

ZAMBIA COLLEGES OF MEDICINE & SURGERY

(Registered Society)



MINISTRY OF HEALTH



Advancing Specialist Care & Professional Growth

Specialty Training Programme (STP) Curriculum & Learning Guide for Urology (2017)

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GENERAL INTRODUCTION

This Curriculum and Learning Guide describes the work-based competence-based professional training programme for the Specialty Training Programme (STP) in Urology (URO) in Zambia. The intended readership for the curriculum and guideline include the following:

- Trainees, host departments and managers of URO healthcare services;
- STP URO trainers, which includes all those involved in supervising, coordinating, assessing and delivering specialist education and training in Urology;
- Academic, administrative and professional staff within Higher Education Institutions (HEIs), the Higher Education Authority (HEA), and the Zambia Qualifications Authority (ZAQA);
- Strategic partners involved in supporting Urology care and the training of healthcare practitioners in these related fields.

Zambia Colleges of Medicine and Surgery (ZACOMS) advances professional training of medical specialists using the professional competence-based certification model beyond traditional university-based specialist training. It promotes specialist training as a vital pursuit for a successful professional medical career. The ZACOMS also promotes the increase of universal health coverage (UHC) by promoting equitable access to cost-effective quality specialist care as close to the family as possible for people in Zambia at all levels of socioeconomic status and geographical location. The ZACOMS certifies and admits members and/or fellows as specialists in a medical and/or surgical specialty in any of the various specializations of medicine and surgery.

The Zambia Colleges of Medicine and Surgery (ZACOMS) oversees the training of Urology specialists working through the Surgical Society of Zambia (SSZ). The programme is independent but is aligned to the curriculum and requirements of with College of Surgeons of East Central and Southern Africa (COSECSA).

Urology encompasses the surgical care of the urological and genital systems of the individual. It requires specialized knowledge and skills in managing urological conditions. The STP URO training provides specialist training in Urology.

Vision

Our vision is to be innovative in providing a teaching and support structure that will empower every trainee to excel in Urology knowledge, skills and research through internal and external collaboration.

Mission Statement

The mission of the STP URO training in Zambia is to train specialists who shall endeavour to improve the Urology health care services to all by providing safe, evidence-based, humanistic specialist care in the field of Urology in an efficient and proficient manner to meet the needs of the Zambian community, and contribute to the field of Urology in the region and globally.

Values:

- Professional excellence
- Integrity
- Sensitivity to reproductive health needs
- Interdisciplinary, inter institutional collaboration
- Continuous professional development
- Innovation
- Academic Excellence
- Self and peer review

RATIONALE FOR THE SPECIALTY TRAINING PROGRAMME IN UROLOGY

The STP URO aims to train specialists in Urology in order to prepare them for specialist service in the healthcare service. The curriculum is informed by the training requirements of the Health Professions Council of Zambia (HPCZ) and the professional creed of the Surgical Society of Zambia (SSZ). The training programme encourages self-directed learning, life-long learning, and student-centred approaches while providing robust and structured guidance. The key outcomes are twofold as stipulated in Outcomes 1 and 2.

Outcome 1. Apply, at mastery level, Biomedical Sciences, Behavioural & Sociology, and Scientific Principles to the Practice of Urology

1. The graduate should be able to apply to Urology practice biomedical scientific principles, method and knowledge relating to anatomy, biochemistry, cell biology, genetics, immunology, microbiology, nutrition, pathology, pharmacology and physiology. The graduate should be able to:
 - a) Explain normal human structure and function relevant to Urology.
 - b) Explain the scientific bases for common diseases and conditions' signs, symptoms and treatment relevant to Urology.
 - c) Justify and explain the scientific bases of common investigations for diseases and conditions relevant to Urology.
 - d) Demonstrate knowledge of drugs, drug actions, side effects, and interactions relevant to Urology.
2. Apply Behavioral and Sociology Principles to the Practice of Urology
 - a) Explain normal human behavior relevant to Urology.
 - b) Discuss psychological and social concepts of health, illness and disease relevant to Urology.
 - c) Apply theoretical frameworks of psychology and sociology to explain the varied responses of individuals, groups and societies to Urology.
 - d) Explain psychological and social factors that contribute to illness, the course of the disease and the success of Urology interventions.
3. Apply Population Health to the Practice of Urology
 - a) Discuss population health principles related to determinants of health, health inequalities, health risks and surveillance relevant to Urology.

- b) Discuss the principles underlying the development of health and health service policy, including issues related to health financing, and clinical guidelines relevant to Urology.
 - c) Evaluate and apply basic principles of infectious and non-communicable disease control at community and hospital level relevant to Urology.
 - d) Discuss and apply the principles of primary, secondary, and tertiary prevention of disease relevant to Urology.
4. Apply Scientific Method and Approaches to Urology Research.
- a) Evaluate research outcomes of qualitative and quantitative studies in the medical and scientific literature relevant to Urology.
 - b) Formulate research questions, study designs or experiments to address the research questions relevant to Urology.
 - c) Discuss and apply appropriate research ethics to a research study relevant to Urology.

Outcome 2. Competence, at mastery level, in Urology Clinical Practice.

On successful completion of the work-based Urology STP:

1. The trainees should have clinical and specialist expertise in Urology, underpinned by broader knowledge, skills, experience and professional attributes necessary for independent practice;
2. The trainees should be able to undertake complex clinical roles, defining and choosing investigative and clinical options, and making key judgements about complex facts and clinical situations.
3. The trainees should contribute to the improvement of Urology services in the context of the national health priorities, by means of outstanding scientific research and application of safe, high quality, cost effective, evidence based practice within the Zambian health system.
4. The trainees should possess the essential knowledge, skills, experience and attributes required for their role and should demonstrate:
 - A systematic understanding of clinical and scientific knowledge, and a critical awareness of current problems, future developments, research and innovation in Urology practice, much of which is at, or informed by, the forefront of their professional practice in a healthcare environment;
 - Clinical and scientific practice that applies knowledge, skills and experience in a healthcare setting, places the patient and the public at the centre of care prioritizing patient safety and dignity and reflecting outstanding professional values and standards;
 - Clinical, scientific and professional practice that meets the professional standards defined by the Health Professions Council of Zambia (HPCZ);
 - Personal qualities that encompass self-management, self-awareness, acting with integrity and the ability to take responsibility for self-directed learning, reflection and action planning;
 - The ability to analyze and solve problems, define and choose investigative and scientific and/or clinical options, and make key judgments about complex facts in a range of situations;

- The ability to deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data, and to communicate their conclusions clearly to specialist and non-specialist audiences including patients and the public;
 - The ability to be independent self-directed learners demonstrating originality in tackling and solving problems and acting autonomously in planning and implementing tasks at a professional level;
 - A comprehensive understanding of the strengths, weaknesses and opportunities for further development of Urology as applicable to their own clinical practice, research, innovation and service development which either directly or indirectly leads to improvements in clinical outcomes and scientific practice;
 - Conceptual understanding and advanced scholarship in their specialism that enables the graduate to critically evaluate current research and innovation methodologies and develop critiques of them and, where appropriate, propose new research questions and hypotheses;
 - Scientific and clinical leadership based on the continual advancement of their knowledge, skills and understanding through the independent learning required for continuing professional development.
5. Once registered as a specialist in Urology, a range of career development options will be available including sub-specialist training. Alternatively, others may opt to undertake further career development in post, as specialist, through structured Continuing Professional Development (CPD), provided by Accredited CPD providers. Specialist urologists who have successfully completed the STP URO will be eligible to compete for available Consultant positions in Urology.

The outcomes of the STP URO training are affiliated to the following curriculum outcome categories:

Category I: Scientific foundations

Goal 1: Understand the normal structure and function of the human body, at levels from molecules to cells to organs, to the whole organism.

Goal 2: Understand the major pathological processes and their biological alterations.

Goal 4: Understand how the major pathologic processes affect the organ systems.

Goal 5: Integrate basic science and epidemiological knowledge with clinical reasoning.

Goal 6: Understand the principles of scientific method and evidence-based medicine including critical thinking.

Category II: Clinical Skills

Goal 7: Obtain a sensitive, thorough medical history.

Goal 8: Perform a sensitive and accurate physical exam including mental state examination.

Goal 9: Establish and maintain appropriate therapeutic relationships with patients.

Category III: Communication and Interpersonal Skills

Goal 11: Develop the knowledge, skills, and attitudes needed for culturally- competent care.

Goal 12: Participate in discussion and decision-making with patients and families.

Goal 13: Work effectively with other providers in the health system.

Goal 14: Clearly communicate medical information in spoken and written form.

Category IV: Prevention

Goal 15: Develop knowledge, skills, and attitudes to practice the basic principles of prevention.

Goal 16: Practice personalized health planning for long-range goals.

Goal 17: Understand the planning for communities and populations.

Category V: Diagnosis

Goal 18: Elicit and correctly interpret symptoms and signs of Urology conditions.

Goal 19: Diagnose and demonstrate basic understanding of common disease and conditions.

Goal 20: Appropriately use testing to help guide diagnostic and therapeutic decisions.

Goal 21: Demonstrate sound clinical reasoning.

Category VI: Treatment, Acute and Chronic.

Goal 22: Understand therapeutic options and participate in the multidisciplinary care of patients with complex problems.

Goal 23: Recognize acute life-threatening medical problems and initiate appropriate care

Goal 24: Acquire the knowledge and skills necessary to assist in the management and rehabilitation of chronic diseases.

Goal 25: Participate in care in a variety of settings; including knowledge about palliative care.

Category VII: Patient Safety

Goal 26: Identify and remove common sources of medical errors.

Goal 27: Understand and apply models of Quality Improvement.

Goal 28: Appreciate the challenges associated with reporting and disclosure.

Category VIII: Information Management

Goal 29: Use information and educational technology to facilitate research, education, and patient care.

Category IX: Ethics, Humanities, and the Law

Goal 30: Develop a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.

Goal 31: Develop a critical understanding of the multiple factors that affect the practice of medicine, public health and research.

Goal 32: Incorporate ethical principles in clinical practice and research.

Category X: Professionalism

Goal 33: Develop healthy self-care behaviours and coping skills.

Goal 34: Model service to patients and community.

Category XI: Leadership & Management

Goal 35: Develop interpersonal and communication skills that result in leadership in patient health service delivery and health human resource management.

ADMISSION CRITERIA TO THE SPECIALTY TRAINING PROGRAMME IN UROLOGY

Applicants to the STP URO must possess a primary qualification in medicine, that is, Bachelor of Medicine and Bachelor of Surgery (MB ChB) or equivalent, from a recognized university. Additionally, they must have completed internship and retain full registration and a practising licence issued by the Health Professions Council of Zambia. Other Ministry of Health policies and directives, for example, completion of rural posting, may apply.

CURRICULUM DESIGN/MODEL OF THE SPECIALTY TRAINING PROGRAMME IN UROLOGY

The STP URO Curriculum is a work-based professional competence-based training situated in an accredited training facility managed by specialists in Urology with oversight by the Zambia Colleges of Medicine and Surgery (ZACOMS) working through SSZ.

During the STP URO programme the specialty registrar is an integral member of the clinical work of the department in which they are training to gain the required clinical experience and competence. The STP URO programme is a work based professional competence-based training leading to the award of the Certificate of Completion of Specialty Training (CCST) by the Zambia Colleges of Medicine and Surgery (ZACOMS). Graduates are then eligible to apply to the Health Professions Council of Zambia to enter the Specialist Registers in Urology.

TEACHING METHODS IN THE SPECIALTY TRAINING PROGRAMME IN UROLOGY

The STP URO training is a work-based professional competence-based programme and should encompass diverse teaching and learning approaches that are appropriate for the target educational domain, i.e., cognitive (knowledge), psychomotor (practical), or affective (attitude) domain. The teaching methods may include, but not limited to, the following: expository lectures, tutorials, seminars, practical classes, skills laboratories, clinical demonstrations, clinical clerkships (bedside teaching, ward rounds, ambulatory care teaching, operating theatre experience, post-mortem, and on-call duties), field and community based learning, and ICT supported learning experiences.

The Health Professions Specialty Training Guidelines for Zambia and Zambia Colleges of Medicine and Surgery Society Objectives and By-Laws provide detailed guidance to the trainee about the STP and ZACOMS, respectively.

SPECIALTY TRAINING PROGRAMME IN UROLOGY CURRICULUM STRUCTURE AND MAP

Curriculum Map for the STP URO Programme

STP YEAR 1		STP YEAR 2		STP YEAR 3		STP YEAR 4	
Applied Basic Sciences in Urology	ZACOMS PT 1 ARCP	Principles and Practice of General and Urology/ Operative Surgery	ARCP	General Surgery	ZACOMS CCST Exams	National Urology Rotations	ZACOMS CCST Exams
Introduction to Principles and Practice of Urology		General Urology Rotations		Obstetrics and Gynaecology Rotation		General Urology Rotation	
Basic General Surgical Techniques and Practice		Research Methods		Urology Rotation		Research Project Write Up	
Part 1: Generic Education & Training		Part 2: Themed & Specialist Education & Training					

N.B. The total number of years, in particular, the themed specialist education and training may vary between different specialties.

1. ARCP = Annual Review of Competence Progression
2. CCST = Certificate of Completion of Specialty Training Examination;
3. STP = Specialty Training Programme;
4. ZACOMS PT 1 = Zambia Colleges of Medicine and Surgery Part 1 Examinations in Basic Sciences, Behavioural Sciences, Health Population Studies, and Professionalism & Ethics; ZACOMS CCST Examinations = Certificate of Completion of Specialist Training in Urology Examinations

ASSESSMENT IN THE SPECIALTY TRAINING PROGRAMME IN UROLOGY

Progression to the next level of training is NOT automatic and is dependent on the trainee satisfying all the competency requirements of each defined level as per this curriculum and learning guide. The assessment framework is designed to provide a coherent system of assessing both formative and summative assessment which are workplace based and in examination settings.

Each training site must ensure that they use valid, reliable and appropriate methods for assessing the knowledge, clinical skills and attitude domains. The continuous assessments and final annual assessments are weighted at 40% and 60% of the final mark of Annual Review of Competence Progression, respectively. Assessment methods may include, but are not limited to, the following: Log of experiences and procedures completed, case reports, portfolios, project reports, multiple choice questions, essay questions, short answer questions, modified essay questions, short and long cases, objective structured clinical examinations (OSCE), practical examinations, objective structured practical examinations (OSPE), Mini-clinical Examination (MiniCEX), and Viva Voce, etc.

It is emphasized that marks from theory examinations **may not** compensate for poor scores in the clinical examinations; Students **MUST** pass the clinical examinations in order to progress to the next stage of training or completion.

Assessment	Knowledge, Skill and Attitude Domain	Examining Body
Formative Workplace Based Assessments	Outcome 1 & 2	Training Site
Annual Review of Competence Progression	Outcome 1 & 2	Training Site in conjunction with ZACOMS
ZACOMS Part 1 Examination	Outcome 1	ZACOMS working through SSZ
ZACOMS Certificate of Completion of Specialist Registration Examinations	Outcome 2	ZACOMS working through SSZ

A candidate shall be allowed a maximum of three attempts for ZACOMS Part 1 and/or Part 2 Examinations. Candidates must have submitted a completed log book to be eligible to attempt the ZACOMS Part 2 Examination.

For ease of tracking progress and planning for Urology care, all STP URO trainees will be registered with ZACOMS and SSZ for the duration of their training and will be allocated a Health Professions Council of Zambia Specialty Registrar Index Number.

Grading Scheme

The STP URO Curriculum and Guide are the basis for all specialty training which contextualize the standards of proficiency set down by the Zambia Colleges of Medicine and Surgery (ZACOMS) in consultation with the Surgical Society of Zambia (SSZ) in a way that is accessible to the profession and the public. The Certificate of Completion of Specialist Training (CCST) is not graded. Separate assessments and examinations may be graded to show the level of achievement of the trainee in a particular course or assignment.

Assessment of Attainment of Competence in an Academic Subject

Status & Level	Description of Competence Features	% Range
Outright Fail [D]	<ul style="list-style-type: none"> Has poor and inaccurate command of the subject vocabulary Has poor and inaccurate command of the concepts (knowledge, skills and attitudes) of the subject across a broad range of topics. 	44.9% & Below
Bare Fail [D+]	<ul style="list-style-type: none"> Has the basics of subject vocabulary Has the basics of concepts (knowledge, skills and attitudes) of the subject across a broad range of topics 	45 – 49.9

	<ul style="list-style-type: none"> • Unable to transfer and apply knowledge, skills and attitudes of the subject in a range of situations. • Unable to exercise independent judgement in a range of situations 	
Clear Pass [C]	<ul style="list-style-type: none"> • Has sound command of subject vocabulary • Has sound command of concepts (knowledge, skills and attitudes) of the subject across a broad range of topics • Able to formulate responses and demonstrate skill and exhibit appropriate attitude in well-defined and abstract problems/professional settings across a broad range of topics of the subject 	50 – 64.9
Meritorious Pass [B]	<p>All of above in level 3 and:</p> <ul style="list-style-type: none"> • Able to transfer and apply knowledge, skills and attitudes and exercise significant independent judgement in a broad range of topics of the subject 	65 – 74.9
Distinction Pass [A]	<p>All of the above in level 4 and:</p> <ul style="list-style-type: none"> • Displays masterly of complex and specialised areas of knowledge, skills and attitudes in a broad range of topics of the subject. 	75% & Above

UROLOGY HANDBOOK & CURRICULUM

The detailed STP Urology Handbook and Curriculum is presented in full in the next section.

UROLOGY HANDBOOK & CURRICULUM

Part 1 Examinations

The Part I Examination is designed to assess the basic principles of Urology and a broad knowledge of surgery in general. It is designed to identify surgical trainees who can recognise and deal with the wide variety of problems that may be met by trainees. They should be able to take responsibility for emergency urologic and general surgical admissions, deal independently with life threatening situations due to trauma or critical illness, and be able to diagnose and plan treatment of a wide variety of surgical complaints.

The Part I of ZACOMS STP URO does not confer specialist status but signifies that the trainee is ready to pursue higher surgical training in Urology or another surgical subspecialty. Higher surgical training in the chosen specialty is examined by ZACOMS through the relevant affiliate professional association, which will confer specialist status.

Logbook

During the training period candidates must keep a logbook recording all of their training experience. The logbook should also contain details of all courses attended and the trainee and post assessment forms for the whole training period.

More detail on completing logbooks is provided in the logbook itself.

Before submission to the examination the Programme Directors should check the logbook for completion. Before the start of the clinical and oral examinations, the logbook should be handed to the examination panel. Proof of attendance at an approved Basic Surgical Skills course, Basic Surgical Science course and Critical Care or Trauma Course should be brought to the oral examination. Candidates will not be allowed to sit for the examination if this is not done.

Part 2 Examinations

The Part 2 examination in Urology leads to the specialist qualification in Urology of the ZACOMS. This qualification is recognition that the candidate has reached the level of knowledge, understanding and practice of Urology sufficient to practice independently at a consultant or specialist level. It should be recognised, however, that surgery is not a static art and fellows should continue to increase knowledge and skills by means of research, conferences, meetings and reading.

Logbook

During the training period candidates must keep a logbook recording all of their training experience. The logbook should also contain details of all courses attended and the trainee and post assessment forms for the whole training period.

More detail on completing logbooks is provided in the logbook itself.

Before submission to the examination the Programme Directors should check the logbook for completion. Before the start of the clinical and oral examinations, the logbook should be handed to the examination panel. Proof of attendance at an approved Basic Surgical Skills course, Basic Surgical Science course and Critical Care or Trauma Course should be brought to the oral examination. Candidates will not be allowed to sit for the examination if this is not done.

PART 1 EXAMINATIONS COURSE CONTENT

APPLIED BASIC SCIENCES

1. Anatomy

- Embryology of the Genito-urinary system: Morphogenesis of the germ layers, pronephros, mesonephros, development of the kidney, ureter, cloaca, trigone and bladder, urogenital sinus and ducts of the genitalia.
- Anatomy of the retro-peritoneum and adrenal: Musculoskeletal boundaries of retro-peritoneum, urinary organs, major arterial and venous vasculature of the retro-peritoneum, lymphatics, nerves and adrenal glands.
- Anatomy of the upper urinary tract: Renal anatomy, ureteral anatomy and anatomic relation of the kidneys, the ureters and their coverings.
- Anatomy of the lower urinary tract: the urinary bladder, urethra, auxiliary genital glands in the male, scrotum, penis and the perineum.
- Anatomy of the Pelvis: Pelvic cavity (bony pelvis), pelvic floor and pelvic fascia. Male internal genital organs and female genital organs. Pelvic vessels and nerves.

2. Physiology

- Normal renal physiology: Renal haemodynamics, excretion of organic solutes and endocrine function of the kidney.
- Physiology of the renal pelvis and ureter: Electrical activity, contractile activity, mechanical properties, propulsion of urinary bolus, physiology of the uretero-pelvic junction and physiology of the uretero-vesical junction.
- Physiology of the urinary bladder: Neuro-physiology of the urinary bladder, urodynamics and description of normal voiding.
- Physiology of the male reproduction system: Hypothalamic-pituitary function, the testis, epididymis and ductus deferens physiology. The biochemistry and physiology of the prostate and seminal vesicles. Sex accessory gland secretions.

3. Pathology

- Congenital anomalies of the genito-urinary tract: Polycystic kidneys, medullary sponge kidney and renal dysplasia. Anomalies of the kidney as number, ascent, form and fusion, rotation and vasculature. Anomalies of the ureter as number, structure, termination and position. Extrophy, epispadias and other anomalies of the urinary bladder.
- Infection and inflammation of the genito-urinary tract: Genito-urinary tuberculosis, urinary schistosomiasis, genital filariasis, sexually transmitted diseases and prostatitis.
- Tumours of the genito-urinary tract: Carcinoma of the kidney, ureter, urinary bladder, prostate, urethra, penis and testis.

4. Computer Skills and Research Study Design

- Basic Computer Literacy
- Epidemiology and research design of a research project

- Biostatistics
- Evidence-based medicine
- Medical Education introduction
- Writing a scientific paper
- Urology audit

Core knowledge of surgical anatomy, physiology and the principles of pathology and microbiology pertinent to urology.

GENERAL SURGICAL SKILLS

Basic Surgical Skills

- Safety in theatre
- Principles of maintaining sterility
- The principles of anastomosis
- Suture materials and needles
- The principles of debridement
- Diathermy principles and safety
- Plaster techniques

Principles Of Surgery In General

- The principles of surgical care which are common to all surgical disciplines

Pre-Operative Care

- Surgical nutrition: Parental and oral
- Fluid and electrolyte therapy
- Blood transfusions and its hazards
- Infection and antimicrobial agents
- Diagnostic aids - imaging and clinical chemistry

Intra-Operative Care

- Aseptic and antiseptic techniques
- Hazards and precautions in operating theatres
- Electrical safety and hazards
- Radiation effects and hazards
- Perioperative management of surgical patients with medical conditions
- Perioperative management of the patient on steroid therapy

Normal Postoperative Care And Complications

- Convalescence: The metabolic response to trauma
- Hypovolaemic shock
- Cardiac arrest
- Acid-base metabolism
- Gram negative - bacterial endotoxic shock
- Respiratory support and mechanical ventilation

- Pulmonary aspiration
- Adult respiratory distress syndrome
- Deep vein thrombosis and pulmonary embolism
- Fat embolism
- Haemostatic disorders
- Postoperative acute renal failure
- Postoperative jaundice
- The recognition of cardiac arrhythmias and cardiac failure and its management
- Multiple organ failure
- Postoperative care of infants and children

Examination (Theory and Objective Structured Clinical Examination [OSCE]) 50%

Paper I: Essay and short answer questions

Paper II: Multiple Choice Questions (MCQs)

Oral: Anatomy/Physiology/Pathology

Log books

The aggregate pass mark is 50% (40% for the continuous assessment and 60% for the end of year examination).

Prescribed Reading for Part 1

Emanuel R., Farber J. (2001). Pathology (Third Edition). Lippincott William & Wilkins. ISBN 0-397-58422-9.

Agur, A.M., Lee, M.J. (1999). Grant's Atlas of Anatomy (Tenth Edition). Lippincott William & Wilkins. ISBN 0-683-30264-7.

Eraschenko V. P. (2000). Atlas of Histology (Ninth Edition). Lippincott William & Wilkins. ISBN 0-683-30749-5

Ledingham I.M., MacKay C (2002). Textbook of Surgical Physiology (Fourth Edition). Churchill Livingstone. ISBN: 0-443 026408.

PART II EXAMINATIONS COURSE CONTENT

Part II examinations of the STP URO is commenced upon successful completion of Part 1. Part II consists of clinical work, a research project and the preparation of a research project report. During the remaining three years the student rotates in various specialties as follows:

- General Surgery and Trauma – 6 months
- District Posting – 3 months
- Obstetrics and Gynaecology - 3 months
- Urology – 24 months

PRINCIPLES AND PRACTICE OF UROLOGY

1. The Urologic Examination and Diagnostic Technique
 - Initial evaluation, including history, physical examination and urinalysis.
 - Radiology of the urinary tract: urography and cysto-urethrography, radionuclides in genito-urinary disorders.
 - Ultrasonography.
 - Computed tomography of the kidneys, adrenal glands.
 - Renal angiography
 - Urodynamics
 - Endoscopy
2. Infections and Inflammation of the Genito-Urinary Tract
 - GUT infections: Introduction and General Principles.
 - Urinary tract infection in infants and children.
 - Urinary tract infection in women.
 - Prostatitis and related disorders.
 - Urinary tract infection in spinal cord injury patients.
 - Sexually transmitted diseases
 - Cutaneous diseases of the external genitalia
 - Parasitic diseases of the genito-urinary system.
 - Fungal infection of the urinary tract.
 - Genito-urinary tuberculosis.
3. The Pathophysiology of Urinary Obstruction
 - Hydronephrosis: role of lymphatics in hydronephrosis, compensatory renal growth, renal counterbalance, intrapelvic pressures, and different physiologic changes in unilateral and bilateral ureteral obstruction.
 - Extrinsic obstruction of the ureter: vascular lesions, benign condition of the female reproductive system, and retroperitoneal mass.
 - Neuro-muscular dysfunction of the lower urinary tract: low-pressure reservoir function of the bladder, urethral responses to bladder filling, micturition, and clinical expression of neurogenic vesical dysfunction.
4. Urinary Lithiasis

- Epidemiology of urolithiasis
 - Theoretical basis of etiology of urinary lithiasis
 - Initial diagnosis of urinary lithiasis.
 - Evaluation and treatment of specific types of medically active urolithiasis.
 - Urinary lithiasis of children.
 - Role of surgery in the treatment of urinary calculi.
5. Genito-urinary Trauma
- Renal trauma
 - Ureteral trauma
 - Bladder trauma
 - Urethral trauma
 - Injuries of the external genitalia
 - Injuries of the scrotum and testis.
 - Thermal, chemical and electrical injury to the genitalia
6. Benign Prostatic Hyperplasia
- Incidence, pathology, etiology, diagnosis, and differential diagnosis.
 - Minimally invasive treatment of benign prostatic hyperplasia: High intensity focused ultrasound, laser therapy, transurethral balloon dilatation of the prostate, hyperthermia and thermotherapy, transurethral electrovaporization, and transurethral needle ablation of the prostate.
 - Transurethral resection of the prostatic adenoma.
 - Retropubic and suprapubic prostatectomy
7. Tumours of the Genito-urinary Tract
- Principles of oncology
 - Renal tumours
 - Transitional cell cancer of the urinary tract
 - Benign and malignant tumours of the male and female urethra.
 - Carcinoma of the prostate.
 - Neoplasms of the testis.
 - Neoplasms of the penis.
8. Paediatric Urology
- Management of the extrophy-epispadia complex and urachal anomalies.
 - Imperforate anus, persistent cloaca, and urogenital sinus outlet obstruction.
 - Management of intersexuality
 - Congenital anomalies of the testis.
 - Hypospadias
 - Disorders of the urethra and penis.
 - Vesicoureteral reflux, megaureter, and ureteral reimplantation.
 - Ectopic ureter and ureterocele.
 - Prune-Belly Syndrome.
 - Enuresis.
 - Myelomeningocele.

- Neonatal and perinatal emergencies.
- Paediatric oncology

9. Infertility

- Evaluation of the infertile male.
- Classification and etiology of disorders associated with male infertility.
- Medical management of testicular dysfunction.
- Surgical management of male infertility.

10. Sexual Function and Dysfunction

- Penile erection
- Ejaculation
- Erectile dysfunction

11. Urologic Surgery

- Perioperative care
- Surgery of the kidney
- Surgery for calculus disease of the urinary tract.
- Renal transplantation.
- Surgery of the ureter.
- Open bladder surgery.
- Treatment of male urinary incontinence.
- Treatment of female urinary incontinence.
- Urinary fistulae in the female.
- Suprapubic and retropubic prostatectomy.
- Radical prostatectomy.
- Endourology.
- Surgery of the seminal vesicles.
- Surgery of the urethra.
- Surgery of the penis.
- Surgery of the scrotum and its contents.

Prescribed Reading for Part II

Walsh, P., Reik, A., Vuaghan, E. and Wein, A. (2002). Campbell's Urology (7th edition). W.B Saunders Company. ISBN: 0-7216-4461-9.

Frank H.,(2001). Atlas of Urologic Surgery (vol. I and II). W.B Saunders Company. ISBN: 0-7216-1749-2.

Whitfield and Hendry, S (2001). Adult and Paediatric Urology. W.B Saunders Company. ISBN:0-7216-1235-1.

Turner-Warwick, R. and Chapple, C. (2002). Functional Reconstruction of the Urinary Tract and Gynaeco-Urology. Blackwell Science. ISBN: 0-86542695-3.

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Bagley, D., Huffman, J., and Lyon, E. (1999). Urologic Endoscopy: A Manual and Atlas. Little, Brown and Company. ISBN: 0-316-07518-3.

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Ledingham I.M., MacKay C (2002). Textbook of Surgical Physiology (Fourth Edition). Churchill Livingstone. ISBN: 0-443 026408.

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