BENGHAZI UNIVERSITY

FACULTY OF MEDICINE

Department of Medicine

Program Specifications: Master of Internal Medicine 2017-2018

Head department of medicine.

Professor. Ahmed Farag Elhassi.

Course coordinator.

Dr. Abdulhakim Albrsha

Process of program specification development:

The process of development of this program specification went into three phases:

- **Phase I:** Production of an initial draft by a small working party of teaching staff (curriculum committee).
- **Phase II:** Gathering of comments and proposals for modifications and additions from a national and international of experts (internal and external reviewers).
- **Phase III:** the final draft was authenticated from dean (representing the faculty council).

- **Curriculum committee:**

1. Professor. Salah Gerryo- department of Medicine
2. Professor. Ahmed Elhassi- department of Medicine
1. Dr Rafik Elmehdawi- department of Medicine
2. Dr Nasser El Gembri- department of Medicien
3. Dr. Abdulhakim Albrsha- department of Medicine

- **Internal reviewer:**

1. Professor Adel Ehmida – department of Pediatric,faculty of medicine,Benghazi university.

- **External reviewer:**

1. Dr.Arif Al-Areibi MD, MSc, FRCPC Director of Postgraduate Education Department of Anesthesia and Perioperative Medicine Western University London, Canada.

1. Basic information

- **Program title:** Master of internal medicine
- **Program code:** GIM 0214
- **Program duration:** 145 weeks (3 years)
- **Program coordinator:**
- **Department offering the program:** Medicine
- **Date of specifications /revision:** 2017
- **Date of approval by departmental/faculty council :** November 2017
- **Teaching language:** English
- **Taught hours: (excluding ward rounds and clinical duties in wards and emergency departments)**
  - **Lectures:** 151 hours (4 hour /week for 37 weeks)
  - **Tutorials:** 50 hours (1 hour /week for 50 weeks)
  - **Bedside teaching:** 230 hours (3 hours/week for 77 weeks)
  - **Clinical meeting:** 145 hours (1 hour /week)
  - **Journal club:** 102 (1 hour/week for 51 weeks)
  - **Case presentation:** 102 (1 hour/week for 51 weeks)
  - **Total :** 780 hours (5.3 hours /week)

2. Overall aim of the course

- To provide trainees with essential knowledge, skills and attitudes to competently practice internal medicine in ambulatory and hospital setting.
- To provide the trainees with the basics of research methodology

3. Intended learning outcomes (ILOs)

By the end of this program the trainee will be able to:

a) Knowledge and understanding:

a1 Develop the medical knowledge base necessary to evaluate and treat different acute and chronic medical conditions.

a2 Describe the pathophysiology associated with each clinical condition encountered.

a3 Explain in details the various etiologies of different diseases with stressing on the importance of contributing risk factors.

a4 Identify the most common causes of common symptoms

a5 Identify a research problem.

a6 Define what is research question

b) Intellectual skills

b1 Formulate problem lists, differential diagnoses and plans of management for patients and Maintain medical records that are concise, accurate and informative.

b2 Evaluate and manage patients with acute and chronic medical conditions.

b3 Analyze and interpret the results of commonly used laboratory and radiological diagnostic procedures.

b4 Formulate a good research question.

b5 Develop a proper research hypothesis

b6 Critically appraise the study design, result analysis

b7 Choose the proper research design to answer the asked research question.

b8 Select the proper method of data collection

b9 Select the suitable statistical analysis for the collected data.

c) Professional &practical skills

c1 Obtain an appropriate history in the outpatient, inpatient or emergency settings.

c2 Perform and document a full and focused physical examination

c3 Master basic diagnostic and therapeutic clinical procedures that they may need to perform on patients during their daily work.

c4 Seek methods to enhance effective communication and understanding that result in effective information exchange with patients, their patient's families, and other medical professionals by creating a therapeutic and ethically sound relationship with patients by using effective listening, questioning, and writing skills.

c5 Demonstrate respect and responsiveness to the needs of patients and society that supersedes self-interest; accountability to patients, society, and the profession.

c6 Figure out when to ask for help and advice from senior residents and teaching staff.

c7 Demonstrate a commitment to ethical principles concerning clinical care, confidentiality of patient information,

c8 Obtain an informed consent.

c9 Conduct a literature search to find appropriate research evidence.

c10 Utilize software package for statistical analysis of the collected data.

c11 Construct a good scientific research paper.

d) General transferable skills

d1 Develop a willingness and ability to learn.

d2 Utilize information resources to support patient care decisions.

d3 Demonstrate effective negotiation skills with:

d3.1 Angry/frustrated patients and/or their families

d3.2 Family members in disagreement on appropriate care

d4 Demonstrate patient-centered interviewing techniques in patients with chronic and recurrent illnesses; patients who are elderly, patients who are angry/frustrated; patients who are poorly educated

d5 Prepare and present cases well on rounds and in teaching sessions

d6 Communicate effectively with patients, their families and other medical staff.

4. Program structure and contents

Program duration: Three academic years (126 weeks). Each academic year starts at the beginning of September and at the middle of July.

Program structure:

- **Part 1:** 1st academic year (42 weeks)
  - Compulsory courses (appendices-1 & 2)
  - Scientific activities
  - Residency training program
- **Part 2:** 2nd and 3rd academic years taught over 84 weeks.
  - Compulsory courses (appendices-1 & 2)
  - Scientific activities
  - Residency training program
  - Research methodology
  - English language
  - Computer science
- **Master Thesis:** completed during second part.

Residency Training Program:

All the students should have a general medicine training for 34 months in different medical departments as following:

	Specialty	Duration
1	General medicine	4 months
2	Cardiovascular medicine	4 months
3	Intensive care	2 months
4	Respiratory medicine	2 months
5	Gastroenterology	4 months
6	Neurology	2 months
7	Endocrinology and metabolism	4 months
8	Nephrology	2 months
9	Hematology and oncology	4 months
10	Infectious diseases	2 months
11	Rheumatology	4 months
	Total	34 months

During these 34 months the students will have daily active participation in management of acute and chronic medical conditions under supervision of senior staff members and they will attend basic sciences, general medicine and research methodology courses, the weekly bed-side teaching, and the regular scientific activities carried out by the department.

Supervision Policy:

- The teaching staff will provide an orientation at the beginning of the rotation
- Patient care delivered by residents will be closely supervised by the teaching staff. The levels of supervision varies depending upon the resident's level of training and overall clinical competence. In general a 1st year trainees have every encounter with patients supervised on a daily basis either by an advanced level resident or by the teaching staff. The teaching staff are expected to see a new patient admission or consultation within 24 hours and discuss each new case in detail and each old case with new developments, and observe and verify the historical and physical examination findings elicited, discuss the findings of various tests, review the notes written by the resident for clarity and completeness, and discuss any deficiencies in management plan. The teaching staff are available to respond to resident questions and are expected to supervise residents at the bedside if called upon.
- The teaching staff will develop a list of topics for discussion on rounds.
- Filling of evaluation forms, along with the mini-clinical evaluation exercise are designed to verify achievement of objectives.

Master Thesis:

All master degree students should prepare a thesis in one of the modules of Internal Medicine. The department and the ethical committees must approve the protocol of the research. The thesis should include a review part and a research part. The Thesis is supervised by one or more senior staff members from the Internal Medicine department and may include other specialties according to the nature of the research. The thesis should be evaluated and approved by a committee of three high-grade teaching staff members including one of the supervisors and an external professor. Thesis approval is a pre-request in order to allow the student to set for the second part exam.

Program content

		Lectures	Tutorial	Bedside Teaching	Clinical meeting	Journal club	Case presentation	Total
	Part 1							
1	**Cardiovascular**	**6**	**3**	**15**				
2	**Respiratory and Intensive Care**	**4**	**4**	**15**				
3	**Gastroenterology**	**7**	**3**	**15**				
4	**Neurology**	**11**	**4**	**10**				
5	**Endocrinology**	**8**	**3**	**15**				
6	**Hematology/ Oncology**	**5**	**2**	**15**				
7	**Nephrology**	**6**	**2**	**10**				
8	**Rheumatology**	**8**	**3**	**15**				
9	**Infectious diseases**	**1**	**2**	**5**				
10	**Research methodology**	**13**	**-**	**-**	**-**	**-**	**-**	**13**
	Total	**69**	**26**	**115**	**48**	**51**	**51**	**360**
	Part 2							
1	**Cardiovascular**	**9**	**2**	**15**				
2	**Respiratory and Intensive Care**	**11**	**2**	**15**				
3	**Gastroenterology**	**9**	**2**	**15**				
4	**Neurology**	**8**	**3**	**10**				
5	**Endocrinology**	**12**	**2**	**15**				
6	**Hematology/ Oncology**	**10**	**4**	**15**				
7	**Nephrology**	**6**	**3**	**10**				
8	**Rheumatology**	**8**	**2**	**15**				
9	**Infectious diseases**	**9**	**4**	**5**				
	Total	**82**	**24**	**115**	**97**	**51**	**51**	**420**
	Total	**151**	**50**	**230**	**145**	**102**	**102**	**780**

5. Learning experiences and teaching strategies

- **Illustrated lectures:** Large group plenary lectures in lecture halls to set the scene for a topic, highlight important issues and arouse curiosity in relevant areas for 4 hours per week (appendix-1).
- **Tutorials (small groups):** Topics are prepared by students as per schedule and discussed in presence of instructors in small groups. Topics will focus on how to approach certain presenting complaints, interpret laboratory tests, imaging studies and electrocardiography for 1 hours weekly (appendix-2).
- **Bedside teaching (small groups):** for 3 hours weekly.
- **Clinical meeting:** arranged by the department, once every week. (1 hour weekly)
- **Journal club:** 1 hour weekly
- **Word round:** minimum of 6 hours weekly
- **Ward and emergency department duties:** minimum 24 hours weekly
- **Student-prepared presentation:** 1 hour weekly, aim to teach them presentation techniques. Students are expected to participate in the discussions.

Teaching plan for Part 1

Saturday	**Lecture** Time:9:00-10:00	**Lecture** Time:10:00-11:00	**Lecture** Time:11:00-12:00
Sunday	**Clinical meeting** Time:8:30-9:30		
Monday	**Journal club** Time:8:30-9:30		
Tuesday			
Wednesday	**Bed side teaching** Time: 9:00-12:00		
Thursday	**Case presentation** Time:8:30-9:30		

Teaching plan for Part 2

Saturday	**Lectures** Time:9:00-12:00		
Sunday	**Clinical meeting** Time:8:30-9:30		
Monday	**Journal club** Time:8:30-9:30		
Tuesday			
Wednesday	**Bedside teaching** Time:9:00-12:00		
Thursday	**Case presentation** Time:8:30-9:30		

6. STUDENTS

Program admission requirements

- According to the bylaws of the Faculty of Medicine University of Benghazi applicants should have MBChB or equivalent degree of general grade good in medicine subject .
- The applicants should have spent at least one year after graduation.
- Applicants should be working or delegated to work at one of the teaching hospitals in Benghazi.
- This is a full-time program and applicant should assure fulfilling this requirement.
- In addition to above requirements student should pass an entry examination and personal interview.

Attendance and Completion Requirements: The offered program is a full time program and students having absenteeism of 25% or more in any subject are forbidden from entering the exams.

Appeals by students: Regulations which govern actions for students appeal are in existence. The usual procedures start by an application turned in by the student to the registrar's office, forwarded to the department to follow the specified procedures.

7. Faculty

a) **Appointment:**
   - **a.** For legitimacy of qualification the documents of the appointment candidate go through a process of verification through the National Quality Assurance and Accreditation body
   - b. Normally only those teaching staff with assistant professor level or more are appointed for teaching master degree students.

b) **Participation in program planning , monitoring and review:** A draft is prepared by a committee selected by the head of the department based on their reputation for interest in teaching strategies and curriculum preparation. It is then distributed to the different staff members and studied in meetings for quick review and committee selection.

c) **Professional development:** Arrangements for improvements in teaching skill is carried out at two levels:
   - **a.** The University of Benghazi Postgraduate and Training Administration and the Academic Development Office. These have scheduled courses and workshops for staff training.
   - **b.** The Medical Education Committee and the Accreditation and Quality Assurance Office of the Faculty of Medicine run lectures and workshops for teaching skills, research and quality assurance throughout the year.

d) **Part time and visiting faculty:** Approval of part time or visiting professors is the responsibility of each departmental rector. It involves accrediting the documents and CVs.

8. Assessment methodology

1. **Written examination (Multiple Choice Questions):** The examination is designed to assess the student's knowledge and understanding of the clinical sciences relevant to medical practice. The questions are designed in 'best of five' format (a, b, c, d, e), where students choose the best answer from five possible answers. All papers are marked by an Optical Mark Reader (OMR). The OMR output is processed by computer and marks are allocated according to the student's responses. The marking system for the Examination is as follows:
   a. One mark is awarded (+1) for each correct answer.
   b. No mark is awarded or subtracted for an incorrect answer (zero).
   c. No mark is awarded or subtracted if a question is left unanswered (zero) .
   d. No mark is awarded or subtracted if more than one answer is recorded or the answer is not sufficiently clear (zero).
2. **Clinical examination:** The examination is designed to assess the student's professional and practical skills including; clinical communication, physical examination, identifying physical signs, differential diagnosis, clinical judgment and maintaining patient welfare. The final clinical examination is divided into 3 stations and there are 2 examiners at each of four Stations. At each Station there is one different encounter (general examination, abdominal, respiratory, cardiovascular , or neurology case). At every encounter, each examiner will independently complete a mark-sheet. The 3 stations are distributed as following:
   a. **Station 1(long case):** the student task will be taking a full clinical history and perform a complete clinical examination, while supervised by the one examiner, the allowed time with patient is 60 minutes and time for discussion is 20 minutes.
   b. **Stations 2 and 3 (physical examination):** the student task will be performing a focused examination of one system, the allowed time with the patient is 10 minutes and the time for discussion is 5 minutes.
3. **VIVA:** Viva committee includes 3 examiners independently assess the student over 20 minutes and it covers most of medical emergencies scenarios, different radiological slides, ECG, ECHO, data interpretation and hematological and infectious diseases slides.

4. Thesis:

- The general thesis writing methods, and approval, guidelines of the Faculty of Medicine are applied
- Thesis proposal is written, evaluated, and approved, before the end of the first year
- The proposal is approved by the Thesis Proposal Evaluation Committee of the Department of Medicine.
- Thesis project is finalized and submitted before the end of the Master Program

Assessment schedule

Exam	Date
Part 1 Exam	At the end of the first year
Part 2 written exam	At the end of the 3rd year
Part 2 clinical exam	At the end of the 3rd year
Thesis presentation	After passing part 2 exams

Mark distribution

Exam	Allocated Mark	Mark distribution
Part 1 Exam	100	50 MCQs
Part 2 written exam	100	50 MCQs
Part 2 clinical exam	100	One long case (40 marks) case and 2 short cases (20 marks each) and viva (20 marks)
Thesis	NO	Pass/ no Pass
Total Mark	**300**	

Grading system

Full mark	Excellent	Very good	Good	Pass	Fail	Badly fail
100	**≥ 85%**	**≥ 75%**	**≥ 65%**	**65%**	**< 65%**	**< 50%**

9. Program evaluation and improvement process

Evaluator	Tool	Sample
Students	Questionnaire at the end of the program	All the master students
Stakeholders	A meeting is arranged during the periodical meeting of the department	
External Evaluators	Written report about the program	before program implementation And after participating in the final exams
Alumni		

10. Academic standards

The following reference points were used in creating this program specification:

a) WFME Global Standards for Quality Improvement- 2016. Standards for Master's Degrees in Medical and Health Professions Education.

b) GMC – Tomorrow's Doctors-2009

Appendix-1: Lectures` list

Subject	Code	Hours
Part I		
Regulation of cardiac contractility	02-GIM-MS-01-01-01	**1**
Cardiac excitation and conduction	02- GIM -MS-01-01-02	**1**
Blood pressure, flow and peripheral resistance	02- GIM -MS-01-01-03	**1**
Local and humoral control of tissue blood flow	02- GIM -MS-01-01-04	**1**
Nervous regulation of circulation	02- GIM -MS-01-01-05	**1**
Physiology of cardiac failure	02- GIM -MS-01-01-06	**1**
Anatomy and mechanism of respiration, and work of breathing	02- GIM -MS-01-02-01	**1**
Pulmonary ventilation	02- GIM -MS-01-02-02	**1**
Pulmonary gas exchange	02- GIM -MS-01-02-03	**1**
Transport of Oxygen and Carbon Dioxide in blood and tissue fluids	02- GIM -MS-01-02-04	**1**
Gastrointestinal motility , and nervous control	02- GIM -MS-01-03-01	**1**
Salivary secretions and mechanism and deglutition	02- GIM -MS-01-03-02	**1**
Mechanism of gastric secretion	02- GIM -MS-01-03-03	**1**
Exocrine pancreatic function	02- GIM -MS-01-03-04	**1**
Physiology of the small intestines	02- GIM -MS-01-03-05	**1**
Physiology of the large intestines	02- GIM -MS-01-03-06	**1**
Overview of absorption	02- GIM -MS-01-03-07	**1**
Sensory receptors, visceral and somatic sensations	02- GIM -MS-01-04-01	**1**
Physiology of pain	02- GIM -MS-01-04-02	**1**
Cortical and brainstem control of motor function	02- GIM -MS-01-04-03	**1**
Cerebellar and basal ganglia control of motor function	02- GIM -MS-01-04-04	**1**
Brain stem physiology and pathology	02- GIM -MS-01-04-05	**1**
Cerebral cortex, intellectual functions of the brain	02- GIM -MS-01-04-06	**1**
Applied neuroanatomy and localization of lesions	02- GIM -MS-01-04-07	**1**
Molecular pathology of metabolic myopathies	02- GIM -MS-01-04-08	**1**
Physiology of speech	02- GIM -MS-01-04-09	**1**
Physiology of sleep	02- GIM -MS-01-04-10	**1**
Neuro-immunology	02- GIM -MS-01-04-11	**1**
Physiology of pituitary hormones	02- GIM -MS-01-05-01	**1**
Physiology of Thyroid hormones	02- GIM -MS-01-05-02	**1**
Physiology of Adrenocortical hormones	02- GIM -MS-01-05-03	**1**
Glucose regulation and counter-regulation	02- GIM -MS-01-05-04	**1**
Parathyroid hormones, and calcitonin and calcium , phosphate metabolism	02- GIM -MS-01-05-05	**1**
Testicular function regulation	02- GIM -MS-01-05-06	**1**
Regulation of menstruation	02- GIM -MS-01-05-07	**1**

Lipid and lipoprotein metabolism	02- GIM -MS-01-05-08	**1**
White blood cells	02- GIM -MS-01-06-01	**1**
Red blood cells	02- GIM -MS-01-06-02	**1**
Platelets	02- GIM -MS-01-06-03	**1**
Cellular immunity	02- GIM -MS-01-06-04	**1**
Humoral immunity	02- GIM -MS-01-06-05	**1**
Mechanism of urine excretion, and the effect of diuretics	02- GIM -MS-01-07-01	**1**
Renal regulation of extracellular osmolality and sodium concentration	02- GIM -MS-01-07-02	**1**
Renal regulation of Potassium , Calcium, Phosphate, and Magnesium.	02- GIM -MS-01-07-03	**1**
Acid-Base Regulation	02- GIM -MS-01-07-04	**1**
Renin-Angiotensin System	02- GIM -MS-01-07-05	**1**
Introduction: clinical physiology of kidneys	02- GIM -MS-01-07-06	**1**
Introduction:joints/bone/cartilage (structure,function, and repair)	02- GIM -MS-01-08-01	**1**
Pathophysiology of rheumatoid arthritis	02- GIM -MS-01-08-02	**1**
Urate metabolism and mechanism of gout	02- GIM -MS-01-08-03	**1**
Cyclooxygenase pathway and NSAIDs pharmacology	02- GIM -MS-01-08-04	**1**
Autoimmunity and autoimmune antibodies	02- GIM -MS-01-08-05	**1**
Immune-modulators and biologic response modifiers	02- GIM -MS-01-08-06	**1**
Acute response reactants and HLA System	02- GIM -MS-01-08-07	**1**
Immunosuppressive drugs: Clinical pharmacology	02- GIM -MS-01-08-08	**1**
Immunology and infection	02- GIM -MS-01-09-01	**1**
Concept of research, types of research, and health care research	02- GIM -MS-01-10-01	**1**
Epidemiological studies design I	02- GIM -MS-01-10-02	**1**
Epidemiological studies design II	02- GIM -MS-01-10-03	**1**
Selection of study design, pilot study and meta-analysis research	02- GIM -MS-01-10-04	**1**
Sampling methods, and sample size	02- GIM -MS-01-10-05	**1**
Data collection tools	02- GIM -MS-01-10-06	**1**
Medical statistics (descriptive – inferential and Survival and Life Tables)	02- GIM -MS-01-10-07	**1**
Basic risk measurement / Bias and confounding	02- GIM -MS-01-10-08	**1**
Construction of a research proposal and scientific writing	02- GIM -MS-01-10-09	**1**
References (selecting and writing)	02- GIM -MS-01-10-10	**1**
Ethical aspects of health research	02- GIM -MS-01-10-11	**1**
Using epi-info and SPSS (application)	02- GIM -MS-01-10-12	**1**
Making a scientific presentation	02- GIM -MS-01-10-13	**1**

Part II		
Coronary heart disease	02-GIM-MS-02-01-01	**1**
Acute coronary syndromes	02- GIM -MS-02-01-02	**1**
Hypertension	02- GIM -MS-02-01-03	**2**
Heart Failure	02- GIM -MS-02-01-04	**1**
Valvular Heart Disease	02- GIM -MS-02-01-05	**1**
Infective Endocarditis	02- GIM -MS-02-01-06	**1**
Dilated Cardiomyopathy	02- GIM -MS-02-01-07	**1**
Myopericardial disease	02- GIM -MS-02-01-08	**1**
Community acquired pneumonia	02- GIM -MS-02-02-01	**1**
Hospital acquired pneumonia	02- GIM -MS-02-02-02	**1**
Chronic obstructive airway disease	02- GIM -MS-02-02-03	**1**
Bronchial Asthma	02- GIM -MS-02-02-04	**1**
Respiratory failure type I and II	02- GIM -MS-02-02-05	**1**
Pulmonary thromboembolism	02- GIM -MS-02-02-06	**1**
Pulmonary tuberculosis	02- GIM -MS-02-02-07	**1**
Interstitial lung disease	02- GIM -MS-02-02-08	**1**
Lung cancer	02- GIM -MS-02-02-09	**1**
Pleural disease	02- GIM -MS-02-02-10	**1**
Respiratory sleep disorders	02- GIM -MS-02-02-11	**1**
Esophageal disease	02- GIM -MS-02-03-01	**1**
Peptic ulcer disease	02- GIM -MS-02-03-02	**1**
Crohn's disease	02- GIM -MS-02-03-03	**1**
Ulcerative colitis	02- GIM -MS-02-03-04	**1**
Malabsorption syndrome	02- GIM -MS-02-03-05	**1**
Liver cirrhosis	02- GIM -MS-02-03-06	**2**
Non-alcoholic steatohepatitis and non-alcoholic fatty liver disease	02- GIM -MS-02-03-07	**1**
Acute and chronic pancreatitis	02- GIM -MS-02-03-08	**1**
Cerebrovascular disease	02- GIM -MS-02-04-01	**1**
Epilepsy	02- GIM -MS-02-04-02	**1**
Headache	02- GIM -MS-02-04-03	**1**
Neuromuscular disorders	02- GIM -MS-02-04-04	**1**
Demyelinating diseases	02- GIM -MS-02-04-05	**1**
Parkinsonism	02- GIM -MS-02-04-06	**1**
Central nervous system infections	02- GIM -MS-02-04-07	**1**
Cytopathy and myopathy	02- GIM -MS-02-04-08	**1**
Autoimmune hemolytic anemia and iron deficiency anemia	02- GIM -MS-02-05-01	**1**
Megaloblastic anemia and aplastic anemia	02- GIM -MS-02-05-02	**1**
Thrombophilia	02- GIM -MS-02-05-03	**1**
Bleeding Disorders	02- GIM -MS-02-05-04	**1**
Leukemia	02- GIM -MS-02-05-05	**2**

Subject	Code	ours
Lymphoma	02- GIM -MS-02-05-06	**2**
Myeloproliferative disorders	02- GIM -MS-02-05-07	**1**
Plasma cell disorders	02- GIM -MS-02-05-08	**1**
Systemic lupus erythematosus	02- GIM -MS-02-06-01	**1**
Polymyositis and Sjögren syndrome	02- GIM -MS-02-06-02	**1**
Rheumatoid arthritis	02- GIM -MS-02-06-03	**1**
Progressive systemic sclerosis	02- GIM -MS-02-06-04	**1**
Systemic vasculitis	02- GIM -MS-02-06-05	**1**
Anti-phospholipid antibody syndrome	02- GIM -MS-02-06-06	**1**
Crystal associated arthropathies	02- GIM -MS-02-06-07	**1**
Spondyloarthropathies	02- GIM -MS-02-06-08	**1**
Diabetes mellitus	02- GIM -MS-02-07-01	**2**
Hypopituitarism	02- GIM -MS-02-07-02	**1**
Pituitary adenomas overview	02- GIM -MS-02-07-03	**1**
Primary hypothyroidism	02- GIM -MS-02-07-04	**1**
Metabolic bone disease	02- GIM -MS-02-07-05	**1**
Thyrotoxicosis	02- GIM -MS-02-07-06	**1**
Lipid disorders	02- GIM -MS-02-07-07	**1**
Approach to nodular thyroid disease	02- GIM -MS-02-07-08	**1**
Male hypogonadism	02- GIM -MS-02-07-09	**1**
Adrenal disorder	02- GIM -MS-02-07-10	**2**
Acute kidney injury	02- GIM -MS-02-08-01	**2**
Chronic kidney disease	02- GIM -MS-02-08-02	**2**
Glomerulopathies	02- GIM -MS-02-08-03	**1**
Urinary tract infections	02- GIM -MS-02-08-04	**1**
Chronic HBV infection	02- GIM -MS-02-09-01	**1**
Chronic HCV infection	02- GIM -MS-02-09-02	**1**
Fungal infection (Candida/Asperigillosis)	02- GIM -MS-02-09-03	**1**
Tick borne diseases (Rickettsia Infections)	02- GIM -MS-02-09-04	**1**
Visceral leishmaniasis	02- GIM -MS-02-09-05	**1**
HIV infection	02- GIM -MS-02-09-06	**1**
Parasitic infections(malaria)	02- GIM -MS-02-09-07	**1**
Health care related infections	02- GIM -MS-02-09-08	**1**
Pyrexia of unknown origin	02- GIM -MS-02-09-09	**1**
Total		**151**

