M.Ch. Urology

Goals

1. To train doctors in the scientific and clinical aspects of the specialty of Urology.
2. To empower them to practice the specialty of Urology with competence, care, and compassion thereby delivering the highest standard of Urologic care to the community.
3. To empower the trainee in academic and research aspects of Urology; to empower the trainee to become an effective teacher and communicator in Urology.
4. To establish the required training methods evaluation methodology, and qualifying norms for the successful completion of the M.Ch. course in Urology.

Note:
Urology shall at the present time include the areas of General Urology, Endourology, Paediatric Urology, Urologic Oncology, Reconstructive Urology, Genitourinary Trauma, Female Urology, Neuro –urology and Incontinence, Andrology & Reproductive Urology, Renal Transplantation, Laparoscope Urology and such other fields as may form part of the specialty of Urology in its future evolution.

Statement of Objectives

1. To provide the candidates with the current, latest, scientific and evidence based Knowledge pertaining to the above – mentioned areas in Urology.
2. To impart the Skills to undertake independent clinical practice in the above areas of Urology and to provide opportunities to the practice of these skills in a graded manner and under suitable supervision to a point where the candidates is capable of practicing these skills independently.
3. To include in the candidate an Attitude of responsibility, accountability and caring; to empower the candidate with a good and sound foundation of Ethical Values in the practice of urology; and to develop in the candidate the ability to effective Communicative with patients, peers, superiors, and the community in the discharge of his/her clinical role.

Course Content

1. The predominant course related activity would involved working in the hospital – OPD’s, Wards, Operation Theaters, and affiliated Laboratories, Diagnostic facilities etc.
2. Didactic teaching activities will include Lectures, Seminars, Clinical Presentations, Journal Clubs, etc.
3. Practical teaching and learning activities will involve Case Presentations, Demonstrations, Imaging and Diagnostic Procedures and such other related activities.
4. Additional teaching and learning activities will include:
   a) Visits to other Institutions of excellence.
   b) Visits to Laboratories, Diagnostic Facilities, Rehabilitation units, Community based units and such other areas as may be deemed necessary from time to time.
   c) Attending Continuing Education Programmes, Seminars, Conferences, Workshop etc., in furtherance of the course objectives.
   d) Presenting Papers, Topics, Lectures, Posters, and similar activities to peer groups in furtherance of the learning and objectives of the course.

The following is a general list of topics to be covered during the course. This list is only representative, and any topic relevant to the science of Urology may be included. Teaching, learning evaluation will, therefore, not be confined to, shall include the topics listed below.

**Basic Sciences as Applied to urology**
1. Surgical Anatomy of Genito-urinary Tract and Retroperitoneum
2. Normal Renal Physiology
3. Renal Biochemistry – Acid base and fluid regulation
4. Renal Endocrinology
5. Physiology & Pharmacology of Renal Pelvis & Ureter
6. Physiology of Urinary Bladder
7. Genetic determinants of Urologic Diseases
8. Pathophysiology of Urinary Tract Obstruction
   a) Upper Urinary Tract
   b) Lower Urinary Tract
    a. Vesico – Ureter Reflux, Mega Ureter & Ureteral Re-implantation
    b. Ectopic Ureter & Ureterocoele
    c. Exstrophy of the Bladder, Epispadias & other Bladder Anomalies
    d. Cloacal Malformations.
    e. Prune Belly Syndrome
    f. Posterior Urethral Values & other Urethral Anomalies
    g. Hypospadias
    h. Congenital Anomalies of Testes
11. Renal Function in Foetus & Neonates
12. Renal Dysplasia & Cystic disease of Kidney
13. Disorders of Sexual Differentiation
14. Normal and abnormal spermatogenesis
15. Urologic Examination & Diagnostic Techniques – Imaging of the G.U. Tract
    a. Conventional Radiography of Urogenital system and Retro – peritoneal area
    b. Urologic Ultrasonography
    c. Excretory & Retrograde Pyelography
    d. Conventional Lower Urinary Tract Radiography
    e. Ct, MRI, Angiography and other Imaging modalities
16. Radionuclide studies in Urology
17. Pathologic Techniques in Urology
   a) Urine Analysis
   b) Urinary Cytology
   c) Flow Cytometry
   d) Fine Needle Aspiration Cytology (FNAC)
   e) Needle Biopsy
   f) Immunohistochemistry and other relevant Special Techniques

18. Urinary tract changes in Pregnancy and Puerperium
19. Overview of Genital and Urinary Tract Pathogens

**Infections & Inflammations of G.U. Tract**
1. Host Defence Mechanisms against Urinary Tract Infections
2. Bacterial infections of the Urinary tract – Diagnosis & Management
4. Management of Acute & Chronic Pyelonephritis, Emphysematous Pyelonephritis
5. Approach to Management of Urinary Tract Infection in Infants & Children
6. Diagnosis & Management of Prostatitis & Related disorders
7. Diagnosis & Management of Sexually transmitted diseases
8. Diagnosis & Management of Cutaneous diseases of External Genitalia
10. Diagnosis & Management of Fungal infections of Urinary Tract
11. Diagnosis & Management of Genito – Urinary Tuberculosis
12. Management of Fournier’s Gangrene and Other Soft Tissue Infections
13. Diagnosis & Management of Interstitial Cystitis & Related Syndromes
15. Urologic manifestations of HIV infections, AIDS and related syndromes

**Genito – Urinary Trauma**
1. Diagnosis & Management in Blunt Renal Trauma
2. Diagnosis & Management in Penetrating Renal Trauma
3. Diagnosis & Management of Renovascular injuries
4. Diagnosis & Management of Iatrogenic and Intraoperative Ureteral injuries
5. Diagnosis & Management of Bladder injuries
6. Diagnosis & Management of Urethral injuries
7. Diagnosis & Management of Penile injuries
8. Diagnosis & Management of Scrotal and Testicular trauma
9. Diagnosis & Management of Retroperitoneal Haematoma

**Adrenal Disorders**
1. Evaluation and Management of Adrenal Cortical Disorders
2. Evaluation and Management of Adrenal Medullary Disorders
3. Evaluation and Management of Adrenal Carcinoma

**Renal Failure & Renal Replacement Therapy**
1. Aetiology of Acute and Chronic Renal Failure
2. Management of Acute Renal Failure
3. Management of Chronic Renal Failure
4. Complications of Renal Failure and their Management
5. Principles of Dialysis therapy – Haemodialysis, Peritoneal Dialysis
6. Immunological considerations in Renal Transplantation
7. Live Donor evaluation for Renal Transplantation
8. cadaver Donor evaluation for Renal Transplantation

**Urinary Calculus Disease**
1. Etiopathogenesis of Urinary Tract Calculi
   a. Theories of Urolithiasis
   b. Endocrine factors in the development of Urolithiasis
   c. Role of Modulators
   d. Types of composition of Urinary Calculi
   e. Role of Stone Analysis and types of stone analysis

2. Dietary and Medical Management of Calculus Disease
3. Principles and practice of Extracorporeal Shock Wave Lithotripsy (ESWL)
   a. Evolution of ESWL
   b. Types of Lithotriptors
   c. Indications of ESWL
   d. Post ESWL management
   e. Complications of ESWL and followup

**Benign Prostatic Hyperplasia**
1. Pathophysiology of Benign Prostatic Hyperplasia
2. Clinical evaluation of Benign Prostatic Hyperplasia
3. Medical management of Benign Prostatic Hyperplasia
4. Minimally Invasive Therapy in Benign Prostatic Hyperplasia

