Course Description / Level One

Principles of Chemistry	**Course name -1**
OPT 103	**Course code -2**
First semester 2025/2026	**Semester/Year -3**
2025/9/1	**the Date of preparation of -4 description**
In-person lectures	**Available forms of -5 attendance**
theoretical hours + 60 practical hours / 5 45 units	**Number of credit hours (total) / -6 Number of units (total)**
.M.DMustafa Talib Salim	**Name of the course supervisor -7 mention all names, if there is more) (than one name**

Course objectives -8

Providing graduates with a strong scientific foundation in basic materials science, an understanding of the nature of devices and tools used in the field, the application of chemical principles to solve problems related to vision and lens manufacturing, and the development of innovation in the field of eye care

Teaching and learning strategies -9

It is recommended to apply active learning strategies, such as group discussions and free discussions, use various visual aids such as diagrams and illustrations, and link concepts to practical reality and their applications .in the field of optics It also encourages continuous assessment of students and provides additional educational resources online to deepen .understanding

B- Course specific skill objectives

Providing students with a scientific basis for understanding the materials and techniques used in the field of optics, developing their problem-solving skills, and applying the acquired knowledge in the field of examining, diagnosing, and treating vision problems and providing the necessary visual care to patients in various health sectors, in accordance with quality standards and social .responsibility

Teaching and learning methods

In-person education (scientific films and videos, Laboratories, summer and (professional training, and graduation projects

. Scientific visits and practical training in hospitals by specialized medical staff
Evaluation methods
Daily tests, semester exams, final exams, weekly reports on the subject, seminars on . the study subjects , discussions and conversations during the lesson
C. Affective and value- based goals: Instilling values such as responsibility, sensitivity, and professionalism in students, in addition to developing a love of knowledge, a passion for innovation, and a commitment to serving society by improving the quality of people's vision, through a deep understanding of chemistry as a basis for .diagnosing diseases and developing modern optical technologies
Teaching and learning methods
(In-person lectures), summer and professional training, graduation projects, . field visits, and practical training in clinical subjects
• **Evaluation methods**
Daily, midterm and final exams , weekly reports Patient seminars, clinical follow-up reports, and practical discussions followed by the practical lesson in . the hospital
D. General and transferable skills (other skills related to employability and . (personal development **.D1 . Skills of cooperation and teamwork** **.D2 . Computer typing skills** **.D3 . English communication skills** **.D4 . Skills of enduring work performance and solving problems** **. D5 . Internet conversation skills**

Course structure -10

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Introduction to Chemistry	Knowledge and application	3 theoretical 4 + practical	the first
Reports, oral and written	whiteboard, powerpoint slides,	Atoms, Molecules, and Ions	Knowledge and application	3 theoretical 4 + practical	the second

theoretical exams	hands-on experiments				
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	The Periodic Table & Chemical Bonding	Knowledge and application	3 theoretical 4 + practical	the third
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Chemical Formulas & Nomenclature	Knowledge and application	3 theoretical 4 + practical	Fourth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Chemical Equations & Reactions	Knowledge and application	3 theoretical 4 + practical	Fifth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	The Mole Concept	Knowledge and application	3 theoretical 4 + practical	Sixth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Stoichiometry	Knowledge and application	3 theoretical 4 + practical	Seventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Gases and Gas Laws	Knowledge and application	3 theoretical 4 + practical	The eighth
Reports, oral and written	whiteboard, powerpoin	Thermochemistry	Knowledge and application	3 theoretical 4 + practical	Ninth

theoretical exams	t slides, hands-on experiments				
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Electronic Structure of Atoms	Knowledge and application	3 theoretical 4 + practical	tenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Chemical Bonding II	Knowledge and application	3 theoretical 4 + practical	eleventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Liquids, Solids & Intermolecular Forces	Knowledge and application	3 theoretical 4 + practical	twelfth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Solutions and Concentrations	Knowledge and application	3 theoretical 4 + practical	thirteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Acids, Bases, and pH	Knowledge and application	3 theoretical 4 + practical	fourteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Review and Applications in Optics	Knowledge and application	3 theoretical 4 + practical	fifteenth

Course Evaluation -11
Student activities and reports, oral and written theoretical and practical exams
-14

Learning and Teaching Resources - 12	
	Required textbooks (curriculum (books, if available
Internet	Main References (Sources)
	Recommended books and references (scientific journals, (...reports
	Electronic references and websites

Medical Physics	Course name -1
OPT 108	Course code -2
Second semester 2025/2026	Semester/Year -3
2025/9/1	Date of preparation of the description -4
In-person lectures	Available forms of attendance -5
45 hour of theory + 60 hours of practical work / 5 units 1	Number of credit hours (total) / Number of units (total) -6
Mohamed Ajami Abdel .M.D	Name of the course supervisor (mention all names, if there is more than one name) -7

Course objectives -8

Acquiring the skill in addition to the information related to the relationship between physics and .movement and its relationship to the vision examination

Teaching and learning strategies -9

A. Cognitive objectives

It involves understanding how the laws of physics apply to the human body and using physical therapies to improve health. Goals include:

Understanding .1the scientific foundations and physical principles that underlie natural therapies.

Learn how to use medical machines and devices that rely on physics in .2 eyeexamination .

Explain how movement .3, forces and pressure affect the human body.

Learn how to use heat .4, cold, ultrasound and electricity therapy in managing patients' conditions.

Develop the ability to analyze data and conduct appropriate assessments .5 to select the optimaltreatment .

Achieving these objectives ensures that students have the skills necessary to .understand and apply medical physics effectively in the optometry profession

. B. Course specific skill objectives

The skill objectives for studying medical physics in the Department of Optometry Technology aim to develop a set of practical skills that enhance the student's ability to interact directly with patients and use various tools and technologies. These objectives may include:

Proficiency .1in using specialized devices and tools for eye examination.

Applying therapeutic techniques based on physical principles safely and .2effectively .

Developing effective communication skills with patients while providing physical .3therapy .
Evaluating individual cases and determining appropriate doses using medical .4physics .
Develop critical thinking and problem .5- solving skills related to vision examination.
Learn how to conduct tests and interpret results to evaluate the effectiveness of .6treatments .
These skills help students become professionals who can work independently and contribute .effectively to healthcare teams

Teaching and learning methods

In-person education (scientific films and videos, Laboratories, summer and (professional training, and graduation projects
. Scientific visits and practical training in hospitals by specialized medical staff

Evaluation methods

Daily tests, semester exams, final exams, weekly reports on the subject, seminars on the study subjects , discussions and conversations during the . lesson

C. Affective and value- based goals

The affective objectives of studying medical physics in the Department of Optometry are related to developing students' attitudes, values, and feelings toward their profession and their patients. Some of these objectives include:

1. Enhancing the sense of professional and ethical responsibility in providing health care.
2. Appreciating the importance of accuracy and attention to detail in therapeutic procedures.
3. Self-development and a tendency towards continuous learning to keep pace with developments in the medical and physical field.
4. Empathy with patients, understanding their needs, and the desire to improve their quality of life.
5. Building teamwork skills through cooperation and sharing experiences and knowledge with colleagues.
6. Encourage a positive attitude towards work, as well as passion and motivation to improve therapeutic practices.
7. Develop self-confidence and the ability to make balanced decisions in practical contexts.

