

**Ministry of Higher Education and Scientific Research  
Scientific Supervision and Scientific Evaluation Apparatus  
Directorate of Quality Assurance and Academic Accreditation  
Accreditation Department**



# **Academic Program and Course Description Guide**

2025

## **Introduction:**

The educational program is a well—planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staP together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quaJerly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

## **Concepts and terminology:**

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

**Learning Outcomes:** A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra—curricular activities to achieve the learning outcomes of the program.

## Academic Program Description Form

**University Name:** Tikrit University.

**Faculty/Institute:** College Of Medicine.

**Scientific Department:** Pharmacology Department.

**Academic or Professional Program Name:** Bachelor of Medicine and General Surgery – Pharmacology.

**Final Certificate Name:** Bachelor Of Medicine and Surgery.

**Academic System:** Annual system.

**Description Preparation Date:** 1 \ 9 \ 2024

**File Completion Date:** 15 \ 1 \ 2025

**Signature:** 

**Head of Department Name:**

Imad Noaman Shareef

**Signature:** 

**Scientific Associate Name:**

Assist. Prof. Dr. Hashim Abed Al Sattar Jabbar

**Date:** 15 \ 1 \ 2025

**Date:** 15 \ 1 \ 2025

**The file is checked by:**

عذراء كامل حسين العبيدي  
مسؤول شعبة ضمان الجودة

**Department of Quality Assurance and University Performance**

**Director of the Quality Assurance and University Performance Department:**

Athraa Kamil Hussein

**Date:** \ 1 \ 2025

**Signature:** 





**Approval of the Dean**

**Prof. Dr. Wisam Suhail Najem**

## 1. Program Vision –Second year

Developing education in the branch through medical students who are familiar with future knowledge and practical concepts about medicines and scientific experience, which qualifies them to use medicines, and prescribe them in optimal manner.

## 2. Program Mission

Commitment to providing high-quality educational programs to its male and female students, sponsoring research projects, supporting student activities, and graduating doctors and researchers with advanced degrees who are qualified and scientifically trained to keep with the needs, communicate with society, and serve the environment.

## 3. Program Objectives

- Teaching students in the second stages the scientific information and experiences related to medicines and treatments, how to prescribe them to the patient in the required dose after diagnosis, describing the mechanism of action of the different groups of medicines, and estimating the normal values of various vital drug reading (kinetic and mechanical), in addition to their interactions with other medicines used by the patient at the same time. Its complications, effect on various organs, side effects of the drug, and contraindications for administering the drug, as well as conveying the concept of the word drug, the nature of its work within the body and its effects on the other parts of the body, thus reaching the cases that require its use in case of illness.
- Acquiring students with the necessary skills by developing their abilities and increasing their mental and professional concepts.
- Preparing students so that they can interact positively with society and develop their skills to understand the various problems related to their profession through quality education.
- Developing standard educational curricula in order to increase students knowledge during their students, as well as while they conduct their research projects in the laboratories of the branch, college, hospitals and in order state departments.
- Providing and nourishing students with many modern scientific experiences by holding discussion circles and urging them to participate in seminars, conferences and workshops.
- Teaching students how to write the correct medical prescription.

## 4. Program Accreditation

Iraq National Guideline Standards for Establishing and Accrediting Medical School.

## 5. Other external influences

WHO

6 Program Structure				
Program Structure	Number of Courses	Credit hours	Percentage	Reviews•
Institution Requirements	8 Blocks	4 Units		Basic
College Requirements	8 Blocks	4 Units		Basic
Department Requirements	8 blocks	4 units		Basic
Summer Training	-	-		
Other	-	-		

7. Program description				
Year / level	Course code	Course name	Credit hours	
Second	0321		Theoretical	Practical- 30 hours
		Pharmacology, pharmacodynamic, pharmacokinetic, chemotherapeutic drugs	14	
		Anticancer drugs	2	
		Drugs for anaemia, and vitamins	5	
		Immunomodulator, immunosuppressant drugs	2	
		Drugs affecting the autonomic nervous system	5	
		Anti-inflammatory, antipyretic and analgesic agents	5	
		Drugs affecting the cardiovascular system	8	
		Drugs affecting the vascular system	4	

## 8. Expected learning outcomes of the program

### Knowledge

#### A- Cognitive objectives.

A1- Introducing the student to the importance of pharmaceuticals.

Learning Outcomes 2

Learning Outcomes Statement 2

Learning Outcomes 3

Learning Outcomes Statement 3

A2- Knowledge of scientific methods in conducting medical research.

#### B - The program's skill objectives

B1 - Developing the student's ability to write medications after diagnosing the disease, especially after being acquainted with the medications used in the world of pharmaceutical medicine and how to choose an alternative when there are symptoms when using some medications.

B2 - Acquiring basic knowledge of pharmacology.

B3 - Acquiring technical skills by using computers and collecting and interpreting electronic information related to medicines, scientific research and education .



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**Skills**

C- Emotional and value goals.

C1- Raising the student to love the subject of medicine and realize its importance after graduating from college.

C2- Taking into account the patient in terms of giving appropriate, inexpensive and effective treatment.

C3- Follow up on the medical condition after giving the drug to determine the patient's response to the treatment as well as the appearance of any side effects of the drug.

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**9. Teaching and Learning Strategies**

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- Giving lecture and discussions.

- Practical application.

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**10. Evaluation methods**

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- Daily surprise exams (a short exam), discussions, participation, events and other activities.

- Semester exams (theoretical and practical).

- End-of-year exams (theoretical exams include choice and explanations with a practical exam).

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## 11. Faculty

### Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)	Number of the teaching staff	
	General	Special		Staff	Lecturer
	1	4		4	-

### Professional Development

#### Mentoring new faculty members

- Directing them to enter a full year of continuing education at the college.
- Directing them to attend the lectures of the branch's teachers.
- Entering the teaching methods course.
- Conducting a teacher examination.

#### Professional development of faculty members

- Scientific achievement through seminars, conferences, and joint work with competent cadres in similar specializations.
- Engaging in acquiring modern scientific expertise and skills in the field of modern technical communication.
- Entry to modern courses on teaching methods inside and outside Iraq.

## 12. Acceptance Criterion

- Admission to the college follows the central distribution system followed by the Ministry of Higher Education and Scientific Research, according to the admission form in Iraqi universities and institutes, and by balancing between the student's desire and the total he obtained, as well as parallel admission through the payment of sums by the students at a rate less than two grades below the central admission, and their acceptance is also centrally.

## 13. The most important sources of information about the program

- Link to the program on the internet and its applications in other universities.
- Medical education units.

## 14. Program Development Plan

- Teaching branch entry into teaching methods courses outside and inside the country.
- Coexistence with branch teachers in other universities outside Iraq for a period of not less than 30 days.

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Second	0321	Pharmacology	Basic	X	X			X	X	X		X	X	X	

- Please tick the boxes corresponding to the individual program learning outcomes under evaluation.

## Course Description Form

<b>1. Course Name:</b>	
- Pharmacokinetic and pharmacodynamic - Chemotherapeutic drugs	
<b>2. Course Code:</b>	
0231- A1	
<b>3. Semester / Year:</b>	
Annual	
<b>4. Description Preparation Date: 1 \ 9 \ 2024</b>	
<b>5. Available Attendance Forms:</b>	
Class room and practical lecture	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
75/4	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Lecture Dr. Imad Noaman Shareef, Assistant Prof. Dr. Alaa Mufaq Musleh Email: <a href="mailto:imadnoaman@tu.edu.iq">imadnoaman@tu.edu.iq</a> , <a href="mailto:alaamwfaqmusleh@tu.edu.iq">alaamwfaqmusleh@tu.edu.iq</a>	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"><li>- Teaching the second year student about the definition of pharmacology.</li><li>- Teaching the student the factors affecting the kinetics and mechanism of the drug inside the body; also known the side effect, contraindication, precaution and interaction with other drugs, how prescription of drugs.</li><li>- Teaching the student on the mode of action and kinetics of the antibiotics.</li><li>- Teaching the student about the uses, side effects, contraindication , and precaution.</li><li>- Students knowledge about therapeutic interaction with other groups.</li><li>- The students knows the appropriate dose of the drug according to the age, weight and gender.</li><li>- Knowledge of the student about the presence of allergies from the treatment or not, what are the problem of allergies, if they occur, and how to treat them.</li></ul>
<b>9. Teaching and Learning Strategies</b>	

<b>Strategy</b>	<ul style="list-style-type: none"> <li>- Given lectures, data show slides and discussions.</li> <li>- Practical application, seminar in practical room.</li> </ul>
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## 10. Course Structure

<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>	<b>Evaluation method</b>
6 weeks	14	<p>A1. After receiving this information, the recipient will be aware of the importance of medicine and how to use the treatment accurately, the forum is very aware of the importance of medicine, how to write the prescription of drug.</p> <p>A2. Develop the ability to analyze the lecture and depict the kinetics and mechanism of the drug inside the body.</p> <p>A3. Develop the ability to know the side effect of the drug.</p>	<ul style="list-style-type: none"> <li>- Pharmacokinetic and phamcodynamic.</li> <li>- Chemotherapeutic drugs.</li> </ul>	<ul style="list-style-type: none"> <li>- Given lectures, data show slides and discussions.</li> <li>- Practical application, seminar in practical room.</li> </ul>	<ul style="list-style-type: none"> <li>- Short examination including quizzes, discussion and other activities.</li> <li>- Quarterly or block examination (as electronic and writing).</li> <li>- Report writing as seminar.</li> <li>- Writing practical report.</li> <li>- End of year long examination (written with practical).</li> <li>- Any other activities (folder, poster and any activity within the department).</li> </ul>

## 11. Course Evaluation

- Semester theoretical and practical exams ( first and second ).
- Short surprise exam throughout the semester.
- End of school year exams ( theoretical and practical).
- Daily discussions, participation, and other activities related to it.

## 12. Learning and Teaching Resources

Required text books (Curricular books, if any)	Micelle A. Clark. Lippincotts illustrated review pharmacology. 8 <sup>th</sup> edition. 2023.
Main references (sources)	<ol style="list-style-type: none"><li>1. Bertram G Katzung &amp; Susan B Masters. Basic and Clinical Pharmacology. 2012.</li><li>2. R S Satoskar, Nirmala N Rege &amp; S D Bhandarkar. Pharmacology and Pharmacotherapeutics. 2013.</li><li>3. K D Tripathi. Essentials of Medical Pharmacology. 2013.</li><li>4. P N Bennett &amp; M J Brown. Clinical Pharmacology. 2012.</li><li>5. S D SETH, Vimlesh Seth. Text book of pharmacology. 3<sup>rd</sup> edition. 2009.</li><li>6. Don A. Ballington, Mary M. Laughlin. Pharmacology. Third edition. 2008.</li></ol>
Recommended books and references (scientific journals, reports ...)	Scientific journals, medical and scientific research.
Electronic References, websites	Electronic reference, internet sites.

## Course Description Form

<b>1. Course Name:</b>	
Anticancer drugs	
<b>2. Course Code:</b>	
0231- A2	
<b>3. Semester / Year:</b>	
Annual	
<b>4. Description Preparation Date: 1 \ 9 \ 2024</b>	
<b>5. Available Attendance Forms:</b>	
Class room and practical lecture	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
75/4	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Assistant Prof. Dr. Alaa Mufaq Musleh Email: alaamwfaqmusleh@tu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	Teaching the second year student about chemotherapy of cancer. - Teaching the student on the mechanism and kinetics of cancer chemotherapy. .... - Teaching the student about the uses, side effects, contraindication and precaution of their use. - Students knowledge about therapeutic interaction with other groups. - The students knows the appropriate dose of the drug according to the age, weight and gender. - Knowledge of the student about the presence of allergies from the treatment or not, what are the problem of allergies, if they occur, and how to treat them.
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	- Given lectures, data show slides and discussions. - Practical application, seminar in practical room.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 week	2	<p>A1. After receiving this information, the recipient will be aware of the importance of medicine and how to use the treatment accurately, the forum is very aware of the importance of medicine, how to write the prescription of drug.</p> <p>A2. Develop the ability to analyze the lecture and depict the kinetics and mechanism of the drug inside the body.</p> <p>A3. Develop the ability to know the side effect of the drug.</p>	Anticancer drugs.	<p>- Given lectures, data show slides and discussions.</p> <p>- Practical application, seminar in practical room.</p>	<p>- Short examination including quizzes, discussion and other activities.</p> <p>- Quarterly or block examination (as electronic and writing).</p> <p>- Report writing as seminar.</p> <p>- Writing practical report.</p> <p>- End of year long examination (written with practical).</p> <p>- Any other activities (folder, poster and any activity within the department).</p>

## 11. Course Evaluation

- Semester theoretical and practical exams ( first and second ).
- Short surprise exam throughout the semester.
- End of school year exams ( theoretical and practical).
- Daily discussions, participation, and other activities related to it.



## 12. Learning and Teaching Resources

Required text books (Curricular books, if any)	Micelle A. Clark. Lippincotts illustrated review pharmacology. 8 <sup>th</sup> edition. 2023.
Main references (sources)	<ol style="list-style-type: none"><li>1. Bertram G Katzung &amp; Susan B Masters. Basic and Clinical Pharmacology. 2012.</li><li>2. R S Satoskar, Nirmala N Rege &amp; S D Bhandarkar. Pharmacology and Pharmacotherapeutics. 2013.</li><li>3. K D Tripathi. Essentials of Medical Pharmacology. 2013.</li><li>4. P N Bennett &amp; M J Brown. Clinical Pharmacology. 2012.</li><li>5. S D SETH, Vimlesh Seth. Text book of pharmacology. 3<sup>rd</sup> edition. 2009.</li><li>6. Don A. Ballington, Mary M. Laughlin. Pharmacology. Third edition. 2008.</li></ol>
Recommended books and references (scientific journals, reports ...)	Scientific journals, medical and scientific research.
Electronic References, websites	Electronic reference, internet sites.

## Course Description Form

<b>1. Course Name:</b>	
Drugs for anemia, vitamins	
<b>2. Course Code:</b>	
0231- A3	
<b>3. Semester / Year:</b>	
Annual	
<b>4. Description Preparation Date: 1 \ 9 \ 2024</b>	
<b>5. Available Attendance Forms:</b>	
Class room and practical lecture	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
75/4	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Assistant Prof. Dr. Alaa Mufaq Musleh Email: alaamwfaqmusleh@tu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<p>Teaching the second year student about drugs are used for treatment of anemia and also use of vitamins.</p> <ul style="list-style-type: none"> <li>- Teaching the student on the mechanism and kinetics of drugs for treatment of anemia and about vitamins.</li> <li>- Teaching the student about the uses, side effects, contraindication and precaution of their use.</li> <li>- Students knowledge about therapeutic interaction with other groups.</li> <li>- The students knows the appropriate dose of the drug according to the age, weight and gender.</li> <li>- Knowledge of the student about the presence of allergies from the treatment or not, what are the problem of allergies, if they occur, and how to treat them.</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>- Given lectures, data show slides and discussions.</li> <li>- Practical application, seminar in practical room.</li> </ul>

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
3 weeks	5	<p>A1. After receiving this information, the recipient will be aware of the importance of medicine and how to use the treatment accurately, the forum is very aware of the importance of medicine, how to write the prescription of drug.</p> <p>A2. Develop the ability to analyze the lecture and depict the kinetics and mechanism of the drug inside the body.</p> <p>A3. Develop the ability to know the side effect of the drug.</p>	Drugs for anemia, vitamins.	<p>- Given lectures, data show slides and discussions.</p> <p>- Practical application, seminar in practical room.</p>	<p>- Short examination including quizzes, discussion and other activities.</p> <p>- Quarterly or block examination (as electronic and writing).</p> <p>- Report writing as seminar.</p> <p>- Writing practical report.</p> <p>- End of year long examination (written with practical).</p> <p>- Any other activities (folder, poster and any activity within the department).</p>

## 11. Course Evaluation

- Semester theoretical and practical exams ( first and second ).
- Short surprise exam throughout the semester.
- End of school year exams ( theoretical and practical).
- Daily discussions, participation, and other activities related to it.

## 12. Learning and Teaching Resources

Required text books (Curricular books, if any)	Micelle A. Clark. Lippincotts illustrated review pharmacology. 8 <sup>th</sup> edition. 2023.
Main references (sources)	<ol style="list-style-type: none"><li>1. Bertram G Katzung &amp; Susan B Masters. Basic and Clinical Pharmacology. 2012.</li><li>2. R S Satoskar, Nirmala N Rege &amp; S D Bhandarkar. Pharmacology and Pharmacotherapeutics. 2013.</li><li>3. K D Tripathi. Essentials of Medical Pharmacology. 2013.</li><li>4. P N Bennett &amp; M J Brown. Clinical Pharmacology. 2012.</li><li>5. S D SETH, Vimlesh Seth. Text book of pharmacology. 3<sup>rd</sup> edition. 2009.</li><li>6. Don A. Ballington, Mary M. Laughlin. Pharmacology. Third edition. 2008.</li></ol>
Recommended books and references (scientific journals, reports ...)	Scientific journals, medical and scientific research.
Electronic References, websites	Electronic reference, internet sites.

## Course Description Form

<b>1. Course Name:</b>	
Drugs for immunosuppressant and imunostimulant	
<b>2. Course Code:</b>	
0331- A4	
<b>3. Semester / Year:</b>	
Annual	
<b>4. Description Preparation Date: 1 \ 9 \ 2024</b>	
<b>5. Available Attendance Forms:</b>	
Class room and practical lecture	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
75/4	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Assistant Prof. Dr. Alaa Mufaq Musleh Email: alaamwfaqmusleh@tu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>- Teaching the second year student about lymphatic drugs.</li> <li>- Teaching the student on the mechanism and kinetics of lymphatic drugs. ....</li> <li>- Teaching the student about the uses, side effects, contraindication and precaution of their use.</li> <li>- Students knowledge about therapeutic interaction with other groups.</li> <li>- The students knows the appropriate dose of the drug according to the age, weight and gender.</li> <li>- Knowledge of the student about the presence of allergies from the treatment or not, what are the problem of allergies, if they occur, and how to treat them.</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>- Given lectures, data show slides and discussions.</li> <li>- Practical application, seminar in practical room.</li> </ul>

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1week	2	<p>A1. After receiving this information, the recipient will be aware of the importance of medicine and how to use the treatment accurately, the forum is very aware of the importance of medicine, how to write the prescription of drug.</p> <p>A2. Develop the ability to analyze the lecture and depict the kinetics and mechanism of the drug inside the body.</p> <p>A3. Develop the ability to know the side effect of the drug.</p>	Immunosuppressant's and imunostimulants drugs.	<p>- Given lectures, data show slides and discussions.</p> <p>- Practical application, seminar in practical room.</p>	<p>- Short examination including quizzes, discussion and other activities.</p> <p>- Quarterly or block examination (as electronic and writing).</p> <p>- Report writing as seminar.</p> <p>- Writing practical report.</p> <p>- End of year long examination (written with practical).</p> <p>- Any other activities (folder, poster and any activity within the department).</p>

## 11. Course Evaluation

- Semester theoretical and practical exams ( first and second ).
- Short surprise exam throughout the semester.
- End of school year exams ( theoretical and practical).
- Daily discussions, participation, and other activities related to it.

## 12. Learning and Teaching Resources

Required text books (Curricular books, if any)	Micelle A. Clark. Lippincotts illustrated review pharmacology. 8 <sup>th</sup> edition. 2023.
Main references (sources)	<ol style="list-style-type: none"> <li>1. Bertram G Katzung &amp; Susan B Masters. Basic and Clinical Pharmacology. 2012.</li> <li>2. R S Satoskar, Nirmala N Rege &amp; S D Bhandarkar. Pharmacology and Pharmacotherapeutics. 2013.</li> <li>3. K D Tripathi. Essentials of Medical Pharmacology. 2013.</li> <li>4. P N Bennett &amp; M J Brown. Clinical Pharmacology. 2012.</li> <li>5. S D SETH, Vimlesh Seth. Text book of pharmacology. 3<sup>rd</sup> edition. 2009.</li> <li>6. Don A. Ballington, Mary M. Laughlin. Pharmacology. Third edition. 2008.</li> </ol>
Recommended books and references (scientific journals, reports ...)	Scientific journals, medical and scientific research.
Electronic References, websites	Electronic reference, internet sites.

## Course Description Form

<b>1. Course Name:</b>	
Drugs affects the autonomic nervous system	
<b>2. Course Code:</b>	
0321- A5	
<b>3. Semester / Year:</b>	
Annual	
<b>4. Description Preparation Date: 1 \ 9 \ 2024</b>	
<b>5. Available Attendance Forms:</b>	
Class room and practical lecture	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
75/4	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: <b>Assistant prof.</b> Dr. Hassan Khuder Rajab Email: hassan1969tob@tu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>- Teaching the student in second year about drugs the type of neurotransmitters responsible for the work of the muscles, and drugs that are similar or opposite to the work of neurotransmitters these drugs work.</li> <li>- Teaching the student on the mechanism and kinetics of drugs that affect the autonomic nervous system and muscle and drugs toxicity.</li> <li>- Teaching the student about the uses, side effects, contraindication and precaution of their use.</li> <li>- Students knowledge about therapeutic interaction with other groups.</li> <li>- The students knows the appropriate dose of the drug according to the age, weight and gender.</li> <li>- Knowledge of the student about the presence of allergies from the treatment or not, what are the problem of allergies, if they occur, and how to treat them.</li> </ul>
<b>9. Teaching and Learning Strategies</b>	



<b>Strategy</b>	<ul style="list-style-type: none"> <li>- Given lectures, data show slides and discussions.</li> <li>- Practical application, seminar in practical room.</li> </ul>
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## 10. Course Structure

<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>	<b>Evaluation method</b>
4 weeks	5	<p>A1. After receiving this information, the recipient will be aware of the importance of medicine and how to use the treatment accurately, the forum is very aware of the importance of medicine, how to write the prescription of drug.</p> <p>A2. Develop the ability to analyze the lecture and depict the kinetics and mechanism of the drug inside the body.</p> <p>A3. Develop the ability to know the side effect of the drug.</p>	Drugs affecting the autonomic nervous system.	<ul style="list-style-type: none"> <li>- Given lectures, data show slides and discussions.</li> <li>- Practical application, seminar in practical room.</li> </ul>	<ul style="list-style-type: none"> <li>- Short examination including quizzes, discussion and other activities.</li> <li>- Quarterly or block examination (as electronic and writing).</li> <li>- Report writing as seminar.</li> <li>- Writing practical report.</li> <li>- End of year long examination (written with practical).</li> <li>- Any other activities (folder, poster and any activity within the department).</li> </ul>

## 11. Course Evaluation

- Semester theoretical and practical exams ( first and second ).
- Short surprise exam throughout the semester.
- End of school year exams ( theoretical and practical).
- Daily discussions, participation, and other activities related to it.

## 12. Learning and Teaching Resources

Required text books (Curricular books, if any)	Micelle A. Clark. Lippincotts illustrated review pharmacology. 8 <sup>th</sup> edition. 2023.
Main references (sources)	<ol style="list-style-type: none"><li>1. Bertram G Katzung &amp; Susan B Masters. Basic and Clinical Pharmacology. 2012.</li><li>2. R S Satoskar, Nirmala N Rege &amp; S D Bhandarkar. Pharmacology and Pharmacotherapeutics. 2013.</li><li>3. K D Tripathi. Essentials of Medical Pharmacology. 2013.</li><li>4. P N Bennett &amp; M J Brown. Clinical Pharmacology. 2012.</li><li>5. S D SETH, Vimlesh Seth. Text book of pharmacology. 3<sup>rd</sup> edition. 2009.</li><li>6. Don A. Ballington, Mary M. Laughlin. Pharmacology. Third edition. 2008.</li></ol>
Recommended books and references (scientific journals, reports ...)	Scientific journals, medical and scientific research.
Electronic References, websites	Electronic reference, internet sites.

