PROGRAMME SPECIFICATION

Hematology MD Program-HEMA 600

Faculty of Medicine- Mansoura University

(A) Administrative information

(1) Programme Title & Code	Postgraduate Doctorate Degree of Clinical Hematology/HEMA 600
(2) Final award/degree	MD.
(3) Department (s)	Internal Medicine Department
(4) Coordinator(s)	Dr. Mona Taalab
(5) External evaluator (s)	Prof.Dr. Ashraf Elghandour Professor of Medical Hematology, University of Alexandria
(6) Date of approval by the Department`s council	26/04/2016
(7) Date of last approval of programme specification by Faculty council	9\8\2016

(B) Professional information

(1) Programme Aims:

Within the philosophy of M.D., we aim to foster the development of personal communication skills with much emphasis on leadership & decision making skills as well as informational technology orientation. The degree is designed to prepare the candidate for Systems-based Practice where they must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care (www.acgme.org) / (acgme competencies).

The broad aims of the Programme are as follows:

1- To give health care professionals an in-depth knowledge of commonly and rarely encountered hematological disorders and hemoglobinopathies.
2- To prepare physicians as senior practitioners, educators, researchers, and administrators capable of practicing clinical hematology in academic and clinical settings. The curriculum advances students' knowledge of the basic principles of research, including how research is conducted, evaluated, explained to patients, and applied to patient care.
3- Construction of appropriate, optimal management strategies (both diagnostic and therapeutic) for patients with benign and malignant hematological conditions and hemoglobinopathies.
4- Providing opportunities to gain knowledge, clinical experience and ethical attitude in practicing bone marrow and stem cell transplantation.
5- To shed the light on the recent molecular and genetic principles, their possible application in clinical hematology field and to relate the mechanistic science to new drug discovery.

(2) Intended Learning Outcomes (ILOs):

On successful completion of the programme, the candidate will be able to:

A- Knowledge and Understanding:

A1: To identify nature and structure of the bone marrow, the hematopoietic microenvironment and the lymphoid tissues.

A2: To grasp the spectrum of clinical symptomatology related to different hematological disorders.

A3: To recognize the clinical spectrum of common hematological disorders with multisystem reflection.

A4: To develop the concept of emergency management of acute hematological disorders.

A5: To Make a proper updates in diagnosis of common benign and malignant hematological disorders and their acute emergencies.

A6: To demonstrate competence in the prevention, evaluation, and recent management of:

A6a: acquired and congenital disorders of red cells, white cells, platelets and stem cells;

A6b: hematopoietic & lymphopoietic malignancies, including disorders of plasma cells;

A6c: congenital and acquired disorders of hemostasis and thrombosis, including the use of antithrombotic therapy;

A7: To identify the principles of blood product transfusion, including the evaluation of antibodies, blood compatibility, and the indications for and complications of blood component therapy and apheresis procedures.

A8: To identify effects of systemic disorders and drugs on the blood, blood forming organs, and lymphatic tissues.

A9: To recognize chemotherapeutic drugs, biologic products, and growth factors and their mechanisms of action; pharmacokinetics, clinical indications, and their limitations, including their effects, toxicity, and interactions.

A10: To identify multiagent chemotherapeutic protocols and combined modality therapy of blood diseases.

A11: To identify the principles and application of radiation medicine to hematopoietic and lymphopoietic malignancies.

A12: To state the management of the neutropenic and the immunocompromised patient.

A13: To state recent updates in treatment of patients with disorders of hemostasis and the biochemistry and pharmacology of coagulation factor replacement therapy.

A14: To outline indications and application of imaging techniques in patients with blood disorders.

A15: To comprehend advances in pain management in patients with blood disorders.

A16: To recognize rehabilitation and psychosocial aspects of clinical management of patients with hematologic disorders.

A17: To illustrate the palliative care, including hospital and home care.

A18: To identify and manage human immunodeficiency virus-related malignancies. **A19:** To comprehend thoroughly care and management of geriatric patients with hematologic disorders. **A20:** To identify new guidelines in indications, and complications of autologous and allogeneic bone marrow or peripheral blood stem cell transplantation and peripheral stem cell harvests, including the recent management of post-transplant complications. **A21:** To identify concepts of supportive care, including hematologic, infectious disease, and nutrition. **A22:** To identify basics and advances in molecular and pathophysiologic mechanisms, diagnosis, and therapy of diseases of the blood, including anemias, diseases of white blood cells and stem cells, and disorders of hemostasis and thrombosis. **A23:** To explain etiology, epidemiology, natural history, diagnosis, pathology, staging, and management of neoplastic diseases of the blood, blood-forming organs, and lymphatic tissues. **A24:** To identify principles and area under research in molecular genetics, the nature of oncogenes and their products, and cytogenetic. **A25:** To outline clinical epidemiology and medical statistics, clinical study and experimental protocol design, data collection, and analysis. **A26:** To identify immune markers, immunophenotyping, flow cytometry, cytochemical studies, and cytogenetic and DNA analysis of neoplastic disorders. **A27:** To identify basics and application of Gene therapy in management of hematological disorders. **A28:** To classify hemoglobinopathies. **A29:** To explain molecular and genetic basis of hemoglobinopathies. **A30:** To identify mode of inheritance, genetic background and polymorphisms frequently encountered in different hematological diseases. **A31:** To illustrate different types of hemoglobinopathies including (Hb S, C, D and E). **A32:** To explain the types of stem cell transplantation, complications and supportive care. **A33:** To identify steps of immune reconstitution. **A34:** To identify GVHD (acute and chronic), and its management. **A35:** To explain indications of stem cell transplantation.

2- Intellectual skills:

B1: To demonstrate the basic principles of research, including how such research is conducted, evaluated, explained to patients, and applied to patient care.

B2: To construct meaningful, supervised research experience with appropriate protected time either in blocks or concurrent with clinical rotations while maintaining the essential clinical experience.

B3: To correlate clinical information with laboratory, cytology, histology, and immunodiagnostic imaging techniques to diagnose medical and hematological disorders.

B4: To interpret the results of blood smears, bone marrow aspiration, and biopsy to diagnose medical and hematological disorders. **B5:** To interpret results of complete blood count, including platelets and white cell differential to approach patients with blood disorders.

B6: To integrate etiology, epidemiology, natural history, diagnosis, pathology, staging and management of neoplastic diseases of the blood, blood forming organs and lymphatic tissues.

B7: To integrate etiology, epidemiology, natural history, diagnosis and treatment of hemoglobinopathies

B8: To differenate between different types of complications of stem cell transplantation.

B9: To differentiate between indications of allogeneic and auto SCT

3- Professional/practical skills

C1: To apply efficiently the use of chemotherapeutic agents and biological products through all therapeutic routes.

C2: To demonstrate competence in the performance and/or (where applicable) interpretation of the serial measurement of tumor masses.

C3: To demonstrate competence in the performance and/or (where applicable) interpretation of assessment of tumor imaging by computed tomography, magnetic resonance, PET scanning and nuclear imaging techniques;

C4: To demonstrate competence in the performance and/or (where applicable) interpretation of complete blood count, including platelets and white cell differential, by means of automated or manual techniques, with appropriate quality control;

C5: To demonstrate competence in the performance and/or (where applicable) interpretation of bone marrow aspiration and biopsy, preparation, staining, and interpretation of blood smears, bone marrow aspirates, and touch preparations, as well as interpretation of bone marrow biopsies.

C6: To apply the following:

C6a: apheresis procedures

C6b: performance and interpretation of partial thromboplastin time, prothrombin time, platelet aggregation, and bleeding time, as well as other standard coagulation assays;

C6c: blood banking and current blood bank practice;

C6d: clinical experience in bone marrow or peripheral stem cell harvest for transplantation;

C6e: formal instruction and clinical experience in allogeneic and autologous bone marrow or peripheral blood stem cell transplantation, and in the nature and management of post-transplant complications.

C7: To apply indications, contraindications, limitations, complications, techniques, and interpretation of results of those diagnostic and therapeutic procedures integral to the discipline.

C7a: to educate patients about the rationale, technique, and complications of procedures and in obtaining procedure-specific informed consent.