**Urologic Oncology**
1. Overview of Cancer Biology and Principles of Urologic Oncology
2. Paediatric Urogenital tumours
3. Benign & Malignant tumours of the GU tract in adults
   a. Renal tumours
   b. Upper tract transitional cell tumours
   c. Bladder tumours
   d. Tumours of the prostate
   e. Tumours of the Seminal Vesicles
   f. Tumours of the Urethra
   g. Tumours of the penis
   h. Tumours of the Penile & Scrotal Skin
   i. Testicular tumours
   j. Extragonadal germ – cell tumours
   k. Retroperitoneal tumours
   l. Metastatic tumours of the G.U. Tract
4. Radiotherapy in Genitourinary tumours
5. Chemotherapy of Genitourinary tumours
6. Genitourinary tumours
7. Immunotherapy of Genitourinary tumours
8. Gene therapy in Genitourinary tumours
9. Other advanced therapeutic modalities in Genitourinary tumours

**Foetal & Perinatal Urology**
1. Prenatal & Postnatal Urologic diagnosis and management
2. Neonatal & Perinatal Emergencies – Diagnosis & Management

**Paediatric Urology**
1. Cryptorchidism and Ectopic Testes
   a. Etiopathogenesis
   b. Diagnosis and Imaging
   c. Hormone therapy
   d. Surgical Management
2. Vesico – ureteric reflux
   a. Primary and Secondary Vesico – ureteric reflux
   b. Evaluation and Principles of Management of Primary Vesico – ureteric reflux
   c. Urinary Tract Infections – Role of chemoprophylaxis
   d. Renal and Bladder complications in Vesico – ureteric reflux
3. Megaureter
   a. Primary obstructive Megaureter – Diagnosis & Management
   b. Principles of Ureteric Reimplantation
4. Ectopic Ureter and ureterocoele – Diagnosis & Management
5. Exstrophy – Epispadias complex – Principles of Management
6. Cloacal Malformations – Principles of Management
7. Diagnosis & Management of Prune Belly Syndrome
8. Posterior Urethral Valves & other Urethral Anomalies
   a. Diagnosis
   b. Complications
   c. Principles of Management

**Andrology**
1. Normal Physiology of Male Reproduction
2. Diagnosis Approach in Male Infertility
3. Varicoceles – Diagnosis & Management
4. Endocrine & Medical Management of Male Infertility
5. Surgical Management of Male Infertility
6. Overview of Assisted Reproduction Techniques
7. Physiology & Pharmacology of Penile Erection and Pathophysiology of Erectile Dysfunction
8. Diagnostic tests in Erectile Dysfunction
9. Medical and other therapies in Erectile Dysfunction
10. Peyronies Disease
11. Penile Prosthesis implantation – Types, indications and complications
12. Phallic reconstruction following trauma

**Neuro – Urology**

1. Neurophysiology and Pharmacology of Micturition and Continence
2. Pathophysiology of Neurovesical dysfunction
   a. CNS Disorders
   b. Spinal trauma
   c. Spinal dysraphism
   d. Pelvic surgery
   e. Diabetes
3. Urodynamics & its applications in Incontinence and Voiding dysfunction
   a. Uroflowmetry
   b. Cystometrygram
   c. Urethral Pressure Profile & EMG
   d. Videourodynamics
   e. Ambulatory Urodynamics
5. Female Urinary Incontinence – Evaluation & Management
   a. Urge Incontinence
   b. Stress Incontinence
   c. Mixed Incontinence
6. Implantation of Artificial Sphincter in men and women
7. Reconstruction of Dysfunction Urinary Tract

**Female Urology**

1. Management of Urologic conditions in Pregnancy
2. Management of Urogenital Fistulae in women
3. Gynaecological tumours & the Female Urinary Tract
4. Female Lower Urinary Tract Reconstruction
5. Urinary incontinence in females
6. Treatment of Stress Incontinence
7. Surgery for Incontinence
8. Stress Incontinence and Cystocele
9. Posterior Vaginal Wall Prolapse
10. Enterocele
11. Uterine Prolapse
12. Urethral Diverticulum
13. Vesico Vaginal Fistula
14. Injuries (iatrogenic) during Gynaecologic procedures and management
15. Pathology affecting primarily Genital organs in females – causing secondary effects on urinary organs and management

**Renal Transplantation**

1. Immunological considerations in renal Transplantation
2. Live Donor evaluation for Renal Transplantation
3. Recipient evaluation for Renal Transplantation
4. Complications of Renal Transplantation and their management
   a. Medical
   b. Surgical
5. Transplantation in Special Groups
   a. Patients with Neuropathic Bladder / Urinary Diversions
   b. Paediatric patients
   c. Previously transplanted patients
   d. Multiple Organ Recipients
6. Cadaver Donor evaluation for Renal Transplantation
   a. Evaluation of Cadaver Donor
   b. Cadaver Donor Management
   c. Certification of Brain Death
   d. Organ retrieval, storage and transport

Reconstructive Urology

1. Principles of Ureteral Reconstruction
2. Principles of Bladder Reconstruction
3. Principles of Urethral Reconstruction
4. Principles of Bladder Substitution procedures
5. Principles governing use of Intestinal Segments in Urological Reconstruction
6. Autologus tissue transfer options in Urology
7. Principles of Urinary Diversion & Undiversion
8. Complications of Urinary Diversion

Endo Urology

1. Endoscopic anatomy of the Upper and Lower Urinary Tract
2. Physics governing endourologic equipment
3. Basic technical aspects of Endourologic equipment
   a. Cystoscope
   b. Resectoscope
   c. Ureterorenoscope
   d. Nephroscope
   e. Laproscope
   f. Associated accessories
4. Anaesthetic consideration in Endourologic surgery
   Endourologic procedures – Indications, Performance, and Complications
   a. Lower Urinary Tract Endoscope
   b. Transurethral Resection of Prostate
   c. Transurethral Resection of Bladder Tumours
d. Ureterorenoscopy
e. Percutaneous Nephroscopy
f. Intracorporeal Lithotripsy devices
g. Endoscopic Reconstructive Procedures
h. Endoscopic Laser Applications

5. Implants, Biomaterials and others
   a. Urethral Catheters
   b. Urethral Stents
   c. Ureteric Catheters
d. Ureteric Catheters
e. Baskets & Graspers
   f. Endoscopic Laser Devices
g. Ureteric Dilators
   h. Guide wires
   i. Autologus Biomaterials
   j. Synthetic Biomaterials
   k. Prosthesis & Sphincter Implants
   l. Tissue Culture Products

Operative Urology

1. Surgical approaches to the Kidneys

2. Surgical approaches to the Adrenals

3. Surgery of the Kidneys
   a. Surgery in Renal Trauma
   b. Surgical procedures in Renovascular disease
c. Auto transplantation of the Kidney
d. Surgical procedures for Pelvi – ureteric junction obstruction
e. Surgical procedures on Adrenals
   f. Nephrectomy for benign disease
g. Nephrectomy for malignant disease
   h. Nephron sparing Surgical procedures

4. Surgical procedures for Renal Calculi
   a. Pyelolithotomy & Extended Pyelolithotomy
   b. Anatrophic Nephrolithotomy
c. Coagulum Pyelolithotomy
d. Nephrolithotomy
e. Percutaneous Nephrostolithothomy (PCNL)