Part I		
Cardiac cycle	02- GIM -MS-01-01-07	**1**
Cardiac output and venous return	02- GIM -MS-01-01-08	**1**
Physiology of circulatory shock	02- GIM -MS-01-01-09	**1**
Regulation of respiration	02- GIM -MS-01-02-05	**1**
Exercise physiology	02- GIM -MS-01-02-06	**1**
Pulmonary function tests	02- GIM -MS-01-02-07	**1**
Arterial blood gases	02- GIM -MS-01-02-08	**1**
Physiology of bile	02- GIM -MS-01-03-08	**1**
Liver function and liver function tests	02- GIM -MS-01-03-09	**1**
Gastrointestinal hormones	02- GIM -MS-01-03-10	**1**
Basic functions of synapses and neurotransmitters	02- GIM -MS-01-04-12	**1**
Autonomic nervous system	02- GIM -MS-01-04-13	**1**
CSF physiology and pathophysiology	02- GIM -MS-01-04-14	**1**
Neurophysiology of EEG, EMG, and NCD	02- GIM -MS-01-04-15	**1**
Mechanism of hormone secretion and action	02- GIM -MS-01-05-09	**1**
Physiology of endocrine pancreas	02- GIM -MS-01-05-10	**1**
Vasopressin and approach to hypotonic polyuria	02- GIM -MS-01-05-11	**1**
Blood groups	02- GIM -MS-01-06-06	**1**
Hemostasis and blood coagulation	02- GIM -MS-01-06-07	**1**
Extracellular and intracellular fluids	02- GIM -MS-01-07-07	**1**
Assessment of renal function	02- GIM -MS-01-07-08	**1**
Inflammation: cellular constituents and cytokines	02- GIM -MS-01-08-09	**1**
The complement system	02- GIM -MS-01-08-10	**1**
Anti-rheumatic drugs	02- GIM -MS-01-08-11	**1**
Regulation of body temperature	02- GIM -MS-01-09-02	**1**
Host parasite interaction	02- GIM -MS-01-09-03	**1**
Part II		
Cardiac arrhythmia	02- GIM -MS-02-01-09	**1**
Noninvasive and invasive cardiac imaging	02- GIM -MS-02-01-10	**1**
Acute respiratory distress syndrome	02- GIM -MS-02-02-12	**1**
Pulmonary diagnostic studies (noninvasive and invasive)	02- GIM -MS-02-02-13	**1**
Diagnostic modalities in gastrointestinal disorders	02- GIM -MS-02-03-09	**1**
Gastrointestinal cancer	02- GIM -MS-02-03-10	**1**
Diagnostic modalities in neurology (invasive and non-invasive)	02- GIM -MS-02-04-09	**1**
Peripheral neuropathies	02- GIM -MS-02-04-10	**1**
Approach to a patient with loss of consciousness	02- GIM -MS-02-04-11	**1**
Complete blood count interpretation (case-based)	02- GIM -MS-02-05-09	**1**
Blood transfusion	02- GIM -MS-02-05-10	**1**
Hematological emergency	02- GIM -MS-02-05-11	**1**

Disseminated intravascular coagulation	02- GIM -MS-02-05-12	**1**
Approach to patient with mono-and polyarthritis	02- GIM -MS-02-06-09	**1**
Use of biologics in rheumatology	02- GIM -MS-02-06-10	**1**
Selection and interpretation of endocrine laboratory tests	02- GIM -MS-02-07-11	**1**
Obesity	02- GIM -MS-02-07-12	**1**
Acid base disturbances	02- GIM -MS-02-08-05	**1**
Fluid and electrolyte disturbances	02- GIM -MS-02-08-06	**1**
Renal replacement therapies	02- GIM -MS-02-08-07	**1**
Laboratory diagnosis of infectious diseases	02- GIM -MS-02-09-10	**1**
Infection in immunocompromised host	02- GIM -MS-02-09-11	**1**
Antibiotic resistance(including MRSA/VRE)	02- GIM -MS-02-09-12	**1**
Emerging and reemerging infectious diseases including ZIKA,EBOLA and H1N1 infections)	02- GIM -MS-02-09-13	**1**
Total		**50**

Appendix-3: Procedures` list

S.No.	**Operation**	**Minimum No. of cases**
1	Nasogastric Tube Insertion	10
2	Perform Arterial puncture, and Insertion of Percutaneous Arterial Catheter	10
3	Paracentesis	10
4	Central Venous line placement	5
5	Pleurocentesis	5
6	Internal Jugular Puncture	5
7	Bone Marrow Aspiration and Biopsy	5
8	Arthrocentesis	3
9	Endotracheal Intubation	5
10	Lumbar puncture	5