C8: To manage and take care of indwelling venous access catheters

4- Communication & Transferable skills:

D1: To develop personal attitudes, and coping skills in care for critically ill patients.

D2: To participate in a multidisciplinary case management conference or discussion.

D3: To demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.

D4: To work effectively in various health care delivery settings and systems relevant to their clinical specialty and to coordinate patient care within the health care system relevant to their clinical specialty.

D5: To incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate.

D6: To advocate for quality patient care and optimal patient care systems.

D7: To work in inter-professional teams to enhance patient safety and improve patient care quality.

D8: To participate in identifying system errors and implementing potential systems solutions.

D9: To demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals.

D9a: To communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds;

D9b: To communicate effectively with physicians, other health professionals, and health related agencies;

D9c: To work effectively as a member or leader of a health care team or other professional group;

D9d: To act in a consultative role to other physicians and health professionals; and,

D9e: To maintain comprehensive, timely, and legible medical records, if applicable.

D10: To demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Candidates are expected to demonstrate:

D10a: compassion, integrity, and respect for others;

D10b: responsiveness to patient needs that supersedes self-interest;

D10c: respect for patient privacy and autonomy;

D10d: accountability to patients, society and the profession; and,

D10e: sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.

(3) Academic standards:

Academic standards for the programme is NARS issued by the National Authority for Quality Assurance & Accreditation in Education. External reference points/Benchmarks is selected to confirm the appropriateness of the objectives, ILOs and structure of assessment of the programme:
Accreditation Council for Graduate Medical Education (acgme), www.acgme.org

Comparison of the ILOs of the MD program specification to the NARS and selected external reference/ benchmark:

1- All programme aims and contents of the Benchmark are formulated according to the current programme without mentioning the six competencies.

2- The current programme is differ from that described in the acgme in the context of resources and evaluation methods *Appendix I.*

(4) Curriculum structure and contents:

4. a- Duration of the programme: 6 semesters

4. b- programme structure:

- The programme consists of six semesters distributed into *two parts*, the first part composed of one semester that implies four courses; Laboratory diagnosis in hematology, Transfusion Medicine, Radiodiagnosis technology in hematology, and Molecular Biology in Hematology. The second semester includes proposal writing for thesis submission. The second part composed of four semesters with two compulsory and three elective courses; Internal Medicine and Hematology, stem cell transplantation, myelodysplastic syndrome and hemoglobinopathies respectively.
- Candidates should fulfill a total of 60 credit hours.

• 4.b.1: Number of credit hours (minimum):

First part: 5 credit hours. Second part: 25 credit hours (theoretical) + Practical activities recorded in the log book: 15 credit hours. Thesis: 15 credit hours

توزيع الساعات المعتمدة الجزء ألآول-دكتوراة أمراض الدم

Course Title	Course Code	Theoretical Lectures and seminars	Total	Total teaching hours	Programme ILOs
Laboratory diagnosis in Hematology	HEM 630 LD	2 credit hours	2	2x15=30	A1,5,7,8,26/ B3,4,5
Transfusion Medicine	HEM 630 TM	1 credit hour	1	1x15=15	A7/ B3, 5
Radiodiagnosis Technology in Hematology	HEM 617 RT	1 credit hour	1	1x15=15	A11
Molecular Biology in Hematology	HEM 630 MB	1 credit hour	1	1x15=15	A22,24,26,27,29,30
		5 credit hours			

Advanced studies in the medical field:

a- Scientific research methodology

b- Medical statistics

c- Use of computer in the medical sciences

توزيع الساعات المعتمدة الجزء الثاني-دكتوراة أمراض الدم

Course Title	Course Code	Credit hours distribution			Total teaching hours	Programme ILOs
		Theoretical Lectures and seminars	Laboratory /practical	Total		
Internal Medicine	HEM 610	9 credit hours	6 credit hours	15	9x15=135 6x30=180 315 hours	A2, 3, 4, 17, 19, 21/ B3, 4/ C7, 8/ D1,2,3,4,7,10
Hematology	HEM 610 HT	14 credit hours	9 credit hours	23	14x15=210 9x30=270 480 hours	A2,3,4,5,6,8,9,10,12,13, 14,15,16,17,18,19,20,21, 23,25,27/ B1,2,3,4,6,7/ C1,2,3,5,6 7,8/ D1-10
Stem cell transplantation	HEM 610 SCT	2 credit hours	----------	2	2x15=30	A32,33,34,35/ B8.9
Hemoglobinopathies	HEM 610 HG	2 credit hours	----------	2	2x15=30	A28.29.30.31/ B7
Myelodysplastic syndrome	HEM 610 MDS	2 credit hours	----------	2	2x15=30	
Total		25 credit hours	15 credit hours	40	825 hours	
Log book	15 credit hours (displayed as practical and laboratory activities).					
Thesis	15 credit hours					

Programme-Courses ILOs Matrix

Programme ILOs are enlisted in the first column of the table (by their code number: a1, a2……etc), then the courses' codes are enlisted in first row, and a "yellow" mark is inserted where the respective course contributes to the achievement of the programme ILOs in question.

Course code	HEM 630 LD	HEM 630 TM	HEM 617 RT	HEM 630 MB	HEM 610	HEM 610 HT	HEM 610 SCT	HEM 610 HG	HEM 610 MDS
A1									
A2									
A3									
A4									
A5									
A6									
A7									
A8									
A9									
A10									
A11									
A12									
A13									
A14									
A15									
A16									
A17									
A18									
A19									
A20									
A21									
A22									
A23									
A24									

Course code	HEM 630 LD	HEM 630 TM	HEM 617 RT	HEM 630 MB	HEM 610	HEM 610 HT	HEM 610 SCT	HEM 610 HG	HEM 610 MDS
A25									
A26									
A27									
A28									
A29									
A30									
A31									
A32									
A33									
A34									
A35									
B1									
B2									
B3									
B4									
B5									
B6									
B7									
B8									
B9									
C1									
C2									
C3									
C4									

Course code	HEM 630 LD	HEM 630 TM	HEM 617 RT	HEM 630 MB	HEM 610	HEM 610 HT	HEM 610 SCT	HEM 610 HG	HEM 610 MDS
C5									
C6									
C7									
C8									
D1									
D2									
D3									
D4									
D5									
D6									
D7									
D8									
D9									
D10									

(5) Programme admission requirements:

- **General requirements:**

According to the postgraduate bylaws.

- **Specific requirements (if applicable):** NONE

(6) Regulations for progression and programme completion:

- Student must complete minimum of 60 credit hours in order to obtain the master degree, which include the courses of first and second parts, thesis and activities of the log book.
- Courses description.
- Registration for the Master thesis is allowed 6 months from the day of admission to the programme and must fulfill a total of 15 credit hours including material collection, laboratory work, patients follow-up, and meetings with supervisors.

Log book fulfillment:

- Student must fulfill a minimum of 15 credit of log book activities including clinical training in the form of residency period, clinical rotation in other internal medicine specialties, laboratory work and conferences attendance or speaking.
- Lectures and seminars must be documented in the log book and signed by the lecturer.
- Works related to thesis must be documented in the log book and signed by the supervisors.
- Any workshops, conferences and scientific meetings should be included in the log book.

(7) Evaluation of Programme's intended learning outcomes (ILOs):

Evaluator	Tools*	Signature
Internal evaluator **(s)** Prof Dr Salah El-Gamal	Focus group E_mail Group discussion	
External Evaluator **(s)** Prof.Dr.Ashraf ElGhandour Professor of Clinical Hematology, University of Alexandria	E_mail interview	
Senior student **(s)**	none	
Alumni	none	
Stakeholder **(s)**	none	
others	none	

* TOOLS= QUESTIONNAIRE, INTERVIEW, WORKSHOP, COMMUNICATION, E_MAIL

We certify that all information required to deliver this programme is contained in the above specification and will be implemented. All course specification for this programme are in place.	
Programme coordinator(s): **Dr. Mona Taalab**	Signature & date:
Dean: Name:Prof. Dr. **El-Saeid M. Abdel-Hady**	Signature & date:
Executive director of the quality assurance unit: Name: Prof.Dr.Seham Gad El-Hak	Signature & date: