>- Critical reading</li> <li>- Small group discussions</li> <li>- Seminar</li> </ul>	<ul style="list-style-type: none"> <li>- Assignment</li> <li>- Intervention provided.</li> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>

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

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
<p>d1. Cooperate effectively with the patients and healthcare professionals using verbal and nonverbal communication skills.</p>	<ul style="list-style-type: none"> <li>- Oral presentations</li> <li>- Clinical training</li> <li>- Use of advanced database searches</li> </ul>	<ul style="list-style-type: none"> <li>- Patient counseling</li> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Assignment</li> </ul>
<p>d2. Validate the obtained information from different resources to provide evidence-based pharmaceutical interventions.</p>	<ul style="list-style-type: none"> <li>- Critical reading</li> <li>- Small group discussions</li> <li>- Seminars.</li> </ul>	<ul style="list-style-type: none"> <li>- Intervention provided.</li> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>
<p>d3. Demonstrate the ability to provide medication-related advice individually and in groups.</p>	<ul style="list-style-type: none"> <li>- Clinical decision-making skills through group and individual tutorials</li> </ul>	
<p>d4. Have the skills to make a timely and up to date therapeutic-related decision for different</p>		

types of outpatient diseases and disorders.		
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## V. Course Content:

### A – Theoretical Aspect: Not applicable

Order	Units/Topics List	Sub Topics List	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1					
2		-			
3		-			
4		-			
5		-			
6		-			
7					
8		-			
9		-			
10		-			
11		-			
12		-			
13		-			
14	-				
Number of Weeks /and Units Per Semester					

<b>B – Case Studies and Practical Aspect:</b>				
Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1	Ischemic heart disease, hypertension, heart failure, dyslipidemia, post-stroke, Post-DVT, Post-MI	1 <sup>st</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
2	Thyroid disorders, Diabetes mellitus, pain management	2 <sup>nd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
3	Gout and hyperuricemia, osteoarthritis, osteoporosis, rheumatoid arthritis	3 <sup>rd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
4	Asthma, COPD, Upper respiratory tract infection, Acne, dermatitis and psoriasis	4 <sup>th</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
<b>Number of Weeks /and Units Per Semester</b>			<b>120 hrs</b>	

<b>VI. Teaching strategies of the course:</b>	
<ol style="list-style-type: none"> <li>1. Informal cases studies</li> <li>2. Small practical discussion and individualized</li> <li>3. Tutorial session</li> <li>4. Seminars</li> <li>5. Critical analysis and reading</li> <li>6. Clinical training and decision-making skills</li> <li>7. Independent study</li> <li>8. Use of advanced database searches</li> <li>9. Individual supervision</li> <li>10. Collecting, interpreting, and integrating available information in disease state</li> <li>11. Review and monitor patient medication regimens</li> <li>12. Oral presentations</li> </ol>	

<b>VII. Assignments:</b>				
No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	In-service	a1, a2, b1,c1,c2,d1,d2,d3,d4	3 <sup>rd</sup> –4 <sup>th</sup> week	5

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

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Rotation Attendance	1 <sup>st</sup> -4 <sup>th</sup> week	10	10%	a2, b1,c1,c2,d1,d2,d3,d4
2	Daily Evaluation	1 <sup>st</sup> -4 <sup>th</sup> Week	15	15%	a1, a2, b1,c1,c2,d1,d2,d3,d4
3	Formal Case Presentation.	2 <sup>nd</sup> -4 <sup>th</sup> Week	20	20%	a1, a2, b1,c1,c2,d1,d2,d3,d4
4	Weekly Quiz	2 <sup>nd</sup> -4 <sup>th</sup> Week	10	10%	a2, b1,c1,c2 ,d3,d4
5	In-service	2 <sup>nd</sup> -4 <sup>th</sup> Week	5	5%	a1, a2, b1,c1,c2,d1,d2,d3,d4
6	Final writing examination	4 <sup>th</sup> Week	40	40%	a1, a2, b1,c1,c2 ,d3,d4
<b>Total</b>			<b>100</b>	<b>100%</b>	

## IX. Learning Resources:

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

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

- DiPiro, J. T. (2020). Pharmacotherapy: A pathophysiologic approach, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.
- Koda-Kimble, M. A., & Young, L. Y. (2018). Applied therapeutics: The clinical use of drugs, 11<sup>th</sup> edition. Baltimore, Md: Lippincott Williams & Wilkins, United States of America.

### 2- Essential References.

1. Lexicomp, (2020). Drug Information Handbook, 29<sup>th</sup> edition, Lexi-Comp, U.S.A
2. DiPiro, J. T. (2020). Pharmacotherapy: Handbook, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.
3. British national formulary (BNF), last edition, Pharmaceutical Press.
4. Philip Wiffen & els, (2017), Oxford Handbook of Clinical Pharmacy, 3<sup>rd</sup> edition.
5. Marie Chisholm-Burns (January 3, 2019), Pharmacotherapy Principles and Practice, 5<sup>th</sup> Edition, McGraw-Hill Education / Medical, United States of America

### 3- Electronic Materials and Web Sites etc.

1. [www.uptodate.com](http://www.uptodate.com)
2. [www.medscape.com](http://www.medscape.com)
3. [www.ncbi.nlm.nih.gov/pubmed](http://www.ncbi.nlm.nih.gov/pubmed)
4. <http://www.accp.com/>



## Course Specification of Clinical Training: Hospital pharmacy

I. Course Identification and General Information:						
1	Course Title:	Clinical Training: Hospital pharmacy				
2	Course Code & Number:	B1101698				
3	Credit hours:	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
				4		4
4	Study level/ semester at which this course is offered:	Sixth Year: Second Semester				
5	Pre –requisite:	All courses of pharmacology and Therapeutics				
6	Co –requisite:	No				
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English				
9	Location of teaching the course:					
10	Prepared By:	Abdulsalam Halboup				
11	Date of Approval					

### II. Course Description:

Hospital pharmacy course is designed to provide students with practical skills of drug use process in the hospital pharmacies. In this course, student will have the opportunity to learn how the hospital pharmacies deal with total hospital operation, the role of pharmacist, the standard of practice, technology used in the hospital pharmacies and, as well as drug purchasing and distribution of drug among in-patient, outpatient, and emergency pharmacies. This course will be taught through supervised discussion, lecture note and assignments. Studying pharmacology and therapeutic courses is prerequisite for this rotation.

### III. Course Objectives:

1. Equip students with practical skills and competence of managing formulary and medication use process.
2. Help students to establish professional relationship to make them able to communicate effectively with healthcare team and patients.
3. Identify the medication use process in health-systems, including how pharmacy impacts the safety of storage, prescribing, transcription, dispensing, and administration and monitoring steps.
4. Identify the basic functionality of commonly used automated systems related to the medication use process.

#### IV. Course Intended Learning Outcomes (CILOs):

##### Knowledge and Understanding:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Knowledge and Understanding PILOs	Knowledge and Understanding CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>A2.</b> Illustrate the fundamentals of social and behavioral sciences relevant to pharmacy, ethics of health care and its impact on their relationship with patients and other healthcare professionals.	a1. Determine the essential information of social and behavioral sciences to build professional relationship with other healthcare providers and the patients.
<b>A5.</b> Outline principles of clinical pharmacology, therapeutics and Pharmacovigilance.	a2. Discuss the fundamentals of drug use process in the hospital pharmacies.

##### Intellectual Skills:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Intellectual Skills PILOs	Intellectual Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>B3.</b> Solve problems to reduce drug therapy problems	b1. Recognized the effective method of drug use process to prevent medication errors.

##### Professional and Practical Skills

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Professional and Practical Skills PILOs	Professional and Practical Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>C4.</b> Carry out-patient physical assessment ethically	c1. Assess patients-related data before dispensing medications.
<b>C5.</b> Advise the patients and health care professionals for optimizing medicines use.	c2. Educate the patients about the effective use of medicine during drug dispensing process.

<b>Transferable (General) Skills:</b>	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Transferable (General) Skills PILOs	Transferable (General) Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>D1.</b> Communicate effectively and ethically with patients, public, and health care professionals	d1. Interact effectively and professionally with the patients and healthcare providers in the hospital setting.
<b>D2.</b> Use information systems and computer software in order to enhance the delivery of pharmaceutical care.	d2. Validate drug-related data and provide pharmaceutical counselling.
<b>D3.</b> Work effectively individually and in a team	d3. Demonstrate the ability to provide drug-related advice.
<b>D4.</b> Have the skills of decision-making and time management and life- long learning.	d4. Have the skills to make a timely and up to date drug-related decision in the hospital pharmacy setting.

<b>V. Alignment Course Intended Learning Outcomes</b>		
<b>(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1. Determine the essential information of social and behavioral sciences to build professional relationship with other healthcare providers and the patients.	<ul style="list-style-type: none"> <li>- Small practical session</li> <li>- Tutorial session</li> <li>- Seminars</li> <li>- Critical analysis</li> <li>- Field training</li> <li>- Use of advanced database searches</li> <li>- Independent study</li> </ul>	<ul style="list-style-type: none"> <li>- Daily evaluation</li> <li>- Patient counseling</li> <li>- Assignment assessment</li> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>
a2. Discuss the fundamentals of drug use process in the hospital pharmacies.		
<b>(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
b1. Recognized the effective method of drug use process to prevent medication errors.	<ul style="list-style-type: none"> <li>- Small practical session</li> <li>- Tutorial session</li> <li>- Seminars</li> <li>- Critical analysis</li> <li>- Field training</li> </ul>	<ul style="list-style-type: none"> <li>- Daily evaluation</li> <li>- Seminar assessment</li> <li>- Patient counseling</li> <li>- Intervention provided.</li> </ul>

	<ul style="list-style-type: none"> <li>- Use of advanced database searches</li> <li>- Independent study</li> </ul>	<ul style="list-style-type: none"> <li>- Final written examinations</li> </ul>
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**(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:**

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
c1. Assess patients-related data before dispensing medications.	<ul style="list-style-type: none"> <li>- Collect and interpret the available subjective and objective data.</li> <li>- Review and monitor patient medication regimens focusing on the following: appropriateness of therapy, adverse drug reactions, and potential interactions.</li> <li>- Critical reading</li> <li>- Small group discussions</li> <li>- Seminar</li> </ul>	<ul style="list-style-type: none"> <li>- Patient counseling</li> <li>- Daily evaluation</li> <li>- Assignment assessment</li> <li>- Intervention provided.</li> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>
c2. Educate the patients about the effective use of medicine during drug dispensing process.		

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

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
d1. Interact effectively and professionally with the patients and healthcare providers in the hospital setting.	<ul style="list-style-type: none"> <li>- Oral presentations</li> <li>- Clinical training</li> <li>- Use of advanced database searches</li> <li>- Critical reading</li> <li>- Small group discussions</li> <li>- Seminars.</li> <li>- Clinical decision-making skills through group and individual tutorials</li> </ul>	<ul style="list-style-type: none"> <li>- Patient counseling</li> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Assignment</li> <li>- Intervention provided.</li> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>
d2. Validate drug-related data and provide pharmaceutical counselling.		
d3. Demonstrate the ability to provide drug-related advice.		
d4. Have the skills to make a timely and up to date drug-related decision in the hospital pharmacy setting		

## V. Course Content:

### A – Theoretical Aspect: Not applicable

Order	Units/Topics List	Sub Topics List	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1					
2		-			
3		-			
4		-			
5		-			
6		-			
7					
8		-			
9		-			
10		-			
11		-			
12		-			
13		-			
14	-				
<b>Number of Weeks /and Units Per Semester</b>					

<b>B – Case Studies and Practical Aspect:</b>				
Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1	<b>In-patients Pharmacy</b> Methods of drugs orders received, entering patient profile on computer, Selecting and labeling of drugs, Automated drugs refill, and Delivering of orders to proper patient care area.	1 <sup>st</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
2	<b>Out-patients Pharmacy</b> Methods of drugs orders received, entering patient profile on computer, Selecting and labeling of drugs, Reviewing medication orders, Proper dispensing of drugs to patients, and patient counselling.	2 <sup>nd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
3	<b>Emergency Pharmacy</b> Methods of drugs orders received, entering patient profile on computer, Selecting and labeling of drugs, and Proper dispensing of drugs to patients	3 <sup>rd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
4	<b>purchase and storage of Medications</b> System of purchasing and inventory control, Drug formulary system, Methods of storage and distributions of drugs, Drug product recalls, Return of expired drugs to the manufacturer, and Defective drug product reports	4 <sup>th</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
<b>Number of Weeks /and Units Per Semester</b>			<b>120 hrs</b>	

## VI. Teaching strategies of the course:

1. Small practical discussion
2. Tutorial session
3. Seminars
4. Critical analysis and reading
5. Clinical training and decision-making skills
6. Independent study
7. Use of advanced database searches
8. Individual supervision
9. Collecting, interpreting, and integrating available information in disease state
10. Review and monitor patient medication regimens
11. Oral presentations

VII. Assignments:				
No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	In-service	a1, a2, b1,c1,c2,d1,d2,d3,d4	3 <sup>rd</sup> -4 <sup>th</sup> week	5

VIII. Schedule of Assessment Tasks for Students During the Semester:					
No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Rotation Attendance	1 <sup>st</sup> -4 <sup>th</sup> week	10	10%	a2, b1,c1,c2,d1,d2,d3,d4
2	Daily Evaluation	1 <sup>st</sup> -4 <sup>th</sup> Week	15	15%	a1, a2, b1,c1,c2,d1,d2,d3,d4
3	Presentation.	2 <sup>nd</sup> -4 <sup>th</sup> Week	20	20%	a1, a2, b1,c1,c2,d1,d2,d3,d4
4	Weekly Quiz	2 <sup>nd</sup> -4 <sup>th</sup> Week	10	10%	a2, b1,c1,c2 ,d3,d4

5	In-service	2 <sup>nd</sup> -4 <sup>th</sup> Week	5	5%	a1, a2, b1,c1,c2,d1,d2,d3,d4
6	Final writing examination	4 <sup>th</sup> Week	40	40%	a1, a2, b1,c1,c2 ,d3,d4
<b>Total</b>			<b>100</b>	<b>100%</b>	

<b>IX. Learning Resources:</b>	
<ul style="list-style-type: none"> <li>• <i>Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).</i></li> </ul>	
<b>1- Required Textbook(s) (maximum two ).</b>	
	<ul style="list-style-type: none"> <li>• DiPiro, J. T. (2020). Pharmacotherapy: A pathophysiologic approach, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.</li> <li>• Koda-Kimble, M. A., &amp; Young, L. Y. (2018). Applied therapeutics: The clinical use of drugs, 11<sup>th</sup> edition. Baltimore, Md: Lippincott Williams &amp; Wilkins, United States of America.</li> </ul>
<b>2- Essential References.</b>	
	<ol style="list-style-type: none"> <li>1. Lexicomp, (2020). Drug Information Handbook, 29<sup>th</sup> edition, Lexi-Comp, U.S.A</li> <li>2. DiPiro, J. T. (2020). Pharmacotherapy: Handbook, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.</li> <li>3. British national formulary (BNF), last edition, Pharmaceutical Press.</li> <li>4. Philip Wiffen &amp; els, (2017), Oxford Handbook of Clinical Pharmacy, 3<sup>rd</sup> edition.</li> <li>5. Marie Chisholm-Burns (January 3, 2019), Pharmacotherapy Principles and Practice, 5<sup>th</sup> Edition, McGraw-Hill Education / Medical, United States of America</li> </ol>
<b>3- Electronic Materials and Web Sites etc.</b>	
	<ol style="list-style-type: none"> <li>1. <a href="http://www.uptodate.com">www.uptodate.com</a></li> <li>2. <a href="http://www.medscape.com">www.medscape.com</a></li> <li>3. <a href="http://www.ncbi.nlm.nih.gov/pubmed">www.ncbi.nlm.nih.gov/pubmed</a></li> <li>4. <a href="http://www.accp.com/">http://www.accp.com/</a></li> </ol>



## Course Specification of Clinical Training: Oncology

I. Course Identification and General Information:						
1	Course Title:	Clinical Training: Oncology				
2	Course Code & Number:	B1101699				
3	Credit hours:	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
				4		4
4	Study level/ semester at which this course is offered:	Sixth Year: Second Semester				
5	Pre –requisite:	All courses of pharmacology and Therapeutics				
6	Co –requisite:	No				
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English				
9	Location of teaching the course:					
10	Prepared By:	Abdulsalam Halboup				
11	Date of Approval					

## II. Course Description:

Oncology training course will deal with chemotherapy and supportive care of chemotherapy. In this course, student will have the opportunity to learn different types of chemotherapy treatment regimens for each types of malignancy, dose calculation, and supportive care. This course will be taught through supervised clinical case discussion, proposing pharmaceutical treatment regimen, laboratory investigations and proposing specific supportive care plan. Studying pharmacology and therapeutic courses is prerequisite for this rotation.

## III. Course Objectives:

1. Equip students with practical skills and competence to demonstrate an understanding of selecting the appropriate chemotherapy regimen for each type of malignancy.
2. Prepare students to be able to improve the quality of life and provide advanced pharmaceutical care for patients with cancers.
3. provide students with the required practical skills to enable them recognizing chemotherapy adverse effect and the suitable supportive care.
4. Help students to establish professional relationship and self-confidence to make them able to communicate effectively with healthcare team and patients.

#### IV. Course Intended Learning Outcomes (CILOs):

##### Knowledge and Understanding:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Knowledge and Understanding PILOs	Knowledge and Understanding CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>A2.</b> Illustrate the fundamentals of social and behavioral sciences relevant to pharmacy, ethics of health care and its impact on their relationship with patients and other healthcare professionals.	a1. Determine the essential information of social and behavioral sciences to build professional relationship with oncology center team and the patients.
<b>A5.</b> Outline principles of clinical pharmacology, therapeutics and Pharmacovigilance.	a2. Discuss the fundamentals of chemotherapy, dose calculation, and adverse effect reporting.

##### Intellectual Skills:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Intellectual Skills PILOs	Intellectual Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>B3.</b> Solve problems to reduce drug therapy problems	b1. Propose appropriate chemotherapy and its supportive care regimen to enhance cure rate and reduce anticancer drug problems.

##### Professional and Practical Skills

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

Professional and Practical Skills PILOs	Professional and Practical Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>C4.</b> Carry out-patient physical assessment ethically	c1. Assess patients-related data to select the appropriate chemotherapy regimen.
<b>C5.</b> Advise the patients and health care professionals for optimizing medicines use.	c2. provide timely and updated information to healthcare professionals and patients about the effective use of chemotherapy.

<b>Transferable (General) Skills:</b>	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Transferable (General) Skills PILOs	Transferable (General) Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
<b>D1.</b> Communicate effectively and ethically with patients, public, and health care professionals	d1. Cooperate effectively with the patients and oncology center team using verbal and nonverbal communication skills.
<b>D2.</b> Use information systems and computer software in order to enhance the delivery of pharmaceutical care.	d2. Validate chemotherapy-related data and provide the evidence-based pharmaceutical recommendations.
<b>D3.</b> Work effectively individually and in a team	d3. Demonstrate the ability to provide chemotherapy-related advice individually and in groups.
<b>D4.</b> Have the skills of decision-making and time management and life- long learning.	d4. Have the skills to make a timely and up to date chemotherapy-related decision for each type of malignancy.

<b>V. Alignment Course Intended Learning Outcomes</b>		
<b>(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1. Determine the essential information of social and behavioral sciences to build professional relationship with oncology center team and the patients.	- Small practical session - Tutorial session - Seminars - Critical analysis - Field training	- Daily evaluation - Formal case presentation - Patient counseling - Assignment assessment - Quality of the provided Intervention.
a2. Discuss the fundamentals of chemotherapy, dose calculation, and adverse effect reporting.	- Use of advanced database searches - Independent study	- Weekly quiz - Final written examinations.
<b>(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
b1. Propose appropriate chemotherapy and its supportive care regimen to enhance cure rate and reduce anticancer drug problems.	- Small practical session - Tutorial session - Seminars - Critical analysis - Field training	- Daily evaluation - Formal case presentation - Patient counseling - Intervention provided.

	<ul style="list-style-type: none"> <li>- Use of advanced database searches</li> <li>- Independent study</li> </ul>	<ul style="list-style-type: none"> <li>- Final written examinations</li> </ul>
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**(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:**

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
c1. Assess patients-related data to select the appropriate chemotherapy regimen.	<ul style="list-style-type: none"> <li>- Collect and interpret the available subjective and objective data.</li> <li>- Review and monitor patient medication regimens focusing on the following: appropriateness of therapy, adverse drug reactions, and potential interactions.</li> <li>- Critical reading</li> <li>- Small group discussions</li> <li>- Seminar</li> </ul>	<ul style="list-style-type: none"> <li>- Patient counseling</li> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Assignment</li> <li>- Intervention provided.</li> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>
c2. provide timely and updated information to healthcare professionals and patients about the effective use of chemotherapy.		

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

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
d1. Cooperate effectively with the patients and oncology center team using verbal and nonverbal communication skills.	<ul style="list-style-type: none"> <li>- Oral presentations</li> <li>- Clinical training</li> <li>- Use of advanced database searches</li> <li>- Critical reading</li> <li>- Small group discussions</li> <li>- Seminars.</li> <li>- Clinical decision-making skills through group and individual tutorials</li> </ul>	<ul style="list-style-type: none"> <li>- Patient counseling</li> <li>- Daily evaluation</li> <li>- Formal case presentation</li> <li>- Assignment</li> <li>- Intervention provided.</li> <li>- Weekly quiz</li> <li>- Final written examinations.</li> </ul>
d2. Validate chemotherapy-related data and provide the evidence-based pharmaceutical recommendations.		
d3. Demonstrate the ability to provide chemotherapy-related advice individually and in groups.		
d4. Have the skills to make a timely and up to date chemotherapy-related decision for each type of malignancy.		

## V. Course Content:

### A – Theoretical Aspect: Not applicable

Order	Units/Topics List	Sub Topics List	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1					
2		-			
3		-			
4		-			
5		-			
6		-			
7					
8		-			
9		-			
10		-			
11		-			
12		-			
13		-			
14	-				
<b>Number of Weeks /and Units Per Semester</b>					

<b>B – Case Studies and Practical Aspect:</b>				
Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1	Breast Cancer, Prostate cancer Lung cancer,	1 <sup>st</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
2	Colorectal cancer supportive care in oncology	2 <sup>nd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
3	Lymphoma Acute and chronic Leukemia Multiple myeloma	3 <sup>rd</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
4	Ovarian, gastric, bladder, pancreatic, skin testicular carcinoma and osteosarcoma	4 <sup>th</sup> week	30 hours	a1, a2, b1,c1,c2,d1,d2,d3,d4
Number of Weeks /and Units Per Semester			120 hrs	

<b>VI. Teaching strategies of the course:</b>	
<ol style="list-style-type: none"> <li>1. Informal cases studies</li> <li>2. Small practical discussion and individualized</li> <li>3. Tutorial session</li> <li>4. Seminars</li> <li>5. Critical analysis and reading</li> <li>6. Clinical training and decision-making skills</li> <li>7. Independent study</li> <li>8. Use of advanced database searches</li> <li>9. Individual supervision</li> <li>10. Collecting, interpreting, and integrating available information in disease state</li> <li>11. Review and monitor patient medication regimens</li> <li>12. Oral presentations</li> </ol>	

<b>VII. Assignments:</b>				
No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	In-service	a1, a2, b1,c1,c2,d1,d2,d3,d4	3 <sup>rd</sup> –4 <sup>th</sup> week	5

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

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Rotation Attendance	1 <sup>st</sup> -4 <sup>th</sup> week	10	10%	a2, b1,c1,c2,d1,d2,d3,d4
2	Daily Evaluation	1 <sup>st</sup> -4 <sup>th</sup> Week	15	15%	a1, a2, b1,c1,c2,d1,d2,d3,d4
3	Formal Case Presentation.	2 <sup>nd</sup> -4 <sup>th</sup> Week	20	20%	a1, a2, b1,c1,c2,d1,d2,d3,d4
4	Weekly Quiz	2 <sup>nd</sup> -4 <sup>th</sup> Week	10	10%	a2, b1,c1,c2 ,d3,d4
5	In-service	2 <sup>nd</sup> -4 <sup>th</sup> Week	5	5%	a1, a2, b1,c1,c2,d1,d2,d3,d4
6	Final writing examination	4 <sup>th</sup> Week	40	40%	a1, a2, b1,c1,c2 ,d3,d4
<b>Total</b>			<b>100</b>	<b>100%</b>	

## IX. Learning Resources:

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

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

- DiPiro, J. T. (2020). Pharmacotherapy: A pathophysiologic approach, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.
- Koda-Kimble, M. A., & Young, L. Y. (2018). Applied therapeutics: The clinical use of drugs, 11<sup>th</sup> edition. Baltimore, Md: Lippincott Williams & Wilkins, United States of America.

### 2- Essential References.

1. Lexicomp, (2020). Drug Information Handbook, 29<sup>th</sup> edition, Lexi-Comp, U.S.A
2. DiPiro, J. T. (2020). Pharmacotherapy: Handbook, 11<sup>th</sup> edition, New York: McGraw-Hill Medical, United States of America.
3. British national formulary (BNF), last edition, Pharmaceutical Press.
4. Philip Wiffen & els, (2017), Oxford Handbook of Clinical Pharmacy, 3<sup>rd</sup> edition.
5. Marie Chisholm-Burns (January 3, 2019), Pharmacotherapy Principles and Practice, 5<sup>th</sup> Edition, McGraw-Hill Education / Medical, United States of America

### 3- Electronic Materials and Web Sites etc.

1. [www.uptodate.com](http://www.uptodate.com)
2. [www.medscape.com](http://www.medscape.com)
3. [www.ncbi.nlm.nih.gov/pubmed](http://www.ncbi.nlm.nih.gov/pubmed)
4. <http://www.accp.com/>