## Course Description Form

<b>1. Course Name:</b>	
Anti-inflammatory, antipyretics and analgesic agents	
<b>2. Course Code:</b>	
0321- A6	
<b>3. Semester / Year:</b>	
Annual	
<b>4. Description Preparation Date: 1 \ 9 \ 2024</b>	
<b>5. Available Attendance Forms:</b>	
Class room and practical lecture	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
75/4	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: <b>Assistant lecture</b> Dr. Abdullah Dhyaa Abdullah Email: Abdullah.d.abdullah@tu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<p>Teaching the second year student about Orthopedics disease (rheumatoid arthritis, osteoarthritis, osteoporosis, and gout arthritis, and drugs group use such diseases with their possible doses and side effect. and non steroidal anti-inflammatory drugs (NSAIDs).</p> <ul style="list-style-type: none"> <li>- Teaching the student on the mechanism and kinetics of orthopedics disease drugs and non steroidal anti-inflammatory drugs (NSAIDs)..</li> <li>- Teaching the student about the uses, side effects, contraindication and precaution of their use.</li> <li>- Students knowledge about therapeutic interaction with other groups.</li> <li>- The students knows the appropriate dose of the drug according o the age, weight and gender.</li> <li>- Knowledge of the student about the presence of allergies from the treatment or not, what are the problem of allergies, if they occur, and how to treat them.</li> </ul>
<b>9. Teaching and Learning Strategies</b>	

<b>Strategy</b>	<ul style="list-style-type: none"> <li>- Given lectures, data show slides and discussions.</li> <li>- Practical application, seminar in practical room.</li> </ul>
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## 10. Course Structure

<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>	<b>Evaluation method</b>
1 week	5	<p>A1. After receiving this information, the recipient will be aware of the importance of medicine and how to use the treatment accurately, the forum is very aware of the importance of medicine, how to write the prescription of drug.</p> <p>A2. Develop the ability to analyze the lecture and depict the kinetics and mechanism of the drug inside the body.</p> <p>A3. Develop the ability to know the side effect of the drug.</p>	Anti-inflammatory, antipyretic, and analgesic agents	<ul style="list-style-type: none"> <li>- Given lectures, data show slides and discussions.</li> <li>- Practical application, seminar in practical room.</li> </ul>	<ul style="list-style-type: none"> <li>- Short examination including quizzes, discussion and other activities.</li> <li>- Quarterly or block examination (as electronic and writing).</li> <li>- Report writing as seminar.</li> <li>- Writing practical report.</li> <li>- End of year long examination (written with practical).</li> <li>- Any other activities (folder, poster and any activity within the department).</li> </ul>

## 11. Course Evaluation

- Semester theoretical and practical exams ( first and second ).
- Short surprise exam throughout the semester.
- End of school year exams ( theoretical and practical).
- Daily discussions, participation, and other activities related to it.

## 12. Learning and Teaching Resources

Required text books (Curricular books, if any)	Micelle A. Clark. Lippincotts illustrated review pharmacology. 8 <sup>th</sup> edition. 2023.
Main references (sources)	<ol style="list-style-type: none"><li>1. Bertram G Katzung &amp; Susan B Masters. Basic and Clinical Pharmacology. 2012.</li><li>2. R S Satoskar, Nirmala N Rege &amp; S D Bhandarkar. Pharmacology and Pharmacotherapeutics. 2013.</li><li>3. K D Tripathi. Essentials of Medical Pharmacology. 2013.</li><li>4. P N Bennett &amp; M J Brown. Clinical Pharmacology. 2012.</li><li>5. S D SETH, Vimlesh Seth. Text book of pharmacology. 3<sup>rd</sup> edition. 2009.</li><li>6. Don A. Ballington, Mary M. Laughlin. Pharmacology. Third edition. 2008.</li></ol>
Recommended books and references (scientific journals, reports ...)	Scientific journals, medical and scientific research.
Electronic References, websites	Electronic reference, internet sites.

## Course Description Form

<b>1. Course Name:</b>	
Drugs affecting the cardiovascular system	
<b>2. Course Code:</b>	
0321- A7	
<b>3. Semester / Year:</b>	
Annual	
<b>4. Description Preparation Date: 1 \ 9 \ 2024</b>	
<b>5. Available Attendance Forms:</b>	
Class room and practical lecture	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
75/4	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: <b>Assistant prof.</b> Dr. Hassan Khuder Rajab Email: hassan1969tob@tu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>- Teaching the student in second year about heart disease such as high blood pressure , ischemic heart disease, and cardiac arrhythmias and who has been classified for the drugs that are used to treat such diseases and known the priorities of medicines.</li> <li>- Teaching the student on the mechanism and kinetics of drugs are used for cardiovascular disease. ....</li> <li>- Teaching the student about the uses, side effects, contraindication and precaution of their use.</li> <li>- Students knowledge about therapeutic interaction with other groups.</li> <li>- The students knows the appropriate dose of the drug according to the age, weight and gender.</li> <li>- Knowledge of the student about the presence of allergies from the treatment or not, what are the problem of allergies, if they occur, and how to treat them.</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>- Given lectures, data show slides and discussions.</li> <li>- Practical application, seminar in practical room.</li> </ul>

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
5 weeks	8	<p>A1. After receiving this information, the recipient will be aware of the importance of medicine and how to use the treatment accurately, the forum is very aware of the importance of medicine, how to write the prescription of drug.</p> <p>A2. Develop the ability to analyze the lecture and depict the kinetics and mechanism of the drug inside the body.</p> <p>A3. Develop the ability to know the side effect of the drug.</p>	Drugs affecting the cardiovascular system.	<p>- Given lectures, data show slides and discussions.</p> <p>- Practical application, seminar in practical room.</p>	<p>- Short examination including quizzes, discussion and other activities.</p> <p>- Quarterly or block examination (as electronic and writing).</p> <p>- Report writing as seminar.</p> <p>- Writing practical report.</p> <p>- End of year long examination (written with practical).</p> <p>- Any other activities (folder, poster and any activity within the department).</p>

## 11. Course Evaluation

- Semester theoretical and practical exams ( first and second ).
- Short surprise exam throughout the semester.
- End of school year exams ( theoretical and practical).
- Daily discussions, participation, and other activities related to it.

## 12. Learning and Teaching Resources

Required text books (Curricular books, if any)	Micelle A. Clark. Lippincotts illustrated review pharmacology. 8 <sup>th</sup> edition. 2023.
Main references (sources)	<ol style="list-style-type: none"><li>1. Bertram G Katzung &amp; Susan B Masters. Basic and Clinical Pharmacology. 2012.</li><li>2. R S Satoskar, Nirmala N Rege &amp; S D Bhandarkar. Pharmacology and Pharmacotherapeutics. 2013.</li><li>3. K D Tripathi. Essentials of Medical Pharmacology. 2013.</li><li>4. P N Bennett &amp; M J Brown. Clinical Pharmacology. 2012.</li><li>5. S D SETH, Vimlesh Seth. Text book of pharmacology. 3<sup>rd</sup> edition. 2009.</li><li>6. Don A. Ballington, Mary M. Laughlin. Pharmacology. Third edition. 2008.</li></ol>
Recommended books and references (scientific journals, reports ...)	Scientific journals, medical and scientific research.
Electronic References, websites	Electronic reference, internet sites.



## Course Description Form

<b>1. Course Name:</b>	
- Drugs for vascular system :- - Anticoagulants and antiplatelet agents - Drugs for hyperlipidemia	
<b>2. Course Code:</b>	
0321- A8	
<b>3. Semester / Year:</b>	
Annual	
<b>4. Description Preparation Date: 1 \ 9 \ 2024</b>	
<b>5. Available Attendance Forms:</b>	
Class room and practical lecture	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
75/4	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: <b>Lecture</b> Dr. Imad Noaman Shareef Email: imadnoaman@tu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>- Teaching the student in second year about bleeding disease, how to stop it, how to use anticoagulants , and also how to use medication for hyperlipidemias.</li> <li>- Teaching the student on the mechanism and kinetics of drugs are used blood vascular disease..</li> <li>- Teaching the student about the uses, side effects, contraindication and precaution of their use.</li> <li>- Students knowledge about therapeutic interaction with other groups.</li> <li>- The students knows the appropriate dose of the drug according to the age, weight and gender.</li> <li>- Knowledge of the student about the presence of allergies from the treatment or not, what are the problem of allergies, if they occur, and how to treat them.</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>- Given lectures, data show slides and discussions.</li> <li>- Practical application, seminar in practical room.</li> </ul>

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
5 weeks	4	<p>A1. After receiving this information, the recipient will be aware of the importance of medicine and how to use the treatment accurately, the forum is very aware of the importance of medicine, how to write the prescription of drug.</p> <p>A2. Develop the ability to analyze the lecture and depict the kinetics and mechanism of the drug inside the body.</p> <p>A3. Develop the ability to know the side effect of the drug.</p>	<p>- Anticoagulants and antiplatelet agents.</p> <p>- Drugs for hyperlipidemia.</p>	<p>- Given lectures, data show slides and discussions.</p> <p>- Practical application, seminar in practical room.</p>	<p>- Short examination including quizzes, discussion and other activities.</p> <p>- Quarterly or block examination (as electronic and writing).</p> <p>- Report writing as seminar.</p> <p>- Writing practical report.</p> <p>- End of year long examination (written with practical).</p> <p>- Any other activities (folder, poster and any activity within the department).</p>

## 11. Course Evaluation

- Semester theoretical and practical exams ( first and second ).
- Short surprise exam throughout the semester.
- End of school year exams ( theoretical and practical).
- Daily discussions, participation, and other activities related to it.

## 12. Learning and Teaching Resources

Required text books (Curricular books, if any)	Micelle A. Clark. Lippincotts illustrated review pharmacology. 8 <sup>th</sup> edition. 2023.
Main references (sources)	<u>1. Bertram G Katzung &amp; Susan B Masters. Basic and Clinical Pharmacology. 2012.</u> <u>2. R S Satoskar, Nirmala N Rege &amp; S D Bhandarkar. Pharmacology and Pharmacotherapeutics. 2013.</u> <u>3. K D Tripathi. Essentials of Medical Pharmacology. 2013.</u> <u>4. P N Bennett &amp; M J Brown. Clinical Pharmacology. 2012.</u> <u>5. S D SETH, Vimlesh Seth. Text book of pharmacology. 3<sup>rd</sup> edition. 2009.</u> <u>6. Don A. Ballington, Mary M. Laughlin. Pharmacology. Third edition. 2008.</u>
Recommended books and references (scientific journals, reports ...)	Scientific journals, medical and scientific research.
Electronic References, websites	Electronic reference, internet sites.

### 1. Program Vision- Third year

Developing education in the branch through medical students who are familiar with future knowledge and practical concepts about medicines and scientific experience, which qualifies them to use medicines, and prescribe them in optimal manner.

### 2. Program Mission

Commitment to providing high-quality educational programs to its male and female students, sponsoring research projects, supporting student activities, and graduating doctors and researchers with advanced degrees who are qualified and scientifically trained to keep with the needs, communicate with society, and serve the environment.

### 3. Program Objectives

- Teaching students in the third stages the scientific information and experiences related to medicines and treatments, how to prescribe them to the patient in the required dose after diagnosis, describing the mechanism of action of the different groups of medicines, and estimating the normal values of various vital drug reading (kinetic and mechanical), in addition to their interactions with other medicines used by the patient at the same time. Its complications, effect on various organs, side effects of the drug, and contraindications for administering the drug, as well as conveying the concept of the word drug, the nature of its work within the body and its effects on the other parts of the body, thus reaching the cases that require its use in case of illness.
- Acquiring students with the necessary skills by developing their abilities and increasing their mental and professional concepts.
- Preparing students so that they can interact positively with society and develop their skills to understand the various problems related to their profession through quality education.
- Developing standard educational curricula in order to increase students knowledge during their students, as well as while they conduct their research projects in the laboratories of the branch, college, hospitals and in order state departments.
- Providing and nourishing students with many modern scientific experiences by holding discussion circles and urging them to participate in seminars, conferences and workshops.
- Teaching students how to write the correct medical prescription.

### 4. Program Accreditation

Iraq National Guideline Standards for Establishing and Accrediting Medical School.

### 5. Other external influences

WHO

6 Program Structure				
Program Structure	Number of Courses	Credit hours	Percentage	Reviews•
Institution Requirements	8 Blocks	4 Units		Basic
College Requirements	8 Blocks	4 Units		Basic
Department Requirements	8 blocks	4 units		Basic
Summer Training	-	-		
Other	-	-		

This can include notes whether the course is basic or optional.

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7. Program description				
Year / level	Course code	Course name	Credit hours	
Third	0331-A		Theoretical	Practical-30 hours
		Gastrointestinal drugs	8	
		Liver, pancreas, and metabolic drug	2	
		Drugs for respiratory disorder	5	
		Drugs for endocrine system	8	
		Drugs for renal disorders	6	Seminars
		Fluid and electrolyte	2	Seminars
		Drugs for central nervous 1	7	Seminars
		Drugs for central nervous system 11	7	Seminars

## 8. Expected learning outcomes of the program

### Knowledge

A- Cognitive objectives.

A1- Introducing the student to the importance of pharmaceuticals.

A2- Knowledge of scientific techniques in a new medical procedure.

B - The program's skill objectives

B1 - Developing the student's ability to write medications after diagnosing the disease, especially after being acquainted with the medications used in the world of pharmaceutical medicine and how to choose an alternative when there are symptoms when using some medications.

B2 - Acquiring basic knowledge of pharmacology.

B3 - Acquiring technical skills by using computers and collecting and interpreting electronic information related to medicines, scientific research and education.

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**Skills**

C- Emotional and value goals.

C1- Raising the student to love the subject of medicine and realize its importance after graduating from college.

C2- Taking into account the patient in terms of giving appropriate, inexpensive and effective treatment.

C3- Follow up on the medical condition after giving the drug to determine the patient's response to the treatment as well as the appearance of any side effects of the drug.

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**11. Teaching and Learning Strategies**

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- Giving lecture and discussions.

- Practical application.

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**12. Evaluation methods**

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- Daily surprise exams (a short exam), discussions, participation, events and other activities.

- Semester exams (theoretical and practical).

- End-of-year exams (theoretical exams include choice and explanations with a practical exam).

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## 11. Faculty

### Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)	Number of the teaching staff	
	General	Special		Staff	Lecturer
	1	4		4	-

### Professional Development

#### Mentoring new faculty members

- Directing them to enter a full year of continuing education at the college.
- Directing them to attend the lectures of the branch's teachers.
- Entering the teaching methods course.
- Conducting a teacher examination.

#### Professional development of faculty members

- Scientific achievement through seminars, conferences, and joint work with competent cadres in similar specializations.
- Engaging in acquiring modern scientific expertise and skills in the field of modern technical communication.
- Entry to modern courses on teaching methods inside and outside Iraq.

## 12. Acceptance Criterion

- Admission to the college follows the central distribution system followed by the Ministry of Higher Education and Scientific Research, according to the admission form in Iraqi universities and institutes, and by balancing between the student's desire and the total he obtained, as well as parallel admission through the payment of sums by the students at a rate less than two grades below the central admission, and their acceptance is Also centrally.

## 13. The most important sources of information about the program

- Link to the program on the internet and its applications in other universities.
- Medical education units.

## 14. Program Development Plan

- Teaching branch entry into teaching methods courses outside and inside the country.
- Coexistence with branch teachers in other universities outside Iraq for a period of not less than 30 days.



Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Third	0331	Pharmacology	Basic	X	X			X	X	X		X	X	X	

- Please tick the boxes corresponding to the individual program learning outcomes under evaluation.

## Course Description Form

<b>1. Course Name:</b>	
Gastrointestinal drugs	
<b>2. Course Code:</b>	
0331- A1	
<b>3. Semester / Year:</b>	
Annual	
<b>4. Description Preparation Date: 5/9/2024</b>	
<b>5. Available Attendance Forms:</b>	
Class room and practical lecture	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
75/4	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Lecture Imad Noaman Shareef Email: imadnoaman@tu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>- Teaching the student on the mechanism and kinetics of drugs of gastrointestinal disease.</li> <li>- Teaching the student on the mechanism and kinetics of drugs of gastrointestinal disease.</li> <li>- Teaching the student about the uses, side effects, contraindication and precaution of their use.</li> <li>- Students knowledge about therapeutic interaction with other groups.</li> <li>- The students knows the appropriate dose of the drug according to the age, weight and gender.</li> <li>- Knowledge of the student about the presence of allergies from the treatment or not, what are the problem of allergies, if they occur, and how to treat them.</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>- Given lectures, data show slides and discussions.</li> <li>- Practical application, seminar in practical room.</li> </ul>

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
6 weeks	8	<p>A1. After receiving this information, the recipient will be aware of the importance of medicine and how to use the treatment accurately, the forum is very aware of the importance of medicine, how to write the prescription of drug.</p> <p>A2. Develop the ability to analyze the lecture and depict the kinetics and mechanism of the drug inside the body.</p> <p>A3. Develop the ability to know the side effect of the drug.</p>	Gastro intestinal drugs	<p>- Given lectures, data show slides and discussions.</p> <p>- Practical application, seminar in practical room.</p>	<p>- Short examination including quizzes, discussion and other activities.</p> <p>- Quarterly or block examination (as electronic and writing).</p> <p>- Report writing as seminar.</p> <p>- Writing practical report.</p> <p>- End of year long examination (written with practical).</p> <p>- Any other activities (folder, poster and any activity within the department).</p>

### 11. Course Evaluation

- Semester theoretical and practical exams ( first and second ).
- Short surprise exam throughout the semester.
- End of school year exams ( theoretical and practical).
- Daily discussions, participation, and other activities related to it.

## 12. Learning and Teaching Resources

Required text books (Curricular books, if any)	Micelle A. Clark. Lippincotts illustrated review pharmacology. 8 <sup>th</sup> edition. 2023.
Main references (sources)	<ol style="list-style-type: none"> <li>1. Bertram G Katzung &amp; Susan B Masters. Basic and Clinical Pharmacology. 2012.</li> <li>2. R S Satoskar, Nirmala N Rege &amp; S D Bhandarkar. Pharmacology and Pharmacotherapeutics. 2013.</li> <li>3. K D Tripathi. Essentials of Medical Pharmacology. 2013.</li> <li>4. P N Bennett &amp; M J Brown. Clinical Pharmacology. 2012.</li> <li>5. S D SETH, Vimlesh Seth. Text book of pharmacology. 3<sup>rd</sup> edition. 2009.</li> <li>6. Don A. Ballington, Mary M. Laughlin. Pharmacology. Third edition. 2008.</li> </ol>
Recommended books and references (scientific journals, reports ...)	Scientific journals, medical and scientific research.
Electronic References, websites	Electronic reference, internet sites.

## Course Description Form

<b>1. Course Name:</b>	
Liver, pancreas and metabolism drugs	
<b>2. Course Code:</b>	
0331- A2	
<b>3. Semester / Year:</b>	
Annual	
<b>4. Description Preparation Date: 5/9/2024</b>	
<b>5. Available Attendance Forms:</b>	
Class room and practical lecture	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
75/4	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Dr. Imad Noaman Shareef Email: imadnoaman@tu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<p>Teaching the student in third year about drugs of liver and pancreas disease.</p> <ul style="list-style-type: none"> <li>- Teaching the student on the mechanism and kinetics of drugs of liver and pancreas disease. ....</li> <li>- Teaching the student about the uses, side effects, contraindication and precaution of their use.</li> <li>- Students knowledge about therapeutic interaction with other groups.</li> <li>- The students knows the appropriate dose of the drug according to the age, weight and gender.</li> <li>- Knowledge of the student about the presence of allergies from the treatment or not, what are the problem of allergies, if they occur, and how to treat them.</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>- Given lectures, data show slides and discussions.</li> <li>- Practical application, seminar in practical room.</li> </ul>

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 week	2	<p>A1. After receiving this information, the recipient will be aware of the importance of medicine and how to use the treatment accurately, the forum is very aware of the importance of medicine, how to write the prescription of drug.</p> <p>A2. Develop the ability to analyze the lecture and depict the kinetics and mechanism of the drug inside the body.</p> <p>A3. Develop the ability to know the side effect of the drug.</p>	Liver and metabolism drugs	<p>- Given lectures, data show slides and discussions.</p> <p>- Practical application, seminar in practical room.</p>	<p>- Short examination including quizzes, discussion and other activities.</p> <p>- Quarterly or block examination (as electronic and writing).</p> <p>- Report writing as seminar.</p> <p>- Writing practical report.</p> <p>- End of year long examination (written with practical).</p> <p>- Any other activities (folder, poster and any activity within the department).</p>

## 11. Course Evaluation

- Semester theoretical and practical exams ( first and second ).
- Short surprise exam throughout the semester.
- End of school year exams ( theoretical and practical).
- Daily discussions, participation, and other activities related to it.

## 12. Learning and Teaching Resources

Required text books (Curricular books, if any)	Micelle A. Clark. Lippincotts illustrated review pharmacology. 8 <sup>th</sup> edition. 2023.
Main references (sources)	<ol style="list-style-type: none"> <li>1. Bertram G Katzung &amp; Susan B Masters. Basic and Clinical Pharmacology. 2012.</li> <li>2. R S Satoskar, Nirmala N Rege &amp; S D Bhandarkar. Pharmacology and Pharmacotherapeutics. 2013.</li> <li>3. K D Tripathi. Essentials of Medical Pharmacology. 2013.</li> <li>4. P N Bennett &amp; M J Brown. Clinical Pharmacology. 2012.</li> <li>5. S D SETH, Vimlesh Seth. Text book of pharmacology. 3<sup>rd</sup> edition. 2009.</li> <li>6. Don A. Ballington, Mary M. Laughlin. Pharmacology. Third edition. 2008.</li> </ol>
Recommended books and references (scientific journals, reports ...)	Scientific journals, medical and scientific research.
Electronic References, websites	Electronic reference, internet sites.

## Course Description Form

<b>1. Course Name:</b>	
Drugs for disorders of the respiratory system	
<b>2. Course Code:</b>	
0331- A3	
<b>3. Semester / Year:</b>	
Annual	
<b>4. Description Preparation Date: 5/9/2024</b>	
<b>5. Available Attendance Forms:</b>	
Class room and practical lecture	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
75/4	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: <b>Assistant prof.</b> Dr. Hassan Khuder Rajab Email: hassan1969tob@tu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>- Teaching the student in third year about drugs of respiratory system disease disease.</li> <li>- Teaching the student on the mechanism and kinetics of drugs of respiratory system disease.</li> <li>- Teaching the student about the uses, side effects, ontraindication and precaution of their use.</li> <li>- Students knowledge about therapeutic interaction with other groups.</li> <li>- The students knows the appropriate dose of the drug according to the age, weight and gender.</li> <li>- Knowledge of the student about the presence of allergies from the treatment or not, what are the problem of allergies, if they occur, and how to treat them.</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>- Given lectures, data show slides and discussions.</li> <li>- Practical application, seminar in practical room.</li> </ul>



## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
3 weeks	5	<p>A1. After receiving this information, the recipient will be aware of the importance of medicine and how to use the treatment accurately, the forum is very aware of the importance of medicine, how to write the prescription of drug.</p> <p>A2. Develop the ability to analyze the lecture and depict the kinetics and mechanism of the drug inside the body.</p> <p>A3. Develop the ability to know the side effect of the drug.</p>	Drugs for disorder of respiratory system	<p>- Given lectures, data show slides and discussions.</p> <p>- Practical application, seminar in practical room.</p>	<p>- Short examination including quizzes, discussion and other activities.</p> <p>- Quarterly or block examination (as electronic and writing).</p> <p>- Report writing as seminar.</p> <p>- Writing practical report.</p> <p>- End of year long examination (written with practical).</p> <p>- Any other activities (folder, poster and any activity within the department).</p>

## 11. Course Evaluation

- Semester theoretical and practical exams ( first and second ).
- Short surprise exam throughout the semester.
- End of school year exams ( theoretical and practical).
- Daily discussions, participation, and other activities related to it.

## 12. Learning and Teaching Resources

Required text books (Curricular books, if any)	Micelle A. Clark. Lippincotts illustrated review pharmacology. 8 <sup>th</sup> edition. 2023.
Main references (sources)	<ol style="list-style-type: none"> <li>1. Bertram G Katzung &amp; Susan B Masters. Basic and Clinical Pharmacology. 2012.</li> <li>2. R S Satoskar, Nirmala N Rege &amp; S D Bhandarkar. Pharmacology and Pharmacotherapeutics. 2013.</li> <li>3. K D Tripathi. Essentials of Medical Pharmacology. 2013.</li> <li>4. P N Bennett &amp; M J Brown. Clinical Pharmacology. 2012.</li> <li>5. S D SETH, Vimlesh Seth. Text book of pharmacology. 3<sup>rd</sup> edition. 2009.</li> <li>6. Don A. Ballington, Mary M. Laughlin. Pharmacology. Third edition. 2008.</li> </ol>
Recommended books and references (scientific journals, reports ...)	Scientific journals, medical and scientific research.
Electronic References, websites	Electronic reference, internet sites.

## Course Description Form

<b>1. Course Name:</b>	
Drugs affecting the endocrine system	
<b>2. Course Code:</b>	
0331- A4	
<b>3. Semester / Year:</b>	
Annual	
<b>4. Description Preparation Date: 5/9/2024</b>	
<b>5. Available Attendance Forms:</b>	
Class room and practical lecture	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
75/4	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Dr. Imad Noaman Shareef Email: imadnoaman@tu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>- Teaching the student in third year about drugs of endocrine gland disease.</li> <li>- Teaching the student on the mechanism and kinetics of drugs of endocrine gland disease.</li> <li>- Teaching the student about the uses, side effects, contraindication and precaution of their use. ....</li> <li>- Students knowledge about therapeutic interaction with other groups.</li> <li>- The students knows the appropriate dose of the drug according to the age, weight</li> <li>- Knowledge of the student about the presence of allergies from the treatment or problem of allergies if they occur, and how to treat them.</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>- Given lectures, data show slides and discussions.</li> <li>- Practical application, seminar in practical room.</li> </ul>

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
5 weeks	8	<p>A1. After receiving this information, the recipient will be aware of the importance of medicine and how to use the treatment accurately, the forum is very aware of the importance of medicine, how to write the prescription of drug.</p> <p>A2. Develop the ability to analyze the lecture and depict the kinetics and mechanism of the drug inside the body.</p> <p>A3. Develop the ability to know the side effect of the drug.</p>	Drug affecting the endocrine system	<p>- Given lectures, data show slides and discussions.</p> <p>- Practical application, seminar in practical room.</p>	<p>- Short examination including quizzes, discussion and other activities.</p> <p>- Quarterly or block examination (as electronic and writing).</p> <p>- Report writing as seminar.</p> <p>- Writing practical report.</p> <p>- End of year long examination (written with practical).</p> <p>- Any other activities (folder, poster and any activity within the department).</p>

## 11. Course Evaluation

- Semester theoretical and practical exams ( first and second ).
- Short surprise exam throughout the semester.
- End of school year exams ( theoretical and practical).
- Daily discussions, participation, and other activities related to it.

## 12. Learning and Teaching Resources

Required text books (Curricular books, if any)	Micelle A. Clark. Lippincotts illustrated review pharmacology. 8 <sup>th</sup> edition. 2023.
Main references (sources)	<ol style="list-style-type: none"> <li>1. Bertram G Katzung &amp; Susan B Masters. Basic and Clinical Pharmacology. 2012.</li> <li>2. R S Satoskar, Nirmala N Rege &amp; S D Bhandarkar. Pharmacology and Pharmacotherapeutics. 2013.</li> <li>3. K D Tripathi. Essentials of Medical Pharmacology. 2013.</li> <li>4. P N Bennett &amp; M J Brown. Clinical Pharmacology. 2012.</li> <li>5. S D SETH, Vimlesh Seth. Text book of pharmacology. 3<sup>rd</sup> edition. 2009.</li> <li>6. Don A. Ballington, Mary M. Laughlin. Pharmacology. Third edition. 2008.</li> </ol>
Recommended books and references (scientific journals, reports ...)	Scientific journals, medical and scientific research.
Electronic References, websites	Electronic reference, internet sites.

## Course Description Form

<b>1. Course Name:</b>	
Drugs for urological disorders	
<b>2. Course Code:</b>	
0331- A5	
<b>3. Semester / Year:</b>	
Annual	
<b>4. Description Preparation Date: 5/9/2024</b>	
<b>5. Available Attendance Forms:</b>	
Class room and practical lecture	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
75/4	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Dr. Imad Noaman Shareef Email: imadnoaman@tu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>- Teaching the student in third year about drugs of urinary tract disease drugs. ....</li> <li>- Teaching the student on the mechanism and kinetics of drugs of urinary tract disease drugs.</li> <li>- Teaching the student about the uses, side effects, contraindication and precaution of their use.</li> <li>- Students knowledge about therapeutic interaction with other groups.</li> <li>- The students knows the appropriate dose of the drug according to the age, weight and gender.</li> <li>- Knowledge of the student about the presence of allergies from the treatment or not, what are the problem of allergies, if they occur, and how to treat them.</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>- Given lectures, data show slides and discussions.</li> <li>- Practical application, seminar in practical room.</li> </ul>

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
4 weeks	6	<p>A1. After receiving this information, the recipient will be aware of the importance of medicine and how to use the treatment accurately, the forum is very aware of the importance of medicine, how to write the prescription of drug.</p> <p>A2. Develop the ability to analyze the lecture and depict the kinetics and mechanism of the drug inside the body.</p> <p>A3. Develop the ability to know the side effect of the drug.</p>	Drugs for urological system	<p>- Given lectures, data show slides and discussions.</p> <p>- Practical application, seminar in practical room.</p>	<p>- Short examination including quizzes, discussion and other activities.</p> <p>- Quarterly or block examination (as electronic and writing).</p> <p>- Report writing as seminar.</p> <p>- Writing practical report.</p> <p>- End of year long examination (written with practical).</p> <p>- Any other activities (folder, poster and any activity within the department).</p>

## 11. Course Evaluation

- Semester theoretical and practical exams ( first and second ).
- Short surprise exam throughout the semester.
- End of school year exams ( theoretical and practical).
- Daily discussions, participation, and other activities related to it.

## 12. Learning and Teaching Resources

Required text books (Curricular books, if any)	Micelle A. Clark. Lippincotts illustrated review pharmacology. 8 <sup>th</sup> edition. 2023.
Main references (sources)	<ol style="list-style-type: none"> <li>1. Bertram G Katzung &amp; Susan B Masters. Basic and Clinical Pharmacology. 2012.</li> <li>2. R S Satoskar, Nirmala N Rege &amp; S D Bhandarkar. Pharmacology and Pharmacotherapeutics. 2013.</li> <li>3. K D Tripathi. Essentials of Medical Pharmacology. 2013.</li> <li>4. P N Bennett &amp; M J Brown. Clinical Pharmacology. 2012.</li> <li>5. S D SETH, Vimlesh Seth. Text book of pharmacology. 3<sup>rd</sup> edition. 2009.</li> <li>6. Don A. Ballington, Mary M. Laughlin. Pharmacology. Third edition. 2008.</li> </ol>
Recommended books and references (scientific journals, reports ...)	Scientific journals, medical and scientific research.
Electronic References, websites	Electronic reference, internet sites.



## Course Description Form

<b>1. Course Name:</b>	
Fluid and electrolyte	
<b>2. Course Code:</b>	
0331- A6	
<b>3. Semester / Year:</b>	
Annual	
<b>4. Description Preparation Date: 5/9/2024</b>	
<b>5. Available Attendance Forms:</b>	
Class room and practical lecture	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
75/4	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Lecture Dr. Imad Noaman Shareef Email: imadnoaman@tu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	Teaching the student in third year about oral, intravenous fluid and electrolytes. ..... - Teaching the students about the different types of medical fluid. ..... - Teaching the students about the use, side effects, contraindication and warning of their uses. - The students knows the appropriate of intravenous fluids giving according to age, weight and gender.
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	- Given lectures, data show slides and discussions. - Practical application, seminar in practical room.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 week	2	<p>A1. After receiving this information, the recipient will be aware of the importance of fluid and how to use the fluid accurately, the forum is very aware of the importance of medicine, how to write the prescription of fluid.</p> <p>A2. Develop the ability to analyze the lecture and depict the kinetics and action of the fluid inside the body.</p> <p>A3. Develop the ability to know the over given of the fluid.</p>	Fluid and electrolyte.	<p>- Given lectures, data show slides and discussions.</p> <p>- Practical application, seminar in practical room.</p>	<p>- Short examination including quizzes, discussion and other activities.</p> <p>- Quarterly or block examination (as electronic and writing).</p> <p>- Report writing as seminar.</p> <p>- Writing practical report.</p> <p>- End of year long examination (written with practical).</p> <p>- Any other activities (folder, poster and any activity within the department).</p>

### 11. Course Evaluation

- Semester theoretical and practical exams ( first and second ).
- Short surprise exam throughout the semester.
- End of school year exams ( theoretical and practical).
- Daily discussions, participation, and other activities related to it.

## 12. Learning and Teaching Resources

Required text books (Curricular books, if any)	Micelle A. Clark. Lippincotts illustrated review pharmacology. 8 <sup>th</sup> edition. 2023.
Main references (sources)	<ol style="list-style-type: none"> <li>1. Bertram G Katzung &amp; Susan B Masters. Basic and Clinical Pharmacology. 2012.</li> <li>2. R S Satoskar, Nirmala N Rege &amp; S D Bhandarkar. Pharmacology and Pharmacotherapeutics. 2013.</li> <li>3. K D Tripathi. Essentials of Medical Pharmacology. 2013.</li> <li>4. P N Bennett &amp; M J Brown. Clinical Pharmacology. 2012.</li> <li>5. S D SETH, Vimlesh Seth. Text book of pharmacology. 3<sup>rd</sup> edition. 2009.</li> <li>6. Don A. Ballington, Mary M. Laughlin. Pharmacology. Third edition. 2008.</li> </ol>
Recommended books and references (scientific journals, reports ...)	Scientific journals, medical and scientific research.
Electronic References, websites	Electronic reference, internet sites.

## Course Description Form

<b>1. Course Name:</b>	
Drugs affecting the central nervous system 1 (CNS 1)	
<b>2. Course Code:</b>	
0331- A7	
<b>3. Semester / Year:</b>	
Annual	
<b>4. Description Preparation Date: 5/9/2024</b>	
<b>5. Available Attendance Forms:</b>	
Class room and practical lecture	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
75/4	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: <b>Assistant prof.</b> Dr. Alaa Mufaq Musleh Email: alaamwfaqmusleh@tu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>- Teaching the student in third year about drugs are used for drugs for central nervous system disease part 1.</li> <li>- Teaching the student on the mechanism and kinetics of drugs are used for central nervous disease parte 11.</li> <li>- Teaching the student about the uses, side effects, contraindication and precaution of their use.</li> <li>- Students knowledge about therapeutic interaction with other groups.</li> <li>- The students knows the appropriate dose of the drug according to the age, weight and gender.</li> <li>- Knowledge of the student about the presence of allergies from the treatment or not, what are the problem of allergies, if they occur, and how to treat them.</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>- Given lectures, data show slides and discussions.</li> <li>- Practical application, seminar in practical room.</li> </ul>

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
5 weeks	7	<p>A1. After receiving this information, the recipient will be aware of the importance of medicine and how to use the treatment accurately, the forum is very aware of the importance of medicine, how to write the prescription of drug.</p> <p>A2. Develop the ability to analyze the lecture and depict the kinetics and mechanism of the drug inside the body.</p> <p>A3. Develop the ability to know the side effect of the drug.</p>	Drugs affecting the central nervous system 1 (CNS 1)	<p>- Given lectures, data show slides and discussions.</p> <p>- Practical application, seminar in practical room.</p>	<p>- Short examination including quizzes, discussion and other activities.</p> <p>- Quarterly or block examination (as electronic and writing).</p> <p>- Report writing as seminar.</p> <p>- Writing practical report.</p> <p>- End of year long examination (written with practical).</p> <p>- Any other activities (folder, poster and any activity within the department).</p>

### 11. Course Evaluation

- Semester theoretical and practical exams ( first and second ).
- Short surprise exam throughout the semester.
- End of school year exams ( theoretical and practical).
- Daily discussions, participation, and other activities related to it.

## 12. Learning and Teaching Resources

Required text books (Curricular books, if any)	Micelle A. Clark. Lippincotts illustrated review pharmacology. 8 <sup>th</sup> edition. 2023.
Main references (sources)	<ol style="list-style-type: none"> <li>1. Bertram G Katzung &amp; Susan B Masters. Basic and Clinical Pharmacology. 2012.</li> <li>2. R S Satoskar, Nirmala N Rege &amp; S D Bhandarkar. Pharmacology and Pharmacotherapeutics. 2013.</li> <li>3. K D Tripathi. Essentials of Medical Pharmacology. 2013.</li> <li>4. P N Bennett &amp; M J Brown. Clinical Pharmacology. 2012.</li> <li>5. S D SETH, Vimlesh Seth. Text book of pharmacology. 3<sup>rd</sup> edition. 2009.</li> <li>6. Don A. Ballington, Mary M. Laughlin. Pharmacology. Third edition. 2008.</li> </ol>
Recommended books and references (scientific journals, reports ...)	Scientific journals, medical and scientific research.
Electronic References, websites	Electronic reference, internet sites.

## Course Description Form

<b>1. Course Name:</b>	
Drugs affecting the central nervous system 11 (CNS 11)	
<b>2. Course Code:</b>	
0331- A8	
<b>3. Semester / Year:</b>	
Annual	
<b>4. Description Preparation Date: 5/9/2024</b>	
<b>5. Available Attendance Forms:</b>	
Class room and practical lecture	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
75/4	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: <b>Assistant prof.</b> Dr. Alla Mufaq Musleh Email: alaamwfaqmusleh@tu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>- Teaching the student in third year about drugs are used central nervous system disease, what mean addiction and how deal with it.</li> <li>- Teaching the student on the mechanism and kinetics of drugs are used central nervous system disease. ....</li> <li>- Teaching the student about the uses, side effects, contraindication and precaution of their use.</li> <li>- Students knowledge about therapeutic interaction with other groups.</li> <li>- The students knows the appropriate dose of the drug according to the age, weight and gender.</li> <li>- Knowledge of the student about the presence of allergies from the treatment or not, what are the problem of allergies, if they occur, and how to treat them.</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>- Given lectures, data show slides and discussions.</li> <li>- Practical application, seminar in practical room.</li> </ul>

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
5 weeks	7	<p>A1. After receiving this information, the recipient will be aware of the importance of medicine and how to use the treatment accurately, the forum is very aware of the importance of medicine, how to write the prescription of drug.</p> <p>A2. Develop the ability to analyze the lecture and depict the kinetics and mechanism of the drug inside the body.</p> <p>A3. Develop the ability to know the side effect of the drug.</p>	Drugs affecting the central nervous system 11, addiction and how deal with this patients.	<p>- Given lectures, data show slides and discussions.</p> <p>- Practical application, seminar in practical room.</p>	<p>- Short examination including quizzes, discussion and other activities.</p> <p>- Quarterly or block examination (as electronic and writing).</p> <p>- Report writing as seminar.</p> <p>- Writing practical report.</p> <p>- End of year long examination (written with practical).</p> <p>- Any other activities (folder, poster and any activity within the department).</p>

## 11. Course Evaluation

- Semester theoretical and practical exams ( first and second ).
- Short surprise exam throughout the semester.
- End of school year exams ( theoretical and practical).
- Daily discussions, participation, and other activities related to it.



## 12. Learning and Teaching Resources

Required text books (Curricular books, if any)	Micelle A. Clark. Lippincotts illustrated review pharmacology. 8 <sup>th</sup> edition. 2023.
Main references (sources)	<p><u>1. Bertram G Katzung &amp; Susan B Masters. Basic and Clinical Pharmacology. 2012.</u></p> <p><u>2. R S Satoskar, Nirmala N Rege &amp; S D Bhandarkar. Pharmacology and Pharmacotherapeutics. 2013.</u></p> <p><u>3. K D Tripathi. Essentials of Medical Pharmacology. 2013.</u></p> <p><u>4. P N Bennett &amp; M J Brown. Clinical Pharmacology. 2012.</u></p> <p><u>5. S D SETH, Vimlesh Seth. Text book of pharmacology. 3<sup>rd</sup> edition. 2009.</u></p> <p><u>6. Don A. Ballington, Mary M. Laughlin. Pharmacology. Third edition. 2008.</u></p>
Recommended books and references (scientific journals, reports ...)	Scientific journals, medical and scientific research.
Electronic References, websites	Electronic reference, internet sites.