Affective goals contribute to building professionals who are not only skilled but also .compassionate and prepared to work according to the highest standards of healthcare

(In-person lectures), summer and professional training, graduation projects, . field visits, and practical training in clinical subjects

- **Evaluation methods**

Daily, midterm and final exams , weekly reports Patient seminars, clinical follow-up reports, and practical discussions followed by the practical lesson in . the hospital

D. General and transferable skills (other skills related to employability and . (personal development

.D1 . Skills of cooperation and teamwork

.D2 . Computer typing skills

.D3 . English communication skills

.D4 . Skills of enduring work performance and solving problems

. D5 . Internet conversation skills

Course structure -10

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	ELECTRICITY AND MAGNETISM	Knowledge and application	3 theoretical 4 + practical	the first
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	static electricity	Knowledge and application	3 theoretical 4 + practical	the second
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	CURRENT ELECTRICITY	Knowledge and application	3 theoretical 4 + practical	the third
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Electromagnetism	Knowledge and application	3 theoretical 4 + practical	Fourth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	ELECTRO MECHANICS	Knowledge and application	3 theoretical 4 + practical	Fifth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	CLASSIFICATION OF CURRENTS	Knowledge and application	3 theoretical 4 + practical	Sixth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Medium Frequency Current	Knowledge and application	3 theoretical 4 + practical	Seventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	High Frequency Current	Knowledge and application	3 theoretical 4 + practical	The eighth

Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	SOUND WAVES	Knowledge and application	3 theoretical 4 + practical	Ninth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	HEAT	Knowledge and application	3 theoretical 4 + practical	tenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	ELECTROMAGNETIC RADIATION	Knowledge and application	3 theoretical 4 + practical	eleventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	SAFETY IN BIOMEDICAL INSTRUMENTS	Knowledge and application	3 theoretical 4 + practical	twelfth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	RADIATION PROTECTION	Knowledge and application	3 theoretical 4 + practical	thirteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	PRACTICAL	Knowledge and application	3 theoretical 4 + practical	fourteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	PRACTICAL	Knowledge and application	3 theoretical 4 + practical	fifteenth

Course Evaluation -11
Student activities and reports, oral and written theoretical and practical exams
-15

Learning and Teaching Resources - 12	
	Required textbooks (curriculum (books, if available
Internet	Main References (Sources)
	Recommended books and references (scientific journals, (...reports

	Electronic references and websites

Medical Biology	**Course name -1**
MTCD101	**Course code -2**
First semester 2025/2026	**Semester/Year -3**
2025/9/1	**Date of preparation of the description -4**
In-person lectures	**Available forms of attendance -5**
30 hour of theory + 60 hours of practical 1 work / 4 units	**Number of credit hours (total) / Number of units (total) -6**
M.M. Mays Qasim Muhammad	**Name of the course supervisor mention all names, if there is more than one name) -7**

Course objectives -8

Knowing the history and branches of medical biology and dealing with them through accurate diagnosis of the relationship with the impact on the body's systems, which .helps the physical therapist to deal with such cases

Teaching and learning strategies -9

A. Cognitive objectives

1. Knowing the types of pathogens that cause injuries to the body
2. . Genetic factors and chromosomal changes
3. .The body's defense mechanism against pathogens
4. .Some pathogens and how to prevent them

. B. Course specific skill objectives

1. **Develop an understanding of the fundamentals of microbiology and the research methods used in this field.**
2. **Gain technical skills in using microscopes and other laboratory tools used in the analysis of live samples.**
3. **Identify different types of microorganisms including bacteria, viruses, fungi, and parasites.**
4. **Develop the ability to estimate the size, shape and cellular structure of living . organisms using a microscope**

Teaching and learning methods

In-person education (scientific films and videos, Laboratories, summer and professional (training, and graduation projects . Scientific visits and practical training in hospitals by specialized medical staff
Evaluation methods
Daily tests, semester exams, final exams, weekly reports on the subject, seminars on the study subjects , discussions and conversations during the . lesson
C. Affective and value- based goals A1 . Achieving interest and positive interaction with biology. To raise awareness of the importance of microorganisms in daily life and to understand the vital role they play in the .environment and public health A2 . Analyzing the problems facing its employees and how to develop the necessary .solutions .A3 . Teamwork among different cadres . A4 . Understanding patients' suffering and alleviating their pain
Teaching and learning methods
In-person lectures), summer and professional training, graduation projects, field visits, and . practical training in clinical subjects
• Evaluation methods
Daily, midterm and final exams , weekly reports Patient seminars, clinical follow-up . reports, and practical discussions followed by the practical lesson in the hospital
D. General and transferable skills (other skills related to employability and personal . (development .D1 . Skills of cooperation and teamwork .D2 . Computer typing skills .D3 . English communication skills .D4 . Skills of enduring work performance and solving problems . D5 . Internet conversation skills

Course structure - 10

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Histo microbiology - History	Knowledge and application	2 theoretical 4 + practical	the first
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Branches of Microbiology	Knowledge and application	2 theoretical 4 + practical	the second
Reports, oral and	whiteboard, powerpoint	Structure of Microbes	Knowledge and application	2 theoretical	the third

written theoretical exams	slides, hands-on experiments			4 + practical	
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Morphology of Bacteria	Knowledge and application	2 theoretical 4 + practical	Fourth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Requirement of Bacteria	Knowledge and application	2 theoretical 4 + practical	Fifth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Nutrition ((Autotrophic: Photoautotrophic, Chemoautotrophic) Heterotrophic)	Knowledge and application	2 theoretical 4 + practical	Sixth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Factors influencing growth (Physical factors + Chemical factors)	Knowledge and application	2 theoretical 4 + practical	Seventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Physical and chemical Methods	Knowledge and application	2 theoretical 4 + practical	The eighth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	ANTIBIOTICS THE BASES OF CHEMOTHERAPY	Knowledge and application	2 theoretical 4 + practical	Ninth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Classification tissue / Nucleic acid / properties Tissue/	Knowledge and application	2 theoretical 4 + practical	tenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	growth curve	Knowledge and application	2 theoretical 4 + practical	eleventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Introduction to Biosafety and Security, The main components of bio risk management, Safety measures in all laboratories and laboratory design, General safety precautions, Personal protective equipment.	Knowledge and application	2 theoretical 4 + practical	twelfth
Reports, oral and written	whiteboard, powerpoint slides,	Biosafety level, risk assessment strategy, Hazard groups, biosafety levels and	Knowledge and application	2 theoretical	thirteenth

theoretical exams	hands-on experiments	equipment, Standard practices required in biological laboratories.		4 + practical	
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	The biological factors, Routes of infection, Risk group classification, Biosafety measures, Control of substances hazardous to health.	Knowledge and application	2 theoretical 4 + practical	fourteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Revision	Knowledge and application	2 theoretical 4 + practical	fifteenth

Course Evaluation -11
Student activities and reports, oral and written theoretical and practical exams
-16

Learning and Teaching Resources - 12	
	Required textbooks (curriculum (books, if available
Internet	Main References (Sources)
	Recommended books and references (scientific journals, (...reports
	Electronic references and websites

Medical microbiology	**Course name -1**
MTCD 102	**Course code -2**
Second semester 2025/2026	**Semester/Year -3**
2025/9/1	**Date of preparation of the description -4**
In-person lectures	**Available forms of attendance -5**
theoretical hours + 60 practical hours / 4 30 units	**Number of credit hours (total) / Number of units (total) -6**
M.M. Mays Qasim Muhammad	**Name of the course supervisor mention all names, if there is more than one name) -7**

Course objectives -8

.Acquire the skill in addition to information related to the medical condition

Teaching and learning strategies - 9

A. Cognitive objectives

The cognitive objectives of studying medical microbiology in the Department of Ophthalmology are primarily to provide students with the theoretical and scientific foundation they need to understand how different microbes, such as bacteria, viruses, fungi, and parasites, can affect human health and how to manage them. Some of the main cognitive objectives are detailed below:

1. Understand the principles of medical microbiology: learn the basic characteristics of microbes and how to classify**them** .

2. Knowledge of bacteriology and virology: gaining information about types of bacteria and viruses, their life cycles, and mechanisms of diseasecausation .

3. Study prevention and control methods: Understanding how to prevent the spread of infection and work to contain microbial infections in clinical settings.

4. Develop knowledge of infectious diseases: Learning about various infectious diseases and their effect on the human**body** .

5. Laboratory techniques: Knowing how to perform and interpret laboratory tests to diagnose**infection .**

6. Treatment and clinical management: Understanding the different treatment options for infectious diseases.

Evaluating scientific information: Learn how to evaluate scientific literature .7 and new research in the fieldof medical microbiology**.**

Application of knowledge: Students .8' ability to apply their knowledge of medical microbiology in ophthalmic examination practices.

Work within a multidisciplinary team : Learn how to work collaboratively .9 withother healthcare professionals to provide comprehensive treatment to patients.

These cognitive objectives are essential to provide students with the skills and knowledge necessary to understand the impact of infectious diseases on the field of optometry and to enhance their ability to contribute effectively to the .comprehensive health care of patients

. B. Course specific skill objectives

The skill objectives for studying medical microbiology in the Department of Optometry Techniques focus on developing students' practical and technical skills to handle microorganisms and apply these skills in their professional practice. Here are some of these objectives:

Diagnostic skills : Develop the ability .1to correctly collect clinical samples and perform laboratory tests to diagnose infectious diseases.

Laboratory skills: Gain experience in using a microscope, performing microbial **.2** cultures, and identifying organisms**.**Microscopic

Implementing infection control procedures: practicing standard .3infection prevention procedures, including sterilization control and the use of personal protective measures.

Analytical skills: learning how to analyze laboratory test results and .4 evaluatetheir relevance to clinical diagnosis.

Communication: Develop the ability to communicate effectively with **.5** healthcare teams and exchange information about the diagnosis and treatment management of infected**patients** .

Integrated Clinical Skills: Learn how to integrate medical microbiology **.6** knowledge with clinical practice in eyeexamination **.**

Ability to self-assess and continuously learn: Encourage students .7to self-assess their skills and identify the need for continuous learning for continuous improvement in clinical practice.

:Research skills .8Strengthening research capabilities to contribute to answering clinical questions and participating in scientific discoveries**.**

By developing these skills, optometry students have the tools to understand the vital role microbiota plays in human health and develop prevention strategies . and therapeutic interventions

Teaching and learning methods

In-person education (scientific films and videos, Laboratories, summer and (professional training, and graduation projects
. Scientific visits and practical training in hospitals by specialized medical staff

Evaluation methods

Daily tests, semester exams, final exams, weekly reports on the subject, seminars on the study subjects , discussions and conversations during the . lesson

C. Affective and value- based goals

The affective and ethical objectives of studying medical microbiology in the Department of Optometry are directed toward developing attitudes and values that foster ethical professional practice and promote responsible behavior. The following are some of the core objectives in this context:

1. Developing health awareness: Developing a conscious attitude towards public health and the importance of infection prevention.
2. Appreciate the important role of microbes: Learn to appreciate the effective role that microorganisms play in the environment and in human health.
3. Ethical development: Encouraging ethical behaviors and commitment to scientific integrity during the performance of experiments and interpretation of data .
4. Professional responsibility: promoting a sense of responsibility for safe and effective health care**.**
5. Empathy and respect: Develop empathy towards patients and respect their right to privacy and decent treatment.
6. Self-learning and development: Encouraging students to invest in self-learning and continuously learn about new developments in the field of microbiology.
7. Cooperation and teamwork: Learn how to work within a team, where roles and experiences complement each other to achieve the best outcomes for patients.
8. Respect for diversity and differences: Awareness of the importance of biodiversity and respect for cultural and individual differences among people.
9. Stress Management: Developing students' ability to manage stress that may arise during work in environments related to microbiology and infectious diseases.
10. Initiative and Creativity: Encourage students to take the initiative and be innovative in proposing solutions to challenges related to microbiology in the field of vision examination.

This aspect of education focuses on developing the whole person, including their values and attitudes, in a way that enhances their professional competence and contributes to the provision of ethical and compassionate .healthcare to patients

Teaching and learning methods

(In-person lectures), summer and professional training, graduation projects, . field visits, and practical training in clinical subjects

- Evaluation methods

Daily, midterm and final exams , weekly reports Patient seminars, clinical follow-up reports, and practical discussions followed by the practical lesson in . the hospital

D. General and transferable skills (other skills related to employability and . (personal development

.D1 . Skills of cooperation and teamwork

.D2 . Computer typing skills

.D3 . English communication skills

.D4 . Skills of enduring work performance and solving problems

. D5 . Internet conversation skills

Course structure -10

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Introduction	Knowledge and application	2 theoretical 4 + practical	the first
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Classification	Knowledge and application	2 theoretical 4 + practical	the second
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Sterilization & disinfection	Knowledge and application	2 theoretical 4 + practical	the third
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	immunology	Knowledge and application	2 theoretical 4 + practical	Fourth
Reports, oral and written	whiteboard, powerpoint slides,	immunology	Knowledge and application	2 theoretical	Fifth

theoretical exams	hands-on experiments			4 + practical	
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Laboratory Diagnosis	Knowledge and application	2 theoretical 4 + practical	Sixth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Bacteriology	Knowledge and application	2 theoretical 4 + practical	Seventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Bacteriology	Knowledge and application	2 theoretical 4 + practical	The eighth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Viruses	Knowledge and application	2 theoretical 4 + practical	Ninth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Viruses	Knowledge and application	2 theoretical 4 + practical	tenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Mycology	Knowledge and application	2 theoretical 4 + practical	eleventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Introduction to Biosafety and Security	Knowledge and application	2 theoretical 4 + practical	twelfth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Biosafety level, risk assessment strategy	Knowledge and application	2 theoretical 4 + practical	thirteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	The biological factors	Knowledge and application	2 theoretical 4 + practical	fourteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Revision	Knowledge and application	2 theoretical 4 + practical	fifteenth

Course Evaluation -11
Student activities and reports, oral and written theoretical and practical exams
-17

Learning and Teaching Resources - 12	
	Required textbooks (curriculum (books, if available
Internet	Main References (Sources)
	Recommended books and references (scientific journals, (...reports
	Electronic references and websites

computer	**Course name -1**
NTU102	**Course code -2**
First semester 2025/2026	**Semester/Year -3**
2025/9/1	**Date of preparation of the -4 description**
In-person lectures	**Available forms of -5 attendance**
hours of theory + 15 hours of practical / 2 15 units	**Number of credit hours (total) / -6 Number of units (total)**
.M.MOmar Mahdi Khattab	**Name of the course supervisor -7 mention all names, if there is more) (than one name**

Course objectives -8

- Providing students with skills in using basic office applications, creating office files and documents, using the operating system, and the basics of working in a .digital environment

Teaching and learning strategies -9

A. Cognitive objectives

Providing the student with knowledge in managing and using various computer -1 .applications

. B. Course specific skill objectives

Understand basic concepts in computer science and the history of the -1 .development of computer technology

- **Gain skills in using operating systems and office software such asMicrosoft Office**
- **Develop online research skills and learn how to evaluate information .sources on the web**

Teaching and learning methods

In-person education (scientific films and videos, Laboratories

Evaluation methods

Daily tests, semester exams, final exams, weekly reports on the subject, seminars on the study subjects , discussions and conversations during the . lesson
C. Affective and value- based goals A1 . Enhancing confidence in the use of technology and computing, and achieving comfort and certainty in dealing with computer hardware and .software A2 . Analyzing the problems facing its employees and how to develop the .necessary solutions .A3 . Teamwork among different cadres . A4 . Understanding patients' suffering and alleviating their pain
Teaching and learning methods
(In-person lectures and practical training
• Evaluation methods
Daily, midterm and final exams , weekly reports Patient seminars, clinical follow-up reports, and practical discussions followed by the practical lesson in . the hospital
D. General and transferable skills (other skills related to employability and . (personal development .D1 . Skills of cooperation and teamwork .D2 . Computer typing skills .D3 . English communication skills .D4 . Skills of enduring work performance and solving problems . D5 . Internet conversation skills

Course structure -10

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Computer Fundamentals Computer Concept, Computer Life Cycle Phases, Evolution of Computer Generations	Knowledge and application	1 theoretical 1 + practical	the first
Reports, oral and written	whiteboard, powerpoint slides,	Advantages of computers and their areas of use.	Knowledge and application	1 theoretical	the second

theoretical exams	hands-on experiments	Classification of computers in terms of purpose, size, and data .type		1 + practical	
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Computer components Computer Components Hardware parts of the computer Software entities	Knowledge and application	1 theoretical 1 + practical	the third
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Your Personal Computer: Computer Security Concept and Software Licensing	Knowledge and application	1 theoretical 1 + practical	Fourth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Computer security and software licensing Computer Safety & Software Licenses	Knowledge and application	1 theoretical 1 + practical	Fifth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Ethics of the electronic world, forms of transgressions, computer security, computer privacy	Knowledge and application	1 theoretical 1 + practical	Sixth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Computer software licenses and their types, intellectual property, hacking, malware, the most important steps necessary to protect against hacking operations, the harms of computers to .health	Knowledge and application	1 theoretical 1 + practical	Seventh
Reports, oral and written	whiteboard, powerpoint slides,	*Operating* Systems an Definition of operating system,	Knowledge and application	1 theoretical 1 + practical	The eighth

theoretical exams	hands-on experiments	functions, objectives, classification, examples of some operating systems			
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Operating systems Windows 7 operating system	Knowledge and application	1 theoretical 1 + practical	Ninth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Desktop components Start menu taskbar	Knowledge and application	1 theoretical 1 + practical	tenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Folders and files Icons	Knowledge and application	1 theoretical 1 + practical	eleventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Perform operations on windows desktop wallpapers	Knowledge and application	1 theoretical 1 + practical	twelfth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Control panel Windows Control Panel) Groups Category (	Knowledge and application	1 theoretical 1 + practical	thirteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	From the control panel Defragment: Organizing files ,on the computer installing and deleting programs	Knowledge and application	1 theoretical 1 + practical	fourteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Some common computer settings and conditions, printer management, time and date setting, and initial .disk maintenance	Knowledge and application	1 theoretical 1 + practical	fifteenth

Course Evaluation -11
Student activities and reports, oral and written theoretical and practical exams
-18

Learning and Teaching Resources - 12	
	Required textbooks (curriculum (books, if available
Internet	Main References (Sources)
	Recommended books and references (scientific journals, (...reports
	Electronic references and websites

Human rights and democracy	Course name -1
NTU 100	Course code -2
First semester 2025/2026	Semester/Year -3
2025/9/1	Date of preparation of the description -4
In-person lectures	Available forms of attendance -5
theoretical hours / 2 units 30	Number of credit hours (total) / Number of units (total) -6
Shaima .A.M.DIbrahim Taha	Name of the course supervisor mention all names, if there is) (more than one name - 7

Course objectives -8

The subject of Rights and Democracy provides students with increased awareness and training on the importance of active participation in all aspects of life, such as enhancing respect for the principles of general human rights in .various aspects of life

Teaching and learning strategies - 9

A. Cognitive objectives

To increase the student's knowledge of the theoretical conceptual aspect and historical development of the subject of human rights and democracy. To develop the student's analytical and critical skills regarding the reality and future of human rights and democracy. To enable students to understand the importance of education and its role in spreading the culture of human rights and democracy in building a civilized society based on good governance, one of .the most important components of which is belief in human rights

.b. Course specific skill objectives

1- .Introduction to the history of human rights and stages of development
2- .Spreading culture and nourishing the student from the Islamic side
3- .How to preserve society and country by promoting love for country
4- Learn about the most important rights granted to them according to .international norms and laws
5- .Promoting citizenship among students

Teaching and learning methods
In-person education
Evaluation methods
Daily tests, semester exams, final exams, weekly reports on the subject, seminars on the study subjects , discussions and conversations during the lesson .
.C. Affective and value- based goals A1- Teaching students to research real-life problems, link them to the scientific material, and present them in a logical order and sequence . Encourage students to be objective in discussions about the challenges facing the country . Embodying the concept of freedoms for students and explaining wrong practices, their consequences, and how to avoid them . A2- Giving top priority to the expression of rights . A3- Emphasizing the importance of human rights . A4- Objectivity in discussions .
Teaching and learning methods
(In-person lectures)
• Evaluation methods
Daily, midterm and final exams , weekly reports Patient seminars, clinical follow-up reports, and practical discussions followed by the practical lesson in the hospital .
D. General and transferable skills (other skills related to employability and (personal development . D1 . Skills of cooperation and teamwork . D2 . Computer typing skills . D3 . English communication skills . D4 . Skills of enduring work performance and solving problems . D5 . Internet conversation skills .
Course structure -10

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Historical development of human rights, human rights in ancient civilizations	knowledge	2 theoretical	the first
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Human rights in divine laws with a focus on human rights in Islam	knowledge	2 theoretical	the second
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Human Rights in the Middle Ages and Modern Times	knowledge	2 theoretical	the third
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Regional recognition of human rights at the European, American, African, Islamic and Arab levels	knowledge	2 theoretical	Fourth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Non-governmental organizations and their role in human rights International) Committee of the Red Cross, Amnesty International, Human Rights Watch, Arab Organization for (Human Rights	knowledge	2 theoretical	Fifth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Human rights in international and regional covenants and national legislation	knowledge	2 theoretical	Sixth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Human rights in regional charters European) Convention on Human Rights, American Convention on Human Rights, African Charter	knowledge	2 theoretical	Seventh

		on Human Rights, and Arab Charter (on Human Rights			
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Human Rights in National Legislation (Iraqi (Constitution	knowledge	2 theoretical	The eighth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Forms and generations of human rights individual and) (collective rights	knowledge	2 theoretical	Ninth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Human rights guarantees and protection at the national level	knowledge	2 theoretical	tenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Human rights guarantees and protection at the regional and international levels	knowledge	2 theoretical	eleventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Classification of public freedoms basic and) individual freedom, freedom of security and feeling secure, freedom of movement and (personal freedom	knowledge	2 theoretical	twelfth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Intellectual and cultural freedoms freedom of) opinion, freedom of belief, and freedom of (education	knowledge	2 theoretical	thirteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Freedom of the press, freedom of assembly, and freedom of association	knowledge	2 theoretical	fourteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Economic and social freedoms freedom of work,) freedom of ownership, and freedom of trade (and industry	knowledge	2 theoretical	fifteenth

Course Evaluation -11
Student activities and reports, oral and written theoretical and practical exams
-19

Learning and Teaching Resources - 12	
	Required textbooks (curriculum (books, if available
Internet	Main References (Sources)
	Recommended books and references (scientific journals, (...reports
	Electronic references and websites

Physical education	Course name -1
NTU104	Course code -2
First semester 2025/2026	Semester/Year -3
2025/9/1	Date of preparation of the description -4
In-person lectures	Available forms of attendance -5
hours of theory + 15 hours of practical / 2 15 units	Number of credit hours (total) / Number of units (total) -6
Majid Hamid .Dr Abdul	Name of the course supervisor mention all names, if there is) (more than one name -7

Course objectives - 8

.The student acquires motor skills

Teaching and learning strategies -9

A. Cognitive objectives

.Sports culture awareness . A1

A2 . Providing students with comprehensive information about the rules of the games and .explaining good behavior when participating in races

. B. Course specific skill objectives

.B1 . Developing students' skills in various sports

.B2. Knowing the rules and regulations for each game

.B3. Developing and improving physical fitness and motor skills

Teaching and learning methods

In-person education (scientific films and videos on sports training / field (practices

Evaluation methods

Daily tests, midterm exams, and final exams
C. Affective and value- based goals A1 . Providing training and game practice opportunities to apply technical .aspects for those with athletic proficiencies .A2 . Teamwork among different cadres
Teaching and learning methods
(In-person lectures / field training)
• Evaluation methods
Daily, midterm and final exams
D. General and transferable skills (other skills related to employability and . (personal development .D1 . Skills of cooperation and teamwork .D2 . Computer typing skills . D3 . Arabic communication skills .D4 . Skills of enduring work performance and solving problems . D5 . Internet conversation skills

Course structure -10

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Sports: definition, importance and types	Knowledge and application	1 theoretical 1 + practical	the first
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Mechanism of human body movement	Knowledge and application	1 theoretical 1 + practical	the second
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Common sports injuries	Knowledge and application	1 theoretical 1 + practical	the third
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Basic basketball skills	Knowledge and application	1 theoretical 1 + practical	Fourth

Reports, oral and written theoretical exams	whiteboard, powerpoint slides	International Basketball Laws	Knowledge and application	1 theoretical 1 + practical	Fifth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Basic table tennis skills and international rules	Knowledge and application	1 theoretical 1 + practical	Sixth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Basic skills of volleyball and its international laws	Knowledge and application	1 theoretical 1 + practical	Seventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Swimming	Knowledge and application	1 theoretical 1 + practical	The eighth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Basic skills of tennis and its international rules	Knowledge and application	1 theoretical 1 + practical	Ninth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Basic handball skills	Knowledge and application	1 theoretical 1 + practical	tenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	International Handball Laws	Knowledge and application	1 theoretical 1 + practical	eleventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Track and field games (types , international law of (the game	Knowledge and application	1 theoretical 1 + practical	twelfth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Basic football skills	Knowledge and application	1 theoretical 1 + practical	thirteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Management of sports competitions and contests	Knowledge and application	1 theoretical 1 + practical	fourteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Sports laws and regulations	Knowledge and application	1 theoretical 1 + practical	fifteenth

Course Evaluation -11
Student activities and reports, oral and written theoretical and practical exams
-20

Learning and Teaching Resources - 12	
	Required textbooks (curriculum (books, if available
Internet	Main References (Sources)
	Recommended books and references (scientific journals, (...reports
	Electronic references and websites

Arabic	Course name -1
NTU103	Course code -2
Second semester 2025/2026	Semester/Year -3
2025/9/1	Date of preparation of the description -4
In-person lectures	Available forms of attendance -5
30 Theoretical hour / 2 units	Number of credit hours (total) / Number of units (total) -6
.M.MHassan Falah Abdul Karim	Name of the course supervisor (more than one name mention all names, if there is) -7

Course objectives -8

.The student learns about spelling and grammatical errors and Arabic grammar rules

Teaching and learning strategies- 9

A. Cognitive objectives

The student learns the methods and rules of administrative . A1 .correspondence

.A2 . The student learns the style of linguistic communication in business administration

. B. Course specific skill objectives

.B1 . Develop students' listening, reading and expression skills

.B2. Providing students with expression skills in classical Arabic

B3. Developing positive attitudes and values among students towards their .Arabic language, linked to religion and Arab heritage

Teaching and learning methods

In-person education (scientific films and videos in Modern Standard Arabic)

Evaluation methods

Daily tests, midterm exams, and final exams

C. Affective and value- based goals

A1 . For the student to acquire correct language in terms of reading and .spelling

.A2 . Teamwork among different cadres

Teaching and learning methods

(In-person lectures)

- **Evaluation methods**

Daily, midterm and final exams

D. General and transferable skills (other skills related to employability and . (personal development

.D1 . Skills of cooperation and teamwork

.D2 . Computer typing skills

. D3 . Arabic communication skills

.D4 . Skills of enduring work performance and solving problems

. D5 . Internet conversation skills

Course structure -10

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Introduction to linguistic errors - the tied taa, the long taa, and the open taa	knowledge	2 theoretical	the first
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Rules for writing the extended and shortened alif - solar and lunar letters	knowledge	2 theoretical	the second
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Dad and Tha	knowledge	2 theoretical	the third
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Writing the hamza	knowledge	2 theoretical	Fourth
Reports, oral and written	whiteboard, powerpoint slides	punctuation marks	knowledge	2 theoretical	Fifth

theoretical exams					
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Noun, verb, and the difference between them	knowledge	2 theoretical	Sixth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Effects	knowledge	2 theoretical	Seventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	number	knowledge	2 theoretical	The eighth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Common language errors applications	knowledge	2 theoretical	Ninth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Common language errors applications	knowledge	2 theoretical	tenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Noon and Tanween - Meanings of Prepositions	knowledge	2 theoretical	eleventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Formal aspects of administrative discourse	knowledge	2 theoretical	twelfth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	The language of administrative discourse	knowledge	2 theoretical	thirteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	The language of administrative discourse	knowledge	2 theoretical	fourteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Examples of administrative correspondence	knowledge	2 theoretical	fifteenth

Course Evaluation -11

Student activities and reports, oral and written theoretical and practical exams
-21

Learning and Teaching Resources - 12	
	Required textbooks (curriculum (books, if available
Internet	Main References (Sources)
	Recommended books and references (scientific journals, (...reports
	Electronic references and websites

English language	Course name -1
NTU101	Course code -2
Second semester / 2025-2026	Semester/Year -3
2025/9/1	Date of preparation of the description -4
In-person lectures	Available forms of attendance -5
theoretical hours / 2 units 30	Number of credit hours (total) / Number of units (total) -6
Bass M. Ibrahim Rajab .M.M	Name of the course supervisor mention all names, if there is) (more than one name -7

Course objectives -8

Acquire the skill of dialogue in the English language and read and analyze scientific research and .medical terminology correctly

Teaching and learning strategies -9

A. Cognitive objectives

Identify the tenses and verbs used with each tense and adjust the . A1 .context of the sentence

.A2 . Identify general rules, interrogative words, and conversational structure

. B. Course specific skill objectives

.B1 . Speak correct English

.B2. Ability to read medical tests

B3. Knowing medical terms in English because of their importance in the field .of medical work

Teaching and learning methods

In-person education (scientific films and videos on correct English (pronunciation

Evaluation methods

Daily tests, midterm exams, and final exams
C. Affective and value- based goals **A1 . For the student to acquire the correct language and be able to read and .translate medical analyses and terminology** **.A2 . Teamwork among different cadres**
Teaching and learning methods
(In-person lectures)
• **Evaluation methods**
Daily, midterm and final exams
D. General and transferable skills (other skills related to employability and . (personal development **.D1 . Skills of cooperation and teamwork** **.D2 . Computer typing skills** **.D3 . English communication skills** **.D4 . Skills of enduring work performance and solving problems** **. D5 . Internet conversation skills**

Course structure -10

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Cardinal numbers/years/prices/ times(in words and figures).	knowledge	2 theoretical	the first
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Phonetic of alphabet letters, punctuation.	knowledge	2 theoretical	the second
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Countries/Capitals, arrange words (makes full sentence)/ arrange letters (make full word).	knowledge	2 theoretical	the third
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Simple present/1. Verb to be (is/am/are) (affirmative, negative and interrogative).	knowledge	2 theoretical	Fourth

Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Simple present/2. Verb to do(Do/Does) (affirmative, negative and interrogative).	knowledge	2 theoretical	Fifth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Simple present/3. Verb to have(have/has) (affirmative, negative and interrogative).	knowledge	2 theoretical	Sixth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Simple present/4. Ordinary verbs like (eat, go, play ...etc.) (affirmative, negative and interrogative).	knowledge	2 theoretical	Seventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Tag questions and short answers(yes/no questions).	knowledge	2 theoretical	The eighth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Review (simple present).	knowledge	2 theoretical	Ninth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Question words (what, where, when, who, why, how, whom, whose, which).	knowledge	2 theoretical	tenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Abbreviation (short form), adjectives (and their opposite).	knowledge	2 theoretical	eleventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Plural nouns (regular and irregular).	knowledge	2 theoretical	twelfth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Possession (all types).	knowledge	2 theoretical	thirteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Pronunciation (-s at the end of a word).	knowledge	2 theoretical	fourteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides	Pronouns (all types).	knowledge	2 theoretical	fifteenth

Course Evaluation -11
Student activities and reports, oral and written theoretical and practical exams
-22

Learning and Teaching Resources - 12	
	Required textbooks (curriculum (books, if available
Internet	Main References (Sources)
	Recommended books and references (scientific journals, (...reports
	Electronic references and websites

Head and Neck Anatomy	Course name -1
OPT 101	Course code -2
First semester 2025/2026	Semester/Year -3
2025/9/1	Date of preparation of the description -4
In-person lectures	Available forms of attendance -5
45 hour of theory + 60 hours of practical work / 5 units 1	Number of credit hours (total) / Number of units (total) -6
M.M. Fayez Ali Ahmed	Name of the course supervisor (mention all names, if there is more than one name) -7

Course objectives -8

1. Understanding the complex structure: Realizing the anatomical complexity of the head and neck regions, where many important and vital structures are concentrated in a relatively small space.
2. Establish a knowledge base: Build a solid anatomical foundation that serves as a reference for understanding the physiological functions, diseases, diagnostic and surgical procedures of these two regions.
3. Form Follows Function: Understanding how the shape of each bone, muscle, blood vessel, or nerve serves a specific function, such as chewing, speaking, swallowing, or seeing.

