Republic of Iraq
Ministry of Higher Education and Scientific Research
Scientific supervision and evaluation device
Department of Quality Assurance and Academic Accreditation
Department Accreditation



Academic program and course description guide

2025

Introduction:

The academic program serves as a distinguished educational service aimed at developing the skills and competencies of students and graduates to meet the evolving demands of the job market. This program relies on a series of educational and training procedures based on carefully designed curricular elements, focusing primarily on preparing graduates to be academically and professionally qualified to meet the increasing requirements in various fields of work.

The academic program undergoes regular evaluation processes, including both internal and external assessments by specialized institutions, such as external accreditation programs. These evaluations aim to ensure the quality and efficiency of the program and its successful achievement of educational goals.

The academic program description is a fundamental document that provides an overview of the program's objectives, content, and educational outcomes. It acts as a guiding tool that helps map out the path to achieving these objectives. The description reflects the program's educational vision and strategy and is considered one of the key elements in ensuring that the program receives academic accreditation according to local and international standards.

This updated version of the academic program description reflects the changes and developments in higher education in Iraq and globally, incorporating ongoing revisions of course content in accordance with the latest academic standards. It also considers technological advancements and modern trends in education, both theoretically and practically, enhancing the program's ability to adapt to the new requirements of the job market.

The academic program description has been prepared according to accredited evaluation models (both theoretical and practical), in alignment with decisions issued by academic bodies, such as decision number 2906/3 dated 2023/5/3. These updates aim to ensure that the program aligns with global accreditation requirements, particularly in technical fields that require continuous adaptation to advancements.

In this context, we emphasize the importance of accurately writing academic program descriptions and designing curricula according to the latest educational trends. This description is a cornerstone for improving academic performance and ensuring the quality of education, serving as an effective tool to achieve academic excellence and meet the needs of the job market.

Additional Details on Program Elements:

1. **Academic Program Description: The academic program description provides a comprehensive overview of the program's vision, mission, objectives, and educational outcomes. It serves as a strategic reference for achieving academic development, outlining how the program is to be implemented to achieve its goals effectively.**

2. **Course Description: Offers a concise and precise description of each course, including its objectives and expected outcomes. The description should clearly detail how to maximize the benefits from the presented subject matter, and whether the student has acquired the necessary skills and knowledge.**

3. **Program Vision: The vision outlines the future aspirations of the academic program. The program seeks to be recognized locally and internationally, focusing on innovation, quality in education, sustainability, and the provision of educational programs that align with societal and job market needs.**

4. **Program Mission: The mission outlines the general objectives the program aims to achieve through teaching and learning. It includes the broad strategies to develop students' skills and prepare them for the job**

market in innovative and modern ways that align with technological and knowledge advancements.

5. **Program Objectives: These are specific objectives that the program seeks to accomplish within a particular timeframe. These objectives include developing students' knowledge and skills in ways that are measurable and evaluative, contributing to the enhancement of the educational process and the achievement of distinguished learning outcomes.**

6. **Curriculum Plan: The curriculum plan includes all the courses offered by the program, whether theoretical or practical. The plan is integrated with the educational strategies used and considers the number of credit hours for each course to ensure a balanced approach between theoretical content and practical application.**

7. **Learning Outcomes: Learning outcomes represent the set of skills, knowledge, and competencies that a student should acquire by successfully completing the academic program. These outcomes are defined based on the program's objectives and are a vital tool for assessing the effectiveness of education and ensuring the achievement of high-quality learning outcomes.**

8. **Teaching and Learning Strategies: These are the strategies employed by the faculty to ensure the program's educational objectives are met. These strategies include various teaching methods such as interactive learning, e-learning, and classroom and extracurricular activities that contribute to a deep understanding of the educational content and achieving the desired learning outcomes.**

Conclusion:

With the preparation of this comprehensive academic description, we hope that the program will meet the highest standards of academic quality and effectively contribute to improving educational outcomes and developing students' skills in line with the requirements of the modern job market. Through this guide, we aim to elevate the level of academic education and contribute to enhancing the university's standing both locally and internationally.

Ministry of Higher Education and Scientific Research

Scientific supervision and evaluation device

Department of Quality Assurance and Academic Accreditation

Academic program description form for colleges and institutes for the academic year 2025

University: Northern Technical University

College/Institute: Hawija Technical Institute

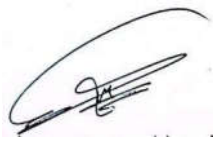
Scientific Department: Optometry Techniques Department

Signature: 

Department Head:

Dr. Faaiz Ahmed Mohammed

2025/9/8

signature: 

Scientific Assistant Dean

Dr. Mohammed Chyad Liegy

2025/9/8

The file was reviewed by:

Quality Assurance and University Performance Division:

Hamza Omar siddeeq

Signature: 



The Dean

Professor: Omar Khalil Ahmed

Academic program description

Ministry of Higher Education and Scientific Research	**Name of educational institution**
Northern Technical University / Al-Huwayjah Technical Institute	**,Name of university college or institute**
Optometry Techniques Department	**Name of the scientific department or program**
Diploma in Optometry Technology	**Final academic certificate**
Decisions	**Academic system**
Theoretical study with practical study	**Accredited Program**
Field visits to hospitals and graduation projects	**External indicators**
16/10/2024	**Description preparation date**

The department aims to graduate qualified technical staff to examine and correct vision and manufacture eyeglasses.

1- Graduating specialized staff to work in hospitals, eye examination centers and workshops. Public and private clinics.

-2The department graduate will be able to examine and diagnose vision defects in patients.

-3It can determine the degree of vision and correct strabismus.

-4-Prescribing eyeglasses, fitting lenses, and repairing damaged eyeglasses.

-5Checking lenses, changing frames, and replacing damaged ones.

-6Description and installation of contact lenses and eye replacements...

-7Taking care of, using and maintaining medical and optical devices.

Academic Program Objectives of the Department of Optometry

Required outputs

The department aims to graduate qualified technical personnel to examine and correct vision and manufacture eyeglasses.

-1-Applying and practicing the information practically in hospitals and eye examination centers.

-2Ability to use and maintain optical laboratory equipment.

-3-Analyze the results and use them to solve problems and obstacles to reach satisfactory results.

Cognitive objectives -1

-1Knowledge and full familiarity with the basics of vision examination and vision correction techniques.

-2Organizing information, understanding it and preparing for its use in the job.

-3-Work on solving problems in an intellectual way and according to the available data.

-4-Continue thinking and creativity according to scientific and intellectual data.

Skill objectives -2

This academic programme description provides a concise summary of the programme's key objectives, required outcomes, teaching and learning methods, assessment methods and educational inputs, with the expected outcomes of the student demonstrating whether he/she

has made the most of the opportunities available and accompanied by a description of each.Included in the program.

Teaching and learning methods

-1-Preparing modern and internationally approved curricula.

-2Using scientific films and practical application in laboratories.

-3-Training students on methods that simulate reality.

Evaluation methods

-1Daily tests.

-2Semester exams.

-3-Writing weekly reports on practical experiments and discussing them.

-4Daily attendance, class activities and participation.

-5Asking repeated questions and asking for answers.

-6Solve examples and discuss.

-7Summer training and graduation projects.