5. Surgery of the Adrenal Glands
   a. Adrenal Tumours
   b. Adrenal Cysts
c. Phaeochromocytoma
6. Surgery of the Ureter
   a. Ureterolithotomy
   b. Uretero-ureterostomy
   c. Trans Uretero – ureterostomy
   d. Ureteral replacement
   e. Ureteral Tailoring and Reimplantation
   f. Boari’s Flap Reimplantation
   g. Ureterolysis & Ureteral Transposition

7. Surgery of the Urinary Bladder
   a. Suprapubic Cystostomy
   b. Surgery for Vesical Calculi
   c. Bladder diverticulectomy
   d. Augmentation Cystoplasty
   e. Partial Cystectomy
   f. Radical Cystectomy
   g. Transurethral Resection of Bladder tumour
   h. Repair of Vesico – vaginal Fistulae.
      i. Vaginal repair
      ii. Abdominal repair
      iii. Repair of complex fistulae
   i. Repair of Rectovesical Fistulae
   j. Bladder neck reconstruction

8. Surgery of the Prostate
   a. Transurethral Resection of the Prostate
   b. Retropubic Prostatectomy
   c. Transvesical Prostatectomy
   d. Radical Retropubic Prostatectomy
   e. Radical Perineal Prostatectomy
   f. Nerve sparing prostatectomy
   g. Minimally Invasive surgery of Prostate.

9. Surgery of the Urethra
   a. Reconstruction of Posterior Urethral Strictures
   b. Reconstruction of Bulbar Urethral Strictures
   c. Reconstruction of Anterior Urethral Strictures
   d. Endoscopic Urethroplasty
   e. Perineal Urethroplasty
   f. Meatoplasty & Glanuloplasty
   g. Single – stage repair of Hypospadias
   h. Staged repair of Hypospadias
   i. Surgery of Urethral Carcinoma

10. Surgery in Male Infertility
    a. Varicocele ligation
    b. Ejaculatory duct incision
    c. Vaso-vasectomy
    d. Vaso – epididymostomy
11. Surgery of the Scrotum
   a. Surgery for Hydrocoele & Chylocoele
   b. Surgery for Haematocoele
   c. Reconstructive procedures in trauma

12. Surgery for Testes
   a. Orchidopexy in Cryptorchidism
   b. Orchidopexy in Torsion
   c. Orchidopexy for benign conditions
   d. Orchidopexy for malignant conditions
   e. Testicular biopsy
   f. Tesicular reimplantation

13. Surgery of the Penis
   a. Surgery for Penile Curvature
   b. Biopsy of Penile lesion
   c. Circumcision
   d. Partial Penectomy
   e. Total Penectomy
   f. Organ conserving procedures in Penile Carcinoma
   g. Post traumatic Penile reconstruction
   h. Penile Prosthesis Implantation

14. Urinary Diversions
   a. Vescicostomy
   b. Cutaneous Ureterostomy
   c. Illeal conduit
   d. Continent diversion using ileum
   e. Continent diversion using illeo – caecal valve
   f. Orthotopic Neobladder
   g. Mitrofanoff and Benchecroun Procedures
   h. Ureterosigmoidostomy

15. Surgery for Associated Conditions
   a. Retroperitoneal Lymphadenectomy
   b. Nerve sparing Retroperitoneal Lymphadenectomy
   c. Illio – inguinal Lymphadenectomy

16. Renal Transplantation
   a. Techniques of Renal Transplantation
   b. Cadaver & Live Donor harvesting technique
   c. Complications of Donor Nephrectomy
      i. Medical (ii) Surgical
   d. Vascular access in Renal failure

17. Surgery for Incontinence
   a. Endoscopic Bladder Neck Suspension
   b. Transabdominal Bladder Neck Suspension
   c. Abdominal & Vaginal Sling Procedures
d. Endoscopic Injection Procedures
    e. Artificial Sphincter implantation

18. Basic Principles of Laparoscopic procedures in Urology

**Recent Advances in Urology (including other emerging topics related to Urology)**

The broad objectives set out above are to be achieved through assumption of graded responsibility in patient care and operative work. A broad outline of such graded responsibility is given below:

**I Year**

**Months 0 – 3**

**Orientation to the Institution & Department**
- Introduction to OPD, Ward and Patient Care routine
- Introduction to Case Record Maintenance
- Introduction to Diagnostic procedures
- Introduction to Preoperative and Postoperative Care
- Introduction to Consultations, inter-departmental activities

**Months 3-6**

- Allocation of patient beds
- Comprehensive record maintenance
- Planning and execution of Diagnostic cascade
- Planning and execution of Pre and Postoperative Care
- Attending emergency Consultation
- Attending cases in the Emergency and Casualty services
- Assisting at emergency and Elective Operative Procedures
- Introduction to basic Diagnostic Urology Endoscopy
- Long-term monitoring of patients

**Months 6 – 12**

- Further refinement of above
- Performing Diagnostic Urologic procedures
- Attending operation theatres
- Independently attending emergency and casualty calls
- Performing emergency operation under supervision
- Performing elective operations under supervision
- Introduction to Therapeutic Lower Tract Endoscopy

**II Year**

**Months 12- 18**

- Assisting juniors in their patient care responsibilities
- Performing advanced diagnostic procedures
- Performing assigned operations
- Assisting seniors at Complicated Urologic procedures
- Performing diagnostic Lower Tract Endoscopy
Performing assigned Therapeutic Endoscopy
Documentation of Clinical Case Material and
archiving
Supervising clinical and operative work of juniors

Months 18 – 24
Assisting juniors operative procedures
Performing Therapeutic Lower tract Endoscopy
Performing assigned reconstructive operations
Performing complicated diagnostic procedures
Performing advanced operations under supervision
Supervising clinical and operative work of juniors

III Year

Months 24 – 36
Providing peer support to juniors in all above
activities Rotations through allied specialties like
Nephrology and to other Units / Institutions for
exposure to advanced aspects of Urology
Undertaking camps, surveys, clinical studies etc. as
part of Departmental activity from time to time.

In addition to patient – care, the candidates will have responsibilities in the following
areas:

1. Clinical Responsibilities

I Year
Diagnosis of all Urology disorders and allied patient
care

II Year
Management of complex Urologic disorders, as
well as complications of surgery and interdisciplinary
problems.

III Year
Practice of protocol – based management and
Development of such management protocol

2. List of operative procedures to be performed

The following list is a compilation of operative procedures that will be performed by
Trainees as part the M.ch. (Urology) Programme in the University. The time frame under
which these procedures will be performed has been evolved based on the degree of
competence and knowledge required. As that trainee progresses through the course, he/ she
will assist seniors in performing procedures under the higher category as a build up to
performance of the higher category procedure.
This list consists of the most common procedures as currently practiced. Additional procedures will be added to each category as and when they evolve. The classification will again be based on the degree of training and expertise required to perform those new procedures.

This schedule is meant to serve as a guideline for trainees, as well as for trainers. It is incumbent on both to make all efforts to fulfill the requirement. The exact number of such procedures performed is likely to vary. It is suggested that at least a majority of the procedures in each Category up to Category IV be performed mandatorily. The training institutions may keep this in mind when they draw up the training schedule for their candidates.

**Category I** 0 – 6 months

1. Biopsy
2. Bladder Distension
3. Circumcision
4. Clot Evacuation
5. Dorsal Slit
6. Stent Removal
7. Testicular Biopsy
8. Urethral Dilatation
9. Cystoscopy (Diagnostic)
10. Filiform Dilatation
11. Retrograde Catheterisation
12. Retrograde Pyelography
13. Endoscopy Biopsy
14. Hydrocele & Spermatocoele Repair

**Category II** 6 – 12 months

1. Cystolithotomy
2. Meatoplasty
3. Orchidectomy
4. Shunt for Priapism
5. Suprapubic Cystostomy
6. Ureteric Stenting
7. Visual Internal Urethrotomy
8. Vesicostomy
9. High Orchidectomy
10. Rovesing’s Operation
11. Varicocele ligation
12. Amputation of penis – partial
13. Orchidopexy
14. Bladder repair after trauma
Category III  
12 – 18 months

1. Bladder Diverticulectomy  
2. Bladder Neck Resection / Incision  
3. Endoscopic Removal of F.B  
4. Epididymectomy  
5. Nephrostomy  
6. Uretero Sigmoidostomy – Ist  
7. Ureterolithotomy  
8. Perinephric Abscess Drainage  
9. Perinephric Abscess Drainage  
10. Ureteric Meatotomy  
11. Cutaneous Ureterostomy  
12. Amputation of Penis – Total  
13. Epididymo Vasostomy  
14. Hypospadias – Staged repair  
15. Diagnostic Ureterorenoscopy  
16. Prostatectomy Frayers / Millin’s  
17. Dialysis access surgery  
18. Fulguration of PUV

Category IV  
18 - 24 months

1. Exploration of Renal Trauma  
2. Hypospadias – Single Stage  
3. Nephrectomy  
4. Partial Cystectomy  
5. Ureteric re – implantation  
6. Urethroplasty (Staged)  
7. Boar’s flap Ureteric implantation  
8. Illeocystoplasty  
9. Pyelolithotomy  
10. Nephrolithotomy  
11. Pyeloplasty  
12. Anatrophic Nephrolithotomy  
13. Coagulum Pyelolithotomy  
14. Percutaneous Nephrolithotomy  
15. Transurethral Resection of Prostate (Small)  
16. Transurethral Resection of Bladder Tumour  
17. Ilio – inguinal block dissection

Category V  
24 –30

1. Bladder neck suspension
2. Transurethral Resection of Prostate
3. Urethroplasty – Single stage
4. Uretero ureterostomy
5. Vesical / Ureteral Fistula repair
6. Donor Nephrectomy
7. Renal Transplantation
8. Illeal loop conduit
9. Nephro ureterectomy
10. Partial nephrectomy
11. Radical Nephroureterectomy
12. Penile Proshesis
13. Adrenalectomy
14. Therapeutic Ureteroscopy
15. Introduction to Basic steps in Laparoscopic Urology

**Category VI** 30 – 36

1. Auto Transplantation of Kidney
2. Complex VVF Repair
3. Total Cystectomy
4. Continent Diversion
5. Ureteric replacement
6. Radical Prostatectomy
7. Diagnostic Laparoscopy
8. Retroperitoneal Lymphadenectomy
9. Renovascular surgery
10. PCNL Laproscopic Procedures

**3. Teaching Learning Responsibilities**

**I Year**

- Presenting Journal Clubs
- Undergraduate Medical Teaching *
- Postgraduate teaching of surgical trainees and trainees in other specialties *
- Teaching Paramedical staff

**II Year**

- Presenting Seminars
- Critical appraisal of presentations and papers
- Presenting papers at State, Regional, and National Conferences

**III Year**

- Developing and leading specific projects related Urology Guiding juniors and peers in academic activities and presentations

* Continuous in II & III year
4. Schedule of Departmental Activities

Postgraduate departments of Urology offering M.Ch. training have evolved a variety of departmental training activities. The following schedule shall serve as a guideline with further refinements being made whenever necessary.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Clinical rounds</td>
<td>Thrice weekly</td>
</tr>
<tr>
<td>2. Journal Clubs</td>
<td>Once weekly</td>
</tr>
<tr>
<td>3. Seminars</td>
<td>Once weekly</td>
</tr>
<tr>
<td>4. Audit / Statistical meeting</td>
<td>Once weekly</td>
</tr>
<tr>
<td>5. Inter – departmental meetings</td>
<td></td>
</tr>
<tr>
<td>• Nephrology</td>
<td>Fortnightly</td>
</tr>
<tr>
<td>• Radiology</td>
<td>Fortnightly</td>
</tr>
<tr>
<td>• Pathology</td>
<td>Monthly</td>
</tr>
<tr>
<td>• Radiation Oncology</td>
<td>Monthly</td>
</tr>
<tr>
<td>• Inter – institutional</td>
<td>Monthly / Bi-monthly</td>
</tr>
</tbody>
</table>

Please see Chapter IV: Monitoring Learning Progress for check – lists and other details.

5. Orientation
   
a. Library

The postgraduate student will become familiar with the books, periodicals, and other publications pertaining to Urology that are available in the Institution. A list of such books etc. will be on record in the department. In addition to this, departments will develop and maintain Departmental Libraries, which will contain highly specialized books and publications from which the postgraduate can benefit.

b. Laboratory Procedures

The candidate will familiarize himself / herself with the different diagnostic procedures in Urology through a process of interaction with the departments like Clinical Biochemistry, Pathology, Radiology etc., wherever feasible. The candidate may be rotated through these departments in order to familiarize him/ her with the nuances of these procedures.

The following diagnostic procedures are specialized and specific to Urologic practice:

1. Urodynamic procedures
2. Nocturnal penile tumescence (NPT)

Certain other diagnostic evaluations like CT Scan, MRI, Colour Doppler scans are in increasing use in Urology. Familiarity with these is vital for the practice of Urology today. Therefore, if facilities for these are not available within the Institution, postgraduates may
be posted to other Institutions where they are available. A similar practice may be employed for any other upcoming diagnostic modalities.

c. Research

The component of research shall be promoted by encouraging candidates to undertake projects during the first two years’ of their course. In this period, they will be introduced formally to the following aspects of Research:

1. Ethics of Clinical Research
2. Fundamentals of clinical studies
3. Types of clinical studies
4. Data recording
5. Data processing and results
6. Statistical analysis
7. Critical evaluation of published data and reports
8. Publication and peer review

This objective may be achieved either through an intramural programme or by enrolling postgraduates in an extramural programme providing the necessary training.

d. National Programmes

Postgraduate will be familiarized with National Programmes applicable to Urology as well as those of social importance. The department shall encourage inter – departmental activities that will increase the awareness of these programmes. All programmes directly applicable to Urology and meant for implementation shall be duly implemented.

6. Regulations

The postgraduate will be sensitized to regulations under different Legislative Acts, such as the Medical Council of India Act, The Code of Medical Ethics, Transplantation of Human Organs Act, etc. They will also be familiarized with other legislations that affect the practice of Clinical Medicine (like The Consumer Protection Act, The Drugs and Cosmetics Act, The Medical Termination of Pregnancy Act, the Narcotics and Psychotropic Substances Control Act, etc.) This will be done through a process of informal contact and engagement with experts in the field.

7. Monitoring of Teaching / Learning Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Periodicity of Assessment</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Journals Clubs</td>
<td>Monthly</td>
<td>Faculty and review as per check list (see chapter IV)</td>
</tr>
<tr>
<td>2. Seminars</td>
<td>Monthly</td>
<td></td>
</tr>
<tr>
<td>3. Theory knowledge</td>
<td>Six monthly</td>
<td>Written test</td>
</tr>
<tr>
<td>4. Clinical performance</td>
<td>Six monthly</td>
<td>Clinical exam</td>
</tr>
<tr>
<td>5. Operative work</td>
<td>Six monthly</td>
<td>Log book</td>
</tr>
</tbody>
</table>
The performance of candidates under these heads will be conveyed to them every six months and a record will be maintained in the department. The Department Head or Director will fulfill all University requirements pertaining to such assessment and keep the University posted 6 monthly.

### SCHEME OF EXAMINATION

The examination shall consist of the following parts:

1. **Theory**
2. **Clinical Examination & Viva voce**

#### 1. Theory

The theory examination shall consists of four papers of 100 marks each. Each paper in turn shall consist of two long questions of 20 marks each and six short questions of 10 marks each. All questions shall be compulsory. Each theory paper shall be for 3 hours.

**Detailed list of topics in each paper enclosed – Appendix I**

**Paper I**

**Basic Sciences as applied to Urology**

This shall include Anatomy, Physiology, Biochemistry, Pharmacology, Microbiology, Immunology, Pathology and Genetics. The paper shall only contain questions and problems based on these areas, but directly connected to the practice of Urology.

**Paper II**

**Principles and Practice of Urology**

This shall include the general principles involved in diagnosing and treating patients with Urologic symptoms and signs. This may also include those diagnostic modalities and tests that are used to arrive at Urologic diagnosis and to monitor the response to treatment.

**Paper III**

**Specialty Urology**
This shall include topics in the special areas of urology such as **Foetal & Perinatal Urology, Paediatric Urology, Andrology, Neuro – urology, Female Urology, Dialysis & Renal Transplantation, Reconstructive urology and Endourology.**

Paper IV  
**Operative Urology + Recent advances in Urology**

Operative Urology shall cover all aspects of theory as applicable to Urologic surgical procedures. Specifically, this shall cover points like surgical anatomy, surgical approach, indications and contraindications, choice of procedure, complications and measures to avoid them, salvage procedures etc. in the case of open surgery. In the case of endoscopic surgery, it may also include endoscopic anatomy, endoscopic hardware, and the limitations of endoscopic approach wherever applicable. This paper may also cover certain directly relevant technologic issues like Structure of Endoscopies, Energy sources in endoscopic surgery etc.

Recent Advances shall cover recent biologic, diagnostic, or technological advances that impact on the current and future practice of Urology. This will also include biomaterials and implants used in Urology (for e.g. Stents, prosthesis, suture materials, clips etc.) and technological advances like Computers, Robotics, etc. The guiding principle for this will be the current relevance to of these to Urologic practice.

*Note: Knowledge of recent advances may be examined in any or all the papers. The above distribution is only board & suggestive and not strict/ exhaustive. Some overlapping of topics is inevitable. Candidates should be prepared to answer overlapping topics.*

2. Clinical Examination

*(Amended by notification vide No. UA/ORD – 06/1999 – 2000 dated 31.03.2005)*

The clinical examination will aim at examining the clinical skills and competence of candidates in the field of Urology. The total marks shall be 200 and shall be distributed as follows:

- Clinical cases: 150 marks
  - One long case – 75 marks
  - Three short cases x 25 marks for each case = 75 marks
- Ward rounds =50 marks

**Part I  
Clinical Cases**

This segment shall carry a total of 150 marks *(75 marks for the Long case and 25 marks for each of the 3 Short cases)*. The purpose of this segment of
examination will be to assess the candidate’s skill and competence in diagnosing the patient’s disease and formulating a sound plan for management. In addition, the candidate’s ability to elicit history, carry out the relevant physical examination, and present all these in a cohesive and logical order will also be assessed.

For this purpose, one long case and three short cases will be chosen. These will be representative of the variety of pathologies with which Urologic patients commonly present to the hospital. All examiners through a process of consultation shall select the cases. If more than one candidate is appearing for the exam, all efforts shall be made to avoid more than one candidate is getting the same set of cases.

The examiners shall do the marking for this segment independently, in order to give the candidate the fairest chance of success.

Part II     Ward Rounds

The marks for this segment shall be 50. The segment of the examination is intended to assess the candidate’s ability to pick up every day problems in the management of Urologic patients. To be assessed will be the candidate’s ability to correlate the clinical symptoms of the patient with the different investigations, operative findings, postoperative course etc., and the ability to suggest management measures. The stress here will be on the candidate’s ability to logically device the best option as well as to formulate alternatives.

Part III    Viva Voce

This segment shall carry a total of 100 marks. This segment is meant to assess the candidate’s overall understanding of Urology. In a sense, this segment will evaluate the candidate and assess whether the candidate fulfills the requirements of training, skill and competence as set out in the objective of the course. This segment may also feature surgical pathology specimens, histopathology slides, radiographs, reports of diagnostic tests, etc.

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)

Note : Knowledge of the recent advances may be examined in any or all the papers. The distribution of topics for different papers given is only broad and suggestive and not strict or exhaustive. Some overlapping of topics is inevitable. Candidates should be prepared to answer overlapping topics.

PAPER I
BASIC SCIENCES AS APPLIED TO UROLOGY

1. Surgical Anatomy Of Genito Urinary Tract
2. Normal Renal Physiology
3. Renal Biochemistry – Acid base and fluid regulation
4. Renal endocrinology
5. Physiology & Pharmacology of Renal Pelvis and Ureter
6. Physiology of Urinary Bladder
7. Genetic determinants of urologic diseases
8. Radionuclide studies of Urology
9. Pathophysiology of urinary tract obstruction
   a. Upper Urinary Tract
   b. Lower Urinary tract
10. Embryology & Normal development of the Genito Urinary tract
11. Embryology of congenital anomalies of the G U Tract
   a. Vesico-Ureteric Reflux, Mega Ureter & Ureteral Re-implantation
   b. Ectopic Ureter & Ureterocoele
   c. Exstrophy of the Bladder, Epispadias & other Bladder Anomalies
   d. Cloacal Malformation
   e. Prune Belly Syndrome
   f. Posterior Urethral Valves & other Urethral Anomalies
   g. Hypospadias
   h. Congenital anomalies of Testes
12. Renal function in Foetus & Neonates
13. Renal Dysplasia & Cystic disease of Kidney
14. Disorders of sexual differentiation
15. Normal and abnormal spermatogenesis
   a. Urologic Ultrasonography
   b. Excretory & Retrograde Pyelography
   c. Lower Urinary Tract Radiography
   d. CT and other Imaging modalities
17. Urinary tract changes in Pregnancy and Puerperium
18. Pathologic techniques in Urology
   a. Urinary Cytology
   b. Flow Cytometry
   c. Fine Needle Aspiration Cytology
   d. Needle Biopsy
   e. Immunohistochemistry and other relevant Special Techniques
19. Overview of Genital and urinary Tract Pathogens

PAPER II

PRINCIPLES AND PRACTICE OF UROLOGY
Infections & Inflammations of G.U. Tract

1. Host Defence Mechanisms against Urinary Tract Infections
2. Bacterial infections of the Urinary tract – Diagnosis & Management
4. Management of Acute & Chronic Pyelonephritis, Emphysematous Pyelonephritis
5. Approach to Management of Urinary Tract Infection in Infants & Children
6. Diagnosis & Management of Prostatitis & Related disorders
7. Diagnosis & Management of Sexually transmitted disease
8. Diagnosis & Management of Cutaneous diseases of External Genitalia
10. Diagnosis & Management of Fungal infections of Urinary Tract
11. Diagnosis & Management of Genito – Urinary Tuberculosis
12. Management if Fournier’s Gangrene and Other Soft Tissue Infections
13. Diagnosis & Management of Interstitial Cystitis & Related Syndromes
15. Urologic manifestations of HIV infections, AIDS and related syndromes

Genito - Urinary Trauma

1. Diagnosis & Management in Blunt Renal Trauma
2. Diagnosis & Management in Penetrating Renal Trauma
3. V Renovascular injuries
4. Diagnosis & Management of iatrogenic and Intraoperative Ureteral injuries
5. Diagnosis & Management of Bladder injuries
6. Diagnosis & Management of Ureteral injuries
7. Diagnosis & Management of Penile injuries
8. Diagnosis & Management of Scrotal and Testicular trauma
9. Diagnosis & Management of Retroperitoneal Haematoma

Adrenal Disorders

1. Evaluation and Management of Adrenal Cortical Disorders
2. Evaluation and Management of Adrenal medullary Disorders
3. Evaluation and Management of Adrenal Carcinoma

Renal Failure & Renal Replacement Therapy

1. Aetiology of Acute and Chronic Renal Failure
2. Management of Acute Renal Failure
3. Management of Chronic Renal Failure
4. Complications of Renal Failure and their Management
5. Principle’s of Dialysis therapy – Haemodialysis, Peritoneal Dialysis
6. Immunological considerations in Renal Transplantation
7. Live Donor evaluation for Renal Transplantation
8. Cadaver Donor evaluation for Renal Transplantation

**Urinary Calculus Disease**

1. Etiopathogenesis of Urinary Tract Calculi
   a. Theories of Urolithiasis
   b. Endocrine factors in development of Urolithiasis
   c. Role of Modulators
   d. Types of composition of Urinary Calculi
   e. Role of Stone Analysis and types of stone analysis

2. Dietary and Medical Management of Calculus Disease

3. Principles and practice of Extracorporeal Shock Wave Lithotripsy (ESWL)
   a. Evolution of ESWL
   b. Types of Lithotriptors
   c. Indications of ESWL
   d. Post ESWL management
   e. Complications of ESWL and follow up

**Begin Prostatic Hyperplasia**

1. Pathophysiology of Begin Prostatic Hyperplasia
2. Clinical evaluation of Begin Prostatic Hyperplasia
3. Medical Management of Begin Prostatic Hyperplasia
4. Minimally Invasive Therapy in Begin Prostatic Hyperplasia

**Urologic Oncology**

1. Overview of Cancer Biology & Principles of Urologic Oncology
2. Paediatric Urogenital tumours
3. Malignant tumours of the G.U. Tract in Adults
   a. Renal tumours
   b. Upper tract Transitional Cell Tumours
   c. Bladder tumours
   d. Tumours of the prostate
   e. Tumours of the Seminal Vesicles
   f. Tumours of the Urethra
   g. Tumours of the penis
   h. Tumours of the Penile & Scrotal Skin
   i. Testicular tumours
   j. Extragonadal germ – cell tumours
   k. Retroperitoneal tumours
   l. Metastatic tumours of the G.U. Tract
4. Radiotherapy in Genitourinary tumours
5. Chemotherapy of Genitourinary tumours
6. Gene therapy in Genitourinary tumours
7. Other advanced therapeutic modalities in Genitourinary tumours

PAPER-III
Specialty Urology

Foetal & Perinatal Urology

1. Prenatal & Postnatal diagnosis and management
2. Neonatal & Perinatal Emergencies- Diagnosis & Management

Paediatric Urology

1. Cryptochidism and Ectopic Testes
   a. Etiopathogenesis
   b. Diagnosis and Imaging
   c. Hormone therapy
   d. Surgical Management
2. Vesico-ureteric reflux
   a. Primary and Secondary Vesico-ureteric reflux
   b. Evaluation and principles of management of Primary Vesico-ureteric reflux.
   c. Urinary Tract Infections- Role of chemoprophylaxis.
   d. Renal and Bladder complications in Vesico-ureteric reflux.
3. Megaureter
   a. Primary obstructive Megaureter- Diagnosis & Management
   b. Principles of Ureteric Reimplantation
4. Ectopic Ureter and Ureterocoele- Diagnosis & Management
5. Exstrophy- Epispadias complex- Principles of Management
6. Cloacal Malformations- Principles of Management
7. Diagnosis & Management of Prune Belly Syndrome
8. Posterior Urethral Valves & other Urethral Anomalies
   a. Diagnosis
   b. Complications
   c. Principles of Management

Andrology

1. Normal Physiology of Male Reproduction
2. Diagnosis Approach in Male Infertility
3. Varicoceles – Diagnosis & Management
4. Endocrine & Medical Management of Male Infertility
5. Surgical Management of Male Infertility
6. Overview of Assisted Reproduction Techniques
7. Physiology & Pharmacology of Penile Erection and Pathophysiology of Erectile Dysfunction
8. Diagnostic tests in Erectile Dysfunction
9. Medical and other therapies in Erectile Dysfunction
10. Peyronie’s Disease
11. Penile Prosthesis implantation – Types, indications and complications
12. Phallic reconstruction following trauma.

Neuro-Urology

1. Neurophysiology and Pharmacology of Micturition and Continence
2. Pathophysiology of neurovesical dysfunction
   a. CNS Disorders
   b. Spinal trauma
   c. Spinal dysraphism
   d. Pelvic surgery
   e. Diabetes

3. Urodynamics & its applications in Incontinence and Voiding dysfunction.
   a. Uroflowmetry
   b. Cytometrogram
   c. Urethral Pressure Profile & EMG
   d. Videourodynamics
   e. Ambulatory Urodynamics

4. Medical Management of Urinary Incontinence
5. Female Urinary Incontinence – Evaluation & Management
   a. Urge Incontinence
   b. Stress Incontinence
   c. Mixed Incontinence

6. Implantation of Artificial Sphincter in men and women
7. Reconstruction of Dysfunctional Urinary Tract

Female Urology

1. Management of Urologic conditions in Pregnancy
2. Management of Urogenital Fistulae in women
3. Gynaecological tumours & the Female Urinary Tract
4. Female lower Urinary Tract Reconstruction
5. Urinary incontinence in females
6. Treatment of Stress Incontinence
7. Surgery for Incontinence
8. Stress Incontinence and Cystocele
9. Posterior Vaginal Wall Prolapse
10. Enterocoele
11. Uterine Prolapse
12. Urethral Diverticulum
13. Vesico Vaginal Fistula
14. Injuries during Gynaecologic procedures and management
15. Pathology affecting primarily Genital organs in females- causing secondary effects on urinary organs and management.

**Renal Transplantation**

1. Immunological considerations in Renal Transplantation
2. Live Donor evaluation for Renal Transplantation
3. Recipient evaluation for Renal Transplantation
4. Complications of Renal Transplantation and their management
   a. Medical
   b. Surgical
5. Transplantation in Special Groups
   a. Patients with Neuropathic Bladder/Urinary Diversions
   b. Pediatric patients
   c. Previously transplanted patients
   d. Multiple Organ Recipients
6. Cadaver Donor evaluation for Renal Transplantation
   a. Evaluation of Cadaver Donor
   b. Cadaver Donor Management
   c. Certification of Birth Death
   d. Organ retrieval, storage, and transport
7. Legal and Ethical aspects of Organ Transplantation

**Renal Transplantation**

1. Principles of Ureteral Reconstruction
2. Principles of Bladder Reconstruction
3. Principles of Urethral Reconstruction
4. Principles of Bladder Substitution procedures
5. Principles governing use of Intestinal Segments in Urological Reconstruction
6. Autologus tissue transfer options in Urology
7. Principles of Urinary Diversion & Undiversion
8. Complications of Urinary Diversion

**Endo Urology**
1. Endoscopic anatomy of the Upper and Lower Urinary Tract
2. Physics governing Endourologic equipment
3. Basic technical aspects of Endourologic equipment
   a. Cystoscope
   b. Resectoscope
   c. Ureterorenoscope
   d. Nephroscope
   e. Laparoscope
   f. Associated accessories
4. Anaesthetic consideration in Endourologic surgery
5. Endourologic procedures – Indications, Performance, and Complications
   a. Lower Urinary Tract Endoscopy
   b. Transurethral Resection of Prostate
   c. Transurethral Resection of Bladder Tumours
   d. Ureterorenoscopy
   e. Percutaneous Nephroscopy
   f. Intracorporeal Lithotripsy devices
   g. Endoscopic Reconstructive Procedures
   h. Endoscopic Laser Applications
6. Implants, Biomaterials and others
   a. Urethral Catheters
   b. Urethral Stents
   c. Ureteric Catheters
   d. Ureteric Stents
   e. Baskets & Graspers
   f. Endoscopic Laser Devices
   g. Ureteric Dilators
   h. Guide wires
   i. Autologus Biomaterials
   j. Synthetic Biomatrials
   k. Prosthesis & Sphincter Implants
   l. Tissue Culture Products

PAPER-IV
Operative Urology & Recent Advances

Operative Surgery

1. Surgical approaches to the Kidneys
2. Surgical approaches to the Adrenals
3. Surgeries of the Kidneys
   a. Surgery in Renal Trauma
   b. Surgical procedures in Renovasular disease
   c. Auto transplantation of the Kidney
   d. Surgical procedures for Pelvi-ureteric junction obstruction
   e. Surgical procedures on Adrenals
   f. Nephrectomy for benign disease
   g. Nephrectomy for malignant disease
   h. Nephron sparing Surgical procedures

4. Surgical procedures for Renal Calculi
   a. Pyelolithotomy & Extended Pyelolithotomy
   b. Anatrophic Nephrolithotomy
   c. Coagulum Pyelolithotomy
   d. Nephrolithotomy
   e. Percutaneous Nephrostolithotomy (PCNL)

5. Surgery of the Adrenal Glands
   a. Adrenal Tumours
   b. Adrenal Cysts
   c. Phaeochromocytoma

6. Surgery of the Ureter
   a. Ureterolithotomy
   b. Uretero-ureterostomy
   c. Trans Uretero-ureterostomy
   d. Ureteral replacement
   e. Ureteral Tailoring and Reimplantation
   f. Boaris Flap Reimplantation
   g. Ureterolysis & Ureteral Transposition

7. Surgery of the Urinary Bladder
   a. Suprapubic Cystostomy
   b. Surgery for Vesical Calculi
   c. Bladder diverticulectomy
   d. Augmentation Cystoplasty
   e. Partial Cystectomy
   f. Radical Cystectomy
   g. Transurethral Resection of Bladder tumour
   h. Repair of Vesico – vaginal Fistulae
      i. Vaginal repair
      ii. Abdominal repair
      iii. Repair of complex fistulae
   i. Repair of Rectovesical Fistulae
   j. Bladder neck reconstruction
8. Surgery of the Prostate
   a. Transurethral Resection of the Prostate
   b. Retropubic Prostatectomy
   c. Transvesical Prostatectomy
   d. Radical Retropubic Prostatectomy
   e. Radical Perineal Prostatectomy
   f. Nerve sparing prostatectomy

9. Surgery of the Urethra
   a. Reconstruction of posterior Urethral Strictures
   b. Reconstruction of Bulbar Urethral Strictures
   c. Reconstruction of Anterior Urethral Strictures
   d. Endoscopic Urethrotomy
   e. Perineal Urethrostomy
   f. Meato-plasty & Glanuloplasty
   g. Single stage repair of Hypospadias
   h. Staged repair of Hypospadias
   i. Surgery of Urethral Carcinoma

10. Surgery in Male Infertility
    a. Varicocele ligation
    b. Ejaculatory duct incision
    c. Vaso-vasostomy
    d. Vaso-epididymostomy
    e. Vaso-epidymal Fistulae

11. Surgery of the Scrotum
    a. Surgery for Hydrocoele & Chylocoele
    b. Surgery for Haematocoele
    c. Reconstructive procedures in trauma

12. Surgery for Tests
    a. Orchidopexy in Cryptorchidism
    b. Orchidopexy in Torsion
    c. Orchidectomy for benign conditions
    d. Orchidectomy for malignant conditions
    e. Testicular biopsy
    f. Testicular reimplantation

13. Surgery of the Penis
    a. Surgery for Penile Curvature
    b. Biopsy of Penile lesion
    c. Circumcision
    d. Partial Penectomy
    e. Total Penectomy
    f. Organ conserving procedures in Penile Carcinoma
    g. Post traumatic Penile reconstruction
    h. Penile Prosthesis Implantation
14. Urinary Diversions
   a. Vesicostomy
   b. Cutaneous Ureterostomy
   c. Ileal conduit
   d. Continent diversion using ileum
   e. Continent diversions using illeo-caecal valve
   f. Orthotopic Neobladder
   g. Mitrofanoff and Benchecroun Procedures
   h. Ureterosigmoidostomy

15. Surgery for Associated Conditions
   a. Retroperitoneal Lymphadenectomy
   b. Nerve sparing Retroperitoneal Lymphadenectomy
   c. Ilio-inguinal Lymphadenectomy

16. Surgery for Incontinence
   a. Endoscopic Bladder Neck Suspension
   b. Transabdominal Bladder Neck Suspension
   c. Abdominal & Vaginal Sling Procedures
   d. Endoscopic Injection Procedures
   e. Artificial Sphincter implantation

17. Basic Principles of Laparoscopic procedures in Urology

**JOURNALS**

**Essential**

**Current Journals under subscription**

1. British Journal of Urology (M)
2. Journal of Urology (M)
3. Urologic Clinics of North America (Q)
4. Transplantation Proceedings (BM)
5. World Journal of Urology (Q)
6. Indian Journal of Urology
7. Urologic Survey
8. Urology
9. Journal of endourology

**Optional**

1. Genitourinary Medicine
2. Investigative Urology
4. Journal of Endo-Urology
5. Neuro-Urology and Urodynamics
7. Fertility and Reproduction

Monitoring Learning Progress: See Chapter IV

Log Book For M.Ch Urology

NAME:

INSTITUTION:

CERTIFICATE FROM HEAD OF THE DEPARTMENT

Name : 

Nature of Post : 

Name of the Hospital / Institution : 

Recognised by: UNIVERSITY / MCI : 

Number of Urological beds : 

Number undergoing training : 

Names of Approved trainers : 

Signature of the Head of Department
Table I: Academic activities attended

<table>
<thead>
<tr>
<th>Name:</th>
<th>Admission Year:</th>
</tr>
</thead>
<tbody>
<tr>
<td>College:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Type of Activity</th>
<th>Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Specify Seminar, Journal Club, Presentation, UG teaching</td>
<td></td>
</tr>
</tbody>
</table>

Table II: Academic presentations made by the student

<table>
<thead>
<tr>
<th>Name:</th>
<th>Admission Year:</th>
</tr>
</thead>
<tbody>
<tr>
<td>College:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Type of Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Specify Seminar, Journal Club, Presentation, UG teaching etc.</td>
</tr>
</tbody>
</table>
Table III: Diagnostic Procedures done from (Date To Date)

<table>
<thead>
<tr>
<th>DATE</th>
<th>HOSPITAL NUMBER</th>
<th>PROCEDURE</th>
<th>P</th>
<th>S</th>
<th>AT</th>
<th>AJ</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P – Performed Independently    AT – Assisting Trainer
S – Done under Supervision    AJ – Assisting Junior Colleagues

Table IV: List of Operative Procedures to be performed by M.Ch (Urology) Trainees

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>P</th>
<th>S</th>
<th>AT</th>
<th>AJ</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cystoscopy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stent Removal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retrograde Catheterisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retrograde Pyelography</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endoscopic Biopsy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clot Evacuation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ureteric Stenting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual Internal Urethrotomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endoscopic Removal of Foreign body</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ureteric Meatomoty / Incision of Ureterocoele</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnostic Ureterorenoscopy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fulguration of Posterior Urethral Valves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percutaneous Nephrolithotomy (PCNL)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transurethral Resection of Prostate (TURP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transurethral Resection of Bladder Tumour</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endoscopic Bladder Neck Suspension</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Therapeutic Ureterorenoscopy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnostic Laparoscopy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P – Performed Independently
S – Done under Supervision
AT – Assisting Trainer
AJ – Assisting Junior Colleagues

**Model Overall Assessment Sheet**

Name of the College:

Academic Year:

<table>
<thead>
<tr>
<th>Check List No.</th>
<th>Particulars</th>
<th>Name of Student and Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>I</td>
<td>Journal Review Presentations</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>Seminars</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>Clinical work in wards</td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>Clinical presentation</td>
<td></td>
</tr>
<tr>
<td>V</td>
<td>Teaching skill practice</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Score</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
1. Use separate sheet for each year
2. Insert name of candidate
List of Operative Procedures to be performed by M.Ch (Urology) Trainees

BLADDER SURGERY

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>P</th>
<th>S</th>
<th>AT</th>
<th>AJ</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cystolithotomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suprapubic Cystostomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vesicostomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bladder Trauma Repair</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partial Cystoplasty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Augmentation Cystoplasty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open Bladder Neck Suspension</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vesical Fistula Repair</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Cystectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ureterovesical Junction & Ureter

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>P</th>
<th>S</th>
<th>AT</th>
<th>AJ</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ureterolithotomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ureteric Reimplantation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boari Flap Reimplantation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ureteral Fistula Repair</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ureterorenoscopy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uretero-ureterostomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ureteric Replacement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Renal Surgery

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>P</th>
<th>S</th>
<th>AT</th>
<th>AJ</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Kidney Biopsy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nephrostomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perinephric Abscess Drainage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exploration of Renal Trauma</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nephrectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pyelolithotomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nephrolithotomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pyeloplasty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anatrophic Nephrolithotomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coagulum Pyelolithotomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nephroureterectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radical Nephrectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partial Nephrectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renal Auto Transplantation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renovascular Reconstruction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P – Performed Independently   AT – Assisting Trainer
List of Operative Procedures to be performed by M.Ch (Urology) Trainees

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>P</th>
<th>S</th>
<th>AT</th>
<th>AJ</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arteriovenous Fistula</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAPD Catheter insertion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Donor Nephrectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renal Transplantation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cadaver Organ Retrieval</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graft Nephrectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Adrenal Surgery</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adrenalectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Urinary Diversions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illeal Conduit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continent Diversions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orthotopic Neobladder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ureterosigmoidostomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cutaneous Ureterostomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitrafanoff Procedure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benchekroun Procedure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Miscellaneous Procedures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penile Reconstruction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retroperitoneal Lymphadenectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retroperitoneal Tumour Excision</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ureterolysis &amp; Transposition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnostic Laparoscopy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laparoscopic Nephrectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P – Performed Independently        AT – Assisting Trainer
S – Done under Supervision         AJ – Assisting Junior Colleagues
### Table V: List of Operative Procedures to be performed by M.Ch (Urology) Trainees

#### OPEN SURGICAL PROCEDURES

**GENITAL SURGERY**

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>P</th>
<th>S</th>
<th>AT</th>
<th>AJ</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dorsal Slit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circumcision</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Testicular Biopsy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrocoele &amp; Spermatocele repair</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meatoplasty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orchidectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shunt for Priapism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicocele ligation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partial Penectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penile Trauma Exploration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Penectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epididymovasostomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Staged Hypospadias repair</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illeoinguinal Lymphadenectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penile Prosthesis Implantation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urethral Surgery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urethral dilatation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Filiform dilatation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perineal Urethrostomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urethrectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staged Urethroplasty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Staged Urethroplasty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROCEDURE</td>
<td>P</td>
<td>S</td>
<td>AT</td>
<td>AJ</td>
<td>TOTAL</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---</td>
<td>---</td>
<td>----</td>
<td>----</td>
<td>-------</td>
</tr>
<tr>
<td>Transrectal Biopsy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open Prostatectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radical Prostatectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nerve Sparing Prostatectomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P – Performed Independently       AT – Assisting Trainer
S – Done under Supervision       AJ – Assisting Junior Colleagues
Model Question Papers

MCH EXAMINATION – UROLOGY

PAPER NO: 1 Basic Sciences as Applied to Urology
Time: 3 Hrs Maximum Marks: 100

1. Discuss the evaluation and management of Germ cell Testicular tumour (Marks 25)

2. Discuss the surgical complications and its management in Renal Transplantation (Marks 25)

3. Write short notes on
   a. Chemotherapy in advanced bladder carcinoma (Marks 10)
   b. Role of urodynamic in management of BPH (Marks 10)
   c. A.N.N.in Urology (Marks 10)
   d. Virtual Cystoscopy (Marks 10)
   e. Hormone Refractory Adeno – Carcinoma of prostate (Marks 10)

MCH EXAMINATION – UROLOGY

PAPER NO: II Clinical Urology
Time: 3 Hrs Maximum Marks: 100

1. Discuss the evaluation and management of renal injuries (Marks 25)

2. Discuss the management of Peyronie’s disease (Marks 20)

3. Write short notes on
   a. Urinary markers in bladder cancer (Marks 10)
   b. Gene therapy for prostate cancer (Marks 10)
   c. Interstitial Cystitis (Marks 10)
   d. Management of T1G3 transitional cell carcinoma of bladder (Marks 10)
   e. Laparoscopic donor Nephrectomy (Marks 10)
1. Discuss the advances in therapeutic energies in urology (Marks 25)
2. Discuss the advances in laparoscopic surgery in urology (Marks 25)

3. Write short notes on
   a. Trus guided biopsy of prostate (Marks 10)
   b. Buccal mucosa in urethroplasty (Marks 10)
   c. Post exposure chemoprophylaxis for HIV (Marks 10)
   d. Radiation hazards in endo-urology (Marks 10)
   e. Green light (KTP) laser (Marks 10)

1. Renal parenchymal sparing surgery in renal cell carcinoma its present status and long term results (Marks 25)
2. Discuss present status of non operative management of Benign Hyperplasia prostate (Marks 25)

3. Write short notes on
   a. Botulinum Toxin and its applications (Marks 10)
   b. Prostatosomes (Marks 10)
   c. MUC4 (Marks 10)
   d. Buccal Mucosa for substitution urethroplasty (Marks 10)
   e. Anatomy of fascia Denonvillier in reference to Radical Postatectomy (Marks 10)