Teaching and learning strategies -9

A. The orientation should be "eye-centered," where the anatomy of the head and neck is studied from the perspective of how it supports and protects the function of the visual system. Focus on functionaland clinical anatomy related to the eye 3D .Visualization

. B. Course specific skill objectives

1. Understand the anatomical basis of vision: relate the structure of the eye and its appendages to their function.
2. Differential diagnosis: distinguishing the causes of pain around the eye (headache, eye pain) whether they are from the eye itself, the sinuses, the nerves, or the muscles.
3. Risk assessment: Knowing vital anatomical relationships to avoid complications during patient examination (such as applying force to the eyelids).
4. Understanding complications of systemic diseases: How thyroid disease or vascular disease in the neck affects the eye and optic nerve.

Communicating with physicians: Use correct anatomical terminology when .5 .referring to neurologists, ENT specialists, or surgeons
Teaching and learning methods
In-person education (scientific films and videos, Laboratories, summer and (professional training, and graduation projects . Scientific visits and practical training in hospitals by specialized medical staff
Evaluation methods
Daily tests, semester exams, final exams, weekly reports on the subject, seminars on the study subjects , discussions and conversations during the . lesson
C. Affective and value- based goals Trace the path of optic fibers: from the retina, via the optic nerve, optic .chiasm , optic tract, to the visual cortex in the brain Understanding the effects of visual pathway injuries: such as hemianopia ·, .and how to locate the injury Arteries: Know the path of the common and internal carotid arteries and how .they supply the ophthalmic artery and then the eye and brain Veins: Understanding the drainage of blood from the face and eyes to the facial vein and cavernous sinus in the brain
(In-person lectures), summer and professional training, graduation projects, . field visits, and practical training in clinical subjects
• **Evaluation methods**
Daily, midterm and final exams , weekly reports Patient seminars, clinical follow-up reports, and practical discussions followed by the practical lesson in . the hospital
D. General and transferable skills (other skills related to employability and . (personal development .D1 . Skills of cooperation and teamwork .D2 . Computer typing skills .D3 . English communication skills .D4 . Skills of enduring work performance and solving problems . D5 . Internet conversation skills
Course structure -10

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Introduction to Head & Neck Anatomy	Knowledge and application	3 theoretical 4 + practical	the first
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Bones of the Skull	Knowledge and application	3 theoretical 4 + practical	the second
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Muscles of the Head & Face	Knowledge and application	3 theoretical 4 + practical	the third
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Extraocular Muscles	Knowledge and application	3 theoretical 4 + practical	Fourth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Orbit Anatomy	Knowledge and application	3 theoretical 4 + practical	Fifth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Overview of the Nervous System	Knowledge and application	3 theoretical 4 + practical	Sixth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Cranial Nerves I–VI	Knowledge and application	3 theoretical 4 + practical	Seventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Cranial Nerves VII–XII (Brief Overview)	Knowledge and application	3 theoretical 4 + practical	The eighth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Blood Vessels of the Head & Neck	Knowledge and application	3 theoretical 4 + practical	Ninth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Anatomical Overview of the Eye	Knowledge and application	3 theoretical 4 + practical	tenth

Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Nerves Related to Vision	Knowledge and application	3 theoretical 4 + practical	eleventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Nose, Paranasal Sinuses & Pharynx	Knowledge and application	3 theoretical 4 + practical	twelfth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Ear & Balance	Knowledge and application	3 theoretical 4 + practical	thirteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Glands in the Head & Neck	Knowledge and application	3 theoretical 4 + practical	fourteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Final Review & Exam Preparation	Knowledge and application	3 theoretical 4 + practical	fifteenth

Course Evaluation -11
Student activities and reports, oral and written theoretical and practical exams
-23

Learning and Teaching Resources - 12	
	Required textbooks (curriculum (books, if available
Internet	Main References (Sources)
	Recommended books and references (scientific journals, (...reports
	Electronic references and websites

Eye anatomy	Course name -1
OPT 102	Course code -2
Second semester 2025/2026	Semester/Year -3
2025/9/1	Date of preparation of the description -4
In-person lectures	Available forms of attendance -5
45 hour of theory + 60 hours of practical work / 5 units 1	Number of credit hours (total) / Number of units (total) -6
M.M. Fayez Ali Ahmed	Name of the course supervisor -7 mention all names, if there is more) (than one name

Course objectives -8

1. Understand the anatomical structure of the eye and its external and internal parts.
2. Understand the relationship between anatomy and visual function to understand how humans develop vision.
3. Apply anatomical knowledge in clinical practice such as examination, prescribing lenses, or early detection of diseases.

Teaching and learning strategies -9

أ. InteractiveLectures ,Explaining anatomical parts using pictures PowerPoint slides and 3D models.

ب. Practical Sessions/ Lab Use of animal eyes or plastic models for applied anatomy

ت. Based Learning(PBL Giving simple clinical cases (such as: blurred vision, dry eye, (cataracts) and linking them to the anatomical structure responsible

ث. E-learning / Blended images, and Learning Use educational platforms to upload videos, 3D short tests.

. B. Course specific skill objectives

1. Practical identification of the external and internal parts of the eye using models or an animal eye.

The ability to identify the parts of the eye (cornea, lens, retina, optic nerve, .2 .etc.) during dissection or on anatomical drawings Using a dissecting microscope to examine sections of eye tissue (such as the .3 .(cornea or retina Use correct medical terminology to describe the eye and its parts during .4 .discussions or clinical reports Relationship between anatomical structure and visual function (e.g., the role .5 .(of the cornea and lens in refraction of light Noting changes or differences in the anatomical structure that may lead to .6 .visual diseases Acquire the skill of drawing diagrams of the main parts of the eye as a .7 . means of demonstrating understanding Apply laboratory safety steps when handling animal eyes or anatomical .8 .instruments
Teaching and learning methods
In-person education (scientific films and videos, Laboratories, summer and (professional training, and graduation projects . Scientific visits and practical training in hospitals by specialized medical staff
Evaluation methods
Daily tests, semester exams, final exams, weekly reports on the subject, seminars on the study subjects , discussions and conversations during the . lesson
C. Affective and value- based goals 1. Develop the student's motivation to understand the anatomy of the eye as a .fundamental basis for practicing optics 2. Instilling the value of appreciating the greatness of God's creation in the formation and precision of the eye, which enhances the spiritual and moral .aspects 3. Enhance patience, accuracy, and attention to detail when studying and .examining the eye Commitment to the ethics of dealing with animal or human eyes (in the case -4 .of preserved eyes) with respect and scientific awareness 5. Building a positive attitude towards the optics profession and a sense of the .importance of the humanitarian role in helping people to see
(In-person lectures), summer and professional training, graduation projects, . field visits, and practical training in clinical subjects

- **Evaluation methods**

Daily, midterm and final exams , weekly reports Patient seminars, clinical follow-up reports, and practical discussions followed by the practical lesson in . the hospital

D. General and transferable skills (other skills related to employability and . (personal development
.D1 . Skills of cooperation and teamwork
.D2 . Computer typing skills
.D3 . English communication skills
.D4 . Skills of enduring work performance and solving problems
. D5 . Internet conversation skills

