Ordinance Governing

Regulations and Curriculum for

Post Graduate Degree Courses

MD EMERGENCY MEDICINE

SRI SIDDHARTHA
ACADEMY OF HIGHER EDUCATION
(Deemed to be University, declared u/s 3 of the UGC Act, 1956)

Agalakote, B.H. Road, Tumkur – 572107, Karnataka, India

SRI SIDDHARTHA ACADEMY OF HIGHER EDUCATION

("Deemed to be University u/s 3 of the UGC Act, 1956")
Accredited 'A+' Grade by NAAC
Agalakote, B.H.Road, Tumkur – 572 107.KARNATAKA, INDIA.

No. SSAHE/ACA-S&C/09/MD/2023 Date: 22/12/2023

NOTIFICATION

Sub: Ordinance pertaining to Post Graduate Degree MD in Emergency Medicine

Ref: 1). Proceedings of BOS Clinical (Medicine & Allied Subjects) PG held on 04/05/2023
2). Proceedings of the Academic Council meeting held on 30/08/2023

In exercise of the powers vested under section 6 of 6.4 of MoA / Rules of SSAHE, the Academic Council meeting held on 30/08/2023 has been pleased to approved the Ordinances pertaining to Post Graduate Degree MD in Emergency Medicine as given in schedule here to annexed.

The Ordinances as above shall come into force immediately and is applicable for University examination of September 2026 and onwards.

By Order,

REGISTRAR

To,
Dean / Principal, Sri Siddhartha Medical College & Hospital,

Copy to
1) Office of the Chancellor, SSAHE, for kind information,
2) PA to Vice-Chancellor / PA to Registrar / Controller of Examinations / Finance Officer, SSAHE
3) All Officers of the Academy Examination Branch / Academic Section
4) Guard File / Office copy.

Postgraduate Medical Degree and Diploma Courses 2023

EMERGENCY MEDICINE

CONTENTS

Page No

CHAPTER I

Regulations for Postgraduate Degree and Diploma Courses in Medical Sciences

1. Branch of Study

1.1 Postgraduate degree courses

Post Graduate Degree courses may be pursued in the following subjects:

a) MD (Doctor of Medicine)

i) Anaesthesiology
ii) Anatomy
iii) Biochemistry
iv) Community Medicine
v) Dermatology, Venereology and Leprosy
vi) Emergency Medicine
vii) Forensic Medicine
viii) General Medicine
ix) Microbiology
x) Pathology
xi) Paediatrics
xii) Pharmacology
xiii) Physiology
xiv) Psychiatry

b) MS (Master of Surgery)

i) General Surgery
ii) Obstetrics and Gynaecology
iii) Ophthalmology
iv) Orthopedics
v) Oto-Rhino-Laryngology

1.2 Postgraduate Diploma Courses

Post Graduate Diploma Courses may be pursued in the following subjects:

a) Anesthaesiology (DA)
b) Child Health (DCH)
c) Clinical pathology (DCP)
d) Dermatology, Venerology and Leprosy (DDVL)
e) Obstetrics and Gynaecology (DGO)
f) Ophthalmology (DO)
g) Orthopaedics (D Ortho)
h) Oto-rhino-laryngology (DLO)

i) Psychiatry (DPM)

2. Eligibility for Admission

MD / MS Degree and Diploma courses : A candidate affiliated to this University and who has passed final year MBBS examination after pursuing a study in a medical college recognized by the National Medical Commission, or from a recognized medical college affiliated to any other university recognized as equivalent thereto and has completed one year compulsory rotating internship in a teaching institution or other institution recognized by the National Medical Comm, and has obtained permanent registration of any State Medical Council shall be eligible for admission. ,

3. Obtaining Eligibility Certificate by the University before making admission

No candidate shall be admitted for any Postgraduate Degree/Diploma courses unless the candidate has obtained and produced the eligibility certificate issued by the University. The candidate has to make an application to the University with the following documents along with the prescribed fee:

a) MBBS pass/degree certificate issued by the university.
b) Mark cards of all the university examinations passed before MBBS course.
c) Attempt certificate issued by the Principal.
d) Certificate regarding the recognition of the medical college by the National Medical Commission
e) Completion of internship certificate.
f) In case internship was done in a non- teaching hospital, a certificate from the National Medical Commission that the hospital has been recognized for internship.
g) Registration by any state Medical Council.
h) Proof of ST/SC or Category I, as the case may be.

Candidates should obtain the eligibility certificate before the last date for admission as notified by the university.

A candidate who has been admitted to postgraduate course should register his / her name in the university within a month of admission after paying the registration fee.

4. Intake of students

The intake of students to each course shall be in accordance with the NMC and GOI permissions in this regard.

5. Course of study

5.1 Duration

a) **MD, MS Degree Courses:** The course of study shall be for a period of 3 years consisting of 6 terms.
b) **Diploma courses:** The course of study shall be for a period of 2

years consisting of 4 terms.

6. Method of training

The training of postgraduate for degree/diploma shall be residency pattern, with graded responsibilities in the management and treatment of patients entrusted to his/her care. The participation of the students in all facets of educational process is essential. Every candidate should take part in seminars, group discussions, grand rounds, case demonstration, clinics, journal review meetings, CPC and clinical meetings. Every candidate should be required to participate in the teaching and training programme of undergraduate students. Training should include involvement in laboratory and experimental work, and research studies. Basic medical sciences students should be posted to allied and relevant clinical departments or institutions. Similarly, clinical subjects' students should be posted to basic medical sciences and allied specialty departments or institutions.

7. Attendance, Progress and Conduct

7.1 A candidate pursuing degree/diploma course, should work in the concerned department of the institution for the full period as full time student. No candidate is permitted to run a clinic/laboratory/nursing home while studying postgraduate course, nor can he/she work in a nursing home or other hospitals/clinic/laboratory while studying postgraduate course.

7.2 Each year shall be taken as a unit for the purpose of calculating attendance.

7.3 Every student shall attend symposia, seminars, conferences, journal review meetings, grand rounds, CPC, case presentation, clinics and lectures during each year as prescribed by the department and not absent himself / herself from work without valid reasons.

7.4 Every candidate is required to attend a minimum of 80% of the training during each academic year of the post graduate course. Provided, further, leave of any kind shall not be counted as part of academic term without prejudice to minimum 80% attendance of training period every year.

7.5 Any student who fails to complete the course in the manner stated above shall not be permitted to appear for the University Examinations.

8. Monitoring Progress of Studies:

8.1 **Work diary / Log Book:** Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars,

etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any, conducted by the candidate. The work diary shall be scrutinised and certified by the Head of the Department and Head of the Institution, and presented in the University practical/clinical examination.

8.2 **Periodic tests:** In case of degree courses of three years duration (MD/MS, DM, M Ch.), the concerned departments may conduct three tests, two of them be annual tests, one at the end of first year and the other at the end of the second year. The third test may be held three months before the final examination. The tests may include written papers, practical / clinical and viva voce. Records and marks obtained in such tests will be maintained by the Head of the Department and sent to the University, when called for.

8.3 In case of diploma courses of two years duration, the concerned departments may conduct two tests, one of them at the end of first year and the other in the second year, three months before the final examination. The tests may include written papers, practical / clinical and viva voce.

8.4 **Records:** Records and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University or NMC.

9. Dissertation

9.1 Every candidate pursuing MD/MS degree course is required to carry out work on a selected research project under the guidance of a recognised post graduate teacher. The results of such a work shall be submitted in the form of a dissertation.

9.2 The dissertation is aimed to train a postgraduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, and comparison of results and drawing conclusions.

9.3 Every candidate shall submit to the Director (Academic) of the University in the prescribed proforma, a synopsis containing particulars of proposed dissertation work within six months from the date of commencement of the course, on or before the dates notified by the University. The synopsis shall be sent through proper channel.

9.4 Such synopsis will be reviewed and the dissertation topic will be registered by the University. No change in the dissertation topic or

guide shall be made without prior approval of the University.

9.5 The dissertation should be written under the following headings

a) Introduction
b) Aims or Objectives of study
c) Review of Literature
d) Material and Methods
e) Results
f) Discussion
g) Conclusion
h) Summary
i) References
j) Tables
k) Annexure

9.6 The written text of dissertation shall be not less than *50* pages and shall not exceed 150 pages excluding references, tables, questionnaires and other annexure. It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69") and bound properly. Spiral binding should be avoided. The dissertation shall be certified by the guide, head of the department and head of the Institution.

9.7 Four copies of dissertation thus prepared shall be submitted to the Registrar (Evaluation), six months before final examination, on or before the dates notified by the University.

9.8 The dissertation shall be valued by examiners appointed by the University. Approval of dissertation work is an essential precondition for a candidate to appear in the University examination.

9.9 Guide: The academic qualification and teaching experience required for recognition by this University as a guide for dissertation work is as per National Medical Commission, Minimum Qualifications for Teachers in Medical Institutions Regulations, 1998. Teachers in a medical college/institution having a total of eight years teaching experience out of which at least five years teaching experience as Lecturer or Assistant Professor gained after obtaining post graduate degree shall be recognised as post graduate teachers.

9.10 Co Guide: A Co-guide may be included provided the work requires substantial contribution from a sister department or from another medical institution recognised for teaching/training by SSAHE University / National Medical Commission. The co-guide shall be a recognised post graduate teacher of SSAHE University.

9.11 Change of guide: In the event of a registered guide leaving the college for any reason or in the event of death of guide, guide may

be changed with prior permission from the university.

10. Schedule of Examination

The examination for MD / MS courses shall be held at the end of three academic years (six academic terms). The examination for DM and M Ch courses shall be held at the end of three years. The examination for the diploma courses shall be held at the end of two academic years (four academic terms). For students who have already passed Post Graduate Diploma and appearing for MD examination, the examination shall be conducted after two academic years (four academic terms, including submission of dissertation) The University shall conduct two examinations in a year at an interval of four to six months between the two examination. Not more than two examinations shall be conducted in an academic year.

11. Scheme of Examination

11.1 MD / MS Degree

MD / MS Degree examinations in any subject shall consist of dissertation, written paper (Theory), Practical/Clinical and Viva voce.

11.1.1 **Dissertation:** Every candidate shall carryout work and submit a dissertation as indicated in Sl NO 9. Acceptance of dissertation shall be a precondition for the candidate to appear for the final examination.

11.1.2 **Written Examination (Theory):** A written examination shall consist of four question papers, each of three hours duration. Each paper shall carry 100 marks. Out of the four papers, the 1st paper in clinical subjects will be on applied aspects of basic medical sciences. Recent advances may be asked in any or all the papers. In basic medical subjects and para-clinical subjects, questions on applied clinical aspects should also be asked.

11.1.3 **Practical / Clinical Examination:** In case of practical examination, it should be aimed at assessing competence and skills of techniques and procedures as well as testing student's ability to make relevant and valid observations, interpretations and inference of laboratory or experimental work relating to his/her subject.

In case of clinical examination, it should aim at examining clinical skills and competence of candidates for undertaking independent work as a specialist. Each candidate should examine at least one long case and two short cases.

The total marks for Practical / clinical examination shall be 200.

11.1.4 **Viva Voce.** Viva Voce Examination shall aim at assessing depth of knowledge, logical reasoning, confidence and oral

communication skills. The total marks shall be 100 and the distribution of marks shall be as under:

i) For examination of all components of syllabus 80 Marks
ii) For Pedagogy 20 Marks

If there is skills evaluation, 10 marks shall be reserved for Pedagogy and 10 marks for skill evaluation.

11.1.5 **Examiners.** There shall be at least four examiners in each subject. Out of them, two shall be external examiners and two shall be internal examiners. The qualification and teaching experience for appointment as an examiner shall be as laid down by the National Medical Commission.

11.1.6 **Criteria for declaring as pass in University Examination*.** A candidate shall secure not less than 50% marks in each head of passing which shall include (1) Theory, (2) Practical including clinical and viva-voce examination.

A candidate securing less than 50% of marks as described above shall be declared to have failed in the examination. Failed candidate may appear in any subsequent examination upon payment of fresh fee to the Registrar (Evaluation).

11.1.7 **Declaration of class:** A successful candidate passing the University examination in first attempt and secures grand total aggregate 75% of marks or more will be declared to have passed the examination with distinction, 65% but below 75% declared as First Class and 50% but below 65% declared as Second Class.

A candidate passing the University examination in more than one attempt shall be declared as Pass Class irrespective of the percentage of marks.

11.2 DM/M Ch

The examination shall consist of theory, clinical/practical and viva voce examination.

11.2.1 **Theory (Written Examination):** The theory examination shall consist of four question papers, each of three hours duration. Each paper shall carry 100 marks. Out of the four papers, the first paper will be on basic medical sciences. Recent advances may be asked in IV Paper.

11.2.2 **Practical / Clinical Examination:** In case of practical examination it should be aimed at assessing competence, skills of techniques and procedures as well as testing student's ability to make relevant and valid observations,

interpretations and experimental work relevant to his / her subject.

In case of clinical examination it should aim at examining clinical skills and competence of candidates for undertaking independent work as a specialist. Each candidate should examine at least one long case and two short cases.

The maximum marks for Practical / Clinical shall be 200.

11.2.3 **Viva-Voce:** Viva Voce examination shall aim at assessing thoroughly, depth of knowledge, logical reasoning, confidence and oral communication skills. The maximum marks shall be 100.This also includes spotters like instruments, anaesthesia machines, drugs, ECG, X – ray.

11.2.4 **Examiners:** There shall be at least four examiners in each subject. Out of them, two shall be external examiners and two shall be internal examiners. The qualification and teaching experience for appointment as an examiner shall be as laid down by the National Medical Commission.

11.2.5 **Criteria for declaring as pass in University Examination*:** A candidate shall secure not less than 50% marks in each head of passing which shall include (1) Theory (2) Practical including clinical and viva voce examination.

A candidate securing less than 50% of marks as described above shall be declared to have failed in the examination. Failed candidate may appear in any subsequent examination upon payment of fresh fee to the Registrar (Evaluation).

11.3 Diploma Examination:

Diploma examination in any subject shall consist of theory (written papers), Practical / Clinical and Viva - Voce.

11.3.1 **Theory:** There shall be three written question papers each carrying 100 marks. Each paper will be of three hours duration. In clinical subjects one paper out of this shall be on basic medical sciences. In basic medical subjects and Para- clinical subjects, questions on applied clinical aspects should also be asked.

11.3.2 **Practical Clinical Examination:** In case of practical examination it should be aimed at assessing competence, skills related to laboratory procedures as well as testing students ability to make relevant and valid observations, interpretation of laboratory or experimental work relevant

to his/her subject.

In case of clinical examination, it should aim at examining clinical skills and competence of candidates for undertaking independent work as a specialist. Each candidate should examine at least one long case and two short cases.

The maximum marks for Practical / Clinical shall be 150.

11.3.3 **Viva Voce Examination.** Viva Voce examination should aim at assessing depth of knowledge, logical reasoning, confidence and oral communication skills. The total marks shall be 50. This also includes spotters like instruments, anesthesia machines, drugs, ECG, X-ray.

11.3.4 Criteria for declaring as pass in University Examination* A candidate shall secure not less than 50% marks in each head of passing which shall include (1) Theory, (2) Practical including clinical and viva voce examination.

A candidate securing less than 50% of marks as described above shall be declared to have failed in the examination. Failed candidate may appear in any subsequent examination upon payment of fresh fee to the Registrar (Evaluation).

11.3.5 **11.3.5 Declaration of distinction**. A successful candidate passing the University examination in first attempt will be declared to have passed the examination with distinction, if the grand total aggregate marks is 75 percent and above. Distinction will not be awarded for candidates passing the examination in more than one attempt.

11.3.6 **Examiners.** There shall be at least four examiners in each subject. Out of them, two shall be external examiners and two shall be internal examiners. The qualification and teaching experience for appointment as an examiner shall be as laid down by the National Medical Commission.

12. Number of Candidates per day

The maximum number of candidates for practical / clinical and viva-voce examination shall be as under:

MD /MS Course: Maximum of 6 per day.

Diploma Course: Maximum of 8 per day.

CHAPTER II

GOALS AND GENERAL OBJECTIVES OF POSTGRADUATE MEDICAL EDUCATION PROGRAM

GOAL

The goal of postgraduate medical education shall be to produce competent specialists and/or medical teachers:

1. Who shall recognize the health needs of the community and carry out professional obligations ethically and in keeping with the objectives of the national health policy.
2. Who shall have mastered most of the competencies, pertaining to the speciality, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system.
3. Who shall be aware of the contemporary advance and developments in the discipline concerned.
4. Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology and
5. Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

GENERAL OBJECTIVES

At the end of the postgraduate training in the discipline concerned the student shall be able to:

1. Recognize the importance to the concerned speciality in the context of the health needs of the community and the national priorities in the health section.
2. Practice the speciality concerned ethically and in step with the principles of primary health care.
3. Demonstrate sufficient understanding of the basic sciences relevant to the concerned speciality.
4. Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies.

5. Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
6. Plan and advice measures for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.
7. Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
8. Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
9. Play the assigned role in the implementation of national health programme, effectively and responsibly.
10. Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
11. Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.
12. Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyze relevant published research literature.
13. Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
14. Function as an effective leader of a health team engaged in health care, research or training.

STATEMENT OF THE COMPETENCIES: Keeping in view the general objectives of postgraduate training, each discipline shall aim at development of specific competencies which shall be defined and spelt out in clear terms. Each department shall produce a statement and bring it to the notice of the trainees in the beginning of the programme so that he or she can direct the efforts towards the attainment of these competencies.

COMPONENTS OF THE POSTGRADUATE CURRICULUM:

The major components of the Postgraduate curriculum shall be:

- Theoretical knowledge
- Practical and clinical skills
- Thesis skills.
- Attitudes including communication skills.
- Training in research methodology.

CHAPTER III

CURRICULUM

M D EMERGENCY MEDICINE

Index

3.2.11 Musculo-Skeletal Emergencies

3.2.12 Neurological Emergencies in Adults and Children

3.2.13 Ophthalmic Emergencies in Adults and Children

3.2.14 Pulmonary Emergencies in Adults and Children

3.2.15 Psychiatric and Behaviour Disorders

3.2.16 Renal and Urological Emergencies in Adults and Children

3.2.17 Trauma in Adults and Children

3.3 COMMON PRESENTING SYMPTOMS

3.3.1 Acute Abdominal Pain

3.3.2 Altered Behaviour and Agitation

3.3.3 Altered Level of Consciousness in Adults and Children

3.3.4 Back Pain

3.3.5 Bleeding (Non Traumatic)

3.3.6 Cardiac Arrest

3.3.7 Chest pain

3.3.8 Crying Baby

3.3.9 Diarrhoea

3.3.10 Dyspnoea

3.3.11 Fever and Endogenous Increase in Body Temperature

3.3.12 Headache in Adults and Children

3.3.13 Jaundice

3.3.14 Pain in Arms

3.3.15 Pain in Legs

3.3.16 Palpitations

3.3.17 Seizures in Adults and Children

3.3.18 Shock in Adults and Children

3.3.19 Skin Manifestations in Adults and Children

3.3.20 Syncope

3.3.21 Urinary Symptoms (Dysuria, Oligo-Anuria, Polyuria)

3.3.22 Vertigo and Dizziness

3.3.23 Vomiting

3.4 SPECIFIC ASPECTS OF EMERGENCY MEDICINE

3.4.1 Abuse and Assault in Adults and Children

3.4.2 Analgesia and Sedation in Adults and Children

3.4.3 Disaster Medicine

3.4.4 Environmental Accidents in Adult and Children

3.4.5 Forensic Issues

3.4.6 Injury Prevention and Health Promotion

3.4.7 Patient Management Issues in Emergency Medicine

3.4.8 Problems in the Elderly

3.4.9 Toxicology in Adults and Children

3.4.10 Pre-Hospital Care

3.4.11 Psycho-Social Problems

3.5 CORE CLINICAL PROCEDURES AND SKILLS

3.5.1 CPR Skills

3.5.2 Airway Management Skills

3.5.3 Analgesia and Sedation Skills

3.5.4 Breathing and Ventilation Management Skills

3.5.5 Circulatory Support and Cardiac Skills and Procedures

3.5.6 Diagnostic Procedures and Skills

3.5.7 ENT Skills and Procedures

3.5.8 Gastrointestinal Procedures

PREFACE

This curriculum sets out the intended aims and objectives, content, experiences, outcomes and processes of the educational programme intended to provide emergency physicians with adequate knowledge and sufficient clinical experience to be safe, expert and independent practitioners functioning at consultant level. It is intended that the curriculum be forward-looking and aspirational and is very much centered on the Emergency Department as the principal learning environment for trainees.

Emergency Medicine has long been established as a primary medical specialty world-wide: however, in India, it has been granted the status of an independent specialty very recently. It is sometimes seen to be synonymous with emergency medical care and within the province and expertise of almost all medical practitioners. However, the specialty of Emergency Medicine incorporates the resuscitation and management of all undifferentiated urgent and emergency cases until discharge or transfer to the care of another physician. Emergency Medicine is an inter-disciplinary specialty, one which is interdependent with all other clinical disciplines. It thus complements and does not seek to compete with other medical specialties.

The essential features of a clinical specialty include a unique field of action, a defined body of knowledge and a rigorous training programme. Emergency Medicine has a unique field of action, both within the Emergency Department and in the community, and this curriculum document not only incorporates the relevant body of knowledge and associated competencies but also establishes the essential principles for a rigorous training programme.

2. INTRODUCTION

2.1 THE SPECIALTY OF EMERGENCY MEDICINE

Emergency Medicine is a medical specialty based on the knowledge and skills required for the prevention, diagnosis and management of the acute and urgent aspects of illness and injury affecting patients of all age groups with a full spectrum of undifferentiated physical and behavioural disorders. It is a specialty in which time is critical. The practice of Emergency Medicine encompasses the pre-hospital and in-hospital reception, resuscitation and management of undifferentiated urgent and emergency cases until discharge from the Emergency Department or transfer to the care of another physician. It also includes involvement in the development of pre-hospital and in-hospital emergency medical systems.

2.2 CURRICULUM FOR EMERGENCY MEDICINE

Any curriculum must state the aims and objectives, content, experiences, outcomes and processes of the educational programme of a specialty]. It should include a description of the training structure, such as entry requirements, length and organization of the programme including its flexibilities, and assessment system and a description of the expected methods of learning, teaching, feedback and supervision. The curriculum should cover both generic

professional and specialty specific areas.This document describes the recommended curriculum for Emergency Medicine training.

3. COMPETENCIES, KNOWLEDGE AND SKILLS

The curriculum covers knowledge, skills and expertise which the trainee in Emergency Medicine must achieve and includes:

- Core Competencies of the Emergency Physician
- System-Based Core Knowledge
- Common Presenting Symptoms
- Special Aspects of Emergency Medicine
- Core Clinical Procedures and Skills.

3.1 CORE COMPETENCIES OF AN EMERGENCY PHYSICIAN

Some of the competencies identified in this curriculum are those required of a hospital specialist in any medical discipline while others are more specific to the practice of Emergency Medicine. However, it is accepted that the levels of competence required of an Emergency Physician in specialised areas of medical practice should be limited to those which determine whether and when urgent or immediate more specialist referral is appropriate. Emergency Medicine complements and does not seek to compete with other hospital medical disciplines.

The areas of competency in Emergency Medicine are:

- Patient care
- Medical knowledge
- Communication, collaboration and interpersonal skills
- Professionalism, ethical and legal issues
- Organisational planning and service management skills
- Education and research.

3.1.1 PATIENT CARE

Emergency Physicians care for patients with a wide range of pathology, from the life threatening to the self-limiting and of all age groups. The attendance and number of these patients is unpredictable and they mostly present with symptoms rather than diagnoses. Therefore the provision of care needs to be prioritised, and this is a dynamic process. The approach to the patient is global rather than organ specific. Patient care includes physical, mental and social aspects. It focuses on initial care until discharge or referral to other health professionals. Patient education and public health aspects must be considered in all cases. To ensure the above patient care, EPs must particularly focus on the following:

3.1.1.1 Triage

EPs must know the principles of triage which is the process of the allocation and medical prioritisation of care for the pre-hospital setting, the Emergency Department and in the event of mass casualties. It is based mainly on the evaluation of vital parameters and key symptoms to prioritise and categorise patients according to severity of injury or illness, prognosis and availability of resources.

3.1.1.2 Primary assessment and stabilisation of life threatening conditions

The ABCDE approach must be the primary assessment tool for all patients and does not require a diagnostic work-up. It is a structured approach with which to identify and resuscitate the critically ill and injured. EPs must be able to assess, establish and maintain: Airway [A], Breathing [B], Circulation [C], Disability [D] and Exposure [E] of the patient.

3.1.1.3 Focused medical history

EPs must focus the initial medical history on presenting complaints and on clinical findings as well as on conditions requiring immediate care.

3.1.1.4 Secondary assessment and immediate clinical management

EPs must perform secondary assessment with a timely diagnostic work-up focusing on the need for early action. Clinical management must also include further aspects of health (physical, mental and social).

3.1.1.5 Clinical decision making

EPs must be able to make clinical decisions including:

- re-triage
- immediate and/or definitive care provided in the ED
- planning for admission or discharge.

3.1.1.6 Clinical documentation

EPs must make contemporaneous medical records which focus on:

- relevant medical history
- main complaints and abnormal findings
- provisional diagnosis and planned investigations
- results of investigations
- treatment
- conclusions and management decisions
- patient information.

3.1.1.7 Re-evaluation and further management

EPs must perform continuous re-evaluation of the patient, with adjustment of the provisional diagnosis and care when it becomes necessary.

3.1.2 MEDICAL KNOWLEDGE AND CLINICAL SKILLS

Emergency Physicians (EPs) need to acquire the knowledge and skills described in sections 3.2, 3.3, 3.4 and 3.5.

3.1.3 COMMUNICATION, COLLABORATION AND INTERPERSONAL SKILLS

Emergency Medicine is practiced in difficult and challenging environments. Effective communication is essential for safe care and for building and maintaining good relationships, avoiding barriers such as emotions, stress and prejudices. EPs must be able to use both verbal and non-verbal communication skills, as well as information and communication technology. In the case of a patient who is incompetent by virtue of age or mental capacity, communication should be with a parent or other legal representative.

EPs must be able to demonstrate communication and interpersonal skills that include the following:

3.1.3.1 Patients and relatives

EPs should give special attention to involving the patient in decision-making, seeking informed consent for diagnostic and therapeutic procedures, sharing information, breaking bad news, giving advice and recommendations on discharge and also communicating with populations with language barriers.

3.1.3.2 Colleagues and other health care providers

Important skills for an EP are sharing information on patient care, working as a member or the leader of a team, referring and transferring patients.

3.1.3.3 Other care providers such as the police, the fire department and social services

EPs must give attention to respecting patient confidentiality.

3.1.3.4 Mass media and the general public

EPs must be able to interact with the mass media in a constructive way, giving correct information to the public and at the same time respecting the privacy of the patient.

3.1.4 PROFESSIONALISM AND OTHER ETHICAL AND LEGAL ISSUES

3.1.4.1 Professional behaviour and attributes

The general professional behaviour and attributes of Emergency Physicians must not be adversely influenced by working in stressful circumstances and with a diverse patient population. They must learn to identify their educational needs and to work within their own limitations. They must be able to self-motivate even at times of stress or discomfort. They must recognise their own as well as system errors and value participation in the peer review process.

3.1.4.2 Working within a team or as a leader of a team

EPs must understand the role of colleagues in other specialities and must be able to lead or to work effectively even in a new or large team often under considerable stress.

3.1.4.3 Delegation and referral

EPs must understand the responsibilities and potential consequences of delegating, referring to a colleague in another discipline or transferring the patient to another doctor, health care professional or health care setting.

3.1.4.4 Patient confidentiality

EPs must understand the law regarding patient confidentiality and data protection. They must know what confidentiality problems arise when dealing with relatives, the police, EMS communication, telephone discussions and the media.

3.1.4.5 Autonomy and informed consent

EPs must respect the right of competent patients to be fully involved in decisions about their care. They must also value the right of competent patients to refuse clinical procedures or treatment. They must understand how the ethical principles of autonomy and informed consent affect emergency practitioners.

3.1.4.6 The competent/incompetent patient

EPs must be able to assess whether a patient has the competence to make an informed decision. They must also understand the legal rights of a guardian or adult with power of attorney and when they treat minors. They must be familiar with those aspects of mental health legislation which relate to competence.

3.1.4.7 Abuse and violence

EPs must be able to recognise patterns of illness or injury which might suggest physical or sexual abuse or domestic violence to children or adults. They must be able to initiate appropriate child or adult protection procedures. They must also learn to prevent and limit the risks of violence and abuse to staff working in an emergency setting.

3.1.4.8 Do not attempt to resuscitate (DNAR) and limitations of therapeutic interventions

EPs must learn to discuss with colleagues and in a professional and empathic manner with relatives, the initiation or possible discontinuation of active interventions when this is considered to be medically appropriate .They must understand when and how they should use advance directives such as living wills and durable powers of attorney.

3.1.4.9 Medico-legal issues

EPs must operate within the legal framework of the country.

3.1.4.10 Legislation and ethical issues in Emergency Medicine

EPs should have an understanding of ethics and law, as well as the legal aspects of bioethical issues in Emergency Medicine. They must be able to make a reasoned analysis of ethical conflicts and develop the skills to resolve ethical dilemmas in an appropriate manner. They must also look to the law for guidance, although the law does not always provide the answer to many ethical problems.

Ethics in Emergency Medicine help to prepare EPs to face new ethical dilemmas in their practice. The use of ethical analysis provides the framework for determining moral duty, obligation and conduct. EPs must learn to identify, refine, and apply general moral principles to their practice related to:

- Patient autonomy (informed consent and refusal, patient decision-making capacity, treatment of minors, advance directives, the obligations of the Good Samaritan.

- End of life decisions (limiting resuscitation, futility).

- The physician-patient relationship (confidentiality, truth telling and communication, compassion and empathy).

- Issues related to justice (duty, ethical issues of resuscitation, health care rationing, moral issues in disaster medicine, research, resuscitation issues in pregnancy).

3.1.5 ORGANISATIONAL PLANNING AND SERVICE MANAGEMENT SKILLS

This competence is needed to enhance the safety and quality of patient care and the work environment. Emergency Physicians must continuously adapt and prioritise existing and available resources to meet the needs of all patients and maintain the quality of care.

3.1.5.1 Case management

EPs must be able to provide and balance the different care processes between the individual patient and the total case-mix. After primary and secondary assessment, they may refer a patient to another point of contact within the health care or social network. They must provide clear guidance to those patients discharged without formal follow up.

3.1.5.2 Quality standards, audit and clinical outcomes

It is important that EPs use evidence-based medicine and recognise the value of quality standards to improve patient care which is effective and safe. They must be able to undertake audit and use clinical outcomes, including critical incident reporting, as ways of continuously improving clinical practice.

3.1.5.3 Time management

EPs must be able to manage the individual patient as well as the overall patient flow in a timely manner which is dependent upon available resources, accepted medical standards and public expectation. EPs must also learn to manage their own time in an effective way.

3.1.5.4 Information management

EPs often manage patients for whom limited information is available. They may need to communicate with other agencies to obtain relevant information while respecting the confidentiality of the patient. Patient data collected during the process of care must be accessible to all involved health care professionals through adequate documentation. EPs need a broad knowledge of the latest advances in medicine and must be able to access and manage information relevant to the specific care of an individual patient.

3.1.5.5 Documentation

EPs are responsible for clear, legible, accurate, contemporaneous and complete records of patient care where the author, date and time are clearly identified. Documentation is a continuous process and all entries must be made in real time as far as possible.

3.1.6 EDUCATION AND RESEARCH

3.1.6.1 Self education and improvement

EPs must develop their knowledge and practice in EM by continuous education. They have to identify areas for personal improvement and learn to implement patient care based on scientific evidence.

3.1.6.2 Teaching skills

EPs must be involved in teaching undergraduate, graduate and post graduate health care students, and the general population. They must also continuously develop the skills to be effective teachers.

3.1.6.3 Critical appraisal of scientific literature

EPs must be able to investigate and evaluate their own practice. They must learn to use evidence-based medicine and guidelines, where applicable, and become familiar with the principles of clinical epidemiology, biostatistics, quality assessment and risk management.

3.1.6.4 Clinical and basic research

EPs must understand the scientific basis of EM, the use of scientific methods in clinical research and the fundamental aspects of basic research. They must be able to critically review research studies and be able to understand, present and implement them into clinical practice. They should understand the process of developing a hypothesis from a clinical problem and of testing that hypothesis. They should also understand the specific aspects of obtaining consent as well as the ethical considerations of research in emergency situations.

3.2 SYSTEM-BASED CORE KNOWLEDGE

This section of the curriculum gives an index of the system-based core knowledge appropriate to the management of patients presenting with undifferentiated symptoms and complaints. This list is mostly given in the following sequence: congenital disorders; inflammatory and infectious disorders; metabolic disorders; traumatic and related problems; tumours; vascular disorders, ischaemia and bleeding: other disorders. These lists cannot be exhaustive.

3.2.1 CARDIOVASCULAR EMERGENCIES IN ADULTS AND CHILDREN

- Arrhythmias
- Congenital heart disorders
- Contractility disorders, pump failure
- Cardiomyopathies, congestive heart failure, acute pulmonary oedema, tamponade
- Valvular emergencies
- Inflammatory and infectious cardiac disorders
- Endocarditis, myocarditis, pericarditis
- Ischaemic heart disease - Acute coronary syndromes, stable angina
- Traumatic injuries
- Vascular and thromboembolic disorders
- Aortic dissection/aneurysm rupture, deep vein thrombosis, hypertensive emergencies, occlusive arterial disease, thrombophlebitis, pulmonary embolism, pulmonary hypertension

3.2.2 DERMATOLOGICAL EMERGENCIES IN ADULTS AND CHILDREN

- Inflammatory and Infectious disorders
- Skin manifestations of immunological disorders, systemic disorders & toxic disorders

3.2.3 ENDOCRINE AND METABOLIC EMERGENCIES IN ADULTS AND CHILDREN

- Acute presentation of inborn errors of metabolism
- Adrenal insufficiency, crisis and other adrenal emergencies
- Disorders of glucose metabolism
- Hyperosmolar hyperglycaemic state, hypoglycaemia, ketoacidosis
- Thyroid emergencies hyperthyroidism, hypothyroidism, myxoedema, thyroid storm

3.2.4 FLUID AND ELECTROLYTE DISTURBANCES

- Acid-Base disorders
- Electrolyte disorders
- Volume status and fluid balance

3.2.5 EAR, NOSE, THROAT, ORAL AND NECK EMERGENCIES IN ADULTS AND CHILDREN

- Bleeding
- Complications of tumours
- Airway obstruction, bleeding
- Foreign bodies
- Inflammatory and Infectious disorders
- Angio-oedema, epiglottitis, laryngitis, paratonsillar abcess
- Traumatic problems

3.2.6 GASTROINTESTINAL EMERGENCIES IN ADULTS AND CHILDREN

- Congenital disorders
- Hirschsprung's disease, Meckel's diverticulum, pyloric stenosis
- Inflammatory and Infectious disorder –appendicitis, cholecystitis, cholangitis, diverticulitis, exacerbations and
- Complications of inflammatory bowel diseases, gastritis, gastroenteritis,

gastro-oesophageal reflux disease, pancreatitis, peptic ulcer, peritonitis

- Metabolic disorders
- Traumatic and mechanical problems- foreign bodies, hernia strangulation, intestinal obstruction and occlusion
- Tumours
- Vascular disorders: Ischaemia and Bleeding
- Ischaemic colitis, upper and lower gastrointestinal bleeding, mesenteric ischaemia
- Other problems
- Complications of gastrointestinal devices and surgical procedures

3.2.7 GYNAECOLOGICAL AND OBSTETRIC EMERGENCIES

- Inflammatory and Infectious disorders

  pelvic inflammatory disease, vulvovaginitis

- Obstetric emergencies
- abruptio placentae, eclampsia, ectopic pregnancy, emergency delivery,
- HELLP syndrome during pregnancy, hyperemesis gravidarum, placenta praevia,

post-partum haemorrhage

- Traumatic and related problems
- Ovarian torsion
- Tumours

  Vaginal bleeding

3.2.8 HAEMATOLOGY AND ONCOLOGY EMERGENCIES IN ADULTS AND CHILDREN

- Anaemias
- Complications of lymphomas and leukaemias
- Congenital disorders- Haemophilias and Von Willebrand's disease, hereditary haemolytic, anaemias, sickle cell disease
- Inflammatory and Infectious disorders
- Neutropenic fever, infections in immuno-compromised patients
- Vascular disorders: Ischaemia and Bleeding
- Acquired bleeding disorders (coagulation factor deficiency, disseminated
- intravascular coagulation), drug induced bleeding (anticoagulants,antiplatelet agents, fibrinolytics), idiopathic thrombocytopenic purpura, thrombotic thrombocytopenic purpura
- Transfusion reactions, Massive transfusion

3.2.9 IMMUNOLOGICAL EMERGENCIES IN ADULTS AND CHILDREN

- Allergies and anaphylactic reactions
- Inflammatory and Infectious disorders
- Acute complications of vasculitis

3.2.10 INFECTIOUS DISEASES AND SEPSIS IN ADULTS AND CHILDREN

- Common viral and bacterial infections
- Food and water-born infectious diseases
- HIV infection and AIDS
- Common tropical diseases
- Parasitic infestations
- Rabies
- Sepsis and septic shock
- Sexually transmitted diseases
- Streptococcal toxic shock syndrome

- Tetanus

3.2.11 MUSCULO-SKELETAL EMERGENCIES

- Congenital disorders
- Dislocated hip, osteogenesis imperfecta
- Inflammatory and Infectious disorders
- Arthritis, bursitis, cellulitis, complications of systemic rheumatic diseases, necrotising fasciitis, osteomyelitis, polymyalgia rheumatica, soft tissue infections
- Metabolic disorders
- Complications of osteoporosis and other systemic diseases
- Traumatic and degenerative disorders
- Common fractures and dislocations, compartment syndromes, crush syndrome, osteoarthrosis, rhabdomyolysis, soft tissue trauma
- Tumours: pathological fractures

3.2.12 NEUROLOGICAL EMERGENCIES IN ADULTS AND CHILDREN

- Inflammatory and Infectious disorders - brain abscess, encephalitis, febrile seizures in children, Guillain-Barrè syndrome, meningitis, peripheral facial palsy (Bell's palsy), temporal arteritis
- Traumatic and related problems

Complications of CNS devices, spinal cord syndromes, peripheral nerve trauma and entrapment, traumatic brain injury

- Tumours - common presentations and acute complications of neurological a metastatic tumours
- Vascular disorders: Ischaemia and Bleeding Carotid artery dissection, stroke, subarachnoid haemorrhage, subdural and extradural haematomata, transient ischaemic attack, venous sinus thrombosis
- Other problems

Acute complications of chronic neurological conditions (e.g. myasthenic crisis, multiple sclerosis), acute peripheral neuropathies, seizures and

- Status epilepticus

3.2.13 OPHTHALMIC EMERGENCIES IN ADULTS AND CHILDREN

- Inflammatory and Infectious disorders

conjunctivitis, dacrocystitis, endophthalmitis, iritis, keratitis, orbital and Periorbital cellulitis, uveitis

- Traumatic and related problems

Foreign body in the eye, ocular injuries,

- Vascular disorders: Ischaemia and Bleeding -retinal artery and vein occlusion, vitreous haemorrhage

- Acute glaucoma, retinal detachment

3.2.13PULMONARY EMERGENCIES IN ADULTS AND CHILDREN

- Congenital -cystic fibrosis

- Inflammatory and Infectious disorder -asthma, bronchitis, bronchiolitis, pneumonia, empyema, COPD exacerbation, lung abscess, pleurisy and pleural effusion, pulmonary fibrosis, tuberculosis

- Traumatic and related problem foreign body inhalation, haemothorax, tension pneumothorax,

- pneumomediastinum

- Tumours - common complications and acute complications of pulmonary and metastatic tumours

- Vascular disorders pulmonary embolism

- Other disorders

- Acute lung injury, atelectasis, ARDS, spontaneous pneumothorax

3.2.15 PSYCHIATRIC AND BEHAVIOUR DISORDERS

- Behaviour disorders

- Affective disorders, confusion and consciousness disturbances, intelligence disturbances, memory disorders, perception disorders, psycho-motor disturbances, thinking disturbances.

- Common psychiatric emergencies

Acute psychosis, anorexia and bulimia complications, anxiety and panic attacks, conversion disorders, deliberate self-harm and suicide attempt

- Depressive illness, personality disorders, substance, drug and alcohol abuse

3.2.16 RENAL AND UROLOGICAL EMERGENCIES IN ADULTS AND CHILDREN

- Inflammatory and Infectious disorders

epididymo-orchitis, glomerulonephritis, pyelonephritis, prostatitis, sexually transmitted diseases, urinary tract infections, etc.

- Metabolic disorders

Acute kidney Injury, uraemia , haemolytic uraemic syndrome

- Traumatic and related problems
- Urinary retention, testicular torsion
- Tumours
- Vascular disorders: Ischaemia and Bleeding
- Comorbidities in dialysis and renal transplanted patients
- Complications of urological procedures and devices

3.2.17 TRAUMA IN ADULTS AND CHILDREN

- Origin of trauma: Thermal Injury, Chemical injury, Ionising radiation Injury blunt trauma, penetrating trauma
- Anatomical location of trauma: Head and neck, maxillo-facial, thorax, abdomen, pelvis, spine, extremities Polytrauma patient
- Trauma in specific populations: children, elderly, pregnant women.

COMMON PRESENTING SYMPTOMS

Emergency medicine represents the unique combination of rapid data gathering, simultaneous prioritization, and constant multi-tasking in a time-constrained triage area – with all decisions subject to second-guessing by others. It is a patient complaint-oriented specialty in which stabilization based on anticipation supersedes lengthy differentials and diagnostic precision.

This section of the Curriculum lists the more common presenting symptoms of patients in the emergency setting. The differential diagnoses are listed according to the systems involved and then in alphabetical order. The diagnoses requiring immediate attention, in terms of potential severity and need of priority, are highlighted in bold. These lists of possible diagnoses cannot be exhaustive.

3.3.1 ACUTE ABDOMINAL PAIN

• Gastrointestinal causes

appendicitis, cholecystitis, cholangitis, acute pancreatitis, complications of hernias, diverticulitis, hepatitis, hiatus hernia, inflammatory bowel disease, intestinal obstruction, ischaemic colitis, mesenteric ischaemia, peptic ulcer, peritonitis, hollow viscus perforation

• Cardiac/vascular causes

acute myocardial infarction, aortic dissection, aortic aneurysm rupture

• Dermatological causes

herpes zoster, other local inflammatory & infective causes

• Endocrine and metabolic causes

Addison's disease, diabetic ketoacidosis, other metabolic acidosis, porphyria

• Gynaecological and Obstetric causes

complications of pregnancy, ectopic pregnancy, pelvic inflammatory disease, rupture of ovarian cyst, ovarian torsion

• Haematological causes

acute porphyria crisis, familial mediterranean fever, sickle cell crisis

• Musculo-skeletal causes referred pain from thoraco-lumbar spine

• Renal and Genitourinary causes

pyelonephritis, renal stones

• Respiratory causes

pneumonia, pleurisy

• Toxicology

poisoning

• Trauma- Abdominal

3.3.2 ALTERED BEHAVIOUR AND AGITATION

• Neurological causes

cerebral space-occupying lesions, dementia, hydrocephalus, intracranial hypertension, CNS infections

• Toxicology

alcohol and drug abuse, poisoning

• Endocrine and metabolic causes

hypoglycaemia, hyperglycaemia, electrolyte imbalance, hyperthermia, hypoxaemia

• Cardiac/Vascular causes

hypertension, vasculitis

• Psychiatric causes

acute psychosis, depression

3.3.3 ALTERED LEVEL OF CONSCIOUSNESS IN ADULTS AND CHILDREN

• Neurological causes

cerebral tumour, epilepsy and status epilepticus, meningitis,encephalitis, stroke, subarachnoid haemorrhage, subdural and extradural haematomata, traumatic brain injury

• Cardiovascular causes

hypoperfusion states, shock

• Endocrine and metabolic causes

electrolyte imbalances, hepatic coma, hypercapnia, hypothermia, hypoxia, hypoglycaemia/ hyperglycaemia, uraemia

• Gynaecological and Obstetric causes - eclampsia

• Infectious causes - septic shock

• Psychiatric causes - Conversion syndrome

• Respiratory causes - Respiratory failure

• Toxicology - Alcohol intoxication, carbon-monoxide poisoning, narcotic and sedative poisoning, other substances

3.3.4 BACK PAIN

• Musculo-Skeletal causes

Fractures, intervertebral disc strain and degeneration, strain of muscles, ligaments and tendons, spinal stenosis, arthritides, arthrosis

• Cardiovascular causes

aortic aneurysm, aortic dissection

• Infectious causes

osteomyelitis, discitis, pyelonephritis, prostatitis

• Endocrine and metabolic causes

Paget's disease

• Gastrointestinal causes

pancreatitis, cholecystitis

• Dermatological causes

herpes zoster

• Gynaecological causes

endometriosis, pelvic inflammatory disease

• Haematological and Oncological causes

abdominal or vertebral tumours

• Neurological cause:

subarachnoid haemorrhage

• Renal and Genitourinary causes

renal abscess, renal calculi

• Trauma

3.3.5 BLEEDING (NON TRAUMATIC)

• Ear, Nose, Throat causes

ear bleeding (otitis, trauma, tumours), epistaxis

• Gastrontestinal causes

haematemesis and melaena (acute gastritis, gastro-duodenal ulcer, Mallory Weiss syndrome, oesophageal varices) rectal bleeding (acute diverticulitis, haemorrhoids, inflammatory bowel disease, tumours)

• Gynaecological and Obstetric causes

menorrhagia/metrorrhagia (abortion, abruptio placentae, tumours)

• Renal and Genitourinary causes

haematuria (pyelitis, tumours, urolithiasis)

• Respiratory causes

haemoptysis (bronchiectasis, pneumonia, tumours, tuberculosis)

3.3.6 CARDIAC ARREST

• Cardiac arrest treatable with defibrillation

Ventricular fibrillation, pulseless ventricular tachycardia

• Pulseless electric activity

Acidosis, hypoxia, hypothermia, hypo/hyperkalaemia, hypocalcaemia,hypo/hyperglycaemia, hypovolaemia, tension pneumothorax, cardiac tamponade, myocardial infarction, pulmonary embolism, poisoning

• Asystole

3.3.7 CHEST PAIN

• Cardiac/vascular causes

Acute coronary syndrome, aortic dissection, arrhythmias, pericarditis, pulmonary embolism

• Respiratory causes

Pneumonia, pneumomediastinum, pneumothorax (especially tension pneumothorax), pleurisy

• Gastrointestinal causes -Gastro-oesophageal reflux, oesophageal rupture, oesophageal spasm

• Musculo-Skeletal causes

costosternal injury, costochondritis, intercostal muscle pain, pain referred from thoracic spine

• Psychiatric causes - anxiety, panic attack

• Dermatological causes - herpes zoster

3.3.8 CRYING BABY

• Infections

herpes stomatitis, meningitis, osteomyelitis, urinary tract infection

• testicular torsion, trauma, teeth problems,

• Cardiac

arrhythmias, congestive heart failure

• reaction to milk, reaction to medications, reflux

• immunisation and allergic reactions, insect bites

• Eye corneal abrasions, glaucoma, ocular foreign bodies

• Some gastrointestinal causes

hernia, intussusception, volvulus

3.3.9 DIARRHOEA

• Infectious causes

AIDS, bacterial enteritis, viral, parasites, food-borne, toxins

• Toxicological causes - drugs related, poisoning (including heavy metals, mushrooms,organophosphates, rat poison, seafood)

• Endocrine and metabolic causes - carcinoids, diabetic neuropathy

• Gastrointestinal causes - diverticulitis, dumping syndrome, ischaemic colitis, inflammatory bowel disease, enteritis due to radiation or chemotherapy

• Haematological and Oncological causes

toxicity due to cytostatic therapies

• Immunology - food allergy

• Psychiatric disorders - diarrhoea "factitia"

3.3.10 DYSPNOEA

• Respiratory Causes

airway obstruction, broncho-alveolar obstruction, parenchymal diseases, pulmonary shunt, pleural effusion, atelectasis, pneumothorax

• Cardiac/vascular causes

cardiac decompensation, cardiac tamponade, pulmonary embolism

• Ear, Nose, Throat causes

epiglottitis, croup and pseudocroup

• Fluid & Electrolyte disorders

hypovolaemia, shock, anaemia

• Gastrointestinal causes

hiatus hernia

• Immunological causes

vasculitis

• Metabolic causes

metabolic acidosis, uraemia

• Neurological causes

myasthenia gravis, Guillain Barrè syndrome, amyotrophic lateral sclerosis

• Psychiatric disorders

conversion syndrome

• Toxicology

CO intoxication, cyanide intoxication

• Trauma

flail chest, lung contusion, traumatic pneumothorax, haemothorax

3.3.11 FEVER AND ENDOGENOUS INCREASE IN BODY TEMPERATURE

• Systemic infectious causes

sepsis and septic shock, parasitosis, flu-like syndrome

• Organ-specific infectious causes

endocarditis, myocarditis, pharyngitis, tonsillitis, abscesses, otitis,

cholecystitis and cholangitis, meningitis, encephalitis

• Non-infectious causes

Lyell syndrome, Stephen-Johnson syndrome, thyroid storm,

pancreatitis, inflammatory bowel disease, pelvic inflammatory disease, toxic shock,

• Haematological and Oncological causes

leukaemia and lymphomas, solid tumours

• Immunological causes

arteritis, arthritis, lupus, sarcoidosis

• Musculo-Skeletal causes

osteomyelitis, fasciitis and cellulitis

• Neurological causes

cerebral haemorrhage

• Psychiatric causes

factitious fever

• Renal and Genitourinary causes

pyelonephritis, prostatitis

• Toxicology

3.3.12 HEADACHE IN ADULTS AND CHILDREN

• Vascular causes

migraine, cluster headache, tension headache, cerebral haemorrhage, hypertensive encephalopathy, ischaemic stroke

• Haematological and Oncological causes -brain tumours

• Immunological causes

temporal arteritis, vasculitis

• Infectious causes

abscesses, dental infections, encephalitis, mastoiditis, meningitis,sinusitis

• Musculo-Skeletal causes

cervical spine diseases, temporomandibular joint syndrome

• Neurological causes

trigeminal neuralgia

• Ophthalmological causes

optic neuritis, acute glaucoma

• Toxicology - alcohol, analgesic abuse, calcium channel blockers, glutamate, nitrates,opioids and caffeine withdrawal

• Trauma - head trauma

3.3.13 JAUNDICE

• Gastrointestinal causes

cholangitis, hepatic failure, pancreatic head tumour, pancreatitis, obstructive cholestasis

• Cardiac/Vascular causes

chronic cardiac decompensation

• Haematological and Oncological causes

haemolytic anaemias, thrombotic thrombocytopenic purpura, haemolytic uraemic syndrome, disseminated intravascular coagulation

• Infectious causes

malaria, leptospirosis ,infective endocarditis

• Gynaecological causes

HELLP syndrome

• Toxicology

drug induced haemolytic anaemias, snake venom

3.3.14 PAIN IN ARMS

• Cardiac/Vascular causes

aortic dissection, deep venous thromboembolism, ischaemic heart disease

• Musculo-skeletal causes

periarthritis, cervical spine arthrosis

• Trauma

3.3.15 PAIN IN LEGS

• Cardiac/Vascular causes

acute ischaemia, arteritis, deep venous thrombosis, superficial thrombophlebitis

• Immunological causes

polymyositis

• Infectious causes

arthritis, cellulites, necrotising fasciitis, osteomyelitis

• Musculo-Skeletal causes

sciatalgia

• Neurological causes

sciatica

• Nervous system causes

peripheral nerve compression

• Trauma

3.3.16 PALPITATIONS

• Cardiac/Vascular causes

brady-arrythmias (including sinus bradycardia and AV blocks), extrasystoles, tachy-arrythmias (including atrial fibrillation, sinus tachycardia, supraventricular tachycardia, ventricular tachycardia)

• Endocrine and metabolic causes

Thyrotoxicosis,phaeochromocytoma

• Toxicology - Drugs

3.3.17 SEIZURES IN ADULTS AND CHILDREN

• Neurological causes

generalised epilepsy, partial complex or focal epilepsy, status epilepticus

• Cardiac/Vascular causes

hypertensive encephalopathy, syncope, dysrhythmias, migraines

• Endocrine and metabolic causes

metabolic seizures

• Gynaecological causes

eclampsia

• Infective causes

febrile seizures in children

• Psychiatric causes

narcolepsy, pseudo-seizures

• Respiratory causes

respiratory arrest

• Toxicology

drugs/toxins

3.3.18 SHOCK IN ADULTS AND CHILDREN

• Anaphylactic

• Cardiogenic

• Hypovolaemic

• Obstructive

• Cardiac/Vascular causes - cardiogenic shock, arrhythmias

•Endocrine and metabolic causes - Addison's crisis

• Fluid and Electrolyte disorders - hypovolaemic shock

• Gastrontestinal causes - vomiting, diarrhoea

• Gynaecological causes - toxic shock

• Immunological causes - anaphylactic shock

• Infectious causes - septic shock

• Neurological causes - neurogenic shock

• Trauma - hypovolaemic shock, neurogenic shock.

3.3.19 SKIN MANIFESTATIONS IN ADULTS AND CHILDREN

• Dermatological causes - eczema, psoriasis, skin tumours

• Immunological causes -vasculitides, urticaria, Stevens-Johnson syndrome, Lyell syndrome (TENS)

• Infectious causes - viral exanthemata, meningococcaemia, herpes zoster/simplex, abscesses of the skin

• Psychiatric causes -Self-inflicted skin lesions or from abuse

• Toxicology

• Haematological and Oncological causes

idiopathic thrombocytopenic purpura, thrombotic thrombocytopenic purpura

3.3.20 SYNCOPE

• Cardiac/vascular causes

aortic dissection, cardiac arrhythmias (including brady-tachy syndrome, Brugada syndrome, drug overdose, long QT syndrome, sick sinus syndrome, torsades de pointes, ventricular tachycardia), other causes of hypoperfusion (including ischaemia, valvular,haemorrhage, obstruction: e.g. aortic stenosis, pulmonary embolism, tamponade)orthostatic hypotension

• Endocrine and metabolic causes

Addison's disease

• Fluid and Electrolyte disorders

hypovolaemia

• Gastrointestinal causes - vomiting, diarrhoea

• Neurological causes - autonomic nervous system disorder, epilepsy, vasovagal reflex,

• Toxicology - alcoholic or drug consumption

3.3.21 URINARY SYMPTOMS (DYSURIA, OLIGO/ANURIA, POLYURIA)

• Renal and Genitourinary causes

acute renal failure, acute urinary retention, cystitis and pyelonephritis,prostatitis

• Cardiac/Vascular causes

cardiac decompensation

• Endocrine and metabolic causes - diabetes mellitus, diabetes insipidus

• Fluid and Electrolyte disorders

Hypovolaemia

3.3.22 VERTIGO AND DIZZINESS

• Ear and Labyrinth causes

benign postural vertigo, Meniere's disease, otitis, vestibular neuritis, viral labyrinthitis

• Cardiac/Vascular causes

arrhythmias, hypotension

• Endocrine and metabolic causes

hypoglycaemia

• Haematological and Oncological causes

anaemias

• Nervous system causes

acoustic neuroma, bulbar or cerebellar lesions, multiple sclerosis, temporal lobe epilepsy

• Psychiatric causes

anxiety

• Respiratory causes

hypoxia

• Toxicology

alcohol abuse, drugs and substances

3.3.23 VOMITING

• Gastrointestinal causes

appendicitis, cholecystitis, gastroparesis, gastric obstruction and retention,gastroenteritis, hepatitis, pancreatitis, pyloric stenosis, small bowel obstructions

• Cardiac/Vascular causes - myocardial ischaemia

• Ear, Nose, Throat causes, vestibular disorders

• Endocrine and metabolic causes -diabetic ketoacidosis, hypercalcaemia

• Fluid and Electrolyte disorders - hypovolaemia

• Gynaecological and Obstetric causes - pregnancy

• Infectious causes -sepsis, meningitis

• Neurological causes - cerebral oedema or haemorrhage, hydrocephalus, intracranial space occupying lesions

• Ophthalmological causes - acute glaucoma

• Psychiatric causes - eating disorders

• Renal and Genitourinary causes - renal calculi, uraemia

• Toxicology

3.4 SPECIFIC ASPECTS OF EMERGENCY MEDICINE

3.4.1 ABUSE AND ASSAULT IN ADULTS AND CHILDREN

• Abuse in the elderly and impaired

• Child abuse and neglect

• Intimate partner violence and abuse

• Sexual assault

• Patient safety in Emergency Medicine

• Violence management and prevention in the Emergency Department

3.4.2 ANALGESIA AND SEDATION IN ADULTS AND CHILDREN

• Pain transmission (anatomy, physiology, pharmacology)

• Pain assessment

• Pharmacology of sedative and pain relieving drugs

• Psychological and social aspects of pain in paediatric, adult and elderly patients

3.4.3 DISASTER MEDICINE

• Disaster preparedness

• Major incident planning/procedures/practice

• Disaster response

• Mass gatherings

• Specific medical topics (triage, bioterrorism, blast and crush injuries, chemical agents, radiation injuries)

• Debriefing and mitigation

3.4.4 ENVIRONMENTAL ACCIDENTS IN ADULT AND CHILDREN

• Electricity (electrical and lightening injuries)

• Flora and Fauna (injuries from exposure, bites and stings)

• High-altitude (medical problems)

• NBCR (nuclear, biological, chemical and radiological:, decontamination, specific aspects)

• Temperature (heat and cold related emergencies)

• Travel medicine

• Water (near-drowning, dysbarism and complications of diving, marine fauna)

3.4.5 FORENSIC ISSUES

• Basics of relevant legislation in the country of practice

• Recognise and preserve evidence

• Provide appropriate medical documentation (including forensic and clinical photography, collection of biological samples, ballistics)

• Appropriate reporting and referrals (e.g. child abuse or neglect, gunshot and other forms of penetrating wounds, elder abuse, sexual assault allegations)

• Medico-legal documentation

3.4.6 INJURY PREVENTION AND HEALTH PROMOTION

• Collection and interpretation of data related to prevention and health promotion

• Epidemiology of Accidents and Emergencies

• Formulation of recommendations

3.4.7 PATIENT MANAGEMENT ISSUES IN EMERGENCY MEDICINE

• Emergency Department organisation (administration, structure, staffing, resources)

• Management of specific populations:

children in special circumstances including child protection

women

elderly patients

homeless patients

mentally incompetent adults

psychiatric patients

3.4.8 PROBLEMS IN THE ELDERLY

• Atypical presentations (e.g. abdominal pain, infections, myocardial infarction)

• Delirium

• Dementia

• Falls (causes & investigations)

• Immobility

• Multiple pathology and multiple therapies

• Self-dependency

• Trauma & co-morbidity

3.4.9 TOXICOLOGY IN ADULTS AND CHILDREN

• General principles of toxicology and management of poisoned patients

• Principles of drug interactions

• Specific aspects of poisoning

drugs (including paracetamol, amphetamine, anticholinergics, anticonvulsants, antidepressants, antihypertensives, benzodiazepines, digitalis, monoamine oxidase inhibitors, neuroleptics)

industrial, chemicals

plants & mushrooms

alcohol abuse and alcohols poisoning

drugs of abuse

• Organisation and information (e.g. poison centres, databases)

3.4.10 PRE-HOSPITAL CARE

• Emergency Medical Services organisation (administration, structure, staffing,resources)

• Medical transport (including neonates and children, air transport)

• Paramedic training and function

• Safety at the scene

• Collaboration with other emergency services (e.g. police, fire department)

3.4.11 PSYCHO-SOCIAL PROBLEMS

• Social wellbeing of specific populations

• Patients with social issues

• Frequent visitors

• Social care following discharge

3.5 CORE CLINICAL PROCEDURES AND SKILLS

3.5.1 CPR SKILLS

• Cardio-pulmonary resuscitation procedures in a timely and effective manner according to the current AHA-ECC guidelines for adults and children.

BLS, ACLS Certification Mandatory

3.5.2 AIRWAY MANAGEMENT SKILLS

• Open and maintain the airway in the emergency setting (insertion of oropharyngeal or nasopharyngeal airway)

• Endotracheal intubation

• Alternative airway techniques in the emergency setting (e.g. laryngeal mask insertion, surgical airway)

• Difficult airway management algorithm

• Use of rapid sequence intubation in the emergency setting

3.5.3 ANALGESIA AND SEDATION SKILLS

• Assessment of the level of pain and sedation

• Monitor vital signs and potential side effects during pain management

• Provide procedural sedation and analgesia including conscious sedation (including testing of life support equipment)

• Use of appropriate local, topical and regional anaesthesia techniques

3.5.4 BREATHING AND VENTILATION MANAGEMENT SKILLS

• Assessment of breathing and ventilation

• Oxygen therapy

• Interpretation of blood gas analysis, pulse oximetry and capnography

• Bag-mask-valve ventilation

• Thoracocentesis

• Chest tube insertion, connection to under-water drainage and assessment of functioning

• Non-invasive ventilation techniques

• Invasive ventilation techniques

3.5.5 CIRCULATORY SUPPORT AND CARDIAC SKILLS AND PROCEDURES

• Administration of fluids including blood and substitutes

• Monitoring of ECG and the circulation

• Defibrillation and pacing (e.g. cardioversion, transcutaneous pacing)

• Emergency pericardiocentesis

• Vascular access (peripheral venous, arterial, and central venous catheterization, intraosseous access)

3.5.6 DIAGNOSTIC PROCEDURES AND SKILLS

• Interpretation of ECG

• Appropriate request and interpretation of laboratory investigations (blood chemistry, blood gases, respiratory function testing and biological markers)

• Appropriate request and interpretation of imaging (e.g. x-rays, ultrasound, CT/MRI)

• Performance of focused sonographic assessment

3.5.7 ENT SKILLS AND PROCEDURES

• Anterior rhinoscopy

• Insertion of nasal pack

• Inspection of oropharynx and larynx

• Otoscopy

• Removal of foreign body if airway is compromised

• Insertion and replacement of tracheostomy tube

3.5.8 GASTROINTESTINAL PROCEDURES

• Insertion of nasogastric tube

• Gastric lavage

• Peritoneal lavage

• Abdominal paracentesis

• Measurement of abdominal pressure

• Proctoscopy

3.5.9 GENITOURINARY PROCEDURES

• Insertion of indwelling urethral catheter

• Suprapubic cystostomy

• Testicular torsion reduction

• Evaluation of patency of urethral catheter

Management of paraphimosis

Dorsal slit operation

3.5.10 HYGIENE SKILLS AND PROCEDURES

• Decontamination of patient and the environment

• Patient isolation and staff protection

3.5.11 MUSCULOSKELETAL TECHNIQUES

• Aseptic joint aspiration

• Fracture immobilisation

• Reduction of joint dislocation

• Log roll and spine immobilisation

• Splinting (plasters, braces, slings, tapes and other bandages)

• Management of compartment syndrome

• Fasciotomy, escharotomy

3.5.12 NEUROLOGICAL SKILLS AND PROCEDURES

• Evaluation of consciousness

. Evaluation of Stroke

• Fundoscopy

• Lumbar puncture

• Interpretation of neuro-imaging

3.5.13 OBSTETRIC AND GYNAECOLOGICAL SKILLS AND PROCEDURES

• Emergency delivery

• Vaginal examination using speculum

• Assessment of the sexual assault victim

3.5.14 OPHTHALMIC SKILLS AND PROCEDURES

• Removal of foreign body from the eye

Fundus examination

• Slit lamp use

• Lateral canthotomy

3.5.15 TEMPERATURE CONTROL PROCEDURES

• Measuring and monitoring of body temperature

• Cooling techniques (evaporative cooling, ice water or slush immersion)

• Internal cooling methods

• Warming techniques

• Monitoring heat stroke patients

• Treatment and prevention of hyper- and hypothermia

3.5.16 TRANSPORTATION OF THE CRITICALLY ILL PATIENT

• Telecommunication and telemedicine procedures

• Preparation of the EMS vehicle

• Specific aspects of monitoring and treatment during transportation

3.5.17 GENERAL SURGICAL SKILLS

- Abscess incision and drainage
- Aseptic techniques
- Treatment of lacerations and soft tissue injuries
- Wound irrigation and wound closure
- Wound debridement
- Minor amputations
- Minor surgical procedures –
    - Abdominal hernia reduction
    - Resuscitation and Management of burns patient including dressing burns patient.
    - ATLS Certification is mandatory

Teaching and Learning Activities

A candidate pursuing the course should work in the institution as a full time student. No candidate should be permitted to run a clinic/laboratory/nursing home while studying postgraduate course. Each year should be taken as a unit for the purpose of calculating attendance

Every student shall attend teaching and learning activities during each year as prescribed by the department and not absent himself / herself from work without valid reasons.

A list of teaching and learning activities designed to facilitate students acquire essential knowledge and skills outlined is given below:

1. **Lectures:** Lectures are to be kept to a minimum. They may, however, be employed for teaching certain topics. Lectures may be didactic or integrated.
    a. **Didactic Lectures:** Recommended for selected common topics for post graduate students of all specialties. Few topics are suggested as examples:
        i. Bio-statistics.
        ii. Use of library.
        iii. Research methods.
        iv. Medical code of conduct and medical ethics.
        v. National Health and Disease Control programmes.
        vi. Communication skills etc.

    These topics may preferably taken up in the first few weeks of the 1st year.
    b. **Integrated Lectures:** These are recommended to be taken by multidisciplinary teams for selected topics, eg. Jaundice, diabetes mellitus, thyroid etc.
2. **Journal Club:** Recommended to be held once a week. All the PG students are expected to attend and actively participate in discussion and enter in the log book relevant details. Further, every candidate must make a presentation from the allotted journal(s), selected articles at least four times a year and a total of 12 seminar presentations in three years. The presentations would be evaluated using check lists and would carry weightage for internal assessment (See checklist in chapter IV). A time table with names of the student and the moderator should be announced at the beginning of every year.
3. **Subject Seminar:** Recommended to be held once a week. All the PG students are expected to attend and actively participate in discussion and enter in the log book relevant details. Further, every candidate must present on selected topics at least four times a year and a total of 12 seminar presentations in three years. The presentations would be evaluated using check lists and would carry weightage for internal assessment (See checklist in chapter IV). A timetable for the subject with names of the student and the moderator should be scheduled at the beginning of every year.
4. **Student Symposium:** Recommended as an optional multi disciplinary programme. The evaluation may be similar to that described for subject seminar.
5. **Ward Rounds:** Ward rounds may be service or teaching rounds.
    a. **Service Rounds:** Postgraduate students and Interns should do every

day for the care of the patients. Newly admitted patients should be worked up by the PGs and presented to the seniors the following day.

b. **Teaching Rounds:** Every unit should have 'grand rounds' for teaching purpose. A diary should be maintained for day to day activities by the students.

Entries of (a) and (b) should be made in the log book.

6. **Clinico-Pathological Conference:** Recommended once a month for all post graduate students. Presentation be done by rotation. If cases are not available due to lack of clinical postmortems, it could be supplemented by published CPCs.

7. **Inter Departmental Meetings:** Strongly recommended particularly with departments of pathology and radio-diagnosis at least once a week. these meetings should be attended by post graduate students and relevant entries must be made in the Log Book.

   Pathology: *A* dozen interesting cases may be chosen and presented by the post graduate students and discussed by them as well as the senior staff of Surgery department. The staff of Pathology department would then show the slides and present final diagnosis. In these sessions the advance immuno-histo-chemical techniques, the burgeoning markers other recent developments can be discussed.

   Radio-diagnosis*:* Interesting cases and the imaging modalities should be discussed.

8. **Teaching Skills:** Post graduate students must teach under graduate students (eg medical, nursing) by taking demonstrations, bed side clinics, tutorials, lectures etc. Assessment is made using a checklist by surgery faculty as well students. (See model check in chapter IV). Record of their participation be kept in Log book. Training of post graduate students in educational science and technology is recommended.

9. **Continuing Medical Education Programmes (CME):** Recommended that at least state level CME programmes should be attended by each student in 3 years.

10. **Conferences:** Attending conferences is optional. However it is encouraged.

Rotation and posting in other departments

The listed knowledge and skills are to be learnt over a period of 3 years. The process is a continuous one. However the recommended period and timing of training in basic subjects, allied departments and specialty departments is given below.

Basic Science

Basic science should be an essential part of training. It should be done as concurrent studies during the 1st year of training. At least two hours daily may be in the first six months of the course. In the first year, during the morning session, time is spent in the parent department. In the afternoons basic science teaching relevant to surgery can be done in the respective departments.

Topics for study to include anatomy, physiology, pathology, microbiology, pharmacology, anaesthesia and radiology.

Pathology: concurrent study. Recommend daily grossing sessions, weekly surgical pathology sessions and monthly CPCs.

Radiology: concurrent study. Adequate exposure to modern imaging modalities like u/s, CT, MRI and angiography

Allied Specialty Training

Postings to other specialty departments and duration of postings are as under:

Department	Duration of posting
General Medicine	1 month
Cardiology including CCU	1 month
Pediatrics including PICU	1 month
Anaesthesia	15 days
General Surgery	1 month
Orthopaedics	15 days
Obstetrics & Gynecology	1 month
Radiology	15 days
Pulmonary Medicine	1 month
ICU	1 month
ENT Surgery	15 days
Neurology	15 days
Neurosurgery	15 days
Nephrology	15 days
Ophthalmology	15 days
Psychiatry	15 days

Dissertation

Every candidate pursuing MD degree course is required to carry out work on a selected research project under the guidance of a recognised post graduate teacher. The results of such a work shall be submitted in the form of a dissertation.

The dissertation is aimed to train a post graduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, comparison of results and drawing conclusions.

Every candidate shall submit to the Registrar (Academic) of the University in the prescribed proforma, a synopsis containing particulars of proposed dissertation work within six months from the date of commencement of the course, on or before the dates notified by the University. The synopsis shall be sent through proper channel.

Such synopsis will be reviewed and the dissertation topic will be registered by the University. No change in the dissertation topic or guide shall be made without prior approval of the University.

The dissertation should be written under the following headings:

1. Introduction
2. Aims or Objectives of study
3. Review of Literature
4. Material and Methods
5. Results
6. Discussion
7. Conclusion
8. Summarys
9. References
10. Tables
11. Annexures

The written text of dissertation shall be not less than 50 pages and shall not exceed 150 pages excluding references, tables, questionnaires and other annexures. It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69") and bound properly. Spiral binding should be avoided. The dissertation shall be certified by the guide, head of the department and head of the Institution.

Our copies of dissertation thus prepared shall be submitted to the Registrar (Evaluation), six months before final examination, on or before the dates notified by the University.

The dissertation shall be valued by examiners appointed by the University. Approval of dissertation work is an essential precondition for a candidate to appear in the University examination.

For some more details regarding Guide etc, please see chapter I and for books on research methodology, ethics, etc, see chapter IV.

Monitoring Learning Progress

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. checklists are given in chapter IV.

The learning out comes to be assessed should included: (1) Personal attitudes, (2) Acquisition of knowledge, (3) Clinical and operative skills, (4) Teaching skills and (5) Dissertation.

1. **Personal Attitudes:** The essential items are:
   a. Caring attitudes.
   b. Initiative.
   c. Organisational ability.
   d. Potential to cope with stressful situations and undertake responsibility
   e. Trust worthiness and reliability.
   f. To understand and communicate intelligibly with patients and others.
   g. To behave in a manner which establishes professional relationships with patients and colleagues.
   h. Ability to work in team.
   i. A critical enquiring approach to the acquisition of knowledge.

   The methods used mainly consist of observation. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors and peers.

2. **Acquisition of Knowledge:** The methods used comprise of 'Log Book' which records participation in various teaching / learning activities by the students. The number of activities attended and the number in which presentations are made are to be recorded. The log book should periodically be validated by the supervisors. Some of the activities are listed. The list is not complete. Institutions may include additional activities, if so, desired.
   a. **Journal Review Meeting (Journal Club):** The ability to do literature search, in depth study, presentation skills, and use of audio- visual aids are to be assessed. The assessment is made by faculty members and peers attending the meeting using a checklist (see Model Checklist – I, in Chapter IV)
   b. **Seminars / Symposia***:* The topics should be assigned to the student well in advance to facilitate in depth study. The ability to do literature search, in depth study, presentation skills and use of audio- visual aids are to be assessed using a checklist (see Model

Checklist-II, Chapter IV)

c. **Clinico-Pathological conferences***:* This should be a multidisciplinary case study of an interesting case to train the candidate to solve diagnostic and therapeutic problems by using an analytical approach. The presenter(s) are to be assessed using a check list similar to that used for seminar.

d. **Audit:** Periodic morbidity and mortality meeting be held. Attendance and participation in these must be insisted upon. This may not be included in assessment.

3. **Clinical skills**
   a. **Day to Day work:** Skills in outpatient and ward work should be assessed periodically. The assessment should include the candidates' sincerity and punctuality, analytical ability and communication skills (see model checklist III, chapter IV).
   b. **Clinical meetings:** Candidates should periodically present cases to his peers and faculty members. This should be assessed using a check list (see model checklist IV, chapter IV).
   c. **Clinical and Operative skills:** The candidate should be given graded responsibility to enable learning by apprenticeship. The performance is assessed by the guide by direct observation. Particulars are recorded by the student in the log book. (Table No 3, chapter IV)
4. **Teaching skills:** Candidates shou'd be encouraged to teach undergraduate medical students and paramedical students, if any. This performance should be based on assessment by the faculty members of the department and from feedback from the undergraduate students (See model checklist V, chapter IV)
5. **Dissertation in the Department:** Periodic presentations are to be made in the department. Initially the topic selected is to be presented before submission to the University for registration, again before finalisation for critical evaluation and another before final submission of the completed work (See model checklist VI & VII, chapter IV)
6. **Periodic tests:** The departments may conduct three tests, two of them be annual tests, one at the end of first year and the other in the second year. The third test may be held three months before the final examination. The tests may include written papers, practical / clinical and viva voce.
7. **Work diary / Log Book:** Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate.
8. **Records:** Records, log books and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University

or NMC.

Log book

The log book is a record of the important activities of the candidates during his training. Internal assessment should be based on the evaluation of the log book. Collectively, log books are a tool for the evaluation of the training programme of the institution by external agencies. The record includes academic activities as well as the presentations and procedures carried out by the candidate.

Format for the log book for the different activities is given in Tables 1, 2 and 3 of chapter IV. Copies may be made and used by the institutions.

Procedure for defaulters*:* Every department should have a committee to review such situations. The defaulting candidate is counselled by the guide and head of the department. In extreme cases of default the departmental committee may recommend that defaulting candidate be withheld from appearing the examination, if she/he fails to fulfill the requirements in spite of being given adequate chances to set himself or herself right.

Scheme of Examination

A. Theory

There shall be four question papers, each of three hours duration. Each paper shall consist of two long essay questions, each question carrying 20 marks and 6 short essay questions, each carrying 10 marks. Total marks for each paper will be 100. Questions on recent advances may be asked in any or all the papers. Details of distribution of topics for each paper will be as follows:

Paper I - Physiology, Pathology and Pharmacology as applied to emergency medicine.

Paper II- Cardiorespiratory and medical emergencies.

Paper III- Surgical emergencies including Trauma.

Paper IV - Obstetrics, Ophthalmic, Toxicological and other emergencies.

Note: The distribution of chapters / topics shown against the papers are

Clinical - 200 marks

There shall be one long case and two short cases to be examined and presented by each candidate.

Type of cases:

Long case 1 - **100 marks**

Short cases 2 (50x2) **- 100 marks**

B. Viva voce - 100 marks

a. Viva-voice Examination: (80 marks)

All examiners will conduct viva-voice conjointly on candidate's comprehension, analytical approach, expression and interpretation of data. It includes all components of course contents. In addition candidates may be also be given case reports, charts, gross specimens, histo pathology slides, X-rays, ultrasound, CT scan images, etc., for interpretation. Questions on operative surgery and use of instruments will be asked. It includes discussion on dissertation also.

b. Pedagogy Exercise: (20 marks) A topic be given to each candidate in the beginning of clinical examination. He/she is asked to make a presentation on the topic for 8-10 minutes.

C. Distribution of Marks:

	Theory	Practical	Viva	Grand Total
Maximum marks for M D Emergency Medicine	400	200	100	700

Recommended books and Journals

Text books

1. Tintinalli, Judith E Stapczynski, Stephen J et al. Tintinalli's emergency medicine, McGraw Hill Medical Publishing 7th E.2011

2. Marx, Hockberger Walls Rosen's emergency medicine Mosby, 7th E, 2010

3. Dennis L. Kasper, Eugene Braunwald, Anthony S. Fauci et al.Harrison's Principles of Internal Medicine 19th E McGraw Hill 2011

4. Norman Williams,Christopher Bulstrode, P Ronan O'Connell. Bailey & Love's Short Practice of Surgery 26E

5. F. Brunicardi, Dana Andersen, Timothy Billiar and David Dunn.Schwartz's Principles of Surgery, Ninth E

6. Brian W Ellis,Hamilion Bailey's emergency surgery. Jaypee Borthers13th Ed.2012

7. Hagberg,Benumof and Hagberg's Airway Management 3/E 2012 Elsevier

8. Valani -Essential emergency procedural sedation and pain management .LWW 2011

9. Taylor.K.J.W;Viscomi.G.N EDS., Ultrasound in Emergency Medicine Churchill Livingstone, NY

Reference works recommended

1. William F. Ganong : Review of Medical Physiology, 2000, Lange
2. Lee Mcgregor : Synopsis of Surgical Anatomy, 12th E, 1998, K.M. Verghese
3. W.T. Irvine : Modern Trends in Surgery, Series, Butterworths
4. R.F. Rintoul : Farqharson's Text Book of Operative Surgery, 8th E
5. Cuschiery : Essentials of Surgical Practice, 3rd Edition, 1995, K.M. Verghese Company E 1995
6. Somen Das: A practical Guide to Operative Surgery, 4th Edition, 1999, S. Das, Calcutta.
7. Pankaj Patel, V.V. Dewoodkar, Handbook of Surgical Instruments for Undergraduates, 1992, Bhalani publishing, House
8. R.A. Jamieson and A.W. Kay: Text book of Surgical Physiology, Lavingstone.
9. James Kyle : Pye's Surgical Handicraft, Indian Edition, K.M. Varghese Company
10. Mark Feldman Sleisengar and Fordtran's Gastrointestinal and Liver Disease 2Vol.Saunder, Philadelpea-2010
11. Farokh Erach Udwadia. Principles of critical care. Oxford 2E.2005

12. Fleisher, Gary R Ludwig, Stephen.Text book of pediatric emergency medicine Wolters Kluer LWW Philadelphia 6E.2011

13. Mattu, Amal Chanmugam, Arjuns Swadron, Stuart P Tibbles.Avoiding common error's in the emergency department. Wolters Kluwer LWW Philadelphia.2010

14. Cameron, Peter Jelinck, George Everitt. Text book of pediatric emergency medicine. C L Elsevier Edinburgh2E 2012

15. Simon, Robert R. Sherman, Scott C.Koenigsknecht, Steren J.Emergency orthopadics the extremities MC Graw hill.5thE.2007

16. Valani Essential Emergency Procedural Sedation and Pain Management 2011.

17. Shah. Essential Emergency Trauma 2011.LWW.5E.
18. Pope.Harris and Harris Radiology of Emergency Medicine, 5/E 2012.LWW.2012
19. Amieva-Wang. A Practical Guide to Pediatric Emergency Medicine.2011.Cambridge
20. Glick, Rachel lipson. ; Berlin.Emergency psychiatry principal and practice. Wolterskluver.2008

21. Ehlers, Justis.P, Shah, Chirag.P,;The wills eye manual.LWW Wolters Kluwer Philadelphia5.2009

22. Rachel Lipson glick; Jon.S. Berlin; Avrim .B, Fish Kind; Scott.L, Zeller Emergency psychiatry principles and practice. Lipppincott 2009

JOURNALS

1. Jl of Emergencies, Trauma and Shock
2. Emergency Medicine Clinics of North America
3. Academic Emergency Medicine
4. American Jl of Emergency Medicine
5. Annals of Emergency Medicine
6. Emergency Medicine Jl
7. Clinical Pediatric Emergency Medicine
8. Environmental Toxicology and Pharmacology
9. Journal of Acute Medicine
10. Journal of Emergency Medicine
11. Resuscitation
12. Toxicology
13. Wilderness & Environmental Medicine
14. The New England Journal of Medicine
15. The Lancet
16. British Medical Journal

17.Journal of Association of Physicians

CHAPTER IV

Monitoring Learning Progress

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring shall be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Model checklists are given in this chapter which may be copied and used.

The learning out comes to be assessed should include:

1. Personal Attitudes.
2. Acquisition of Knowledge.
3. Clinical and operative skills and
4. Teaching skills.

1. <u>Personal Attitudes</u>: The essential items are:

a. Caring attitude.
b. Initiative.
c. Organisational ability.
d. Potential to cope with stressful situations and undertake responsibility.
e. Trust worthiness and reliability.
f. To understand and communicate intelligibly with patients and others.
g. To behave in a manner that establishes professional relationships with patients and colleagues.
h. Ability to work in a team.
i. A critical enquiring approach to the acquisition of knowledge.

The methods used mainly consist of observation. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors and peers.

2. <u>Acquisition of Knowledge</u>: The methods used comprise of 'Log Book' which records participation in various teaching / learning activities by the students. The number of activities attended and the number in which presentations are made are to be recorded. The log book should periodically be validated by the supervisors. Some of the activities are listed. The list is not complete. Institutions may include additional activities, if so, desired.

a. **Journal Review Meeting (Journal Club).** The ability to do literature search, in depth study, presentation skills, and use of audio- visual aids are to be assessed. The assessment is made by faculty members and peers attending the meeting using a checklist (see Model Checklist – I, Chapter IV)

b. **Seminars / Symposia.** The topics should be assigned to the student well in advance to facilitate in depth study. The ability to do literature search, in depth study, presentation skills and use of audio- visual aids are to be assessed using a checklist (see Model Checklist-II, Chapter IV)

c. **Clinico-pathological conferences.** This should be a multidisciplinary study of an interesting case to train the candidate to solve diagnostic and therapeutic problems by using an analytical approach. The presenter(s) are to be assessed using a check list similar to that used for seminar.

d. **Medical Audit.** Periodic morbidity and mortality meeting shall be held. Attendance and participation in these must be insisted upon. This may not be included in assessment.

3. Clinical skills:

a. **Day to Day work:** Skills in outpatient and ward work should be assessed periodically. The assessment should include the candidates' sincerity and punctuality, analytical ability and communication skills (see Model Checklist III, Chapter IV).

b. **Clinical meetings:** Candidates should periodically present cases to his peers and faculty members. This should be assessed using a check list (see Model checklist IV, Chapter IV).

c. **Clinical and Procedural skills:** The candidate should be given graded responsibility to enable learning by apprenticeship. The performance is assessed by the guide by direct observation. Particulars are recorded by the student in the log book. (Table No.3, Chapter IV)

4. Teaching skills: Candidates should be encouraged to teach undergraduate medical students and paramedical students, if any. This performance should be based on assessment by the faculty members of the department and from feedback from the undergraduate students (See Model checklist V, Chapter IV)

5. **Periodic tests:** In case of degree courses of three years duration, the department may conduct three tests, two of them be annual tests, one at the end of first year and the other in the second year. The third test may be held three months before the final examination. In case of diploma courses of two

year duration, the departments may conduct two tests. One of them at the end of first year and the other in the second year, three months before the final examination. The tests may include written papers, practical / clinical and viva voce.

6. Work diary: Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate.

7. Records: Records, log books and marks obtained in tests will be maintained b y the Head of the Department and will be made available to the University or NMC.

8. Log book: The log book is a record of the important activities of the candidates during his training. Internal assessment should be based on the evaluation of the log book. Collectively, log books are a tool for the evaluation of the training programme of the institution by external agencies. The record includes academic activities as well as the presentations and procedures carried out by the candidate. Format for the log book for the different activities is given in Tables 1, 2 and 3 of Chapter IV. Copies may be made and used by the institutions.

Procedure for defaulters: Every department should have a committee to review such situations. The defaulting candidate is counseled by the guide and head of the department. In extreme cases of default the departmental committee may recommend that defaulting candidate be withheld from appearing the examination, if she/he fails to fulfill the requirements in spite of being given adequate chances to set him or herself right.

CHAPTER IV (Contd)

Format of Model Check Lists

Check List-I

MODEL CHECK-LIST FOR EVALUATION OF JOURNAL REVIEW PRESENTATIONS

Name of the Student:

Name of the Faculty/Observer:

Date:

Sl No	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Article chosen was					
2.	Extent of understanding of scope & objectives of the paper by the candidate					
3.	Whether cross references have been consulted					
4.	Whether other relevant publications consulted					
5.	Ability to respond to questions on the paper / subject					
6.	Audio-visual aids used					
7.	Ability to defend the paper					
8.	Clarity of presentation					
9.	Any other observation					
	Total Score					

Check List – II

MODEL CHECK-LIST FOR EVALUATION OF SEMINAR PRESENTATIONS

Name of the Student:

Name of the Faculty/Observer:

Date:

Sl No	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Whether other relevant publications consulted					
2.	Whether cross references have been consulted					
3.	Completeness of Preparation					
4.	Clarity of Presentation					
5.	Understanding of subject					
6.	Ability to answer questions					
7.	Time scheduling					
8.	Appropriate use of Audio-Visual aids					
9.	Overall Performance					
10.	Any other observation					
	Total Score					

Check List - III

MODEL CHECK LIST FOR EVALUATION OF CLINICAL WORK IN WARD / OPD

(To be completed once a month by respective Unit Heads, including posting in other departments)

Name of the Student:

Name of the Faculty/Observer:

Date:

Sl No	Points to be considered	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Regularity of attendance					
2.	Punctuality					
3.	Interaction with colleagues and supportive staff					
4.	Maintenance of case records					
5.	Presentation of cases during rounds					
6.	Investigations work up					
7.	Beside manners					
8.	Rapport with patients					
9.	Counseling patient's relatives for blood donation or Postmortem and Case follow up.					
10.	Overall quality of ward work					
	Total Score					

Check List - IV

EVALUATION FORM FOR CLINICAL PRESENTATION

Name of the Student:

Name of the Faculty:

Date:

Sl No	Points to be considered	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Completeness of history					
2.	Whether all relevant points elicited					
3.	Clarity of Presentation					
4.	Logical order					
5.	Mentioned all positive and negative points of importance					
6.	Accuracy of general physical examination					
7.	Whether all physical signs elicited correctly					
8.	Whether any major signs missed or misinterpreted					
9.	Diagnosis: Whether it follows follows logically from history and findings					
10.	Investigations required ▪ Complete list ▪ Relevant order ▪ Interpretation of investigations					
11.	Ability to react to questioning Whether it follows logically from history and findings					
12.	Ability to defend diagnosis					
13.	Ability to justify differential diagnosis					
14.	Others					
	Total Score					

Check List - V

MODEL CHECK LIST FOR EVALUATION OF TEACHING SKILL PRACTICE

Sl No		Strong Point	Weak Point
1.	Communication of the purpose of the talk		
2.	Evokes audience interest in the subject		
3.	The introduction		
4.	The sequence of ideas		
5.	The use of practical examples and/or illustrations		
6.	Speaking style (enjoyable, monotonous, etc., specify)		
7.	Attempts audience participation		
8.	Summary of the main points at the end		
9.	Asks questions		
10.	Answers questions asked by the audience		
11.	Rapport of speaker with his audience		
12.	Effectiveness of the talk		
13.	Uses AV aids appropriately		

Check List - VI

MODEL CHECK LIST FOR DISSERTATION PRESENTATION

Name of the Student:

Name of the Faculty:

Date:

Sl No	Points to be considered divine	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Interest shown in selecting a topic					
2.	Appropriate review of literature					
3.	Discussion with guide & other faculty					
4.	Quality of Protocol					
5.	Preparation of proforma					
	Total Score					

Check List - VII

CONTINUOUS EVALUATION OF DISSERTATION WORK BY GUIDE / CO GUIDE

Name of the Student:

Name of the Faculty:

Date:

Sl No	Items for observation during presentations	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Periodic consultation with guide/co-guide					
2.	Regular collection of case Material					
3.	Depth of analysis / discussion					
4.	Departmental presentation of findings					
5.	Quality of final output					
6.	Others					
	Total Score					

LOG BOOK

Table 1: Academic activities attended

Name: Admission Year:

College:

Date	Type of Activity Specify Seminar, Journal Club, Presentation, UG teaching	Particulars

LOG BOOK

Table 2: Academic presentations made by the student

Name: Admission year:

College:

Date	Topic	Type of Presentation Specify Seminar, Journal Club, Presentation, UG teaching

LOG BOOK

Table 2: Diagnostic and Operative procedures performed

Name: Admission year:

College:

Date	Name	ID No.	Procedure	Category O, A, PA, PI*

*** Key:**

O **-** Observed

A - Assisted a procedure

PA - Performed procedure under the direct supervision of a senior faculty

PI - Performed independently

Model Overall Assessment Sheet

Name of the College: **Academic Fear:**

Sl No	Faculty Member & Others	Name of Student and Mean Score									
		A	B	C	D	E	F	G	H	I	J
1.											
2.											
3.											
4.											
5.											
	Total Score										

Model Checklists for Assessment of Scientific Papers for Publication

Sl. No.	Criteria	Distribution of Marks	Marks awarded
1.	Originality	10	
2.	Clarity & quality of presentation	10	
3.	Relevance	10	
4.	Review of literature	10	
5.	Quantum of works involved	15	
6.	Methodology, sensitivity, sample size, controlled, not controlled study etc.	25	
7.	Advancement in knowledge	10	
	Total	**90**	

Signature of the evaluator _____

Name _____

Designation _____

Chapter V

Medical Ethics

Sensitisation and Practice

Introduction

There is now a shift from the traditional individual patient- doctor relationship and medical care. With the advances in science and technology and the needs of patients, their families and the community, there is an increased concern with the health of society. There is a shift to greater accountability to the society. Doctors and health professionals are confronted with many ethical problems. It is, therefore necessary to be prepared to deal with these problems. To accomplish the Goal and General Objective stated in Chapter II and develop human values it is urged that ***ethical sensitisation*** be achieved by lectures or discussion on ethical issues, clinical discussion of cases with an important ethical component and by including ethical aspects in discussion in all case presentation, bedside rounds and academic postgraduate programmes.

Course Contents

1. Introduction to Medical Ethics

- What is Ethics?
- What are values and norms?
- Relationship between being ethical and human fulfillment.
- How to form a value system in one's personal and professional life.
- Heteronomous Ethics and Autonomous Ethics.
- Freedom and personal Responsibility.

2. Definition of Medical Ethics

- Difference between medical ethics and bio-ethics
- Major Principles of Medical Ethics
  - Beneficence = fraternity
  - Justice = equality
  - Self determination (autonomy) = liberty

3. Perspective of Medical Ethics

- The Hippocratic Oath.
- The Declaration of Helsinki.
- The WHO Declaration of Geneva.
- International code of Medical Ethics. (1993)
- National Medical Commission Code of Ethics.

4. Ethics of the Individual

- The patient as a person.
- The Right to be respected.
- Truth and Confidentiality.
- The autonomy of decision.
- The concept of disease, health and healing.
- The Right to health.
- Ethics of Behaviour modification.
- The Physician – Patient relationship.
- Organ donation.

5. The Ethics of Human life

- What is human life?
- Criteria for distinguishing the human and the non-human.
- Reasons for respecting human life.
- The beginning of human life.
- Conception, contraception.
- Abortion.
- Prenatal sex-determination.
- In vitro fertilization (IVF).
- Artificial Insemination by Husband (AIH).
- Artificial Insemination by Donor (AID).
- Surrogate motherhood.
- Semen Intra-fallopian Transfer (SIFT).
- Gamete Intra-fallopian Transfer (GIFT).
- Zygote Intra-fallopian Transfer (ZIFT).
- Genetic Engineering.

6. The Family and Society in Medical Ethics

- The Ethics of human sexuality.
- Family Planning perspectives.
- Prolongation of life.
- Advanced life directives – The Living Will
- Euthanasia
- Cancer and Terminal Care

7. Profession Ethics

- Code of conduct.
- Contract and confidentiality.
- Charging of fees, Fee-splitting.
- Prescription of drugs.
- Over-investigating the patient.

- Low – Cost drugs, vitamins and tonics.
- Allocation of resources in health care.
- Malpractice and Negligence.

8. Research Ethics

- Animal and experimental research / humaneness.
- Human experimentation.
- Human volunteer research — Informed Consent Drug trials.

9. Ethical workshop of cases

- Gathering all scientific factors.
- Gathering all human factors.
- Gathering all value factors.
- Identifying areas of value — conflict, setting of priorities
- Working out criteria towards decisions.

Recommended Reading

1. Francis C.M., Medical Ethics, 1 Ed, 1993, Jaypee Brothers, New Delhi, p 189, Rs. 150/-

2. Good Clinical Practices : GOI Guidelines for clinical trials on Pharmaceutical Products in India (www.cdsco.nic.in)

3. INSA Guidelines for care and use of Animals in Research – 2000.

4. CPCSEA Guidelines 2001 (www.cpcsea.org.)

5. Ethical Guidelines for Biomedical Research on Human Subjects, 2000, ICMR, New Delhi.

6. ICMR Guidelines on animal use 2001, ICMR, New Delhi.