Course Description

First level -1

First semester

The first semester lasts for fifteen weeks with final exams lasting two weeks. The student must pass the exams with a grade of no less than (50 %) for all the courses of the semester and is considered to have met the requirements for entry into the second semester. The student is not considered to have met the requirements if he does not pass the aforementioned grade requirement and must repeat the courses in which he received a grade of less than (50 .(%

Northern Technical University								
Al-Huwayjah Technical Institute								
Department of Optometry Techniques								
Curriculum System / Curricula for Medical Specialties / Department of Optometry Techniques 2024-2025								
First academic level / first program:								
Code	Requirement type	Number of units	Number of hours			Course name in English	Course name in Arabic	T
			M	A	n			
OPT111	Mandatory section	3	3	2	1	Principles of eyeglasses	Principles of eyeglasses	1
OPT112	Mandatory section	3	3	2	1	Principles of refractive errors	Principles of refractive errors	2
OPT113	Mandatory section	3	3	2	1	Medical Physics	Medical physics	3
OPT115	Mandatory section	3	3	2	1	Foundations of nursing	Nursing basics	4
TIHA106	Mandatory Institute	4	4	2	2	physiology	Physiology	5
TIHA107	Mandatory Institute	4	4	2	2	Anatomy	Anatomy	6
NTU 102	University mandatory	2	2	1	1	Computer	Computer	7
NTU 100	University mandatory	2	2		2	Human Rights and democracy	Democracy and human rights	8
NTU 101	University mandatory	2	2		2	English language	English language	9
		26	26	13	13	the total		

Course Description

Level 1

Second semester

The second semester lasts for fifteen weeks with final exams lasting two weeks. The student must pass the exams with a grade of no less than (50 %) for all the semester courses and is considered to have completed the second semester. He is not considered to have completed the exams if he does not pass the aforementioned grade requirement and the student must repeat .the courses in which he obtained a grade of less than (50 %)

First academic level / Second program:								
Code	Requirement type	Number of units	Number of hours			Course name in English	Course name in Arabic	T
			M	A				
OPT121	Mandatory section	3	3	2	1	Therapeutic eyeglasses	Therapeutic glasses	1
OPT122	Mandatory section	3	3	2	1	General refractive errors	Common refractive errors	2
OPT123	Mandatory section	3	3	2	1	Optical physics	Optical physics	3
OPT124	Mandatory section	3	3	2	1	Eye phyiology	Physiology of the eye	4
OPT125	Mandatory section	3	3	2	1	Eye anatomy	Anatomy of the eye	5
OPT126	Mandatory section	3	3	2	1	Medical microbiology	Medical biology	6
OPT127	Mandatory section	3	3	2	1	Ocular health	Eye health	7
NTU 104	Optional	2	2	1	1	Sport	Sports	8
NTU 103	University mandatory	2	2		2	Arabic language	Arabic	9
TIHA108	Mandatory Institute	2	2		2	Safety in lab . & Workshop	Laboratory Safety	10
		27	27	15	12	the total		

Course Description

Level 2

First semester

The first semester lasts for fifteen weeks with final exams lasting two weeks. The student must pass the exams with a grade of no less than (50 %) for all the courses of the semester and is considered to have met the requirements for entry into the second semester. The student is not considered to have met the requirements if he does not pass the aforementioned grade requirement and must repeat the courses in which he received a grade of less than (50 .(%

Second level of study / first program:								
Code	Requirement type	Number of units	Number of hours			Course name in English	Course name in Arabic	T
			M	A				
OPT211	Mandatory section	3	3	2	1	General prescription glasses	General eyeglasses	1
OPT212	Mandatory section	3	3	2	1	Specialized refractive errors	Specialized refractive errors	2
OPT213	Mandatory section	3	3	2	1	General squint	About a year	3
OPT214	Mandatory section	3	3	2	1	Optical medical devices	Medical Optical Devices	4
OPT215	Optional section	3	3	2	1	Eye diseases	Eye diseases	5
TIHA209	Mandatory institute	2	2		2	Medical terminology	Medical terms	6
TIHA202	Mandatory institute	2	2		2	Biostatistics	Vital statistics	7
NTU 201	University mandatory	2	2	1	1	Computer	Computer	8
NTU 203	University mandatory	2	2		2	Crimes of the Baath regime in Iraq	Crimes of the Baath regime in Iraq	9
		23	23	11	12	the total		

Course Description

Level 2

Second semester

The second semester lasts for fifteen weeks with final exams lasting two weeks. The student must pass the exams with a grade of no less than (50 %) for all the semester courses and is considered to have completed the second semester. He is not considered to have completed the exams if he does not pass the aforementioned grade requirement and the student must repeat .the courses in which he obtained a grade of less than (50 %)

Second level of study / Second program:								
Code	Requirement type	Number of units	Number of hours			Course name in English	Course name in Arabic	T
			M	A				
OPT221	Mandatory section	3	3	2	1	Advanced medical glasses	Advanced eyeglasses	1
OPT222	Mandatory section	3	3	2	1	Applications of refractive errors	Refractive Error Applications	2
OPT223	Mandatory section	3	3	2	1	Advanced squint	About Advanced	3
OPT224	Mandatory section	3	3	2	1	Optical equipment	Optical equipment	4
OPT225	Mandatory section	3	3	2	1	Advanced eye diseases	Advanced eye diseases	5
NTU 204	University mandatory	2	2		2	Professional ethics	Professional ethics	6
OPT226	Mandatory section	2	2		2	Research project	Research project	7
NTU 202	University mandatory	2	2		2	Arabic language	Arabic	8
		21	21	10	11	the total		

10- Planning for personal development

1- Updating curricula to keep pace with scientific developments **2- Preparing training courses for members to increase their scientific skills** **3- Focus on the practical side and summer training to increase the practical experience of the graduate**
11- Admission Criteria (Setting regulations for admission to a college or institute)
Scientific branch middle school graduates
12- The most important sources of information about the program
1.The textbooks prescribed by the Northern Technical University - **2- .Resources available in the institute's library or on the Internet**

Curriculum Skills Chart																			
.Please tick the boxes corresponding to the individual learning outcomes of the programme being assessed																			
Required learning outcomes of the program																			
and transferable skills (other skills related to employability and personal (development				Emotional and value goals				Program specific skill objectives				Cognitive objectives				essential Or optional	Course name	Course code	Year/Level
D4																			
V																	essential	Principles of eyeglasses		the first

V																	essential	Therapeutic glasses	
V																	essential	General eyeglasses	
V																	essential	Advanced eyeglasses	

the second

13. Course structure					
Evaluation method	Teaching method	Name of unit/course or topic	Required learning outcomes	Watches	The week
/ Chapter One General eyeglasses					
Daily exa ,m semester exa ,m practical report and practical exam	theoretical lectures and two hours laboratory	Types of ,glasses purpose of using medical glasses	Theoretical knowledge and practical application	3	1
Theoretical test + s practical test + s reports	Theoretical 1 hou + r practical 2 hours	Safety ,glasses types, uses	Theoretical knowledge and practical application	3	2
Theoretical	Theoretical 1	The effect of ultraviolet	Theoretical knowledge and	3	3

test + s pra ctic al test + s rep orts	hou + r pra ctic al 2 hou rs	rays on the eye	practical application		
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	Installing eyeglass lenses	Theoretical knowledge and practical application	3	4
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	Axis ,direction systems used to measure the direction of the lens axis	Theoretical knowledge and practical application	3	5
The ore tica l test + s pra ctic al	The ore tica l 1 hou + r pra ctic al 2	Optical lens theory	Theoretical knowledge and practical application	3	6

test + s reports	hours				
Theoretical test + s practical test + s reports	Theoretical 1 hour + r practical 2 hours	Optical lens power measurement	Theoretical knowledge and practical application	3	7
Theoretical test + s practical test + s reports	Theoretical 1 hour + r practical 2 hours	Spherical lens surface strength and shape	Theoretical knowledge and practical application	3	8
Theoretical test + s practical test + s reports	Theoretical 1 hour + r practical 2 hours	Glass ,lenses their components	Theoretical knowledge and practical application	3	9

Theoretical test + spractical test + sreports	Theoretical 1 hou + rpractical 2 hours	Plastic ,lenses their characteristics, how they are made	Theoretical knowledge and practical application	3	10
Theoretical test + spractical test + sreports	Theoretical 1 hou + rpractical 2 hours	Properties of crossed cylindrical lenses	Theoretical knowledge and practical application	3	11
Theoretical test + spractical test + sreports	Theoretical 1 hou + rpractical 2 hours	Lens center shift	Theoretical knowledge and practical application	3	12
Theoretical test	Theoretical 1 hou	Examples of crossed cylindrical lenses	Theoretical knowledge and	3	13

+ s pra ctic al test + s rep orts	+ r pra ctic al 2 hou rs		practical application		
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	bifocal lenses	Theoretical knowledge and practical application	3	1 4
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	Using two-focal lenses	Theoretical knowledge and practical application	3	1 5
Chapter Two / Advanced Eyeglasses					
Dail y exa ,m sem est er exa	the ore tica l lect ure s and	Advantage s of using two focal length lenses	Theoretical knowledge and practical application	3	1

,m pra ctic al rep ort and pra ctic al exa m	two hou rs lab orat ory				
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	The size and shape of the near part of a two-focal length lens	Theoretical knowledge and practical application	3	2
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	Examples of how to calculate the portion allocated to the relative(1)	Theoretical knowledge and practical application	3	3
The ore tica l test	The ore tica l 1 hou	Examples of how to calculate the portion	Theoretical knowledge and	3	4

+ s pra ctic al test + s rep orts	+ r pra ctic al 2 hou rs	allocated to the relative(2)	practical application		
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	Examples of calculating the mutation resulting from the use of lenses with two focal lengths	Theoretical knowledge and practical application	3	5
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	Contact lenses(1)	Theoretical knowledge and practical application	3	6
The ore tica l test + s pra ctic al test	The ore tica l 1 hou + r pra ctic al 2	Contact lenses(2)	Theoretical knowledge and practical application	3	7

+ s rep orts	hou rs				
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	Types of contact lenses	Theoretical knowledge and practical application	3	8
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	How to put contact lenses in the eye	Theoretical knowledge and practical application	3	9
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	Contact lens stability in the eye	Theoretical knowledge and practical application	3	10

Theoretical test + spractical test + sreports	Theoretical 1 hou + rpractical 2 hours	Damage caused by misuse of contact lenses	Theoretical knowledge and practical application	3	11
Theoretical test + spractical test + sreports	Theoretical 1 hou + rpractical 2 hours	How to calculate contact lens	Theoretical knowledge and practical application	3	12
Theoretical test + spractical test + sreports	Theoretical 1 hou + rpractical 2 hours	Discussion of reports on contact lenses	Theoretical knowledge and practical application	3	13
Theoretical test	Theoretical 1 hou	Discussion of reports on	Theoretical knowledge and	3	14

+ s pra ctic al test + s rep orts	+ r pra ctic al 2 hou rs	medical lenses	practical application		
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	Discussion of reports on eyeglass frames	Theoretical knowledge and practical application	3	1 5

14. Course structure					
Evaluation method	Teaching method	Name of unit/course or topic	Required learning outcomes	Watches	The week
/ Chapter One General eyeglasses					
Daily exa ,m semester exa ,m practical report and practical exam	theoretical lectures and two hours laboratory	Types of ,glasses purpose of using medical glasses	Theoretical knowledge and practical application	3	1
Theoretical test + s practical test + s reports	Theoretical 1 hou + r practical 2 hours	Safety ,glasses types, uses	Theoretical knowledge and practical application	3	2
Theoretica	Theoretica	The effect of ultraviolet	Theoretical knowledge	3	3

l test + s practical test + s reports	l 1 hou + r practical 2 hours	rays on the eye	and practical application		
Theoretical test + s practical test + s reports	Theoretical 1 hour + r practical 2 hours	Installing eyeglass lenses	Theoretical knowledge and practical application	3	4
Theoretical test + s practical test + s reports	Theoretical 1 hour + r practical 2 hours	Axis ,direction systems used to measure the direction of the lens axis	Theoretical knowledge and practical application	3	5
Theoretical test + s practic	Theoretical 1 hour + r practic	Optical lens theory	Theoretical knowledge and practical application	3	6

al test + s reports	al 2 hours				
Theoretical test + s practical test + s reports	Theoretical 1 hour + r practical 2 hours	Optical lens power measurement	Theoretical knowledge and practical application	3	7
Theoretical test + s practical test + s reports	Theoretical 1 hour + r practical 2 hours	Spherical lens surface strength and shape	Theoretical knowledge and practical application	3	8
Theoretical test + s practical test + s	Theoretical 1 hour + r practical 2 hours	Glass ,lenses their components	Theoretical knowledge and practical application	3	9

reports					
Theoretical test + s practical test + s reports	Theoretical 1 hou + r practical 2 hours	Plastic ,lenses their characteristics, how they are made	Theoretical knowledge and practical application	3	10
Theoretical test + s practical test + s reports	Theoretical 1 hou + r practical 2 hours	Properties of crossed cylindrical lenses	Theoretical knowledge and practical application	3	11
Theoretical test + s practical test + s reports	Theoretical 1 hou + r practical 2 hours	Lens center shift	Theoretical knowledge and practical application	3	12
Theore	Theore	Examples of crossed	Theoretical	3	13

tica l test + s pra ctic al test + s rep orts	tica l 1 hou + r pra ctic al 2 hou rs	cylindrical lenses	knowledge and practical application		
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	bifocal lenses	Theoretical knowledge and practical application	3	1 4
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	Using two-focal lenses	Theoretical knowledge and practical application	3	1 5
Chapter Two / Advanced Eyeglasses					
Dail y exa ,m sem	the ore tica l lect	Advantage s of using two focal length lenses	Theoretical knowledge and	3	1

est er exa ,m pra ctic al rep ort and pra ctic al exa m	ure s and two hou rs lab orat ory		practical application		
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	The size and shape of the near part of a two-focal length lens	Theoretical knowledge and practical application	3	2
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	Examples of how to calculate the portion allocated to the relative(1)	Theoretical knowledge and practical application	3	3
The ore	The ore	Examples of how to	Theoretical	3	4

tica l test + s pra ctic al test + s rep orts	tica l 1 hou + r pra ctic al 2 hou rs	calculate the portion allocated to the relative(2)	knowledge and practical application		
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	Examples of calculating the mutation resulting from the use of lenses with two focal lengths	Theoretical knowledge and practical application	3	5
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	Contact lenses(1)	Theoretical knowledge and practical application	3	6
The ore tica l test + s pra	The ore tica l 1 hou + r pra	Contact lenses(2)	Theoretical knowledge and practical application	3	7

ctic al test + s rep orts	ctic al 2 hou rs				
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	Types of contact lenses	Theoretical knowledge and practical application	3	8
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	How to put contact lenses in the eye	Theoretical knowledge and practical application	3	9
The ore tica l test + s pra ctic al test + s	The ore tica l 1 hou + r pra ctic al 2 hou rs	Contact lens stability in the eye	Theoretical knowledge and practical application	3	10

reports					
Theoretical + spractical test + sreports	Theoretical 1 hou + rpractical 2 hours	Damage caused by misuse of contact lenses	Theoretical knowledge and practical application	3	11
Theoretical + spractical test + sreports	Theoretical 1 hou + rpractical 2 hours	How to calculate contact lens	Theoretical knowledge and practical application	3	12
Theoretical + spractical test + sreports	Theoretical 1 hou + rpractical 2 hours	Discussion of reports on contact lenses	Theoretical knowledge and practical application	3	13
The ore	The ore	Discussion of reports	Theoretical	3	14

tica l test + s pra ctic al test + s rep orts	tica l 1 hou + r pra ctic al 2 hou rs	on medical lenses	knowledge and practical application		
The ore tica l test + s pra ctic al test + s rep orts	The ore tica l 1 hou + r pra ctic al 2 hou rs	Discussion of reports on eyeglass frames	Theoretical knowledge and practical application	3	1 5

15.Infrastructure	
- Basics of Eyeglasses / Haifa Rasim Hawsa / First Edition 2001 - Visual Encyclopedia of the Human Eye - / Optical Measurements Department Mohamed Saeed Ibrahim - Assistant Lieutenant	: readings ▪ Basic Texts ▪ Course books ▪ Other
1E-learning sites and virtual library	Special requirements ,including, for example) ,workshops, periodicals (software, and websites
Holding a seminar during the year to inform students of all the latest issues related to the curriculum by hosting . experienced ophthalmologists	,Social services (including ,for example, guest lectures vocational training, and (field studies

