PROGRAMME SPECIFICATION

Hematology Master's Program-HEMA 500

Faculty of Medicine- Mansoura University

(A) Administrative information

(1) Programme Title & Code	Postgraduate Master's Degree of Clinical Hematology/HEMA 500
(2) Final award/degree	Master's Degree.
(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:

The philosophy of the Master degree programme is prepare candidate to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Candidates are expected to learn the practice of health promotion, disease prevention, diagnosis, care, and treatment, during health and all stages of illness. They must treat their patient's conditions with practices that are safe, scientifically based, effective, efficient, and cost effective as well as evidence based.

The aim of this program is to provide the postgraduates/residents with:

1- Medical knowledge and skills essential for the practice of Clinical Hematology efficiently and properly according to the international standards and necessary to gain further training and practice in the field of study and the related specialties.

2- Skills necessary for proper diagnosis and management of patients in the field of Clinical Hematology including diagnostic, problem solving and decision making, indifferent situations including emergencies.

3- Use and benefit of available resources to get highest standards of clinical practice.

4- Ethical principles related to the practice in this specialty.

5- Active participation in community needs assessment and problems solving.

6- Maintenance of abilities necessary for continuous medical education.

7- Ability to conduct a research project and be aware of different research methodology.

8- To enable the candidate to pursue higher studies.

9- To enable the candidate to understand and get the best of published scientific research and do the best of published scientific research and do their own research.

(2) Intended Learning Outcomes (ILOs):

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

A- Knowledge and Understanding:

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

A2: To describe the basic clinical approach to identify symptomatology of different hematological disorders.

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

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

A5: To identify the basic principles of research, including how such research is conducted, evaluated, explained to patients, and applied to patient care.

A6: To identify blood components as regard collection, reservation, storage, usage and side effects, and to recognize modified blood components (packed RBCs, plasma and platelets) usage in hematology.

A7: To identify the principles of transfusion medicine, including the indication, evaluation of antibodies, blood compatibility, acute and late adverse effects of transfusion and complications of blood component therapy and apheresis procedures.

A8: To identify impact of transfusion on the patient.

A9: To identify the principles and guidelines of diagnosis and treatment of common medical problems related and/or complicating hematological disorders.

A10: To identify effects of systemic disorders and drugs on the blood, blood forming organs, and lymphatic tissues.

A11: To identify basic knowledge regarding chemotherapeutic drugs, biologic products, and growth factors and their mechanisms of action; pharmacokinetics, clinical indications, and their limitations, including their effects, toxicity, and interactions

A12: To identify multiagent chemotherapeutic protocols and combined modality therapy of blood diseases.

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

A14: To comprehend basics of pain management in patients with blood disorders.

A15: To recognize rehabilitation and psychosocial aspects of clinical management of patients with hematologic disorders.

A16: To illustrate principles of the palliative care, including hospital and home care.

A17: To identify human immunodeficiency virus–related malignancies.

A18: To comprehend thoroughly care and management of geriatric patients with hematologic disorders.

A19: To identify principles of, indications for, and complications of autologous and allogeneic bone marrow or peripheral blood stem cell transplantation and peripheral stem cell harvests, including the management of post-transplant complications.

A20: To identify concepts of supportive care, including hematologic, infectious disease, and nutrition.

A21: To identify basic 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

A22: To explain etiology, epidemiology, natural history, diagnosis, pathology, staging, and management of neoplastic diseases of the blood, blood-forming organs, and lymphatic tissues.

A23: To identify mode of inheritance, principles of molecular genetics, the nature of oncogenes and their products, and cytogenetics.

A24: To outline clinical epidemiology and medical statistics, clinical study and experimental protocol design, data collection, and analysis.

A25: To identify immune markers, immunophenotyping, flow cytometry, cytochemical studies, and cytogenetic and DNA analysis of neoplastic disorders.

A26: To identify basics of Gene therapy.

A27: To identify physiological basis of homeostasis, regarding role of platelets, vessel wall and coagulation system

A28: To identify physiologic functions of endocrinal glands and their effects on physiological different system.

A29: To understand the mechanisms of autoimmune diseases and their relation with different hematological disorders.

A30: To identify and recognize opportunistic and nosocomial infections which cause a great deal of drug resistance and its effect on the patient's hospital stay and how to deal with this issue.

A31: To identify different types of plasma proteins, liver and kidney function tests.

A32: To classify tumor markers and its importance in prognosis of hematological malignancies as non-Hodgkin lymphoma, Hodgkin lymphoma, acute leukemia and plasma cell disorders and follow up of treatment response.

A33: To describe cerebrospinal fluid components and its value in cases of acute leukemia, and lymphoma.

A34: To demonstrate basic comprehensive knowledge regarding hemoglobinopathies in the terms of classification, types, molecular and genetic background

A35: To explain the types of stem cell transplantation, indications and complications of the transplant and supportive care

A36: To identify acute and chronic graft versus host disease (GVHD) and its management

2- Intellectual skills:

B1: To make a proper diagnosis of common benign and malignant hematological disorders and acute emergencies

B2: To demonstrate essential competences in the prevention, evaluation, and management of:

B2a: acquired and congenital disorders of red cells, white cells, platelets and stem cells;

B2b: hematopoietic & lymphopoietic malignancies, including disorders of plasma cells;

B2c: congenital and acquired disorders of homeostasis and thrombosis, including the use of antithrombotic therapy.

B3: To correlate clinical information with the results of laboratory, cytology, histology, and immunodiagnostic imaging techniques to be able to diagnose clinical hematological disorders.

B4: To interpret the results of blood smears, bone marrow aspiration and biopsy and hemoglobin electrophoresis

B5: To interpret results of complete blood count, including red blood cells, hemoglobin level, 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 of blood, blood forming organs and lymphatic tissues.

B7: To integrate etiology, epidemiology, natural history, diagnosis, pathology, staging and management of different medical diseases, effect on the blood, blood forming organs and lymphatic tissues.

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

B9: To compare between different stages of infection post-transplant & between acute and chronic GvHD.

B10: 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; and,

C7: To demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Candidates are expected to demonstrate:

C7a: compassion, integrity, and respect for others;

C7b: responsiveness to patient needs that supersedes self-interest;

C7c: respect for patient privacy and autonomy;

C7d: accountability to patients, society and the profession; and,

C7e: sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.

C8: To apply indications, contraindications, limitations, complications, techniques, and interpretation of results of those diagnostic and therapeutic procedures integral to the discipline.

C8a: to educate patients about the rationale, technique, and complications of procedures and in obtaining procedure-specific informed consent.

C9: 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 four semesters distributed into *two parts*; the first part composed of one semester that implies six courses; hematology, applied physiology, clinical pharmacology, and applied pathology, clinical pathology and microbiology. The second part composed of three semesters with two compulsory and three elective courses; Internal Medicine and Hematology, stem cell transplantation, transfusion medicine and hemoglobinopathies respectively.
- Candidates should fulfill a total of 45 credit hours.

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

First part: 5 credit hours. Second part: 18 credit hours (theoretical) + Practical activities recorded in the log book: 14 credit hours + various activities: 2 credit hours. Thesis: 6 credit hours

توزيع الساعات المعتمدة الجزء ألآول-ماجستير أمراض الدم

Course Title	Course Code	Theoretical	Practical	Total teaching hours	Programme ILOs
		Lectures and seminars			
Hematology	HEM 530 HE	1.5 credit hours	0.5 credit hour	1.5x15=22.5 0.5x30= 15	
Applied Physiology	HEM 503	0.5 credit hour	--------	0.5x15=7.5	
Clinical Pharmacology	HEM 506	0.5 credit hour	--------	0.5x15=7.5	
Applied Pathology	HEM 505	1 credit hour	--------	1x15=15	
Clinical Pathology	HEM 530	0.5 credit hour	--------	0.5x15=7.5	
Microbiology	HEM 507	0.5 credit hour	--------	0.5x15=7.5	
Total:		5 credit hours		82.5 teaching hours	

توزيع الساعات المعتمدة الجزء الثاني- ماجستير أمراض الدم

Course Title	Course Code	Credit hours distribution			Total teaching hours	Programme ILOs
		Theoretical Lectures and seminars	Laboratory /practical	Total		
Internal Medicine	HEM 510	8 credit hours	5 credit hours	13	8x15=120 5x30=150 270 hours	
Hematology	HEM 510 HE	8 credit hours	9 credit hours	17	8x15=120 9x30=270 390 hours	
Stem cell transplantation	HEM 510 SCT	2 credit hours	----------	2	2x15=30	
Hemoglobinopathies	HEM 510 HG	2 credit hours	----------	2	2x15=30	
Transfusion Medicine	HEM 510 TM	2 credit hours	----------	2	2x15=30	
Total		18 credit hours	14 credit hours	32	690 hours	
Log book	14 credit hours (displayed as practical and laboratory activities).					
Thesis	6 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 530 HE	HEM 503	HEM 506	HEM 505	HEM 530	HEM 507	HEM510	HEM 510 HE	HEM 510 SCT	HEM 510 HG	HEM 510 TM
A1											
A2											
A3											
A4											
A5											
A6											
A7											
A8											
A9											
A10											
A11											
A12											
A13											
A14											
A15											
A16											
A17											
A18											
A19											
A20											
A21											
A22											
A23											

Course code	HEM 530 HE	HEM 503	HEM 506	HEM 505	HEM 530	HEM 507	HEM510	HEM 510 HE	HEM 510 SCT	HEM 510 HG	HEM 510 TM
A24											
A25											
A26											
A27											
A28											
A29											
A30											
A31											
A32											
A33											
A34											
A35											
A36											
B1											
B2											
B3											
B4											
B5											
B6											
B7											
B8											
B9											
B10											
C1											

Course code	HEM 530 HE	HEM 503	HEM 506	HEM 505	HEM 530	HEM 507	HEM510	HEM 510 HE	HEM 510 SCT	HEM 510 HG	HEM 510 TM
C2											
C3											
C4											
C5											
C6											
C7											
C8											
C9											
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: