

## Syllabus and Examination pattern for Post - Graduate Medical Courses

### NOTIFICATION

Ref. :

- (1) Medical Council of India Regulation on Graduate Medical Education, 1997.
- (2) Amendment of the regulations on graduate medical education notified by Government of India from time to time :
  - a. Gazette Notification dated 29.05.1999.
  - b. Notification no. MCI-37 (2)/2001/Med-922, dated 12.04.2001.
  - c. Notification no. MCI-26 (3)/2003/Med-18503, dated 26.09.2003.
  - d. Notification no. MCI-26 (3)/2003/Med-20958, dated 15.10.2003.

*In exercise of the powers, conferred under section 26 of Krishna Institute of Medical Sciences Deemed University, the Board of Management in its meeting held on 27<sup>th</sup> June, 2006, has been pleased to approve the Bye-law pertaining to Post Graduate Medical courses as given in schedule here to Annexed.*

*The Bye-law as above shall be effective for the students admitted to Post Graduate Medical courses from the academic year 2006-07 onwards.*

**By Order  
Registrar**

1. This byelaw shall be called Syllabus and Examination pattern for Post-Graduate Medical Course.

### Surgery

#### Goals

The goals of postgraduate training course in Surgery would be to train a MBBS doctor who will Practice surgery efficiently and effectively backed by scientific knowledge and skill. No syllabus can be comprehensive but the following topics are not intended to be prescriptive but it is a guide to the topics, which need to be covered during training.

At the end of the training and evaluation.

- He will develop right attitudinal skills, which will ensure effective and correct communication with patients, relatives, colleagues and superiors
- Continue to develop keen interest in continuing surgical education irrespective of whether he is in a teaching institution or is in Private practice
- Be a motivated 'teacher' - defined as a surgeon keen to share his knowledge and skills with a colleague or a junior or any learner.

#### Objectives of the Course

The following objectives are laid out to achieve the goals of the course. These objectives are to be achieved by the time the candidate completes the course. The objectives may be considered under the subheadings

1. Knowledge (Cognitive domain): Knowledge and information about the subject, Recall of and Analysis of available information to be used for the treatment of patients.
2. Skills (Psycho motor domain): The correct skills to be developed by working in a dry lab as well as surgeries on animals (Minimal access Surgery). He/She should develop surgical skills by assisting seniors as well as being assisted by seniors

### 3. Human values: Ethics involved in surgical practice

At the end of the training, the candidate must be able to:

#### Knowledge:

- Describe etiology, pathophysiology, principles of diagnosis and management of common surgical problems including emergencies, in adults and children.
- The candidate should be conversant with Homeostatic mechanism and Fluid Electrolyte balance and replacement therapy including blood transfusion, plasma expanders and treatment of various types of shock.
- Nutrition: Assessment, Management of parenteral and enteral nutrition.
- Disorders of coagulation pertaining to surgeries, DVT, Thrombophilia.
- Describe common malignancies (in the country) and their management
- Recognize conditions that may be outside the area of his specialty / competence and appropriate referral to specialist
- Advise regarding the operative or non-operative management of the case and to carry out this management effectively.
- Update him by self-study and by attending courses, conferences and seminars relevant to surgery.
- Teach and guide his team, colleagues and other students.
- Undertake audit, use information technology tools and carry out research, both basic and clinical, with the aim of publishing his work and presenting his work at various scientific forums.

#### Skills

- Take a proper clinical history, examine the patient, and perform essential diagnostic procedures and order relevant tests and interpret them to come to a reasonable diagnosis about the surgical condition.
- Perform minor operative procedures and common general surgical operations independently and the major procedures with help from a senior surgeon.
- Provide basic and advanced life saving support services (BLS & ALS) in emergency situations
- Manage acute abdominal emergencies and poly trauma.
- Undertake thorough wound management, including burn wounds.
- Undertake complete patient monitoring including the preoperative and post operative care of the patient.
- Use of antibiotics in Surgery, Surgical infections' & use of Prophylactic antibiotics. Human values, Ethical practice and Communication abilities
- Adopt ethical principles in all aspects of his surgical practice. Professional honesty and integrity are to be fostered. Surgical care is to be delivered irrespective of the social status, caste, creed or religion of the patient.
- Develop communication skills, in particular the skill to explain various options available in management and to obtain a true informed consent from the patient and attendants.
- Provide leadership and get the best out of his team in a congenial working atmosphere.
- Apply high moral and ethical standards while carrying out human or animal research.
- Be humble and accept the limitations in his knowledge and skill and to ask for help from colleagues when needed.

- Respect patient's rights and privileges including patient's right to information and right to seek a second opinion.

## Course Contents

### Essential Knowledge

A list of objectives related to knowledge and higher cognitive abilities that are expected to be achieved during the course is given. The course contents have been identified and categorized as essential knowledge as under. This is to enable the student to achieve the objectives of the course. It is recognized that General surgery today mainly covers Gastrointestinal & Hepatobiliary disorders, basic urological problems, abdominal wall herniae, Breast & thyroid disorders, knowledge of some common problems in allied specialities. Further he should be familiar with complications, current controversies and recent advances in these topics.

#### The topics are considered under:

- Basic sciences
- General Surgery topics and
- Specialty topics.

There will be an overlap between the General surgery and specialty categories.

Basic sciences include anatomy, physiology, biochemistry, microbiology and pathology and Radiology, as found in current textbooks. These standard topics are recommended to be studied as much as they are applicable to the practice of surgery.

### General Surgery Topics include the following:

#### History of surgery

#### Clinical History and examination -

Detailed systematic history taking, clinical examination of various systems, coming to a provisional working diagnosis.

#### Rationale of diagnostic tests -

Ordering diagnostic tests with prioritizing the needs, based on the clinical, hospital and the patient's socioeconomic condition.

#### Informed consent / Medico legal issues -

Understanding the implications of acts of omission and commission in practice. Issues regarding Consumer Protection Act. - Implications in a medico-legal case like accidents, assaults etc.

#### Concept of Essential Drugs and Rational use of drugs Pharmacoeconomics

Surgical audit - Understanding the audit process and outcome. Methods adopted for the same.

#### Basic statistics

Evidence based medicine - Understanding journal based literature study; the value of textbook, reference book articles; value of review articles; original articles and their critical assessment. Understanding the value of retrospective,

prospective, randomized controlled and blinded studies. - Understanding the principles and meanings various biostatistical tests applied in these studies.

Use of computers in surgery: Retrieval of important information, Record keeping, Powerpoint presentations for teaching, Statistical methods

Preoperative evaluation of patients with Co-morbid conditions Principles of operative surgery like asepsis, antisepsis, sterilization. Basic surgical techniques; properties of suture materials; appropriate use of sutures, drains, prosthetic grafts. Postoperative care - concept of recovery room care; airway management; assessment of wakefulness; management of cardiovascular instability in this period. Post operative pain management as well as care of terminally ill patients especially cancer patient. Basic surgical instrumentation - Principles of surgical instrumentation; their maintenance and troubleshooting. Familiarize with minimal access surgery instruments, Diathermy & lasers.

Wound management: wound healing; factors influencing healing; Assessment of trauma; Assessment of head, chest and abdominal trauma and triage - Assessment of a trauma victim; resuscitation; care at the site; triage; care in the accident department; criteria for immediate surgery; immediate workup and logical referral criteria. Multiple injured patient, closed abdominal and chest injuries, penetrating injuries; fractures pelvis; urological injuries; vascular injuries; trauma scores.

Surgical infections - asepsis and antisepsis; microbiological principles; rational use of antibiotics; special infections like synergistic gangrene and diabetic foot infections. Hepatitis and AIDS

Surgical nutrition - nutritional assessment; metabolic response to stress; need for nutritional support; enteral nutrition; routes of access to GI tract; parenteral nutrition; access to central veins for nutritional support.

Acute abdomen - Appendicitis / Peritonitis / Perforated viscus / Intestinal obstruction

Hernias - simple and complicated - various types of hernias; their repair; prosthetic Materials.

Critical care - Cardiorespiratory failure - management of shock; including monitoring; sepsis scores; pharmacological support.

Fluid and electrolyte balance / Acid - Base metabolism - The body fluid Compartments; metabolism of water and electrolytes; factors maintaining homeostasis; causes for and treatment of acidosis and alkalosis.

Pain control - acute and chronic pain; cancer and non-cancer pain; patient controlled analgesia.

Principles of oncology - cell kinetics; causation of tumours; principles of oncologic surgery, radiotherapy and chemotherapy; paraneoplastic syndromes; cancer pain management; palliative care

Principles of burn management - types of thermal injury; assessment of extent; immediate management; late management; skin cover; rehabilitation

Principles of fracture management - fracture healing; principles of immobilization; complications; principles of internal fixation.

Airway obstruction / management - anatomy of the airway; principles of keeping the airway patent; mouth to mouth resuscitation; oropharyngeal airway; endotracheal intubation; crico-thyroidotomy; tracheostomy.

Breast disease - benign and malignant disease; diagnosis; investigation; screening for cancer; genetics of breast cancer

Thyroid disease - solitary nodule; investigations; multinodular goiter; Hashimoto's disease; cancer

### Specialty Topics Include

#### GI endoscopy and Laparoscopy

- Principles of GI endoscopy.
- Diagnostic and therapeutic GI endoscopy including upper GI, lower GI and pancreato- biliary systems.
- Physiology of pneumoperitoneum. Diagnostic laparoscopy & Laparoscopic therapeutic procedures.

#### Neurosurgery

- Head and neck trauma; acute management and rehabilitation
- Concept of brain death / medico-legal implications
- Peripheral nerve injuries
- Neoplasms of the brain and meninges
- Acute and chronic infections of the brain and meninges
- Hydrocephalus/ Meningoceles
- Spinal injuries
- Monitoring intracranial tension

#### Urology

- Urological injuries
- Urothelial tumours / Chemotherapy
- Prostatic hypertrophy
- Hypospadias
- Pyelonephritis / perinephric abscess
- GU tuberculosis
- Scrotal disease / Calculous diseases

#### Endourology

- Peritoneal dialysis / CAPD / haemodialysis
- Transplantation / harvesting kidney
- Urinary diversion
- Infertility / Vasectomy
- Pyeloplasty / hydronephrosis

#### Oncology

- Breast, thyroid and GI malignancies
- Chemotherapy / Adjuvant therapy
- Head and neck tumours
- Imaging CT/ MRI CT guided FNAB/C
- Post excision reconstruction
- Radiotherapy

#### Plastic Surgery

- Burns management
- Cleft lip and palate
- Congenital defects of hand
- Details of skin flap
- Facial injuries
- Hand injuries / tendon injury
- Hypospadias
- Nerve repair
- Pressure sores.
- Principles of microsurgery

- Principles of tissue transfer
- Vascular repair

#### **Cardio-thoracic surgery**

- Flail chest / thoracic trauma Bronchogenic carcinoma Lobectomies
- Bronchoscopy - diagnostic & therapeutic.
- Endocarditis prophylaxis
- Pulmonary function tests
- Control of major haemorrhage
- Operations on the diaphragm
- Coronary artery disease
- Valvular heart disease
- Lobectomies and pneumonectomies
- Oesophageal disease
- Operations on thoracic aorta
- Mediastinal tumours
- Basics of congenital heart disease
- Vascular Surgery
- Vascular imaging
- A V malformation
- Exposure of major arteries and veins / vascular anastomosis
- Varicose veins
- Chronic venous insufficiency.
- Vascular emergencies - trauma, embolism
- Peripheral vascular disease - Atherosclerosis, arteritis
- Details of vascular prosthesis

#### **Paediatric Surgery**

- Fluid and electrolyte management
- Preparation for surgery / post op care
- Hernias
- Spinal fusion defects Ventral defects

#### **Operative Skills**

- Emergency Room Procedures
- Application of Splints for Fractures
- Arterial and Venous Lines
- Assessment and initial management of Poly trauma
- Cardiopulmonary Resuscitation
- Management of Airway Obstruction
- Management of Shock and Cardiac Respiratory failure

#### **Pre-operative Workup**

Ability for adequate pre-operative preparation in special situations like Diabetes, renal failure, cardiac and Respiratory failure etc. and risk Stratification

Communication skills with special reference to obtaining Informed Consent  
Proper pre-operative assessment and preparation of patients including DVT prophylaxis, Blood transfusion and Antibiotics

#### **Post-operative Care**

Airway management  
Basic Physiotherapy  
Management of epidural analgesia  
Management of Fistulae  
Management of postoperative hypo and hypertension

Postoperative pain control  
 Skills for Nutritional rehabilitation of patients  
 Skills for proper Fluid & Antibiotic management  
 Stoma care

**Minor O. T. procedures**

Circumcision under Local Anesthesia  
 Drainage of Abscesses  
 FNAC  
 Major dressings  
 Minor Anorectal Procedures (Haemorrhoids -Banding, Cryotherapy, suturing etc.  
 Anal dilatation and Fissures), Fistulectomy  
 Minor Biopsies - Lymph node, ulcer, swellings etc.,  
 Reduction and plaster application of simple fractures and dislocations  
 Removal of simple subcutaneous swellings  
 Sigmoidoscopy and Upper OG. Endoscopy/Colonoscopy/Bronchoscopy  
 Suturing Techniques  
 Vasectomy  
 Wound debridement

**Major Operating room techniques**

Instrument anagement and trolley layout  
 Skills in Sterilization techniques, O.T.Layout and Asepsis  
 Skin preparation - painting and draping  
 Technique of scrubbing and gowning

**General Surgical Operative Procedures**

Appendicectomy  
 Cholecystectomy  
 Closure of Colostomy  
 Closure of peptic ulcer / under-running bleeding ulcer / vagotomy drainage  
 Colostomy  
 Cysts and sinuses of the neck  
 Diagnostic laparoscopy  
 Drainage of breast abscess / Excision of breast lump  
 Groin Hernia repair  
 Gynaecomastia  
 Haemorrhoidectomy / Fissurectomy / simple fistulectomy  
 Hemicolectomy  
 Herniotomy / Orchidopexy in children  
 Laparotomy for abdominal trauma / splenectomy  
 Laparotomy for intestinal obstruction / bowel resections / bowel anastomosis Management of  
 Complex wounds  
 Mastectomy  
 Opening and closing the abdomen  
 Opening and closing the chest  
 Parotidectomy  
 Release of bands and simple adhesive obstruction  
 Thyroid lobectomy  
 UGI endoscopy / Flexible sigmoidoscopy  
 Ventilation

Wide excision of breast tumours / mastectomy / microdocheotomy  
Gastrostomy / Feeding jejunostomy

#### **Speciality Procedures**

There will be repetition of the procedures listed under this category and those listed under General surgical procedures.

#### **Laparoscopy And GI Endoscopy**

Diagnostic and therapeutic Upper and Lower GI endoscopy  
Diagnostic laparoscopy  
Diagnostic Upper GI endoscopy  
Laparoscopic Cholecystectomy

#### **Neurosurgery**

Craniotomy  
Management of paraplegia  
Peripheral nerve repair  
Treatment of nerve injury specific operations  
Suturing complex scalp wounds  
Trepining

#### **Urology**

Carcinoma penis  
Diagnostic cystoscopy/therapeutic  
Inguinal Block Dissection

#### **Meatotomy**

Nephrectomy - partial & total  
Nephrolithotomy  
Orchidectomy  
Orchidopexy  
Retroperitoneal lymph node dissection  
Supra pubic cystostomy  
Total amputation of penis  
TURP / Open prostatectomy  
Ureterolithotomy  
Urethral J Urogenital injuries  
Urethral dilatation  
Varicocele  
Vasectomy

#### **Oncology**

All radical operations - Breast, Thyroid, GI and Facio-maxillary malignancies  
Breast lumpectomy  
Functional neck node dissection  
Gastrectomy / Bowel resection  
Metastatic workup

#### **Plastic Surgery**

Burn resuscitation  
Lip surgery  
Local blocks in anaesthesia  
Minor hand injuries  
Nerve repair  
Post excision reconstruction  
Reimplantation of digits  
Skin flap surgery



Stitch craft  
Tendon repair PA  
Wound debridement

#### **Paediatric Surgery**

Anorectal anomalies  
Circumcision I meatoplasty  
Herniotomy  
Intercostal aspiration / tube drainage  
Laparotomy for peritonitis  
Lymph node biopsy  
Non-operative treatment of volvulus  
Orchidopexy  
Ostomies  
Paediatric emergencies  
Pyloromyotomy

#### **Cardiothoracic Surgery (Not essential)**

Canulation of artery and vein  
Chest injuries PA  
Empyema drainage / decortication  
Endotracheal intubation  
Intercostal drainage  
Lobectomies and pneumonectomies  
Oesophageal surgery  
Opening and closing the chest  
Operations on the root of the neck  
Pericardiectomy  
Removal of FBs  
Remove pulse generator (pacing)  
Rib resection PA  
Tracheostomy  
Undertake sternotomies  
Vein and arterial harvesting  
Ventilator management  
Vascular Surgery

#### **Teaching and Learning Activities**

A candidate pursuing the course should work in the institution as a full time student. He should be included in Residency program 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 remain 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. Depending on the facilities available, any or all of these methods may be employed.

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 postgraduate students of all specialities. Few topics are suggested as examples:

- 1) Bio-statistics
- 2) Use of library
- 3) Research Methods
- 4) Medical code of Conduct and Medical Ethics
- 5) National Health and Disease Control Programmes
- 6) Communication Skills etc.

These topics may preferably take 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 Topics to be taken by Basic sciences specialist etc.

2. Journal Club: Recommended to be held once a fortnight 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) of selected articles at least two times a year and a total of 6 presentations in three years. The presentations would be evaluated using checklists and would carry weight age for internal assessment. A timetable 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 month 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 checklists and would carry weight age for internal assessment (See Checklist II of Internal Assessment). 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 ward rounds 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. The students should maintain a diary for day-to-day activities. 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 is 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. Postgraduate students should attend these meetings 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-histochemical techniques, the burgeoning markers

other recent developments can be discussed. Radio-diagnosis: Interesting cases and the imaging modalities should be discussed.

8. **Teaching Skills:** Postgraduate students must teach under graduate students (Eg. medical, nursing) by taking demonstrations, bedside clinics, tutorials, lectures etc. Assessment is made using a checklist by surgery faculty as well students. Record of their participation is kept in Logbook. Training of postgraduate students in Educational Science and Technology is recommended.
9. **Continuing Medical Education Programmes (CME):** At least 2 state level CME programmes should be attended by each student in 3years.
10. **Conferences:** Attending conferences is optional. However it should be encouraged.
11. **Dissertation** every candidate pursuing MS degree course is required to carry out work on a selected research project under the guidance of a recognized post graduate teacher. The results of such a work shall be submitted in the form of a dissertation.

### **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 speciality departments are given below.

In the first year, during the morning session, student should work in the parent department. It is recommended that 2 years and 4 months be spent in General Surgery and 8 months in allied and specialty departments. Depending on the time and opportunities available, some of the procedures listed for second year activity can be shifted either to the first or the third year. Students must be 'on call' on a regular basis. The total duration of postings in core and other specialities will be eight months.

### **Basic Sciences**

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 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 Clinico Pathological Conferences. Radiology - Concurrent study - adequate exposure to modern imaging modalities like ultrasound sonography, CT scan, MRI and angiography.

### **Allied Specialty Subjects**

Students should to be posted to core allied speciality subjects Viz. Anaesthesia and ICU for one month and Orthopaedics including trauma (accident and emergency) for 2 months during the second year of training. Posting to the Department of Obstetrics and Gynaecology for one month is optional. This posting may be in lieu of one of the other specialties (except the core specialties) depending on the choice of the candidate.

Other Surgical Speciality Subjects Postings to other speciality departments will be during the second year. The departments and duration of postings are as under:

### **Department Duration**

- Paediatric surgery 4wks
- Plastic surgery 4wks
- Urology 4 wks
- Oncology 4 wks
- Cardiothoracic surgery 2 wks

- Neurosurgery 2 wks

### Dissertation

1. 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, comparison of results and drawing conclusions.
2. Every candidate shall submit to 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 the proper channel.
3. 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.
4. The dissertation should be written under the following headings:
  - Introduction
  - Aims or Objectives of study
  - Review of Literature
  - Material and Methods
  - Results
  - Discussion
  - Conclusion
  - Summary
  - References
  - Tables
  - Annexure
5. The written text of dissertation shall be not less than 50 pages and shall not exceed 150 pages excluding references, tables, questionnaires and other Checklists. 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 guide shall certify the dissertation, head of the department and head of the Institution.
6. Four copies of dissertation thus prepared shall be submitted to the University, six months before final examination on or before the dates notified by the University.
7. 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.
8. Guide: The academic qualification and teaching experience required for recognition by this University as a guide for dissertation work be as per Medical Council of India 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 recognized as postgraduate teachers. A Co-guide may be included provided the work requires substantial contribution from a sister department or from another medical institution recognized for teaching/ training by the University /Medical Council of India. The co-guide shall be a recognized postgraduate teacher.
9. 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.