Ministry of Higher Education and Scientific Research
Northern Technical University
Department of Optometry

Course description

BIOSTATISTICS



Prepared by:
Assist. L. Mohammed Rashed Abdul

Northern Technical University/Hawija Technical Institute
Department of Optometry

2025م **1446م**

1. Educational institution

Northern Technical University / Hawija Technical Institute

2. Scientific Department

Optometric Techniques

3. Course Name/Code

Biostatistics / TIHA202

4. Available Forms of Attendance

Electronic via Excel

5. Semester/Year

First/Second

6. Number of class hours (total)

16

7. Date of preparation of this description

8/6/2025

8. Course Objectives (General Course Objectives)

- The course aims to provide students with basic knowledge about biostatistical methods and their use in analyzing medical and biological data.
- Develop students' ability to use statistical methods in medical research: The course aims to enable students to apply biostatistical methods to analyze data and interpret results in clinical studies and medical research

9. Course Outcomes and Methods of Teaching, Learning and Assessment

Outcomes	Teaching and Learning Methods	Assessment methods
Knowledge - Define the basic concepts of biostatistics - Understand data types and measures of trend and dispersion - Interpret the principles of probability and statistical inference	- Theoretical lectures using presentations- Reading academic literature- Guided class discussions	- Written exams (essay and essay questions) - Quiz
Skill - Applying statistical formulas to calculate the mean, standard deviation and percentage - Using statistical programs such as Excel to analyze data - Interpreting statistical tables and graphs	- Practical exercises on paper and software- Computer-based workshops- Group projects to solve real-life issues	- Practical evaluation using software - Data analysis reports - Presentation of mini research projects
Values - Promoting accuracy and discipline in handling data - Respecting the privacy of medical information - Developing critical thinking and transparency in the presentation of results	- Group activities that foster collaboration - discussing ethics of data analysis - brainstorming real-life cases	- Evaluation of behavior in group projects- Reflective reports on ethical practices- Peer assessment

10. Course Structure (Theory)

Week	Hours	Required Learning Outcomes	Module name/topic	Method of instruction	Assessment method
First	2	Explains the concept of statistics and its importance in medical and biomedical research.	The concept of statistics	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
second	2	Organizes data in frequency tables to understand its distribution.	Frequency distribution table	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
Third	2	Distinguish between types of samples and explain the basis for choosing them scientifically.	Sample	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
fourth	2	Calculate the arithmetic mean and know its statistical significance.	Measures of central tendency (1)	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
V	2	Calculates and compares the median and mode.	Measures of central tendency (2)	Projectors - Laboratory Devices	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
Sixth	2	Select the appropriate scale according to the type and distribution of data.	Measures of central tendency (3)	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
Seventh	2	Calculates the range and standard deviation to estimate the dispersion of the data.	Measures of dispersion and variation (1)	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
VIII	2	Calculate the standard deviation and variance accurately.	Measures of dispersion and variation (2)	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
IX	2	Explain the relationship between central tendency and dispersion in statistical analysis.	Measures of dispersion and variation (3)	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
Tenth	2	Explain the concept of skewness and calculate it to determine the slope of data.	Torsion and flattening measures (1)	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
eleventh	2	Analyzes the degree of flattening to understand the shape of the data distribution.	Torsion and flattening measures (2)	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
twelfth	2	Interpret the relationship between two variables using the correlation coefficient and linear regression.	Correlation and regression	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
thirteenth	2	Performs t-tests to statistically compare two means.	Comparison of averages	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
XIV	2	Explain the principle of analysis of variance to compare more than two groups.	Analysis of Variance (1)	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+

Rashid Al-Rawi

					Weekly reports+ Attendance
XV	2	Apply the ANOVA test and interpret its results in a research paper.	Analysis of Variance (2)	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance

11. Course Development Plan

- The course development plan aims to update the scientific content in line with academic and technical developments.
- It also seeks to enhance students' analytical and statistical thinking skills using modern teaching tools.
- The plan includes improving assessment and learning methods to suit the targeted learning outcomes.

12.

Classrooms, laboratories, and workshops	Available
Required textbooks	Available
Key References (Resources)	Daniel, W. W. (2018). Biostatistics: A Foundation for Analysis in the Health Sciences Wayne W. Daniel & Chad L. Cross (2021), Biostatistics for the Biological and Health Sciences
Recommended books and references	Rosner, B. (2015). Fundamentals of Biostatistics Pagano, M., & Gauvreau, K. (2018). Principles of Biostatistics Introduction to Biostatistics, Khasha Al-Rawi
Electronic References, Internet Websites, ...	Coursera - Biostatistics courses

Ministry of Higher Education and Scientific Research
Northern Technical University
Department of Optometry

Course description

Medical Microbiology

Prepared by:
Assist. L. Rania Mohammed Abdulla

Northern Technical University/Hawija Technical Institute
Department of Optometry

2025

1. Educational Institution
Northern Technical University / Hawija Technical Institute
2. Scientific Department
Department of Optometry

3. Headquarters' Name/Code

Medical microbiology / OPT126

4. Available Attendance Forms

Electronic by Excel

5. Semester / Year

Second/First

6 Number of academic hours (total) .

24

7 The history of preparation of this description .

2025/6/8

8. Course Objectives (General Objectives of the Course)

- The student should be familiar with the type and structure of microorganisms.
- Understand the physiological principles, anatomical and biochemical structures and genetic characteristics of microorganisms.

9. Course Outcomes and Methods of Teaching, Learning and Assessment

Evaluation methods	Teaching and learning methods	Output
- Written exam (essay and objective questions) - Quiz via the online platform	-Theoretical lectures supported by slide presentations- Guided readings from basic references - presentations Video demonstration and digital simulation	**knowledge** Identify the structures of living organisms, understand the difference between primitive and eukaryotic cells, and understand basic concepts such as bacteria, fungal parasites, and viruses
- Practical assessment (OSCE) on simulation skills - Analytical reports of case studies - Practical tasks including the preparation and explanation of graphs	-Practical workshops in the laboratory (real or virtual) - clinical case studies and group discussions	**skill** Ability to apply basic biological concepts to understand biological processes in the human body, analyze microscopic samples and diagnose microorganisms in a medical context

-Peer assessment of each student's contribution to the team- Written reflective essay on learned values- Self-questionnaire on the ethics of practice and collaboration	- Making group teams to implement small projects - individual and group reflection sessions on performance - discussions on the ethics of professional practice	**Values** Developing a sense of professional responsibility and ethics of dealing with patients - commitment to laboratory work ethics, transparency and scientific honesty

10. Theoretical Course Structure

Method of vomiting m	The way of education	Unit name/topic p	Required Learning Outcomes	Hours	Week on
Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	culturing and staining of bacteria (Gram stain)	Isolation by culturing and staining of bacteria (Gram stain)	1	**The first**
Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	Bacterial infection of the eye	- Bacterial infection of the eye	1	**Second**
Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	Sterilization and disinfection	Sterilization and disinfection (Physical and chemical methods)	1	**Third**
Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	General parasitology	General parasitology (Types of parasitism , pathogen city of parasitic diseases	1	**Fourth**
Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	Protozoa	General classification of parasites (Protozoa , amoebae and flagellates)	1	**V**
Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	sporozoa	General classification of parasites (protozoa , ciliates and sporozoa)	1	**Sixth**
Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	(helminthes , nematode)	General classification of parasites (helminthes , nematode)	1	**Seventh**

Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	(helminthes , cestoda and trematoda)	General classification of parasites (helminthes , cestoda and trematoda)	1	Eighth
Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	Parasitic infections of the eye	Parasitic infections of the eye	1	Ninth

