



**MAHATMA GANDHI UNIVERSITY**  
*of*  
**MEDICAL SCIENCES & TECHNOLOGY**  
JAIPUR

# **Syllabus**

## **MS-TRAUMATOLOGY & SURGERY (MS06)**

**(3 Years Post Graduate Degree Course)**

**Edition 2021-22**

## **Notice**

1. Amendment made by the National Medical Commission (NMC) in Rules/Regulations of Post Graduate Medical Courses shall automatically apply to the Rules/Regulations of the Mahatma Gandhi University of Medical Sciences & Technology (MGUMST), Jaipur.
2. The University reserves the right to make changes in the syllabus/books/guidelines, fee-structure, or any other information at any time without prior notice. The decision of the University shall be binding on all.
3. The Jurisdiction of all court cases shall be Jaipur Bench of Hon'ble Rajasthan High Court only.

**RULES & REGULATIONS**  
**MS-TRAUMATOLOGY & SURGERY (MS06)**  
**(3 Years Post Graduate degree course)**

**TITLE OF THE COURSE:**

It shall be called Doctor of Medicine.

**ELIGIBILITY FOR ADMISSION:**

No candidate of any category (including NRI quota) shall be eligible for admission to MD/MS courses, if he or she has not qualified NEET PG (MD/MS) conducted by National Board of Examinations, or any other Authority appointed by the Government of India for the purpose.

**(1) General Seats**

- (a) Every student, selected for admission to postgraduate medical course shall possess recognized MBBS degree or equivalent qualification and should have obtained permanent Registration with the Medical Council of India, or any of the State Medical Councils or should obtain the same within one month from the date of his/her admission, failing which the admission of the candidate shall be cancelled.
- (b) Completed satisfactorily one year's rotatory internship or would be completing the same before the date announced by the University for that specific year as per NMC rules after passing 3rd professional MBBS Part II Examination satisfactorily.
- (c) In the case of a foreign national, the Medical Council of India may, on payment of the prescribed fee for registration, grant temporary registration for the duration of the postgraduate training restricted to the medical college/institution to which he/she is admitted for the time being exclusively for postgraduate studies; however temporary registration to such foreign national shall be subject to the condition that such person is duly registered as medical practitioner in his/her own country from which he has obtained his basic medical qualification and that his degree is recognized by the corresponding Medical Council or concerned authority.

**(2) NRI Seats**

- (a) Students from other countries should possess passport, visa and exchange permits valid for the period of their course of study in this Institution and should also observe the regulations of both central and state governments regarding residential permits and obtain no-objection certificate from the same.
- (b) The candidate should have a provisional "Student Visa". If he comes on any other visa and is selected for admission, he will have to first obtain a student visa from his country and then only he will be allowed to join the course. Therefore, it is imperative to obtain provisional student visa before coming for Counseling.
- (c) This clause is applicable to NRI/Foreign Students only.

**CRITERIA FOR SELECTION FOR ADMISSION:**

**(1) NRI Quota**

15% of the total seats are earmarked for Foreign National / PIO / OCI/ NRI / Ward of NRI/NRI sponsored candidates who would be admitted based on merit obtained in NEET PG or any other criteria laid down by Central Government/NMC.

**(2) Remaining Seats (Other than NRI Quota Seats)**

- (a) Admissions to the remaining 85% of the seats shall be made on the basis of the merit

- obtained at the NEET conducted by the National Board of Examinations or any other Authority appointed by the Government of India for the purpose.
- (b) The admission policy may be changed according to the law prevailing at the time of admission.

**COUNSELING/INTERVIEW:**

- (1) Candidates in order of merit will be called for Counseling/Interview and for verification of original documents and identity by personal appearance.
- (2) Counseling will be performed, and the placement will be done on merit-cum-choice basis by the Admission Board appointed by the Government of Rajasthan.

**RESERVATION:**

Reservation shall be applicable as per policy of the State Government in terms of scheduled caste, scheduled tribe, back ward class, special back ward class, women, and handicapped persons.

**ELIGIBILITY AND ENROLMENT:**

Every candidate who is admitted to MD/MS course in Mahatma Gandhi Medical College & Hospital shall be required to get himself/herself enrolled and registered with the Mahatma Gandhi University of Medical Sciences & Technology (MGUMST) after paying the prescribed eligibility and enrolment fees.

The candidate shall have to apply to the MGUMST through Principal of College for the enrolment/eligibility along with the following original documents and the prescribed fees within two months of his/her admission or up to November 30 of the year of admission whichever is later without late fees. Then after, students will have to pay applicable late fees as per prevailing University Rules –

- (a) MBBS pass Marks sheet/Degree certificate issued by the University (Ist MBBS to Final MBBS)
- (b) Certificate regarding the recognition of medical college by the Medical Council of India.
- (c) Completion of the Rotatory Internship certificate from a recognized college.
- (d) Migration certificate issued by the concerned University.
- (e) Date of Birth Certificate
- (f) Certificate regarding registration with Rajasthan Medical Council / Medical Council of India / Other State Medical Council.

**REGISTRATION**

Every candidate who is admitted to MD/MS course in Mahatma Gandhi Medical College & Hospital shall be required to get himself/herself registered with the Mahatma Gandhi University of Medical Sciences & Technology after paying the prescribed registration fees.

The candidate shall have to submit application to the MGUMST through Principal of College for registration with the prescribed fees within two months of his/her admission or up to November 30 of the year of admission whichever is later without late fees. Then after, students will have to pay applicable late fees as per prevailing University Rules.

**DURATION OF COURSE:**

The course shall be of 3 years duration from the date of commencement of academic session.

**PERIOD OF TRAINING:**

The period of training for obtaining Post graduate degrees (MD/MS) shall be three completed years including the period of examination.

**MIGRATION:**

No application for migration to other Medical Colleges will be entertained from the students already admitted to the MD/MS course at this Institute.

**METHODS OF TRAINING FOR MD/MS:**

Method of training for MD/MS courses shall be as laid down by the Medical Council of India.

**ONLINE COURSE IN RESEARCH METHODS**

- i. All postgraduate students shall complete an online course in Research Methods to be conducted by an Institute(s) that may be designated by the Medical Council of India by way of public notice, including on its website and by Circular to all Medical Colleges. The students shall have to register on the portal of the designated institution, or any other institute as indicated in the public notice.
- ii. The students must complete the course by the end of their 2nd semester.
- iii. The online certificate generated on successful completion of the course and examination, thereafter, will be taken as proof of completion of this course
- iv. The successful completion of the online research methods course with proof of its completion shall be essential before the candidate is allowed to appear for the final examination of the respective postgraduate course.
- v. This requirement will be applicable for all postgraduate students admitted from the academic year 2019-20 onwards

**ATTENDANCE, PROGRESS AND CONDUCT:****(1) Attendance:**

- (a) 80% attendance in each course is compulsory. Anyone failing to achieve this, shall not be allowed to appear in the University examination.
- (b) A candidate pursuing MD/MS course shall reside in the campus and work in the respective department of the institution for the full period as a full-time student. No candidate is permitted to run a clinic/work in clinic/laboratory/ nursing home while studying postgraduate course. No candidate shall join any other course of study or appear for any other examination conducted by this university or any other university in India or abroad during the period of registration. Each year shall be taken as a unit for the purpose of calculating attendance.
- (c) Every candidate shall attend symposia, seminars, conferences, journal review meetings, grand rounds, CPC, CCR, case presentation, clinics and lectures during each year as prescribed by the department and not absent himself / herself from work without valid reasons. Candidates should not be absent continuously as the course is a full time one.

**(2) Monitoring Progress of Studies- Work diary/Logbook:**

- (a) Every candidate shall maintain a work diary in which his/her participation in the entire training program conducted by the department such as reviews, seminars, etc. must be chronologically entered.
- (b) The work scrutinized and certified by the Head of the Department and Head of the Institution is to be presented in the University practical/clinical examination.

**(3) Periodic tests:**

There shall be periodic tests as prescribed by the Medical Council of India and/ or the Board of Management of the University, tests shall include written papers, practical/clinical and viva voce.

**(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 when called for.

**THESIS:**

- (1) Every candidate pursuing MD/MS degree course is required to carry out work on research project under the guidance of a recognized post graduate teacher. Then such a work shall be submitted in the form of a Thesis.
- (2) The Thesis is aimed to train a postgraduate student in research methods & techniques.
- (3) It includes identification of a problem, formulation of a hypothesis, designing of a study, getting acquainted with recent advances, review of literature, collection of data, critical analysis, comparison of results and drawing conclusions.
- (4) Every candidate shall submit to the Registrar of the University in the prescribed format a Plan of Thesis containing particulars of proposed Thesis work within six months of the date of commencement of the course on or before the dates notified by the University.
- (5) The Plan of Thesis shall be sent through proper channel.
- (6) Thesis topic and plan shall be approved by the Institutional Ethics Committee before sending the same to the University for registration.
- (7) Synopsis will be reviewed, and the Thesis topic will be registered by the University.
- (8) No change in the thesis topic or guide shall be made without prior notice and permission from the University.
- (9) The Guide, Head of the Department and head of the institution shall certify the thesis. Three printed copies and one soft copy of the thesis thus prepared shall be submitted by the candidate to the Principal. While retaining the soft copy in his office, the Principal shall send the three printed copies of the thesis to the Registrar six months before MD/MS University Examinations. Examiners appointed by the University shall evaluate the thesis. Approval of Thesis at least by two examiners is an essential pre-condition for a candidate to appear in the University Examination.
- (10) Guide: The academic qualification and teaching experience required for recognition by this University as a guide for thesis work is as laid down by Medical Council of India/Mahatma Gandhi University of Medical Sciences & Technology, Jaipur.
- (11) Co-guide: A co-guide may be included provided the work requires substantial contribution from a sister department or from another institution recognized for teaching/training by Mahatma Gandhi University of Medical Sciences & Technology, Jaipur/Medical Council of India. The co-guide shall be a recognized postgraduate teacher.
- (12) 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.

**ELIGIBILITY TO APPEAR FOR UNIVERSITY EXAMINATION:**

The following requirements shall be fulfilled by every candidate to become eligible to appear for the final examination:

- (1) Attendance: Every candidate shall have fulfilled the requirement of 80% attendance prescribed by the University during each academic year of the postgraduate course. (As per NMC rules)
- (2) Progress and Conduct: Every candidate shall have participated in seminars, journal review meetings, symposia, conferences, case presentations, clinics and didactic lectures during each year as designed by the department.
- (3) Work diary and Logbook: Every candidate shall maintain a work diary for recording his/her participation in the training program conducted in the department. The work diary

and logbook shall be verified and certified by the Department Head and Head of the Institution.

- (4) Every student would be required to present one poster presentation, to read one paper at a National/State Conference and to have one research paper which should be published/accepted for publication/ sent for publication to an indexed journal during the period of his/her post graduate studies to make him/her eligible to appear at the Post Graduate Degree Examination.
- (5) Every student would be required to appear in and qualify the Pre-University Post graduate degree Mock examination. Post graduate students who fail to appear in or do not qualify the Pre-University Post graduate degree Mock examination shall not be permitted to appear in the final examination of the University.

The certification of satisfactory progress by the Head of the Department/ Institution shall be based on (1), (2), (3), (4) and (5) criteria mentioned above.

#### **ASSESSMENT:**

- (1) The progress of work of the candidates shall be assessed periodically by the respective guides and report submitted to the Head of the Institution through the Head of the Department at the end of every six months. The assessment report may also be conveyed in writing to the candidate who may also be advised of his/her shortcomings, if any.
- (2) In case the report indicate that a candidate is incapable of continuing to do the work of the desired standard and complete it within the prescribed period, the Head of the Institution may recommend cancellation of his/her registration at any time to the University.
- (3) Formative Assessment:
  - (a) General Principles
    - i. The assessment is valid, objective, constructive and reliable.
    - ii. It covers cognitive, psychomotor and affective domains.
    - iii. Formative, continuing and summative (final) assessment is also conducted.
    - iv. Thesis is also assessed separately.
  - (b) Internal Assessment
    - i. The internal assessment is continuous as well as periodical. The former is based on the feedback from the senior residents and the consultants concerned. Assessment is held periodically.
    - ii. Internal assessment will not count towards pass/fail at the end of the program, but will provide feedback to the candidate.
    - iii. The performance of the Postgraduate student during the training period should be monitored throughout the course and duly recorded in the log books as evidence of the ability and daily work of the student.
    - iv. Marks should be allotted out of 100 as under
      - 1) Personal Attributes - 20 marks
        - a. Behavior and Emotional Stability: Dependable, disciplined, dedicated, stable in emergency situations, shows positive approach.
        - b. Motivation and Initiative: Takes on responsibility, innovative, enterprising, does not shirk duties or leave any work pending.
        - c. Honesty and Integrity: Truthful, admits mistakes, does not cook up information, has ethical conduct, exhibits good moral values, loyal to the institution.
      - 2) Clinical Work - 20 marks
        - a. Availability: Punctual, available continuously on duty, responds promptly on calls and takes proper permission for leave.
        - b. Diligence: Dedicated, hardworking, does not shirk duties, leaves no work

- pending, does not sit idle, competent in clinical case work up and management.
- c Academic Ability: Intelligent, shows sound knowledge and skills, participates adequately in academic activities and performs well in oral presentation and departmental tests.
  - d Clinical Performance: Proficient in clinical presentations and case discussion during rounds and OPD work up. Preparing Documents of the case history/examination and progress notes in the file (daily notes, round discussion, investigations and management) Skill of performing bed side procedures and handling emergencies.
- 3) Academic Activities - 20 marks  
Performance during presentation at Journal club/ Seminar/Case discussion/Stat meeting and other academic sessions. Proficiency in skills as mentioned in job responsibilities.
  - 4) End of term theory examination - 20 marks  
End of term theory examination conducted at end of 1st, 2nd year and after 2 years 9 months.
  - 5) End of term practical examination - 20 marks
    - a. End of term practical/oral examinations after 2 years 9 months.
    - b. Marks for personal attributes and clinical work should be given annually by all the consultants under whom the resident was posted during the year. Average of the three years should be put as the final marks out of 20.
    - c. Marks for academic activity should be given by the all consultants who have attended the session presented by the resident.
    - d. The Internal assessment should be presented to the Board of examiners for due consideration at the time of Final Examinations.
    - e. Yearly (end of 1st, 2nd & 3rd year) theory and practical examination will be conducted by internal examiners and each candidate will enter details of theory paper, cases allotted (2 long & 2 short) and viva.
    - f. Log book to be brought at the time of final practical examination.

#### **APPOINTMENT OF EXAMINERS:**

Appointment of paper setters, thesis evaluators, answer books evaluators and practical & viva voce examiners shall be made as per regulations of the National Medical Commission (NMC).

#### **SCHEME OF EXAMINATION:**

Scheme of examination in respect of all the subjects of MD/MS shall be as under :

- (1) The examination for MD/MS shall be held at the end of three Academic Years.
- (2) Examinations shall be organized on the basis of marking system.
- (3) The period of training for obtaining MD/MS degrees shall be three completed years including the period of examination.
- (4) The University shall conduct not more than two examinations in a year for any subject with an interval of not less than 4 months and not more than 6 months between the two examinations.
- (5) The examinations shall consist of:
  - (a) Thesis:
    - i. Thesis shall be submitted at least six months before the main Theory examinations.
    - ii. The thesis shall be examined by a minimum of three examiners – one Internal and two External examiners who shall not be the examiners for Theory and



Clinical/Practical.

- iii. In departments where besides the two earmarked practical/clinical examiners no one else is a qualified P.G. teacher, in that case the Thesis shall be sent to the third external examiner who shall actually be in place of the internal examiner.
  - iv. Only on the acceptance of the thesis by any two examiners, the candidate shall be eligible to appear for the final examination.
  - v. A candidate whose thesis has been once approved by the examiners will not be required to submit the Thesis afresh, even if he/she fails in theory and/or practical of the examination of the same branch.
  - vi. In case the Thesis submitted by a candidate is rejected, he/she should be required to submit a fresh Thesis.
- (b) Theory papers:
- i. There shall be four theory papers.
  - ii. Each theory paper examination shall be of three hours duration.
  - iii. Each theory paper shall carry maximum 100 marks.
  - iv. The question papers shall be set by the External Examiners.
  - v. There will be a set pattern of question papers.  
Every question paper shall contain three questions. All the questions shall be compulsory, having no choice.  
Question No. 1 shall be of long answer type carrying 20 marks.  
Question No. 2 shall have two parts of 15 marks each. Each part will be required to be answered in detail.  
Question No. 3 shall be of five short notes carrying 10 marks each.
- vi. The answer books of theory paper examination shall be evaluated by two External and two internal examiners. Out of the four paper setters, the two paper setters will be given answer books pertaining to their papers and the answer books of the remaining two papers will be evaluated by two Internal Examiners. It will be decided by the President as to which paper is to be assigned to which Internal Examiner for evaluation.
  - vii. A candidate will be required to pass theory and practical examinations separately in terms of the governing provisions pertaining to the scheme of examination in the post graduate regulations. The examinee should obtain minimum 40% marks in each theory paper and not less than 50% marks cumulatively in all the four papers for degree examination to be cleared as “passed” at the said Degree examination.
- (c) Clinical/ Practical & Oral examinations:
- i. Clinical/Practical and Oral Examination of 400 marks will be conducted by at least four examiners, out of which two (50%) shall be External Examiners.
  - ii. A candidate will be required to secure at least 50% (viz. 200/400) marks in the Practical including clinical and viva voce examinations.

(6) If a candidate fails in one or more theory paper(s) or practical, he/she shall have to reappear in the whole examination i.e. in all theory papers as well as practical.

#### **GRACE MARKS**

No grace marks will be provided in MD/MS examinations.

#### **REVALUATION / SCRUTINY:**

No Revaluation shall be permitted in the MD/MS examinations. However, the student can apply for scrutiny of the answer books as per University Rules.

# GUIDELINES FOR COMPETENCY BASED POSTGRADUATE TRAINING PROGRAMME FOR MS IN TRAUMATOLOGY & SURGERY

## **Preamble**

Trauma is a major public health problem in India. High Speed vehicular accidents result in polytraumatized patients who are not owned by particular speciality right now. Emergency surgical patients and accidental trauma patients are one of the leading causes of morbidity and mortality in India. Care of a patient with multiple injuries requires appropriate initial care, expeditious life saving surgery and decision about treatment priorities, definitive surgery, critical care whenever required and rehabilitation.

## ***SUBJECT SPECIFIC OBJECTIVES***

### **Introduction**

Emergency surgical problems including Accidental trauma is one of the leading causes of morbidity and mortality in India. Expansion in road network, motorization & urbanization in the country has increased the dimension of death, disability and hospitalization with enormous socio-economic costs.

The incidence of accidental deaths has shown a mixed trend during the decade 1997-2007 with an increase of 45.7% in the year 2007 as compared to 1997. The population growth during the corresponding period was 19.0% whereas the increase in the rate of accidental deaths during the same period was 22.5%. The total number of accidents reported by National Crime Report Bureau in the year 2014 was 4, 51,757 of which the number of persons killed in the road accidents were 1,41,526 and the number of persons injured 4,77,731 in 2014. The accident rate of 35 per thousand vehicles in India is the highest in the world as compared to 10 accidents per thousand vehicles in the developed countries.

Every 12 minutes one Indian dies on the road and 10 times that number are injured. Amongst them 30% are disabled for life either partially or totally. WHO has projected that by the year

2020, road traffic accident in India would be a major killer accounting to 5,46,000 deaths and 1,53,14,000 disability adjusted life years.

In addition to Trauma, Non-Trauma Surgical Emergencies are also on the rise, and pose an added burden on the emergency services of the country. There is a high mortality and morbidity of patients with emergent surgical problems like acute abdominal conditions such as peritonitis (of various etiologies), appendicitis, acute cholecystitis, Intestinal Obstructions, septic presentations like abscesses, etc. These conditions if not managed in time lead to increase in the global burden of disease. According to one WHO estimates conditions treatable by surgery account for 11% of Global burden of disease.

There is lack of exclusively trained specialists to manage the **Acute Surgical conditions including trauma victims** in an effective manner. The need in the trauma care is at various levels of trauma care centers. Presently, there is no exclusive availability of course on trauma and emergency surgery for doctors. Thus, there is need to undertake a Post Graduate course

in **Trauma and Acute Care Surgery** leading to the nurturing of a new specialist of Emergency Surgeon who could be capable to manage all aspects of trauma and Acute care surgery comprehensively.

Presently these patients are admitted in the department of Neurosurgery, Orthopaedics, General Surgery with cross referrals for specific needs. Every Medical College Casualty department receives anywhere between 10-30 patients a day who require attention through a single window rather than patients waiting in the Emergency room for multiple consults and clearance.

## **SUBJECT SPECIFIC OBJECTIVES**

- Theoretical Knowledge
- Practical and Clinical skills
- Writing thesis/Research articles
- Attitudes including communication skills
- Training in Research Methodology

## **SUBJECT SPECIFIC COMPETENCIES**

**By the end of the course, the student should have acquired knowledge (cognitive domain), professionalism (affective domain) and skills (psychomotor domain) as given below:**

### **1. Cognitive domain (Knowledge domain)**

The student/ learner should be able to:

1. Describe the principles of cardiopulmonary resuscitation
2. Enumerate, classify and describe the Physiology, Patho-physiology basis of disorders of the various human systems namely (cardio vascular, musculoskeletal etc)
3. Define and describe the various aspect of respiratory and circulatory failure (Shock)
4. Understand the metabolic, nutritional and endocrine effects of Trauma and critical illness
5. Diagnose and manage acute surgical patients including trauma, in all situations including Obstetric patients, Geriatric, Pediatric and mentally disabled patients
6. Have basic understanding of Trauma systems, Trauma scores, GC scale, Triage etc.
7. Describe hematological and coagulation disorders
8. Describe the pharmacokinetics and dynamics of drug metabolism, excretion in critical illness
9. Understanding of biostatistics and research methodology
10. Demonstrate ability to organize emergency trauma & acute care services in the country including ambulance facilities
11. Understand ethical and legal aspects of surgical critical care and acute trauma care
12. Classification, diagnosis and emergency management of musculoskeletal traumas both bone and soft tissues of extremities, operative and non-operative
13. Reinforce the basic understanding of the structure and function of the human body and all other systems
14. Reinforce the pathological basics for diseases with particular focus on traumatic

condition and non-traumatic acute surgical condition

15. Describe the microbiological basis of infectious diseases and its pharmacotherapeutics
16. Understand the principles and technologies of administration and management of ICU
17. Demonstrate ability to establish priorities in the initial management of victims of life-threatening and potentially life threatening surgical emergencies.
18. Demonstrate ability to rapidly and thoroughly assess victims of major and minor trauma.
19. Demonstrate ability to manage the airway of acutely ill patients.
20. Demonstrate ability to manage fluid resuscitation of acutely ill surgical patients.
21. Discuss the continuing care of the surgical patient, including anaesthesia, operative, postoperative and rehabilitative phases of care.
22. Demonstrate ability to interpret radiographs and CT Scans on surgical patients, including chest, abdominal, neck, cervical-thoracic and lumbar spine, pelvis and extremity films, and also the point of care Ultrasonography in both trauma and non-trauma patients.
23. Discuss the importance of relevant history of surgical patient including mechanism of injury in the evaluation and treatment of a trauma victim.
24. Demonstrate the ability to assess and initially manage patient with acute non-traumatic surgical conditions such as Intra-Abdominal Catastrophes, Hollow Visceral Surgical Emergencies, Hepato-biliary Surgical Emergencies, Pancreatitis, Abdominal Wall Hernias and acute complications, acute upper and lower GI bleedings etc.
25. Demonstrate ability to manage soft tissue infections and injuries including, lacerations, avulsions and high-pressure injuries.
26. Discuss the diagnosis and emergent management of compartment syndromes.
27. Discuss the diagnosis and emergency management of trauma related urogenital emergencies
28. Demonstrate appropriate use of analgesics and sedatives in emergency surgical patients.
29. Demonstrate appropriate use of antibiotics in emergency surgery and trauma patients.
30. Demonstrate ability to arrange appropriate consultation and disposition of trauma patients from the ED.
31. Demonstrate ability to direct the care of acutely ill victims in the pre-hospital setting.
32. Discuss principle of disaster management and participate in disaster drills.
33. Demonstrate the ability to manage the acutely burned patient, including minor and major injuries.
34. Discuss indications and procedures for safe transfer of an emergency patient to another center.
35. Demonstrate skills in Advanced Trauma Life Support, Basic life support, advanced cardiac life support,
36. **Optional Courses:** Pediatric cardiac life support, Neonatal Life support, advanced burn life support and advanced hazmat life support.
37. Demonstrate the ability to determine priorities of treatment care in a patient with multiple injuries including spinal injuries and plan definitive care with appropriate specialists.
38. Demonstrate the ability to manage non-trauma acute surgical emergencies both as acute care and definitive surgical management.

## 2. Affective domain (Attitudes including Communication and Professionalism)

The post graduate student:

1. Should be able to function as a part of a team, develop an attitude of cooperation with colleagues, and interact with the patient and the clinician or other colleagues to provide the best possible diagnosis or opinion.
2. Always adopt ethical principles and maintain proper etiquette in dealings with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.
3. Develop communication skills to word reports and professional opinion as well as to interact with patients, relatives, peers and paramedical staff, and for effective teaching.

These are detailed below:

### a. Communication skills: The post graduate student:

- Exhibits participation in honest, accurate health related information sharing in a sensitive and suitable manner
  - Recognizes that being a good communicator is essential to practice effectively
  - Exhibits effective and sensitive listening skills
  - Recognizes the importance and timing of breaking bad news and knows how to communicate
  - Exhibits participation in discussion of emotional issues
  - Exhibits leadership in handling complex and advanced communication
  - Recognises the importance of patient confidentiality and the conflict between confidentiality and disclosure
  - Able to establish rapport in therapeutic bonding with patients, relatives and other stakeholders through appropriate communication
  - Able to obtain comprehensive and relevant history from patients/relatives
  - Able to counsel patients on their condition and needs
- b. **Teamwork:** Seek cooperation. Coordination and communication among treating specialties and paramedical staff
- c. **Counseling of relatives:** regarding patient's condition, seriousness, bereavement and counseling for organ donation in case of brain stem death
- d. **Leadership:** Trauma prevention, education of the public, paramedical and medical persons.
- e. **Advocacy:** with the government and other agencies towards cause of trauma care
- f. **Ethics:** The Code of Medical Ethics as proposed by Medical Council of India will be observed.

## 3. Psychomotor domain

**At the end of the course, the student should be able to perform the following procedures, under supervision during the training period:**

### Resuscitative procedures:

- Airway management including Endotracheal intubation and difficult airway
- Surgical airway / Cricothyroidotomy/Tracheostomy
- Venous access

- Intraosseous access
- Needle thoracocentesis/Chest drain insertion/Pericardial drainage
- Focussed Assessment Sonography in Trauma (FAST) and Diagnostic Peritoneal Lavage (DPL)
- Suprapubic cystostomy
- Splinting of fractures
- Immobilisation of pelvic fractures in ED
- Application of plaster slab for various extremity fractures
- Fasciotomy
- Control of oromaxillofacial bleeding

### **Major Operative procedures (for Trauma):**

- Laparotomy for trauma
- Thoracotomy for trauma
- Craniotomy for trauma: When neurosurgeon is not available
- Emergency amputation for crush limbs
- Application of external fixator
- Emergency vascular procedures for limb salvage
- Neck surgeries for trauma
- Surgeries for crush injuries, wound management including debridement.

### **Critical Care:**

- Monitoring in ICU including ICP monitoring
- Ventilatory support techniques
- Inotropic support
- Nutritional support
- Massive transfusion protocols
- Renal support including dialysis
- Thromboprophylaxis
- Pain management
- Management of abdominal compartments syndrome

### **Non-trauma emergencies:**

- Laparotomy for acute abdomen – obstruction, perforation, ischaemia, inflammation and non trauma haemoperitoneum
- Surgical control of upper GI bleed including emergency surgical management of variceal bleed
- Surgical control of lower GI bleed
- Surgical management of skin and soft tissue infections
- Embolectomy for thromboembolism
- Surgical management of acute scrotum
- Surgical management of ovarian torsion, pelvic sepsis and ruptured ectopic gestation
- Obstetric emergencies: Caesarian section when gynaecologist is not available

## Procedural Skills

Area/Procedure	Essential	Desirable
<b>Airway</b>		
Tracheotomy, open and percutaneous	X	
Cricothyroidotomy	X	
endotracheal intubation including rapid sequence induction	X	
<b>Head/Face</b>		
Nasal Packing (ant. & post. ) and Oral packing	X	
ICP Monitoring	X	
Ventriculostomy		X
Lateral canthotomy		X
Cranial decompression in dire emergencies when neurosurgeon not present	X	
Intermaxillary wiring	X	
Basic plastic reconstruction techniques for facial soft tissues	X	
Exposure and techniques for ORIF of facial fractures including mandible		X
<b>Neck</b>		
Exposure & definitive management of vascular and aero digestive injuries/emergencies	X	
Approaches to Thyroid	X	
<b>Chest</b>		
Exposure & definitive management of cardiac injury, pericardial tamponade		X
Exposure & definitive management of thoracic vascular injury		X
Repair blunt thoracic aortic injury: open or endovascular		X
Non-anatomical pulmonary resections/repairfor trauma	X	
Exposure & definitive management of tracheo-bronchial & lung injuries		X
Diaphragm injury, repair	X	
Definitive management of empyema: decortication (open and VATS)		X
Video-assisted thoracic surgery (VATS) for management of injury and infection		X
Bronchoscopy: diagnostic and therapeutic for injury, infection and foreign body removal	X	
Exposure &emergency management of esophageal injuries & perforations	X	
Damage control techniques	X	
<b>Abdomen &amp; Pelvis</b>		
Exposure & definitive management of gastric, small intestine	X	

and colon injuries		
Exposure & emergency management of gastric, small intestine and colon inflammation, bleeding perforation & obstructions.	X	
Gastrostomy (open and percutaneous) and jejunostomy	X	
Exposure & definitive management of duodenal injury/perforation	X	
Emergency management of rectal injury	X	
Emergency management of liver injury	X	
Emergency management of splenic injury, infection, inflammation	X	
Emergency management of pancreatic injury, infection and inflammation	X	
Emergency management of renal, ureteral and bladder injury	X	
Emergency management of injuries to the female reproductive tract		X
Emergency management of acute operative conditions in the pregnant patient		X
Emergency management of abdominal compartment syndrome	X	
Damage control techniques	X	
Abdominal wall reconstruction following resectional debridement for infection, ischemia		X
Laparoscopic techniques as they pertain to the above procedures	X	
Exposure & emergency management of major abdominal and pelvic vascular injury	X	
<b>Extremities</b>		
Radical soft tissue debridement for necrotizing infection	X	
Exposure and emergency management of upper extremity vascular injuries	X	
Exposure and emergency management of lower extremity vascular injuries	X	
Damage control techniques in the management of extremity vascular injuries, including temporary shunts	X	
Acute thrombo-embolectomy	X	
Hemodialysis access, temporary	X	
Fasciotomy, upper extremity	X	
Fasciotomy, lower extremity	X	
Amputations, lower extremity (Hip disarticulation, AKA, BKA, Trans-met)	X	
Reducing dislocations	X	
Splinting fractures	X	
Applying femoral/tibial traction	X	
Pelvic stabilization with non-operative means	X	



Pelvic stabilization with external fixators		X
<b>Other Procedures</b>		
Split thickness, full thickness skin grafting	X	
Basic Plastic procedures for soft tissue reconstruction and coverage	X	
Thoracic and abdominal organ harvesting for transplantation		X
Upper GI endoscopy		X
Colonoscopy		X
Diagnostic emergency ultrasound		X
Other procedures required for Surgical Critical Care		X

## **TEACHING LEARNING STRATEGIES**

### **General considerations**

1. Attends trauma casualty and emergency posting and does emergency duty as per roster of the department.
2. Attends OPD (related to trauma and Emergency Surgery follow up)
3. Attends operation room/theatre
4. Attends 3 morning rounds/week (with concerned unit)
5. Discusses problematic cases with consultant (s) in Emergency/ Follow up OPD/Wards.
6. Care of the indoor patients on beds allotted to him/her.
7. Attends the weekly Journal Club and seminar and presents the same by rotation.
8. Attends lectures by the visiting faculty to the department/college from India/abroad.
9. Attends/participates/presents papers in state/zonal national conferences.
10. Actively participates/helps in organization of departmental workshops, courses, conferences related to emergency surgery and trauma management.

## ***TEACHING AND LEARNING METHODS***

### **Methods of Training and Teaching**

The following learning methods are to be used for the teaching of postgraduate students:

1. **Journal Club:** 1 hour duration (Paper presentation/discussion) once per week (Afternoon).
2. **Seminar:** One seminar every week of one hour duration (Afternoon)
3. **Lecture/discussion:** Lectures on newer topics by faculty, in place of Seminar/as per need.
4. **Case presentation** in the ward (trainee will present a clinical case for discussion before a faculty and discussion made pertaining to its management and decision to be recorded in case files)
5. **Case Conference.** Post graduate students are expected to work-up one long case and three short cases and present the same to a faculty member and discuss the management.
6. **Radiology Conferences:** To be held twice weekly in morning in which the radiological features of various problems are discussed.
7. **Quality Assurance Meetings / Mortality-Morbidity meetings:** Special emphasis is

made on the unusual incidents and unnatural deaths/ morbidity aspect of the case, so as to assure quality care and also act as an effective teaching tool.

8. **Combined Round/Grand Round:** These exercises are to be done for the hospital once/week or twice a month involving presentation of usual or difficult patients
9. **Clinical teaching:** In emergency, OPD, ward rounds, ICU and the operation theatres.
10. **Log Book:** Post Graduate students shall maintain a record (log) book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently by M.S. candidates. The Log Books shall be checked and assessed periodically by the faculty members imparting the training.
11. The Post Graduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.
12. Department should encourage e-learning activities.
13. **Clinical postings:** Recommended schedule for three years training:

The post graduate student is required to work full time in the Department of Trauma & Acute Care **Surgery, participate in the patient care and academic and research activities as described below.**

#### **ROTATION**

- |          |   |  |
|----------|---|--|
| Term I   | : | General Surgery: 6 months  |
| Term II  | : | Trauma resuscitation: 3 months<br>Intensive Care: 3 months   |
| Term III | : | General Surgery: 6 months  |
| Term IV  | : | Orthopaedics: 3 months<br>Neurosurgery: 2 months CT surg Aneasthesia<br>Cardiothoracic Surgery: 1 month  |
| Term V   | : | Plastic surgery: 6 weeks<br>Radiology: 4 weeks<br>Forensic Medicine: 2 weeks<br>Trauma team leader: 3 months (includes 1 month of rural Posting) |
| Term VI  | : | General Surgery: 6 months<br>(includes 2 weeks of obstetric posting)   |

There should be time provided during 18 months of Trauma Surgery unit to undergo recognized BLS, ATLS, ACLS courses.

**During the training programme, patient safety is of paramount importance; therefore, skills are to be learnt initially on the models, later to be performed under supervision followed by performing independently. For this purpose, provision of skills laboratories in medical colleges is mandatory.**

## ASSESSMENT

### I. FORMATIVE ASSESSMENT during the training includes:

**Formative assessment should be continual and should assess medical knowledge, patient care, procedural & academic skills, interpersonal skills, professionalism, self directed learning and ability to practice in the system.**

**Quarterly assessment during the MS training should be based on:**

- Case presentation, case work up,  
case handling/management : once a week
  - Laboratory performance : twice a week
  - Journal club : once a week
  - Seminar : once a fortnight
  - Case discussions : once a month
  - Interdepartmental case or seminar : once a month
- Note: These sessions may be organized as an institutional activity for all postgraduates.
- Attendance at Scientific meetings, CME programmes

Additional details are given below:

1. Personal attributes through 360 degree assessment
2. Clinical Skills performance
  - a. OSCE
  - b. Ward Rounds
  - c. Case Presentations / Clinical encounters
  - d. Mini Clinical Examination (Mini CEX)
  - e. Simulated DOPS
  - f. Standardized patient management
3. Assessment of academic Activities
  - a. Journal Club performance
  - b. Thesis review performance
  - c. Seminar Presentation
  - d. Presentation in conferences & CME
  - e. Publications & Posters
  - f. Mortality & Morbidity audit
  - g. Log book maintenance/E-portfolio
4. **The student to be assessed periodically as per categories listed in postgraduate student appraisal form (Annexure I).**
5. Regular theory and practical assessment – once in 12 months.
6. Acceptance of Thesis (as per MCI norms)

## **II. SUMMATIVE ASSESSMENT, at the end of the course**

The summative examination would be carried out as per the Rules given in **POSTGRADUATE MEDICAL EDUCATION REGULATIONS, 2000.**

### **1. Theory: There shall be four theory papers, as given below:**

**Paper I:** Basic Sciences: Surgical anatomy, physiology & principles of resuscitation in trauma and non trauma acute care surgery

**Paper II:** Definitive care: Abdominal, pelvic, thoracic trauma, orthopedic trauma including polytrauma

**Paper III:** Definitive care: Neurosurgery, reconstructive surgery, non-trauma acute care surgery

**Paper IV:** Recent advances, critical care and allied subjects

### **2. Practical including ward rounds**

### **3. Oral/Viva Voce Examination**

Oral examination shall be comprehensive enough to test the candidate's overall knowledge of the subject.

## **Recommended Reading**

### **Books (latest edition)**

1. Trauma. Feliciano, Mattox, Moore (ed), The Mc Grow Hill Co. publishers
2. Emergency Management of Trauma patient Cases, Algorithms. Mark Bisanzo, Michael R Fibin, Kriti Bhatia (ed), Lippincott Williams & Wilkins publishers
3. Trauma – Contemporary Principles & therapy, Lewis Flint, J. Wayne Meredith, C. William Schwab (eds) , Lippincott Williams & Wilkins publishers
4. Disaster Medicine. David Hogan, Jonathan Brownstein (eds), Lippincott Williams & Wilkins publishers
5. Trauma (Vol 1 & 2) - Emergency Resuscitation, Preoperative Anesthesia, Surgical Management. Leslie Wilson, William Wilson (eds). Informa Health Care publishers
6. Hamilton Baily's Emergency Surgery – T. J. McNair, John Wright & Sons, publishers
7. The Injured child - Surgical Management. Judson G. Randolph, Mark M. Ravitch, Kenneth J. Welch, Clifford D. Benson, Eoin Aberdeen (eds) Year Book Medical Publisher
8. Trauma Management – Emergency Medicine Approach. Peter Ferrera, Stephen Colucciello, John Marx, Vincent Verdile, Michael Gibbs (eds), Mosby publishers.
9. Evaluation of Impairments & disabilities. Murlidhar V., Vijay Kanhere (eds), Bhalani Publishing House.
10. Current Emergency diagnosis & Treatment. John Mills, Mary T. Ho, Donald D Trunky. Lange Medical Publications.
11. Emergency Medicine - A comprehensive study guide. Judith Tintinalli, Robert

- Rothsteinis, Ronald Kozme (eds) McGrow Hill Publication
12. Primary Surgery – Trauma – Maurice King, Oxford Publications
  13. Rob & Smith's Operative surgery Accidental Surgery. Champion Howard (eds). Butter Worths publications
  14. The Textbook of Penetrating Abdominal Trauma. Rao R. Ivatuari, C. Gene Cayten. Williams & Wilkins
  16. Manual of definitive surgical trauma care by Kenneth D. Boffard, (A Hodder Arnold Publication)
  17. Top Knife: The Art and Craft of Trauma Surgery by Asher Hirshberg, Kenneth L. Mattox (Authors) TFM publishers
  18. ATLS Student Course Manual published by American College of Surgeons
  19. ACLS course manual
  20. PALS course manual
  21. Life Support Course Manual (AIIMS)
  22. Rockwood and Green's Fractures in Adults: Two Volumes Plus Integrated Content Website (Rockwood, Green, and Wilkins' Fractures) by Robert W. Bucholz (Editor), Charles M. Court-Brown (Editor), James D. Heckman (Editor)
  23. Watson-Jones Fractures and Joint Injuries by J.N. Wilson (Author)

## **Journals**

**3-5 International and 02 national journals (all indexed)**

## **WEBSITES**

1. [www.trauma.org](http://www.trauma.org)
2. [www.traumaindia.org](http://www.traumaindia.org)
3. [www.atls.in](http://www.atls.in)
4. [http://www.researchgate.net/literature/Trauma\\_Surgery](http://www.researchgate.net/literature/Trauma_Surgery)

**Annexure I**

**Postgraduate Student Appraisal Form**

**Name of the Department/Unit** : \_\_\_\_\_  
**Name of the PG Student** : \_\_\_\_\_  
**Period of Training** : FROM.....TO.....

Sr. No.	PARTICULARS	Not Satisfactory			Satisfactory			More Than Satisfactory			Remarks
		1	2	3	4	5	6	7	8	9	
1.	Journal based / recent advances learning										
2.	Patient based /Laboratory or Skill based learning										
3.	Self directed learning and teaching										
4.	Departmental and interdepartmental learning activity										
5.	External and Outreach Activities / CMEs										
6.	Thesis / Research work										
7.	Log Book Maintenance										

**Publications** \_\_\_\_\_ **Yes/ No**  
**Remarks\*** \_\_\_\_\_

**\*REMARKS:** Any significant positive or negative attributes of a postgraduate student to be mentioned. For score less than 4 in any category, remediation must be suggested. Individual feedback to postgraduate student is strongly recommended.

Signature of Assessee

Signature of Consultant

Signature of HOD

**MODEL PAPER**

**MS06301**

**BasicSc-I**

**MS Examination Month, Year  
TRAUMATOLOGY & SURGERY**

Paper- I

**Basic Sciences: Surgical anatomy, physiology & principles of resuscitation in trauma  
and non trauma acute care surgery**

Time : Three Hours  
Maximum Marks : 100

Attempt all questions

All the parts of one question should be answered at one place in sequential order.

Draw diagrams wherever necessary

- Q1 Describe the surgical anatomy of Brachial plexus and management of brachial plexus injury 20 marks
- Q2 Write on : 2x15=30 marks
- a Management of Head injury
  - b Splenic injury and its management
- Q3 Write short notes on 5x10=50 marks
- a Triage of a polytrauma case
  - b Management a case of status epilepticus
  - c Describe anatomical landmarks of tracheostomy and types of Tracheostomy
  - d Avascular necrosis in a case of fracture NOF
  - e Compartment syndrome

**MODEL PAPER**

**MS06302**

**DefCare-II**

**MS Examination Month, Year  
TRAUMATOLOGY & SURGERY**

Paper- II

**Definitive care: Abdominal, pelvic, thoracic trauma, orthopedic trauma including polytrauma**

Time : Three Hours  
Maximum Marks : 100

Attempt all questions

All the parts of one question should be answered at one place in sequential order.

Draw diagrams wherever necessary

- Q1 Management of a case of pelvic fracture with urethral injury 20 marks
- Q2 Write on : 2x15=30 marks
- a Management of a case of Tension pneumothorax
  - b Management of a case of Blunt abdominal injury
- Q3 Write short notes on 5x10=50 marks
- a Management and classification of facial injury
  - b Management of supracondylar fracture
  - c Spoke wheel injury
  - d Fat embolism
  - e Complex colles fracture



MS06303

MODEL PAPER

DefCare-III

MS Examination Month, Year  
TRAUMATOLOGY & SURGERY

Paper- III

**Definitive care: Neurosurgery, reconstructive surgery, non-trauma acute care surgery**

Time : Three Hours  
Maximum Marks : 100

Attempt all questions

All the parts of one question should be answered at one place in sequential order.

Draw diagrams wherever necessary

- Q1 Classify and explain management of spinal cord injuries 20 marks
- Q2 Write on : 2x15=30 marks
- a Classify burn and its management
  - b Management of traumatic acute subdural hematoma
- Q3 Write short notes on 5x10=50 marks
- a CSF rhinorrhea
  - b Skin grafting
  - c ICP (Intra cranial Pressure)
  - d Surgery for stroke
  - e Reconstruction surgery for traumatic amputation of finger/  
reimplantation

MS06304

**MODEL PAPER**

**RecAdv-IV**

**MS Examination Month, Year  
TRAUMATOLOGY & SURGERY**

Paper- IV

**Recent advances, critical care and allied subjects**

Time : Three Hours  
Maximum Marks : 100

Attempt all questions

All the parts of one question should be answered at one place in sequential order.

Draw diagrams wherever necessary

- Q1 Role of robotic surgery in Polytrauma patient 20 marks
- Q2 Write on : 2x15=30 marks
- a Role of arthroscopy in traumatic knee surgery
  - b Endoscopic management of foreign body removal
- Q3 Write short notes on 5x10=50 marks
- a Fire arm injuries
  - b Use of intra operative doppler-ultrasound
  - c ICU management of a case of head injury and cervical spine injury
  - d Management of a case of seat belt injury
  - e Management of ARDS