Course structure -10

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Introduction to ocular anatomy – position of the eye in the orbit general overview	Knowledge and application	3 theoretical + 4 practical	the first
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	External structures: eyelids, eyelashes, eyebrows Protection of the eye	Knowledge and application	3 theoretical + 4 practical	the second
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Conjunctiva – types and functions Clinical relevance (conjunctivitis)	Knowledge and application	3 theoretical + 4 practical	the third
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Lacrimal apparatus: lacrimal gland and drainage system Tear film function	Knowledge and application	3 theoretical + 4 practical	Fourth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Cornea – layers, nutrition, transparency importance in refraction	Knowledge and application	3 theoretical + 4 practical	Fifth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Sclera – structure and relationship to extraocular muscles Clinical notes	Knowledge and application	3 theoretical + 4 practical	Sixth
Reports, oral and written	whiteboard, powerpoint slides,	Iris and pupil – muscles and control of light entry Autonomic innervation	Knowledge and application	3 theoretic	Seventh

theoretical exams	hands-on experiments			al + 4 practical	
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Ciliary body and lens – accommodation and aqueous humor secretion Functional anatomy	Knowledge and application	3 theoretical + 4 practical	The eighth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Anterior and posterior chambers – aqueous humor flow Relevance to glaucoma	Knowledge and application	3 theoretical + 4 practical	Ninth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Choroid – vascular supply and functions Relation to retina	Knowledge and application	3 theoretical + 4 practical	tenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Retina – layers, photoreceptors, macula, fovea Clinical importance	Knowledge and application	3 theoretical + 4 practical	eleventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	ptic nerve – structure, course, optic disc Visual pathway intro	Knowledge and application	3 theoretical + 4 practical	twelfth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Vitreous body – composition and role Age-related changes	Knowledge and application	3 theoretical + 4 practical	thirteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Extraocular muscles – types, actions, innervation eye movements	Knowledge and application	3 theoretical + 4 practical	fourteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Ocular blood supply and innervation + Final review Integration with common ocular diseases	Knowledge and application	3 theoretical + 4 practical	fifteenth

Course Evaluation -11

Student activities and reports, oral and written theoretical and practical exams

Learning and Teaching Resources - 12

	Required textbooks (curriculum (books, if available
Internet	Main References (Sources)
	Recommended books and references (scientific journals, (...reports
	Electronic references and websites

Optical physics	Course name -1
OPT 107	Course code -2
First semester 2025/2026	Semester/Year -3
2025/9/1	Date of preparation of -4 the description
In-person lectures	Available forms of -5 attendance
45 hour of theory + 60 hours of practical work 1 units 5 /	Number of credit hours -6 (total) / Number of units (total)
Dr. Muhammad Ajami Abd	Name of the course supervisor -7 mention all names, if there is) (more than one name

Course objectives -8

Optical Physics is one of the most important foundations upon which the Department of Optics is based, because it links the physical laws of light with practical applications in vision and .optical devices

Objectives of Optical Physics in the Department of Optics

Teaching and learning strategies -9

.A

Understanding the nature of light Study of the properties of light (wave, particle, speed, .1 .(refraction, reflection, diffraction, interference

.Learn about the electromagnetic spectrum and the importance of visible light in vision

Explaining the work of the human eye Explain how light is refracted inside the eye (cornea and .2 lens). Study of visual defects (myopia, hyperopia, astigmatism , presbyopia). Relating the laws of .physics to how an image is formed on the retina

Design and correction of visual defects Use of the principles of optical physics in the design of .3 .medical lenses and eyeglasses. Study of the work of lenses and optical systems in vision correction

Optical techniques and devices Understand the basic working of devices such as: microscope, .4 .telescope, eye examination devices (phoropter , keratometer)

.Linking theoretical principles to practical applications within optical clinics

Training in scientific and analytical thinking Develop the ability to solve visual problems using .5 .physical laws. Enhance theoretical understanding for clinical application

) Introduction to modern developments in optics Such as laser vision correction .6LASIK and ,(.optical fibers in medical diagnosis

. B. Course specific skill objectives

Measurement and experimentation: Mastering the use of optical devices (such as: .1 microscope, optical projector, keratometer). Measuring the optical properties of lenses .(power, focal length, magnification)

Analysis of optical phenomena: Interpret the results of experiments related to .2 refraction, reflection, diffraction, and interference. Ability to draw and interpret light .rays in optical systems

Diagnosis and correction of visual defects: Applying the principles of optical physics to .3 identify and correct vision defects (nearsightedness, farsightedness, astigmatism). .Selecting appropriate lenses for patients based on measurements

Data handling: Accurately record and analyze experimental data. Compare .4 .theoretical and experimental results and draw conclusions

Developing manual and artistic skills: Training on practical simulation of optical .5 .radiology. Installation and assembly of simple optical systems (lenses, mirrors)

Scientific communication : presenting and discussing results in a scientific manner. .6 Writing accurate operational reports that explain the steps and results of the .experiment

Teaching and learning methods

In-person education (scientific films and videos, Laboratories, summer and (professional training, and graduation projects
. Scientific visits and practical training in hospitals by specialized medical staff

Evaluation methods

Daily tests, semester exams, final exams, weekly reports on the subject, seminars on the study subjects , discussions and conversations during the . lesson

C. Affective and value- based goals

The affective and value-based objectives of optical physics relate to the attitudes, behaviors, and tendencies that the student acquires during his studies ,and .just to knowledge or skills not Developing interest in science . Commitment to academic values , professional responsibility , development of teamwork spirit , appreciation of the human dimension of science , critical and . innovative thinking

(In-person lectures), summer and professional training, graduation projects, . field visits, and practical training in clinical subjects

- Evaluation methods

Daily, midterm and final exams , weekly reports Patient seminars, clinical follow-up reports, and practical discussions followed by the practical lesson in . the hospital
D. General and transferable skills (other skills related to employability and . (personal development **.D1 . Skills of cooperation and teamwork** **.D2 . Computer typing skills** **.D3 . English communication skills** **.D4 . Skills of enduring work performance and solving problems** **. D5 . Internet conversation skills**

Course structure -10

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	a week
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Introduction to Optical Physics Nature of Light: particle vs. wave theory The electromagnetic spectrum	Knowledge and application	3 theoretical + 4 practical	the first
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Geometrical Optics Reflection and refraction (Laws of Snell and reflection) Refractive index and its importance in vision	Knowledge and application	3 theoretical + 4 practical	the second
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Lenses and Mirrors Types of lenses (convex/concave) Focal length and image formation	Knowledge and application	3 theoretical + 4 practical	the third
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Prism optics Deviation and dispersion of light Applications in optometry (prism correction)	Knowledge and application	3 theoretical + 4 practical	Fourth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Optical Instruments I Magnification, simple magnifier Microscope and telescope principles	Knowledge and application	3 theoretical + 4 practical	Fifth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Optical Instruments II Projectors, cameras, ophthalmoscope Keratometer and its optical basis	Knowledge and application	3 theoretical + 4 practical	Sixth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Midterm Review + Problem Solving Session	Knowledge and application	3 theoretical + 4 practical	Seventh

Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Physical Optics I Interference of light Young's double-slit experiment and applications	Knowledge and application	3 theoretical + 4 practical	The eighth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Physical Optics II Diffraction and resolving power Optical limits of the eye	Knowledge and application	3 theoretical + 4 practical	Ninth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Physical Optics III Polarization of light Clinical applications (polarized lenses, imaging)	Knowledge and application	3 theoretical + 4 practical	tenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	The Human Eye as an Optical System Cornea and crystalline lens Retinal image formation	Knowledge and application	3 theoretical + 4 practical	elevent h
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Optical aberrations of the eye Spherical and chromatic aberrations Astigmatism and higher-order aberrations	Knowledge and application	3 theoretical + 4 practical	twelfth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Visual Optics and Refraction Myopia, hyperopia, presbyopia Correction with lenses and contact lenses	Knowledge and application	3 theoretical + 4 practical	thirtee nth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Advanced Optical Applications in Optometry Lasers in ophthalmology (LASIK, photocoagulation) Fiber optics in imaging and diagnostics	Knowledge and application	3 theoretical + 4 practical	fourtee nth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Final Review and Presentations Clinical case discussions relating optical physics to patient care	Knowledge and application	3 theoretical + 4 practical	fifteent h

Course Evaluation -11	
Student activities and reports, oral and written theoretical and practical exams	
	-25

Learning and Teaching Resources - 12	
	Required textbooks (curriculum books, if available)
Internet	Main References (Sources)
	Recommended books and references (scientific (...journals, reports
	Electronic references and websites

Biochemistry	Course name -1
OPT 104	Course code -2
Second semester 2025/2026	Semester/Year -3
2025/9/1	Date of preparation of the description -4
In-person lectures	Available forms of attendance -5
45 hour of theory + 60 hours of practical work / 5 units 1	Number of credit hours (total) / Number of units (total) -6
M.M. Mustafa Talib Salim	Name of the course supervisor (mention all names, if there is more than one name) -7

Course objectives -8

Biochemistry (biochemistry) objectives for the Optical Technology Department are typically formulated to support the student's understanding of biological processes related to the human body, particularly those related to the visual system. Here is a suggested formulation of the course objectives, appropriate for the Optical Technology major.

Teaching and learning strategies -9

1. Understanding the chemical foundations of life: Introduce students to basic biological compounds such as carbohydrates, proteins, lipids, and nucleic acids, and their role in cellular functions and vital tissues, especially those associated with the eye.
2. Linking biochemical processes to the visual system: Explain the vital reactions that occur in the eye, such as metabolic processes in the retina and lens, tear formation, and the functions of vitamins and minerals in maintaining eye health.
3. Explain the effect of chemical imbalance on vision: Study of diseases associated with chemical disturbances such as macular degeneration, cataracts, and diabetic retinopathy, from a biochemical perspective.
4. Application of biochemical concepts in optical techniques:
Enabling students to relate biological concepts to practical applications such as designing bioprosthetic lenses, diagnosing metabolic or nutritional-related ocular conditions, and understanding the chemical basis of ocular pharmacology.

Enhancing the ability to conduct scientific analysis: Training students to analyze the .5 results of biological tests and understand their chemical significance in the context of .evaluating the patient's visual condition

Emphasizing the relationship between nutrition and eye health: Explain the role of .6 vitamins (especiallyA ,C ,E minerals, and antioxidants in protecting the eyes from ,(.oxidative damage and enhancing vision

. B. Course specific skill objectives

Applying basic skills in the biochemical laboratory: Providing the student with the ability .1 to use laboratory equipment and tools to analyze biological compounds such as proteins, sugars, and fats. Learn practical methods for preparing chemical solutions and accurately .calculating their concentrations

Analyzing biochemical results and linking them to visual status: Enable the student to .2 interpret laboratory test results related to eye vitamins, sugar levels, or biomarkers .associated with eye diseases (such as diabetic retinopathy)

Developing skills to link theory and practice: Training the student to relate biochemical .3 concepts to the functions and anatomy of the eye, such as understanding the effect of free .radicals on the lens or retina

Acquire critical thinking and scientific analysis skills: Developing the student's skills in .4 analyzing pathological cases of biochemical origin and providing scientific explanations .based on sound foundations

The ability to distinguish between normal and abnormal biological reactions in the eye: .5 Teaching the student how to recognize the differences between normal and pathological .biochemical reactions within the ocular tissues

Teaching and learning methods

In-person education (scientific films and videos, Laboratories, summer and (professional training, and graduation projects

. Scientific visits and practical training in hospitals by specialized medical staff

Evaluation methods

Daily tests, semester exams, final exams, weekly reports on the subject, seminars on the study subjects , discussions and conversations during the . lesson

C. Affective and value- based goals

1. Developing interest in the importance of biochemistry in human health in :general and eye health in particular

To enhance student appreciation of the role of biochemical processes in .maintaining eye function and health

2. Instilling a sense of professional and ethical responsibility: instilling ethical values in dealing with the results of biological tests, and respecting the .confidentiality of the patient’s biological information

3. Enhancing motivation for continuous learning and scientific research: Encourage students to continue reading and researching areas of biochemistry .related to optics to develop knowledge and skills

4. Respecting safety and security standards in laboratories: Commitment to safe professional conduct within the laboratory, and discipline in applying .chemical safety guidelines
5. Enhancing teamwork and cooperation: Develop a positive attitude towards working with colleagues on laboratory projects and scientific discussions, .while respecting the opinions of others
6. :Developing humaneness and compassion in dealing with patients Building emotional awareness about the impact of biochemical diseases on patients' .quality of life, enhancing empathy and the desire to provide better vision care
7. Appreciating the relationship between nutrition, lifestyle, and eye health: Consolidating the values of prevention and the importance of community awareness about healthy and nutritional habits and their role in preserving .eyesight

(In-person lectures), summer and professional training, graduation projects, . field visits, and practical training in clinical subjects

- **Evaluation methods**

Daily, midterm and final exams , weekly reports Patient seminars, clinical follow-up reports, and practical discussions followed by the practical lesson in . the hospital

D. General and transferable skills (other skills related to employability and . (personal development
.D1 . Skills of cooperation and teamwork
.D2 . Computer typing skills
.D3 . English communication skills
.D4 . Skills of enduring work performance and solving problems
. D5 . Internet conversation skills

Course structure -10

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Introduction to Biochemistry Overview of biochemistry, its branches, and importance in the field of vision and eye health	Knowledge and application	3 theoretical 4 +	the first

				practical	
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Biomolecules	Knowledge and application	3 theoretical 4 + practical	the second
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Biomolecules – Lipids Structure and roles of lipids in cellular membranes, myelin sheath, and the ocular system	Knowledge and application	3 theoretical 4 + practical	the third
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Biomolecules – Proteins Amino acids, protein structure and function, importance in enzymes and structural proteins in the eye .	Knowledge and application	3 theoretical 4 + practical	Fourth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Enzymes Enzyme structure, classification, mechanisms of action, factors affecting enzyme activity .	Knowledge and application	3 theoretical 4 + practical	Fifth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Nucleic Acids and Genetic Code DNA/RNA structure, replication, transcription, translation, and their relevance to genetic eye disorders	Knowledge and application	3 theoretical 4 + practical	Sixth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Vitamins and Coenzymes Focus on vitamins essential for eye health (A, C, E, B-complex) and their biochemical roles .	Knowledge and application	3 theoretical 4 + practical	Seventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Metabolism	Knowledge and application	3 theoretical 4 + practical	The eighth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Metabolism – Lipid Metabolism Beta-oxidation, fatty acid synthesis, cholesterol metabolism, and links to lens opacities	Knowledge and application	3 theoretical 4 + practical	Ninth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Metabolism – Protein and Amino Acid Metabolism Amino acid degradation, urea cycle, and the effects of metabolic errors on vision .	Knowledge and application	3 theoretical 4 + practical	tenth

Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Oxidative Stress and Antioxidants Reactive oxygen species (ROS), oxidative stress in the eye, role of antioxidants in lens and retinal protection	Knowledge and application	3 theoretical 4 + practical	eleventh
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Body Fluids and Electrolyte Balance Importance of electrolytes and fluid balance in maintaining intraocular pressure and hydration	Knowledge and application	3 theoretical 4 + practical	twelfth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Biochemical Basis of Common Eye Diseases Biochemical changes in cataracts, glaucoma, diabetic retinopathy, and age-related macular degeneration .	Knowledge and application	3 theoretical 4 + practical	thirteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Biochemical Basis of Common Eye Diseases	Knowledge and application	3 theoretical 4 + practical	fourteenth
Reports, oral and written theoretical exams	whiteboard, powerpoint slides, hands-on experiments	Revision and Final Review	Knowledge and application	3 theoretical 4 + practical	fifteenth

Course Evaluation -11
Student activities and reports, oral and written theoretical and practical exams
-26

Learning and Teaching Resources - 12	
	Required textbooks (curriculum (books, if available
Internet	Main References (Sources)
	Recommended books and references (scientific journals, (...reports
	Electronic references and websites