Practical Course Structure

The hour	Unit Name/ Method of education	Required Learning Outcomes The method of vomiting or the topic			Week on
Practical test, evaluation of practical performance notes	Theoretical lecture practical + training	Human chromosomes	Human chromosomes (shape and structure	2	The first
Written test,	Lecture + Case Discussion + Video Demo	Gram positive and Gram negative bacteria	Bacteria (Gram positive and Gram negative bacteria , their shapes and arrangement)	2	Second
Practical test, direct observation	Hands-on training video + demonstration	(isolation and staining of bacteria	Bacteria (isolation and staining of bacteria)	2	Third
Practical test + microscope slide analysis o	Lecture + Practical Training	culturing media , types and properties)	Bacteria (culturing media , types and properties)	2	Fourth
Practical test,	Theoretical lecture practical + training	Methods of sterilization and disinfection II	Methods of sterilization and disinfection	2	V
Practical test + Exam Format	Interactive lecture + practical training	Protozoatear tests	Parasites (protozoa , E. histolytica and G. lamblia	2	Sixth
Practical test + discussion	Lecture + Case Discussion + Video Demo	Parasites (helminthes , E. vermiculari	protozoa Parasites (helminthes , E. vermicularis	2	Seventh
Practical test + case study	Hands-on training video + demonstration	helminths , T. saginata	Parasites (helminths, T. saginata	2	Eighth

11. Course Development Plan

- Review and update content to include modern concepts and early clinical applications.
- Integrate active instruction, simulation and teamwork techniques to enhance applied learning.
- Diversify assessment tools to include written and practical tests, peer assessment and self-assessment.
- Forming a committee for development, scheduling and pilot application with feedback collection and periodic review.

12.

Available	**Classrooms, laboratories and workshops**
Available	**Required textbooks**
Jawetz, Melnick & Adelberg's Medical Microbiology Topley & Wilson's Microbiology and Microbial Infections Medical Microbiology (Murray, Rosenthal & Pfaller) 2. Janeway's Immunobiology (Murphy & Weaver)	**Key references (sources)**
Ophthalmic Technician Procedure Manual – American Academy of Medical Microbiology	**Recommended books and references**
American Academy of Medical Microbiology	**، .....Electronic references, websites**

Ministry of Higher Education and Scientific Research
Northern Technical University
Department of Optometry

Course description

Medical Microbiology

Prepared by:
Assist. L. Rania Mohammed Abdulla

Northern Technical University/Hawija Technical Institute
Department of Optometry

2025

1. Educational Institution
Northern Technical University / Hawija Technical Institute
2. Scientific Department
Vision Screening Techniques

.Assist. L. Rania Mohammed Abdullah

2025-2024

3. Headquarters' Name/Code

Eye Physiology / OPT124

4. Available Attendance Forms

Electronic by Excel

5. Semester / Year

Second/First

6 Number of academic hours (total) .

24

7 The history of preparation of this description .

2025/6/8

8. Course Objectives (General Objectives of the Course)

- The student should be familiar with the type and structure of microorganisms.
- Understand the physiological principles, anatomical and biochemical structures and genetic characteristics of microorganisms.

9. Course Outcomes and Methods of Teaching, Learning and Assessment

Evaluation methods	Teaching and learning methods	Output
- Written exam (essay and objective questions) - Quiz via the online platform	-Theoretical lectures supported by slide presentations- Guided readings from basic references - presentations Video demonstration and digital simulation	**knowledge** Identify the structures of living organisms, understand the difference between primitive and eukaryotic cells, and understand basic concepts such as bacteria, fungal parasites, and viruses
- Practical assessment (OSCE) on simulation skills - Analytical reports of case studies - Practical tasks including the preparation and explanation of graphs	-Practical workshops in the laboratory (real or virtual) - clinical case studies and group discussions	**skill** Ability to apply basic biological concepts to understand biological processes in the human body, analyze microscopic samples and diagnose microorganisms in a medical context
-Peer assessment of each student's contribution to the team- Written reflective essay on learned values- Self-questionnaire on the ethics of practice and collaboration	- Making group teams to implement small projects - individual and group reflection sessions on performance -	**Values** Developing a sense of professional responsibility and ethics of dealing with patients - commitment to

	discussions on the ethics of professional practice	laboratory work ethics, transparency and scientific honesty

10. Theoretical Course Structure

Method of vomiting m	The way of education	Unit name/topic p	Required Learning Outcomes	Hours	Week on
Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	culturing and staining of bacteria (Gram stain)	Isolation by culturing and staining of bacteria (Gram stain)	1	**The first**
Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	Bacterial infection of the eye	- Bacterial infection of the eye	1	**Second**
Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	Sterilization and disinfection	Sterilization and disinfection (Physical and chemical methods)	1	**Third**
Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	General parasitology	General parasitology (Types of parasitism , pathogen city of parasitic diseases	1	**Fourth**
Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	Protozoa	General classification of parasites (Protozoa , amoebae and flagellates)	1	**V**
Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	sporozoa	General classification of parasites (protozoa , ciliates and sporozoa)	1	**Sixth**
Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	(helminthes , nematode)	General classification of parasites (helminthes , nematode)	1	**Seventh**

Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	(helminthes , cestoda and trematoda)	General classification of parasites (helminthes , cestoda and trematoda)	1	**Eighth**
Theoretical tests + practical tests + weekly reports + attendance	Projectors – Laboratory Devices	Parasitic infections of the eye	Parasitic infections of the eye	1	**Ninth**

Practical Course Structure

The hour	**Unit Name/ Method of education**	**Required Learning Outcomes The method of vomiting or the topic**			**Week on**
Practical test, evaluation of practical performance notes	Theoretical lecture practical + training	Human chromosomes	Human chromosomes (shape and structure	2	**The first**
Written test,	Lecture + Case Discussion + Video Demo	Gram positive and Gram negative bacteria	Bacteria (Gram positive and Gram negative bacteria , their shapes and arrangement)	2	**Second**
Practical test, direct observation	Hands-on training video + demonstration	(isolation and staining of bacteria	Bacteria (isolation and staining of bacteria)	2	**Third**
Practical test + microscope slide analysis o	Lecture + Practical Training	culturing media , types and properties)	Bacteria (culturing media , types and properties)	2	**Fourth**
Practical test,	Theoretical lecture practical + training	Methods of sterilization and disinfection II	Methods of sterilization and disinfection	2	**V**
Practical test + Exam Format	Interactive lecture + practical training	Protozoatear tests	Parasites (protozoa , E. histolytica and G. lamblia	2	**Sixth**
Practical test + discussion	Lecture + Case Discussion + Video Demo	Parasites (helminthes , E. vermiculari	protozoa Parasites (helminthes , E. vermicularis	2	**Seventh**
Practical test + case study	Hands-on training video + demonstration	helminths , T. saginata	Parasites (helminths, T. saginata	2	**Eighth**

11. Course Development Plan

- Review and update content to include modern concepts and early clinical applications.
- Integrate active instruction, simulation and teamwork techniques to enhance applied learning.
- Diversify assessment tools to include written and practical tests, peer assessment and self-assessment.
- Forming a committee for development, scheduling and pilot application with feedback collection and periodic review.

12.

Available	**Classrooms, laboratories and workshops**
Available	**Required textbooks**
Jawetz, Melnick & Adelberg's Medical Microbiology Topley & Wilson's Microbiology and Microbial Infections Medical Microbiology (Murray, Rosenthal & Pfaller) 2. Janeway's Immunobiology (Murphy & Weaver)	**Key references (sources)**
Ophthalmic Technician Procedure Manual – American Academy of Medical Microbiology	**Recommended books and references**
American Academy of Medical Microbiology	**، .....Electronic references, websites**

Ministry of Higher Education and Scientific Research
Northern Technical University
Department of Optometry

Course description

GENERAL PHYSIOLOGY

Prepared by:
Assist. L. Mohammed Rashed Abdul

Northern Technical University/Hawija Technical Institute
Department of Optometry

2025م **1446م**

1. Educational institution

Northern Technical University / Hawija Technical Institute

2. Scientific Department

Optometric Techniques

3. Course Name/Code

General Physiology / TIHA106

4. Available Forms of Attendance

Electronic via Excel

5. Semester/Year

First/First semester

6. Number of Semester Hours (Total)

32

7. Date of preparation of this description

6/6/2025

8. Course Objectives (General Course Objectives)

- Introduce students to the basic concepts of physiology.
- Enable students to understand the vital processes within the body.
- Train students to analyze and interpret different physiological mechanisms.
- Develop students' ability to use physiological data in medical assessment.

9. Course Outcomes and Methods of Teaching, Learning and Assessment

Outcomes	Teaching and learning methods	Assessment methods
a- KNOWLEDGE • Understand the basic principles of physiological functions of organs. • Recognize feedback mechanisms in maintaining homeostasis. • Recognize the integrative relationship between different body systems.	**Structured lectures** • Deliver structured theoretical content using presentations and illustrations. • Clarify key concepts and relate them to clinical or applied examples. **Seminar/Discussion Groups** • Divide students into small groups to discuss specific topics. • Encourage the exchange of ideas and search for information from different sources.	**Written tests (multiple choice/short essay questions)** • Evaluate the student's understanding of key concepts, varying between multiple choice and essay questions. • Example: A question asking for an explanation of how blood pressure is regulated. **Oral Presentation** • Requires the student to give a brief explanation of a particular topic in front of peers. • It measures the student's ability to organize information and present it logically.

M.M. Mohammed
Al-Rawi راشـــــد

		Small Research Projects • Each student is required to prepare a short report on a specific physiological topic. • Measures the ability to research, summarize sources, and deduce correct information.
B. Skills • Measure basic physiological indicators (such as blood pressure and blood pressure). • Analyze results and interpret physiological changes in normal and pathological conditions. • Apply routine methods to assess organ function (e.g., electrocardiogram and respiration).	**Laboratory Practicals** • Training students in the use of measuring devices (e.g., electrocardiogram, blood pressure measurement). • Direct supervision by the instructor to ensure correct procedures are carried out. **Clinical Simulation Exercises** • Using simulated models or computer programs to train students to record and interpret physiological parameters. • It enhances observation and decision-making skills in a safe environment. **Workshops/Skills Workshops** • Short sessions focused on a specific skill (such as spirometry or conducting a physiological examination). • Students are divided into pairs or groups for repeated hands-on practice.	**Practical Exams/OSCE** • The student progresses through stations: One station measures blood pressure, another interprets an ECG, and so on. • Evaluates practical performance and accuracy in applying procedures. **Direct Observation of Procedural Skills - DOPS** • The teacher observes the student performing a standardized procedure (such as measuring blood pressure). • Strong and weak points are recorded and immediate corrective action is taken. **Performance Portfolio** • The student collects evidence (photos, measurement results, short reports) that demonstrates mastery of various physiological skills. • It reflects the student's progress over the course of the course and is evaluated according to a set of specific criteria.
C. Values • Commitment to research and clinical ethics and honesty of practice. • The spirit of cooperation and teamwork in the laboratory and	**Ethics/Values Case Discussion** • Presenting real-life cases in which ethical decisions have to be made (e.g. dealing with an unconscious patient). • Students share their opinions and professional values are clarified. **Role-Playing**	□ **Self-Assessment Questionnaire** • The student fills out a questionnaire that assesses his/her commitment to the values (honesty, cooperation, respect for the patient). • It helps to increase self-awareness and motivate positive change. **Peer Assessment**

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Al-Rawi

clinic environment. • Striving for continuous learning and updating scientific knowledge.	• Students are assigned to play roles (nurse/doctor/patient) in situations that simulate ethical challenges (e.g. patient privacy). • Promotes empathy and professional responsibility. **Mentoring/Role Modeling** • The teacher or a peer mentor participates in demonstrating professional and valuable behavior in front of students (punctuality, respect). • It allows the student to indirectly observe and adopt practical values.	• Students in a group assess each other in terms of adherence to behaviors such as cooperation and respect for others during shared activities. • Promotes group accountability and shows how individual behavior affects the team. **Supervisor Feedback** • The teacher or supervisor takes notes on student behavior during practical exercises or value discussions. • It can be verbal or written, reflecting the student's adherence to professional ethics and values.

10. Course Structure (Theory)

Week	Hours	Required Learning Outcomes	Module name / or topic	Method of instruction	Assessment method
First	2	Explain the concept of physiology and its relationship with other medical specialties. Recognize the methods used in the study of physiology. Understand the integration of the body's vital organs.	Introduction to Physiology	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
second	2	Recognize the components of blood and their different functions. Explain the role of blood in transporting oxygen and nutrients and eliminating waste products. Understand the mechanisms of coagulation and immunity	Blood components and functions	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
Third	2	Identify muscle types and their functions. Explain the mechanism of muscle contraction. Discuss the relationship between the nervous and muscular systems	Muscular apparatus	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
Fourth	2	Define action potential and its characteristics. Explain the mechanism of nerve signal transmission.	Nervous system	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance

		Explain the role of ions in generating action potentials.			
Fifth	2	Identify the components of the heart and its function. Explain the mechanism of blood pumping and the role of cardiac valves	Circulatory system 1	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
Sixth	2	Familiarize yourself with the types of heart valves and their functions	Circulatory system 2	Projectors - Laboratory Devices	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
Seventh	2	Explain the mechanism of respiration and the importance of the diaphragm. Analyze gas exchange in the lungs and tissues.	Respiratory system	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
Eighth	2	Identify the organs of the digestive system and their functions. Explain the different stages of digestion. Explain the role of digestive enzymes and digestive juices.	Digestive organs	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
IX	2	Identify the components of the kidney and their function. Explain the stages of urine formation. Analyze the role of the kidneys in water and salt balance.	Urinary system	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
Tenth	2	Identify the components of the kidney and their function. Explain the stages of urine formation.	Urinary System II	Projectors - Laboratory equipment	Theoretical tests+ Practical tests+ Weekly reports+ Attendance

Course Structure (Practical)

Week	Hours	Required Learning Outcomes	Module name / or topic	Method of instruction	Assessment method
First	2	- Recognize the parts and uses of a compound microscope - Use the microscope correctly	compound microscope	Theoretical lecture + practical training	Practical test, evaluation of practical performance feedback
Second	2	- Recognize the types of blood tests and their objectives - Interpretation of basic test results	Blood tests	Lecture + case discussion + video demonstration	Written test
Third	2	- Distinguishing between venous and arterial blood - Mastering the safe withdrawal of venous blood	Venous blood	Hands-on + video demonstration	Practical test, direct observation
Fourth	2	- Correctly preparing and preparing a blood smear - interpreting the microscopic shape of cells	Blood smear test	Lecture + Practicum	Practical test + analyzing a slide microscopically

M.M. Mohammed

V	2	- Application of hemoglobin estimation methods - understanding the clinical significance of the results	Hemoglobin estimation	Theoretical lecture + practical training	Practical test
VI	2	- Recognize the types of blood groups and the immune system associated with them - application of the cluster test	Blood groups	Interactive lecture + hands-on practice	Practical test + written exam
Seventh	2	- Explain the primary bleeding time measurement methods - Recognize the differences between methods	Bleeding Time Tests I	Lecture + case discussion + video demonstration	Practical test + discussion
VIII	2	- Applying bleeding tests and interpreting the results - comparing the accuracy of different methods	Bleeding time tests2	Practical training + video demonstration	Practical test + case study

11. Course Development Plan

- Revise and update the content to include modern concepts and early clinical applications.
- Incorporating active learning techniques, simulations, and group work to enhance applied learning.
- Diversify assessment tools to include written and practical tests, peer assessment, and self-evaluation.
- Forming a development committee, scheduling, and pilot implementation with feedback and periodic review.

12.

