



## **Programme Specification**

### **A- Basic Information**

- 1- Programme Title: MD Clinical and Chemical Pathology
- 2- Programme Type:    Single  Double  Multiple
- 3- Department (s): Clinical and Chemical pathology, Internal medicine and Community Medicine and public Health
- 4- Coordinator: Head of Clinical and Chemical Pathology Department
- 5- External Evaluator(s):  
Professor Ekbal Abou Hashem Prof. of Clinical Pathology – Mansoura University  
Professor Hassan Abd Elghafar Prof. of Clinical Pathology – Mansoura University  
Professor: Nadia Abd Elwahab Prof. of Clinical Pathology – Assuit University
- 6- Last date of programme specifications review approval: Feb 2018

### **B- Professional Information**

#### **1- Programme Aims**

The overall goals of the program are to develop a pathologist who is able to

1. Communicate as a medical consultant to other clinicians and to patients, as well as being capable of optimally directing the management of the clinical laboratory enterprise.
2. Assure the quality, clinical appropriateness, and usefulness of the data produced by clinical laboratory.
3. Understand the methods of diagnostic test development, test utilization in the context of both generally applicable as well as patient-specific clinical settings, and assay interpretation in the acute and chronic clinical management of patients. These activities include the computer system role in the development and implementation of integrated medical informatics that optimize patient care.
4. Understand methods and implementation of clinical laboratory-based therapeutics, including minimally manipulated and engineered cellular therapy.
5. Construct appropriate diagnostic and therapeutic management strategies for patients with benign and malignant diseases.
6. Recognize the updates of molecular and genetic principles and their applications in different diseases.



7. Understand the role of research, in its broadest definition, in clinical decision-making, test development, knowledge generation, and continuing education.
8. Master the performance of laboratory skills for diagnosis of diseases.
9. Apply analytical methodology and critical appraisal of knowledge of internal medicine and related laboratory investigations.
10. Communicate effectively with healthcare team in different situations including emergencies and make decisions based on available information.
11. Identify and adopt an appropriate philosophical position to a particular research question.
12. Use relevant quantitative and qualitative methodologies when writing-up the thesis and projects.
13. Appreciate and apply various analytical techniques during the research process.

## **2- Intended Learning Outcomes (ILOs)**

By the end of the program the students should be able to

### **a- Knowledge and Understanding:**

- a1 Demonstrate sufficient knowledge to determine clinically optimal yet cost-effective testing and laboratory-based strategies, including issues of turn-around time, test menu construction, and in-house vs referral diagnostic testing.
- a2 Recognize the unique aspects of laboratory medicine practice as modified by patient age and other patient population characteristics, especially aspects of pregnancy, pediatric and geriatric practice.
- a3 Identify general and test-specific standards for method development and evaluation, such as those promulgated by the Clinical Laboratory Standards Institute (CLSI; formerly NCCLS), CAP, and similar organizations.
- a4 Identify proficiency programs, such as those provided by CAP and similar organizations
- a5 Capable of setting internal and external quality control programs.
- a6 Recognize the various levels of evidence in medicine and their translation into evidence-based practice.
- a7 Recognize knowledge of related internal medicine conditions.
- a8 Acquire a sound knowledge of the natural history and pathophysiology of related internal medicine conditions and the basic scientific principles and evidence base underpinning the current practice of clinical laboratory medicine.
- a9 Discuss different technologies of automated laboratory instruments and point of care testing and their applications.
- a10 Critically appraise research designs relevant to healthcare.



- a11 Effectively code, categorize and analyze data generated through the application of one methodology.
- a12 Discuss the structure and function of DNA and RNA and the cellular processes of DNA replication, DNA repair, gene regulation, transcription and translation
- a13 Adhere to ethical principles in the practice of medicine

**b- Intellectual skills**

- b1. Critically assess the scientific literature.
- b2. Use all relevant information resources to acquire and evaluate evidence-based information. Demonstrate proficiency in evaluating and presenting findings from appropriate peer-reviewed journals.
- b3. Use mathematics and statistics as appropriate to laboratory testing; understand and implement quality control (QC) and quality assurance procedures as required.
- b4. Use multiple sources, including information technology, to optimize lifelong learning and support patient care decisions.
- b5. Develop personally effective strategies for the identification and remediation of gaps in medical knowledge needed for effective practice.
- b6. Use laboratory problems and clinical inquiries to identify process improvements to increase patient safety.
- b7. Use proficiency programs to improve laboratory practices.
- b8. Demonstrate insight into research and scientific method through:
  - critical appreciation of methodology;
  - formulating research questions that are pertinent to medicine;
  - choice and application of appropriate quantitative and qualitative methodologies;
  - collecting, analyzing and interpreting data;
  - Evaluate the relationship between evidence, audit and observed variation in clinical practice.
  - Write scientific paper related to his MD thesis
- b9. Exhibit creativity/resourcefulness in their professional learning, scientific endeavor and clinical practice.
- b10. Assess risk in relation to their own work and profession
- b11. Regularly improve their practical performance using sound up to date knowledge
- b12. Integrate patients' history, examination and initial laboratory tests to select the appropriate specialized laboratory tests for diagnosis and follow up of diseases
- b13. Implement the appropriate research methodology
- b14. Write scientific paper.



**c- Professional and Practical Skills**

- c1. Write an articulate, legible, and comprehensive yet concise consultation notes. Provide a clear and informative report, including a precise diagnosis whenever possible, a differential diagnosis when appropriate, and recommended follow-up or additional studies as appropriate.
- c2. Demonstrate compassion: be understanding and respectful of patients, their families, and the staff and physicians caring for them.
- c3. Interact with others without discriminating on the basis of religious, ethnic, sexual, or educational differences.
- c4. Demonstrate positive work habits, including punctuality, dependability, and professional appearance.
- c5. Demonstrate a responsiveness to the needs of patients and society that supersedes self-interest.
- c6. Demonstrate principles of confidentiality with all information transmitted both during and outside of a patient encounter.
- c7. Perform all laboratory and molecular tests required in the course specifications
- c8. Interpret the results of all laboratory tests mentioned in the course specification in relation to the clinical presentation of patients
- c9. Demonstrate skills in obtaining informed consent, including effective communication to patients about procedures, alternative approaches, and possible complications of laboratory-based patient care diagnostic and therapeutic activities, such as those related to transfusion medicine.
- c10. Educate colleagues and other healthcare professionals:
  - Help other residents obtain proficiency in laboratory medicine
  - Work well with medical technologists and to present laboratory medicine concepts to them effectively in continuing education settings and in the day-to-day laboratory environment
  - Understand the principles one must follow when educating other practicing clinical pathologists through publications or seminars on new testing strategies, research discoveries, and other cutting-edge professional knowledge.

**d- General and Transferable Skills**

- d1. Demonstrate the ability to provide direct communication to the referring physician or appropriate clinical personnel when interpretation of a laboratory assay reveals an urgent, critical, or unexpected finding and document this communication in an appropriate fashion.



- d2. Choose effective modes of communication (listening, nonverbal, explanatory, questioning) and mechanisms of communication (face-to-face, telephone, e-mail, written), as appropriate.
- d3. Work effectively in a team
- d4. Present information clearly in electronic forms
- d5. Demonstrate managerial skills
- d6. Demonstrate presentation skills
- d7. Perform Evaluation for subordinates, peers & program)
- d8. Communicate ideas and arguments effectively;
- d9. Manage time and resources and set priorities;
- d10. Apply the principles of scientific research
- d11. work within a changing environment;
- d12. Teach effectively and act as a mentor to others
- d13. Work effectively within a team.
- d14. Use computers efficiently

### 3- Academic Standards

#### **External References for Standards (Benchmarks)**

Academy of Clinical Laboratory Physicians and Scientists [BR Smith et al. Curriculum Content and Evaluation of Resident Competency in Clinical Pathology (Laboratory Medicine)

Generic standards of postgraduate programmes prepared by National Authority of Quality Assurance and Accreditation of Education (NAQAAE).

**4. - Programme duration:** 3 academic years

### 5- Programme Courses

#### **5.1- Level/Year of Programme: 1<sup>st</sup> part Doctorate degree**

Code No.	Course Title	No. of hours /week			Programme ILOs Covered (By No.)
		Lect.	Clinical	Tuto	
CPCP51	Internal medicine				a6, a7, a8, b1, b2, b4, b5, b12, c1-c6, d1, d2, d3
CPCP52	Molecular Biology	5	4		a12, c7
BR	Statistics and advanced research methodology				a10, a 11, a13, b8, b13, b14
E	Elective				

#### **5.2 Level/Year of Programme: 2<sup>nd</sup> part Doctorate degree**



Code No.	Course Title	No. of hours /week			Programme ILOs Covered (By No.)
		Lect.	Lab.	Tuto	
CPCP53	Hematology and Transfusion Medicine				
	Clinical Chemistry and Molecular Biology				
	Clinical Immunology and Applied microbiology				

**1- One of the following**

Code No.	Course Title	No. of hours /week			MD Programme ILOs Covered (By No.)
		Lect.	Lab.	Tuto	
CPCP53	Clinical Chemistry and Molecular Biology	2	2	1	a1,a2,a3,a4,a5,a9, b, c, d
CPCP53	Hematology and Transfusion Medicine	2	2	1	a1,a2,a4,a5, b, c, d
CPCP53	Clinical Immunology and Applied microbiology	2	2	1	a1,a2,a4,a5, b, c, d

**2- Two of the following**

Code No.	Course Title	No. of hours /week			MD Programme ILOs Covered (By No.)
		Lect.	Lab.	Tuto	
CPCP02	Hematology	2	2	1/2w	a1,a2,a4,a5, b,c,d
CPCP02	Clinical chemistry	2	2	1/2w	a1,a2,a3,a4,a5,b,c, d
CPCP02	Applied Immunology and microbiology	2	2	1/2w	a1,a2,a4,a5,b,c,d

**5.3 Thesis:** A faculty senior & junior supervisor from the staff members are nominated by the department council to prepare a proposal of the thesis protocol after the selection of a subject that is complementary to the research plans of the department. Data collection, methodologies, study question, time table, ethical considerations and budget are formulated by the candidate under guidance of his supervisors into a research project. The research protocol is then peer reviewed by two different staff members nominated by the Head of the department who share their ideas and comments with the supervisors to reach to the final form. The research protocol is discussed then openly in one of the department councils to be approved and diverted to the Faculty research and research ethics committees where it is subjected to a critical appraisal to meet the research and ethical basic standards set by the committees. The final approvals of the research protocol are then issued by the committee of post graduate studies, the Faculty and University Council to be registered.



**6- Programme Admission Requirements**

MSc of Clinical pathology with minimum good grade (65%)

**7- Regulations for Progression and Programme Completion**

**At the end of 1<sup>st</sup> academic year:**

Pass 60% of the total marks for examinations in the internal medicine, statistics, electives and molecular biology courses.

**2nd academic year:**

a) Start creative MD thesis in of clinical and Chemical Pathology: fulfillment of the supervisors reports every 6 months.

**3rd academic year:**

a) Acceptance of the MD thesis from judgment committee nominated by department council.

b) Passing level 60% of total marks of the sum of written exams

c) Passing level 60% of the sum of practical and oral exams

- Fulfillment of the log book ( $\geq 75\%$  attendance of all activities)

Exam	Marks	Passing marks
Paper 1 (specialty)	180	324
Paper 2 (specialty)	180	
Paper 3 (non-specialized)	180	
Practical Exam	540	432
Oral Exam	180	
Portfolio	540	324

Pass mark of sum of practical and oral exams 432

**Thesis/Assay: 50 credit points**

Passing discussion and approval by a committee of external and internal examiners is required for MD degree

**8- Evaluation of Programme Intended Learning Outcomes**

Evaluator	Tool
<b>1- Students</b>	<b>Questionnaires</b>
<b>3- Stakeholders (Employers)</b> Teaching staff. Technicians. Regional medical institutes Other Governmental faculties	<b>Interviews</b>
<b>4-External Evaluator(s) (External Examiner(s))</b>	<b>Attending exam. (using checklist and/or rating scale)</b>

**9-References:**

**a- Textbooks:**



Clinical Chemistry: Principles, procedures, correlations. Last Edition  
Postgraduate haematology / edited by a. Victor hoffbrand, douglas r. Higgs,  
david m. Keeling, atul b. Mehta, last edition.

Wintrobe's Clinical Hematology

Williams Hematology

Modern blood banking & transfusion practices, Denise Harmening.6th ed.

Rossi's principles of transfusion medicine, last edition.

Core Clinical Cases in Medicine and Medical Specialties, Steve Bain,  
Clinical hematology Atlas, Rodak

Immunology & serology in laboratory medicine, Mary L. Turgeon

Wallach' s Interpretation of Diagnostic Tests, last edition

Essentials of Clinical Immunology, Helen Chapel, last edition

Clinical Immunology Principles and Practice, last edition

Medical microbiology, Patrick R. Murray, Ken S. Rosenthal, Michael A.  
Pfaller.

**b- Suggested materials:**

-Self learning in high education library, digital library.

-Browsing web sites of Clinical pathology

Medical journals: Am J Clinical pathology, Br J Clinical pathology

E. learning and E. BOOKS

Periodicals, Web Sites.

**Attendance of** Grand rounds, Conference attendance, Workshops, Thesis  
discussion, Seminars

**10- Methods used for improving the programme:**

Peer teaching observations and feedback to the programme management  
team and the coordinator (written reports at the end of the courses).

Faculty external evaluators.

Candidates' evaluation of teaching (Questionnaires).

**11-Regulations of assessment by-laws of the MD degree postgraduate of  
FOMSCU:**

1- Attendance of at least 75% of the teaching courses.

2- Log book fulfilled and approved by the head of the department.

Annex 1

**Attach Course Specifications**

**Head of the Department  
Prof. Ola Leheta**

**Date:**