Course Specification
(Postgraduate)

Course Title:	Molecular basis of disease II
Course Code:	373523-4
Program:	Master of Clinical Laboratory Sciences in Molecular Diagnostics
Department:	Clinical Laboratory Sciences
College:	Applied medical Sciences
Institution:	Taif University
Version:	No 3
Last Revision Date:	18/01/2024

Table of Contents

A. General information about the course:

1. Course Identification:

1. Credit hours: (4 hrs.)				
2. Course type				
A.	☐ University	☐College	☒ Department	☒ Track
B.	☒ Required		☐Elective	
3. Level/year at which this course is offered: (4th level/2nd year)				
4. Course general Description:				
1- This course focus on the molecular biology of immunologic and metabolic disorders. 2- Understanding the fundamental of molecular basis of immunologic and metabolic disorders 3- Underlying the molecular techniques in the diagnosis of immunologic and metabolic disorders.				
5. Pre-requirements for this course (if any):				
373500-6 and 373501-5				
6. Pre-requirements for this course (if any):				
None				
7. Course Main Objective(s):				
Students should be able to: • Develop fundamental knowledge of the molecular basis of immunologic and metabolic disorders. • The course emphasizes the importance and relevance of a wide range of subject areas for molecular and the understanding and scientific investigation of immunologic and metabolic disorders.				

2. Teaching Mode:

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	4 hrs./week	100
2	E-learning	N/A	0
3	Hybrid • Traditional classroom • E-learning	N/A	0
4	Distance learning	N/A	0

3. Contact Hours: (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	60
2.	**Laboratory/Studio**	N/A

3.	**Field**	N/A
4.	**Tutorial**	N/A
5.	**Others (specify)……**	N/A
	Total	60

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods:

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Recognize the role of molecular diagnosis in the investigation of human genetic diseases.	K2	Lectures, Group discussion	Assignments, written exams
1.2	Understand the ethical issues arising from some of the current developments in the molecular diagnosis.	K1	Lectures, Group discussion	Assignments, written exams
2.0	Skills			
2.1	Integrate contents of different molecular mechanisms in effective and applicable perspective	S1	Group project	Presentation
3.0	Values, autonomy, and responsibility			
3.1	Initiate critical reasoning within the context of basic and clinical disease biology	**V1**	Group project	Presentation

C. Course Content:

No	List of Topics	Contact Hours
1.	Molecular basis of carbohydrate metabolic diseases and its diagnosis	4
2.	Molecular basis of amino acids metabolic disorders and its diagnosis	4
3.	Molecular basis of Lipid metabolic disorders and its diagnosis	4
4.	Lysosomal disorders and its molecular diagnosis	4
5.	Mitochondrial disorders and its molecular diagnosis	4
6.	Molecular basis of matrix proteins disorders	4
7.	Molecular basis of hereditary bone and muscle diseases	4
8.	Intracellular signaling, I	4

9.	Intracellular signaling II	4
10.	Molecular basis of autoimmune diseases	4
11.	Molecular mechanism of hypersensitivity reaction	4
12.	Molecular basis of immune deficiency disorders	4
13.	Molecular mechanism of tuberculosis and leprosy	4
14.	Molecular mechanism of viral blood borne diseases	4
15.	Molecular basis of malaria and bilharziasis.	4
Total		**60**

D. Students Assessment Activities:

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignment	Throughout	30%
2.	Group presentation	18th	30%
3.	Written exam	18th	40%
	Total		100%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities:

1. References and Learning Resources:

Essential References	1. Inherited metabolic diseases. Aguide to 100 conditions. Steve Hannigan. 2. Clinical biochemistry and metabolic medicine. Martin A Crook. Eighth edition. 3. Cellular and molecular immunology. Abul K Abbas, Andrew H Lichtman and Shiv Pillai.sexth edition
Supportive References	N/A
Electronic Materials	International Journal of Medical Science and Innovative Research Saudi Digital Library
Other Learning Materials	journal, Scientific Magazines and Articles.

2. Educational and Research Facilities and Equipment Required:

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Traditional classrooms
Technology equipment (Projector, smart board, software)	Data show, Blackboard and A/V, interactive presentations softwares e.g. https://www.mentimeter.com/
Other equipment (Depending on the nature of the specialty)	N/A

F. Assessment of Course Quality:

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Peer evaluators	Direct: Peer evaluation
Effectiveness of student's assessment	Students	Indirect: Questionnaire Survey at the end of each semester.
Quality of learning resources	Program Leaders /Teaching staff/ Development and accreditation committee	Indirect: Review by Department Committee
The extent to which CLOs have been achieved	Program Leaders /Teaching staff/ Development and accreditation committee	Indirect: Review course reports and program annual reports by Department Committee
Other (Filed experience)	Filed supervisors/ Project supervisors/Clinical Laboratory specialist	Indirect: Questionnaire Survey at the end of each semester.

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

G. Specification Approval Data:

COUNCIL /COMMITTEE	Department council
REFERENCE NO.	06
DATE	**21/01/2024**