Classrooms, laboratories, and workshops	Available
Required textbooks	Available
Key References (Resources)	Milton H. Ganong's Review of Medical Physiology, 23rd ed: McKindley, 2020. Arthur C. Arthur C. Guyton and John E. Guyton and Hall, Basic Medical Physiology, thirteenth edition, publisher: Saunders, 2016: Saunders, 2016. Rodak's Hematology: Clinical Principles and Applications - Elaine M. Keohane Clinical Hematology: Theory and Procedures - Denise M. Harmening
Recommended books and references	Shteiwi, Shteiwi Al-Abdullah. Physiology. Amman: Dar Al Masirah for Printing and Publishing, first edition 2012. . ISBN: 9789957067984.
Electronic References, Internet Websites, ...	https://www.youtube.com/watch?v=uBGl2BujkPQ

Ministry of Higher Education and Scientific Research
Northern Technical University
Department of Optometry

Course description

PHYSIOLOGY OF EYE

Prepared by:
Assist. L. Mohammed Rashed Abdul

Northern Technical University/Hawija Technical Institute
Department of Optometry

2025م **1446م**

1. Educational institution

Northern Technical University / Hawija Technical Institute

2. Scientific Department

Optometric Techniques

3. Course Name/Code

Ocular Physiology / OPT124

4. Available Forms of Attendance

Electronic via Excel

5. Semester/Year

Second/First

6. Number of class hours (total)

24

7. Date of preparation of this description

8/6/2025

8. Course Objectives (General Course Objectives)

- Understand the basic physiological processes in the eye, including the focusing of light through the cornea and lens and the mechanism of visual adaptation.
- Explain the mechanisms of converting light signals into nerve signals in the retina and their transmission pathway to the visual cortex in the brain.
- Analyze methods of regulating intraocular pressure and aqueous humor flow, and their role in maintaining the integrity of the visual tissues and preventing disorders such as glaucoma.

9. Course Outcomes and Methods of Teaching, Learning and Assessment

Outputs	Teaching and learning methods	Assessment methods
Knowledge - Understand the anatomy of the eye and the functions of its different parts - Understand the pathway of visual signal transmission from the retina to the cerebral cortex - Recognize the mechanisms of intraocular pressure regulation and aqueous humor balance	- Theoretical lectures supported by slide presentations- Guided readings from basic references- Video demonstrations and digital simulations	- Written exam (essay and objective questions) - Quiz via the online platform
Skill - Analyzing and interpreting light response curves - Performing simulated exercises to test eye functions - Using laboratory software to represent and analyze physiological data	- Practical workshops in the laboratory (real or virtual) - Clinical case studies and group discussions - Practical training on measuring devices	- Practical assessment (OSCE) on simulation skills- Analytical reports of case studies- Practical tasks including preparing and explaining graphs
Values Developing a sense of professional responsibility and ethics in dealing	- Working in teams to carry out small projects- Individual and group reflection sessions on performance-	- Peer evaluation of each student's contribution to the team- Written reflective essay on the values

with patients - Enhancing the spirit of cooperation and teamwork - Instilling the principle of continuous learning and self-development	Discussions on ethics in professional practice	acquired- Self-questionnaire for practice ethics and collaboration

Rashed Alrawi

10. Course Structure (Theory)

Week	Hours	Required Learning Outcomes	Module/Topic Name	Method of instruction	Assessment method
First	1	- Identify the layers of the cornea and their functions - explain the mechanism of transparency and protection	Cornea	Projectors - Laboratory devices	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
The second	1	- Classification of superficial and deep wounds - Understanding the stages of tissue healing	Corneal wounds	Projectors - biopsy devices	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
Third	1	- Explain the structure of the lens and biotrek - review elasticity changes with age	Lens	Projectors - testing devices	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
Fourth	1	- Explain the role of the muscles and the lens - relate adaptation to focusing the image on the retina	Visual adaptation	Projectors - Closed-circuit devices	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
Fifth	1	- List the components of the layers of the tear film - explain the function of each layer in moisturizing and protecting	Dacryocytes	Projectors - Laboratory devices	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
Sixth	1	- Describe the gelatinous structure - understand its role in supporting the shape of the eye	Vitreous body	Projectors - testing devices	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
Seventh	1	- Definition of aqueous humor and its source - linking it to the nutrition of the lens and iris	Plasma fluid	Projectors - Laboratory devices	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
Eighth	1	- Explain the balance of production and drainage - correlation between high pressure and glaucoma	Intraocular pressure	Projectors - Laboratory devices	Theoretical tests+ Practical tests+ Weekly reports+ Attendance
IX	1	- Name the six muscles and the function of each - Understand the coordination of movement of the visual factors	External eye muscles	Projectors - Laboratory devices	Theoretical tests+ Practical tests+ Weekly reports+ Attendance

Course Structure (Practical)

Week	Hours	Required Learning Outcomes	Module name / or topic	Method of instruction	Assessment method
First	2	Recognize the chemical and physiological causes of lens transparency in more depth	Maintaining the transparency of the lens	Theory lecture + practical training	Practical test, evaluation of practical performance feedback

Second	2	Sequential stages of corneal wound healing and influencing factors	Stages of corneal wound healing	Lecture + case discussion + video demonstration	Written test
Third	2	- Performing direct and indirect reflection- analyzing the results	Light reflection test	Hands-on + video demonstration	Practical test, direct observation
Fourth	2	Factors affecting visual acuity and accommodation	Adaptation Abnormalities I	Lecture + Practicum	Practical test + microscopic slide analysis
V	2	Factors affecting visual acuity, accommodation and treatment methods	Adaptation Abnormalities II	Theoretical lecture + practical training	Practical test
VI	2	- Implementation of Schirmer and Floresen - Interpretation of tear quantity and quality	Tears tests	Interactive lecture + hands-on practice	Practical test + written exam
Seventh	2	Application of the Goldmann tonometer after anesthesia - comparison of results	Intraocular pressure assessment I	Lecture + case discussion + video demonstration	Practical test + discussion
VIII	2	- Using a tonometer - reading and documenting internal pressure	Assessing Intraocular Pressure II	Hands-on + video demonstration	Practical test + case study

11. Course Development Plan

- Revise and update the content to include modern concepts and early clinical applications.
- Incorporating active learning techniques, simulations, and group work to enhance applied learning.
- Diversify assessment tools to include written and practical tests, peer assessment, and self-evaluation.
- Forming a development committee, scheduling, and pilot implementation with feedback and periodic review.

12.

Classrooms, laboratories, and workshops	Available
Required textbooks	Available
Key References (Sources)	Adler's Physiology of the Eye - Gerard J. Tortora & Bryan Derrickson Clinical Anatomy and Physiology of the Visual System - Lee Ann Remington The Eye: Basic Sciences in Practice - E.P. Thorn & J.F. Khaw
Recommended books and references	The Wills Eye Manual: Office and Emergency Room Diagnosis and Treatment of Eye Disease - Krachmer, Mannis & Holland Clinical Procedures in Primary Eye Care - David A. Elliott & Brendan Cronin Ophthalmic Technician Procedure Manual - American Academy of Ophthalmology
Electronic References, Web Sites, ...	American Academy of Ophthalmology

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



Course Description Medical Physics

2025

1. Educational institution
Northern Technical University / Hawija Technical Institute
2. Scientific Department
Optometric Techniques
3. Course Name / Code:
Medical Physics/ OPT113
4. Description Preparation Date:
1/6/2025
5. Available Attendance Forms:
Electronically via Excel
6. Number of Credit Hours (Total) / Number of Units (Total)
45 hours, 3 hours per week
7. Course administrator's name
Name: Mohammad ali awad Email: azx19996@gmail.com
8. Course Objectives

Course Objectives	1- Able to understand physical optical phenomena and familiar with the basic of light. 2- Identify optical phenomena such as refraction, reflection, polarization, a diffraction.

9. Teaching and Learning Strategies	
Strategy	1- Active learning (through classroom activities and group discussions) 2- Project-based learning (students are assigned projects such as the workings of optical devices) 3- Simulations and demonstrations

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Knowledge and understanding	Occupational safety programs and work quality assurance	ectures Theoretical +Practical Training	Theoretical and practical tests with weekly reports with attendance
2	3	Knowledge and understand	The concept of occupational	Lectures	Theoretical and practical tests with weekly

			safety and rules	Theoretical +Practical Training	reports with attendance
3	3	Knowledge and understanding	The light , nature of the light , light sources , the theories of the light	Lectures Theoretical +Practical Training	Theoretical and practical tests with weekly reports with attendance
4	3	Knowledge and understanding	The electromagnetic spectrum	Lectures Theoretical +Practical Training	Theoretical and practical tests with weekly reports with attendance
5	3	Knowledge and understanding	Velocity of the light , Frequency and energy of the visible light	Lectures Theoretical +Practical Training	Theoretical and practical tests with weekly reports with attendance
6	3	Knowledge and understanding	The reflection , the laws of reflection , reflection at plane and spherical surfaces	Lectures Theoretical +Practical Training	Theoretical and practical tests with weekly reports with attendance
7	3	Knowledge and understanding	Propagation and Reflection of Light	Lectures Theoretical +Practical Training	Theoretical and practical tests with weekly reports with attendance
8	3	Knowledge and understanding	Mirrors , types of mirrors , properties of the image formed by plane mirrors , properties of image formed by plane mirror	Lectures Theoretical +Practical Training	Theoretical and practical tests with weekly reports with attendance
9	3	Knowledge and understanding	Spherical mirrors , center of curvature , axis , vertices , focal length	Lectures Theoretical +Practical Training	Theoretical and practical tests with weekly reports with attendance
10	3	Knowledge and understanding	Concave mirror , properties of image formed by concave mirror	Lectures Theoretical +Practical Training	Theoretical and practical tests with weekly reports with attendance
11	3	Knowledge and understanding	Convex mirror , properties of image formed by convex mirror	Lectures Theoretical +Practical Training	Theoretical and practical tests with weekly reports with attendance

12	3	Knowledge and understanding	Real and virtual ima; formed by reflected surfaces	Lectures Theoretical +Practical Training	Theoretical and practical tests with weekly reports with attendance
13	3	Knowledge and understanding	Refraction , the laws of refraction , refraction by plane surfaces	Lectures Theoretical +Practical Training	Theoretical and practical tests with weekly reports with attendance
14	3	Knowledge and understanding	The refractive index , relative refractive index	Lectures Theoretical +Practical Training	Theoretical and practical tests with weekly reports with attendance
15	3	Knowledge and understanding	Factors affecting the refractive index	Lectures Theoretical +Practical Training	Theoretical and practical tests with weekly reports with attendance

11.Course Evaluation

1. Preparing class assignments
2. Preparing reports on practical experiments
3. Conducting daily and semester exams
4. Conducting final exams

12.Learning and Teaching Resources

Required textbooks	Available
Main references (sources)	Ayten noori- Sameer muhamad alqasab
Recommended books and references	**B**ook project Optical physics Physics of Light and Optics
Electronic References, Websites	**https://www.optica.org** **https://optics.byu.edu** **https://www.spie.org**

Ministry of Higher Education and Scientific Research
Northern Technical University
Department of Optometry

Course Description

Medical terminology

Prepared by:
Assist. L. Rania Mohammed Abdulla

Northern Technical University/Hawija Technical Institute
Department of Optometry

1446 CE **2025**

1. Educational Institution
Northern Technical University / Hawija Technical Institute
2. Scientific Department
Department of Optometry
3. Headquarters' Name/Code

M.M.Rania Mohammed Abdullah

2025-2024

Medical terminology

4. Available Attendance Forms

Electronic by Excel

5. Semester / Year

First/Second

6 Number of academic hours (total) .

24

7 The history of preparation of this description .

2025/6/8

8. Course Objectives (General Objectives of the Course)

Enable the student to understand and use the basic medical terminology related to the different specialties of medicine in a correct and sound manner.

Enhance the student's ability to analyze medical terminology by knowing the linguistic roots, suffixes and prefixes used in their composition.

9. Course Outcomes and Methods of Teaching, Learning and Assessment

Evaluation methods	Teaching and learning methods	Output
- Written exam (essay and objective questions) - Quiz via the online platform	-Theoretical lectures supported by slide presentations- Guided readings from basic references - presentations Video demonstration and digital simulation	The student acquires the ability to understand and analyze medical terms by knowing their linguistic roots. Learn about basic medical vocabulary associated with body systems and functions. Distinguish between terms that are similar in meaning or pronunciation within a medical context. It has a linguistic basis that helps him understand other medical courses.
- Practical assessment (OSCE) on simulation skills - Analytical reports of case studies - Practical tasks including the preparation and explanation of graphs	-Practical workshops in the laboratory (real or virtual) - clinical case studies and group discussions	**skill** The student will properly use medical terminology in writing and speaking within the academic and clinical context.

		Analyzes and synthesizes new terminology by understanding their linguistic components. It translates medical terms from English to Arabic and vice versa accurately. Apply terminology in describing medical conditions and reports professionally and clearly.
-Peer assessment of each student's contribution to the team- Written reflective essay on learned values- Self-questionnaire on the ethics of practice and collaboration	- Making group teams to implement small projects - individual and group reflection sessions on performance - discussions on the ethics of professional practice	**Values** The student is committed to accuracy and scientific honesty when using medical terminology. Demonstrates respect for medical specialties and the role of language in promoting professional communication. Be responsible in using terminology to serve patient safety and understanding of the medical team.

10. Theoretical Course Structure

Method of vomiting m	The way of education	Unit name/topic p	Required Learning Outcomes	Hours	Week on
Theoretical tests + practical tests + weekly reports + attendance	– Projectors Laboratory Devices	Structural analysis	Structural analysis Basic Elements of a Medical Word	2	**The first**
Theoretical tests + practical tests + weekly reports + attendance	– Projectors Laboratory Devices	Suffixes	-Structural analysis Basic Elements of a Medical Word	2	**Second**

Theoretical tests + practical tests + weekly reports + attendance	– Projectors Laboratory Devices	Prefixes	Structural analysis Basic Elements of a Medical Word	2	Third
Theoretical tests + practical tests + weekly reports + attendance	– Projectors Laboratory Devices	Roots	Roots, Word terminals , Conditions	2	Fourth
Theoretical tests + practical tests + weekly reports + attendance	– Projectors Laboratory Devices	Terms concerning Integumentary System	Terms concerning Integumentary System	2	V
Theoretical tests + practical tests + weekly reports + attendance	– Projectors Laboratory Devices	Terms concerning Digestive System	Terms concerning Digestive System	2	Sixth
Theoretical tests + practical tests + weekly reports + attendance	– Projectors Laboratory Devices	Respiratory System	terms concerning Respiratory System	2	Seventh
Theoretical tests + practical tests + weekly reports + attendance	– Projectors Laboratory Devices	the skin & its appendages	Terms concerning the skin & its appendages	2	Eighth

Theoretical tests + practical tests + weekly reports + attendance	– Projectors Laboratory Devices	Cardiovascular System	eTerms concerning Cardiovascular System	2	**Ninth**

11. Course Development Plan
• Review and update content to include modern concepts and early clinical applications. • Integrate active instruction, simulation and teamwork techniques to enhance applied learning. • Diversify assessment tools to include written and practical tests, peer assessment and self-assessment. • Forming a committee for development, scheduling and pilot application with feedback collection and periodic review.

12.	
Available	**Classrooms, laboratories and workshops**
Available	**Required textbooks**

1. Chabner, D-E. (2022). The Language of Medicine (12th ed.). 2. Turley, S. M. (2020). Medical Language: Immerse Yourself (6th ed.). Pearson. 3. Battershill, C. (2021). Medical Terminology: A Short Course (9th ed.). Elsevier.)	**Key references (sources)**
Ophthalmic Technician Procedure Manual – American Academy of Medical Terminology	**Recommended books and references**
. Quizlet – Medical Terminology Sets	**‘ .....Electronic references, websites**