
**CURRICULUM / STATUTES & REGULATIONS
FOR
5 YEARS DEGREE PROGRAMME
IN
OBSTETRICS AND GYNAECOLOGY
(MS Obstetrics and Gynaecology)**



**UNIVERSITY OF HEALTH SCIENCES,
LAHORE**

1. Nomenclature of The Proposed Course

The name of degree programme shall be MS Obstetrics and Gynaecology. This name is well recognized and established for the last many decades worldwide.

2. Course Title:

MS Obstetrics and Gynaecology

3. Training Centers

Departments of Obstetrics and Gynaecology (accredited by UHS) in affiliated institutes of University of Health Sciences Lahore.

4. Duration of Course

The duration of MS Obstetrics and Gynaecology course shall be five (5) years (first year in Part I, first two years in Part II and next three years in Part III) with structured training in a recognized department under the guidance of an approved supervisor. The course is structured in three parts:

Part I is structured for the 1st calendar year. The candidate shall undertake didactic training in Basic Medical Sciences, Behavioural Sciences and Biostatistics & Research Methodology. At the end of first year the examination shall be held in above mentioned disciplines. The clinical training in fundamental concepts of Surgery shall start from the 1st day of enrollment.

Part II is structured for the 1st and 2nd calendar year. The candidate shall undertake clinical training in fundamental concepts of Surgery. At the end of 2nd year the examination shall be held in fundamental concepts of Surgery. The clinical training in Obstetrics and Gynaecology shall start from 3rd year onwards in the recognized institutions.

Part III is structured for 3rd, 4th and 5th calendar years in MS Obstetrics and Gynaecology. It has two components; Clinical and Research. The candidate shall undergo clinical training to achieve educational objectives of MS Obstetrics and Gynaecology (knowledge & skills) along with rotation in relevant fields

Over the five years duration of the course, candidate will spend total time equivalent to one calendar year for research during the training. Research can be done as one block in 5th year of training or it can be done in the form of regular periodic rotations over five years as long as total research time is equivalent to one calendar year.

5. Admission Criteria

- I. For admission in MS Obstetrics and Gynaecology course, the candidate shall be required to have:
 - MBBS degree
 - Completed one year House Job
 - One year experience in Obstetrics & Gynaecology /General surgery/Allied surgical discipline in the given order of preference
 - Registration with PMDC
 - Passed Entry Test conducted by the University & aptitude interview by the Institute concerned
 - Having up to the mark credentials as per UHS rules (no. of attempts in each professional, any gold medals or distinctions, relevant work experience, Rural/ Army services, research experience in a recognized institution, any research article published in a National or International Journal) may also be considered on case to case basis

- II. Exemptions: A candidate holding FCPS/MRCS/Diplomate/equivalent qualification in General Surgery shall be exempted from Part-I & Part-II Examinations and shall be directly admitted to Part-III Examinations, subject to fulfillment of requirements for the examination.

6. Registration And Enrollment

- Total number of students enrolled for the course must not exceed 2 per supervisor/year.
- The maximum number of trainees that can be attached with a supervisor at a given point of time (inclusive of trainees in all years/phases of MS training), must not exceed 6.

- Beds to trainee ratio at the approved teaching site shall be at least 5 beds per trainee.
- The University will approve supervisors for MS courses.
- Candidates selected for the courses after their enrollment at the relevant institutions shall be registered with UHS as per prescribed Registration Regulation.

7. Accreditation Related Issues Of The Institution

A. Faculty

Properly qualified teaching staff in accordance with the requirements of Pakistan Medical and Dental Council (PMDC)

B. Adequate Space

Including class-rooms (with audiovisual aids), demonstration rooms, computer lab and clinical pathology lab etc.

C. Library

Departmental library should have latest editions of recommended books, reference books and latest journals (National and International).

- Accreditation of Obstetrics and Gynaecology training program can be suspended on temporary or permanent basis by the University, if the program does not comply with requirements for residents training as laid out in this curriculum.
- Program should be presented to the University along with a plan for implementation of curriculum for training of residents.
- Programs should have documentation of residents training activities and evaluation on monthly basis.
- To ensure a uniform and standardized quality of training and availability of the training facilities, the University reserves the right to make surprise visits of the training program for monitoring purposes and may take appropriate action if deemed necessary.

AIMS AND OBJECTIVES OF THE COURSE

AIM

The aim of five years MS programme in Obstetrics and Gynaecology is to train residents to acquire the competency of a specialist in the field so that they can become good teachers, researchers and clinicians in their specialty after completion of their training.

GENERAL OBJECTIVES

MS Obstetrics and Gynaecology training should enable a student to:

1. Access and apply relevant knowledge to clinical practice:
 - Maintain currency of knowledge
 - Apply scientific knowledge in practice
 - Appropriate to patient need and context
 - Critically evaluate new technology
2. Safely and effectively performs appropriate surgical procedures:
 - Consistently demonstrate sound surgical skills
 - Demonstrate procedural knowledge and technical skill at a level appropriate to the level of training
 - Demonstrate manual dexterity required to carry out procedures
 - Adapt their skills in the context of each patient and procedure
 - Maintain and acquire new skills
 - Approach and carries out procedures with due attention to safety of patient, self and others
 - Critically analyze their own clinical performance for continuous improvement
3. Design and implement effective management plans:
 - Recognize the clinical features, accurately diagnose and manage gynaecological as well as obstetric problems
 - Formulate a well-reasoned provisional diagnosis and management plan based on a thorough history and examination

- Formulate a differential diagnosis based on investigative findings
 - Manage patients in ways that demonstrate sensitivity to their physical, social, cultural and psychological needs
 - Recognize disorders of the nervous system and differentiate those amenable to surgical treatment
 - Effectively manage the care of patients with gynaecological or obstetric trauma including multiple system trauma
 - Effectively recognize and manage complications
 - Accurately identify the benefits, risks and mechanisms of action of current and evolving treatment modalities
 - Indicate alternatives in the process of interpreting investigations and in decision-making
 - Manage complexity and uncertainty
 - Consider all issues relevant to the patient
 - Identify risk
 - Assess and implement a risk management plan
 - Critically evaluate and integrate new technologies and techniques.
4. Organize diagnostic testing, imaging and consultation as needed:
- Select medically appropriate investigative tools and monitoring techniques in a cost-effective and useful manner
 - Appraise and interpret appropriate diagnostic imaging and investigations according to patients' needs
 - Critically evaluates the advantages and disadvantages of different investigative modalities
5. Communicate effectively:
- Communicate appropriate information to patients (and their family) about procedures, potentialities and risks associated with surgery in ways that encourage their participation in informed decision making
 - Communicate with the patient (and their family) the treatment options including benefits and risks of each
 - Communicate with and co-ordinate health management teams to achieve an optimal surgical environment

- Initiate the resolution of misunderstandings or disputes
- Modify communication to accommodate cultural and linguistic sensitivities of the patient

6. Recognize the value of knowledge and research and its application to clinical practice:

- Assume responsibility for self-directed learning
- Critically appraise new trends in Obstetrics and Gynaecology
- Facilitate the learning of others.

7. Appreciate ethical issues associated with Obstetrics and Gynaecology:

- Consistently apply ethical principles
- Identify ethical expectations that impact on medico-legal issues
- Recognize the current legal aspects of informed consent and confidentiality
- Be accountable for the management of their patients.

8. Professionalism by:

- Employing a critically reflective approach to Obstetrics and Gynaecology
- Adhering with current regulations concerning workplace harassment
- Regularly carrying out self and peer reviewed audit
- Acknowledging and have insight into their own limitations
- Acknowledging and learning from mistakes

9. Work in collaboration with members of an interdisciplinary team where appropriate:

- Collaborate with other professionals in the selection and use of various types of treatments assessing and weighing the indications and contraindications associated with each type
- Develop a care plan for a patient in collaboration with members of an interdisciplinary team
- Employ a consultative approach with colleagues and other professionals
- Recognize the need to refer patients to other professionals.

10. Management and Leadership

- Effective use of resources to balance patient care and system resources

- Identify and differentiate between system resources and patient needs
- Prioritize needs and demands dealing with limited system resources.
- Manage and lead clinical teams
- Recognize the importance of different types of expertise which contribute to the effective functioning of clinical team.
- Maintain clinically relevant and accurate contemporaneous records

11. Health advocacy:

- Promote health maintenance of patients
- Advocate for appropriate health resource allocation
- Promote health maintenance of colleagues and self scholar and teacher

SPECIFIC LEARNING OUTCOMES

On completion of the training programme, Obstetrics and Gynaecology trainees pursuing an academic pathway will be expected to have demonstrated competence in all aspects of the published syllabus. The specific training component would be targeted for establishing clearly defined standards of knowledge and skills required to practice Obstetrics and Gynaecology at secondary and tertiary care level with proficiency in the Basic and applied clinical sciences, Basic gynaecological and obstetric care, intensive care, Emergency (A&E) medicine and Complementary surgical disciplines.

1. Describe embryology, applied anatomy, physiology, pathology, clinical features, diagnostic procedures and the therapeutics including preventive methods, (medical/surgical) pertaining to Obstetrics and Gynaecology surgery
2. Develop clinical skills in the medical interview and physical examination in both obstetrical and gynecological patients
3. Understand the physiological, physical and psychological change during pregnancy, labour and puerperium
4. Understand the development of the foetus from conception to term
5. Develop skill in identifying the needs of the mother during ante natal, intranatal and post natal period and promote positive health in normal and high risk cases.
6. Develop skill in conducting normal labour and identify any major deviations from normal.
7. Develop skill in giving care to the high-risk neonates, small for date & premature infants.
8. Identify menstrual disorders, pelvic inflammatory diseases and infertility cases and provide comprehensive care.
9. Extend maternal and child health to families and counsel couples regarding acceptance of family planning measures.

10. Be able to develop a broad differential diagnosis for a patient with an "acute abdomen" including conditions such as pelvic infection, ectopic pregnancy, adnexal torsion, appendicitis, diverticulitis, urinary calculi
11. Become aware of population health; recognize social and health policy aspects of women's health, ethical issues, sterilization, abortion, domestic violence, adolescent pregnancy, and access to health care
12. Demonstrate newer knowledge about gynaecological or obstetric diseases in general, including technological (laser) and pharmacologic advances (medicines) and newer method of therapy for certain conditions
13. Acquire knowledge about radiology/imaging and to interpret different radiological procedures and imaging procedures in Obstetrics and Gynaecology –There should be collaboration with Radiology department for such activities

Specialized training in:

- **Anatomy & Embryology:** Review of external and internal female and male genital organs
- Anatomy of pelvic floor
- Female pelvis-structure measurement and deviation
- Fertilization and maturation of ovum, embedding of zygote.
- Placenta – development, type, abnormalities and functions
- Foetal development and foetal circulation.
- Foetal skull and its measurement
- Influence of hereditary factors on growth & development of foetus and health of newborn
- Normal development and pubertal changes in human breast
- Hormonal influences on breast development
- Cell proliferation and hormone receptors
- Morphology, blood supply and lymphatic drainage of the breast
- Changes during pregnancy, lactation and Menopause
- Abnormalities in breast development
 - Congenital
 - Acquired
- **Physiology:** Physiology of normal menstruation
- Physiological changes during pregnancy – anatomical, hormonal and biochemical
- Signs symptoms and diagnosis of pregnancy – clinical, biophysical, biochemical and hormonal
- Psychosocial aspects
- **Antenatal care** – assessment, general and obstetrical examination, pelvic examination, nutrition, antenatal exercises, mother craft.
- Minor ailments of pregnancy.
- Aspects of preventive obstetrics.
- **Normal labour**

- Onset, physiological changes & psychological aspects of labour
- Mechanism, induction and augmentation of labour
- Monitoring & use of partogram and cervicograph
- Observation and clinical diagnosis of patient in different stages of labour.
- Episiotomy and care
- Analgesics and anaesthesia in labour
- **Normal puerperium**
 - Physiological changes during puerperium
 - Care during puerperium – mother, neonate and family
 - Physiology of lactation and establishment of lactation and breast feeding
 - Post-natal-care – post natal exercises, follow up care.
 - Customs and beliefs in relation to confinement and puerperium
- **New Born**
 - Resuscitation &, immediate care of new born.
 - Normal characteristics and care of the new born
 - Asphyxia neonatorum, respiratory distress
 - Jaundice in new born
 - Haemorrhagic diseases of the newborn
 - Convulsions in new born
 - Birth injuries, congenital anomalies, infection of the newborn, vomiting in new born.
 - Still birth – incidence, causes and prevention
 - Care of Low birth weight babies in labour room and nursery
- **High risk pregnancy**
 - Hyperemesis gravidarum
 - Hydramnios
 - Multiple pregnancy
 - Premature rupture of membrane and preterm labour
 - Intrauterine growth retardation
 - Post-date pregnancy
 - Abnormal Uterine Action
 - Medical conditions associated with pregnancy:
 - Anaemia in pregnancy
 - Heart disease in pregnancy
 - Pregnancy induced hypertension
 - Venous thromboembolism
 - Rh Incompatibility and amniocentesis
 - Diabetes in pregnancy
 - Pyelonephritis
 - Infections, sexually transmitted diseases in pregnancy
 - General surgery during pregnancy
- **Gynaecological conditions in pregnancy :**
 - Ca cervix with pregnancy
 - Fibroid with pregnancy
 - Ovarian tumour in pregnancy
 - Retroverted gravid uterus
 - Genital prolapse in pregnancy
- **Complications in pregnancy**

- Bleeding in early pregnancy
- Abortion, types, complication and management
- Ectopic pregnancy
- Trophoblastic tumours
- Ante partum haemorrhage
- Placenta praevia
- Abruptio placenta
- Hydatidiform mole
- Pregnancy induced hypertension (Pre eclampsia and eclampsia)
- Intrauterine death
- Induction of labour, Preterm labour and Post maturity
- Induction of labour – Medical, surgical, combined
- Preterm labour
- Premature rupture of the membrane
- Post maturity
- Intrauterine foetal death
- **Malposition, Malpresentation and Cord prolapse**
 - Occipito-posterior position – causes, diagnosis, antenatal care, course of labour and management
 - Breech presentation – causes, diagnosis, types, antenatal care, course of labour and management
 - Face and brow presentation – causes diagnosis, antenatal care, course of labour, and management
 - Transverse lie, unstable lie
 - Compound presentations
 - Cord prolapse
 - Prolonged labour, obstructed labour, dystocia caused by foetal anomalies
 - Destructive operations
- **Abnormalities of Puerperium**
 - Puerperal pyrexia and puerperal sepsis
 - Puerperal venous thrombosis, thrombophlebitis, pulmonary embolism
 - Urinary complications in puerperium
 - Post partum haemorrhage
 - Other puerperal emergencies
 - Subinvolution, obstetric palsies
 - Breast complications – Breast engorgement, breast abscess, acute mastitis cracked & retracted nipples, suppression of lactation
 - Psychiatric disturbances in puerperium
 - Obstetrical emergencies and operative obstetrics 5 Hrs
 - Uterine rupture, cervical tear, inversion of uterus
 - Obstetrical hysterectomy
 - Dilatation and evacuation
 - Suction evacuation
 - Use of instruments – forceps, ventouse, Versions
 - Caesarean section
- **Special cases**
 - Pregnancy with previous history of Caesarean section
 - Pregnancy in Rh-negative woman
 - Elderly primigravida

- Grand multipara
- Bad obstetric history
- Complications of third stage of labour
- Contracted pelvis
- Abnormal uterine action
- **Pharmacotherapeutics**
 - Oxytocics and prostaglandins used in obstetrics
 - Indications and contraindications of rationale drugs in pregnancy
- **Gynaecological history taking and examination**
- **Menstrual disorders**
 - Amenorrhoeas
 - Cryptomenorrhoea, oligomenorrhoeas
 - Hypomenorrhoea, dysmenorrhoea
 - Metrorrhagia, menorhagia
 - Dysfunctional uterine bleeding
 - Menopause and hormonal replacement therapy (HRT)
- **Common genital infection**
 - Fungal infections – Vaginal discharges
 - Acute and chronic infections of genitalia
 - Low back ache
- **Endometriosis**
- **Tumours of the genital tract**
 - Proliferative lesions and benign tumours; Adenomyosis, uterine leiomyoma, cervical polyp, ovarian cyst and tumours
 - Malignant tumours – vulvar, vaginal, cervical, ovarian, endometrial and trophoblastic carcinomas
 - Radiotherapy
 - Chemotherapy
- **Uterine displacements**
 - Uterovaginal prolapse
 - Retroverted uterus
 - Anteverted uterus
- **Infertility**
 - Primary and secondary infertility
- **Gynaecological emergencies**
 - Acute salpingo-oophoritis
 - Twisted ovarian cyst, pedunculated fibroma of the uterus
 - Ectopic pregnancy
- **Special diagnostic tests**
 - Pap smear
 - Ovulation tests, semen analysis
 - Tubal patency tests – salpingography,
 - Hysterosalpingography
 - Culdoscopy, colposcopy, Laparoscopy
 - Biopsy –cervical and endometrial
 - Gynaecological operations and instruments
 - Vesicovaginal fistula
 - Ureterovaginal fistula

- Pre and post operative care of patients undergoing gynaecological operations
- **Hormone Therapy:** indications and management of complications

Research Experience:

All residents in the categorical program are required to complete an academic outcomes-based research project during their training. This project can consist of original bench top laboratory research, clinical research or a combination of both. The research work shall be compiled in the form of a thesis which is to be submitted for evaluation by each resident before end of the training. The designated Faculty will organize and mentor the residents through the process, as well as journal clubs to teach critical appraisal of the literature.

Curriculum/Statutes & Regulations -MS Obstetrics & Gynaecology
REGULATIONS

1. Scheme of the Course

A summary of five years course in MS Obstetrics and Gynaecology is presented as under:

Course Structure	Components	Examination
Part I	<p>Basic Medical Sciences Anatomy, Physiology, Biochemistry, Pathology, Pharmacology, Behavioural Sciences and Biostatistics & Research Methodology</p>	<p>Part-I examination at the end of 1st year of MS Obstetrics and Gynaecology programme.</p> <ul style="list-style-type: none"> • Written: Paper I: MCQs Paper II: SEQs
Part-II	<p>Fundamental Concepts in Surgery : Training in basic clinical techniques of Surgery with compulsory rotations for two years starting from first day of enrollment</p>	<p>Part-II examination at the end of 2nd year of MS Obstetrics and Gynaecology programme.</p> <ul style="list-style-type: none"> • Written: Papers 1 & 2 : Basic Principles of Surgery • Oral & Practical/ Clinical Examination <ul style="list-style-type: none"> • OSCE • Clinical Examination (Long case, Short cases) • Log Book
Part-III	<p style="text-align: center;"><u>Clinical component of Part III</u></p> <ul style="list-style-type: none"> • Professional Education in Obstetrics and Gynaecology : Training in Obstetrics and Gynaecology during 3rd, 4th & 5th year of MS Obstetrics and Gynaecology programme Three years of training with compulsory & optional rotations in relevant fields <p style="text-align: center;"><u>Research component of Part III</u></p> <p>Research work/Thesis writing project must be completed and thesis be submitted before the end of training.</p>	<p>Part-III examination in specialized components of Obstetrics and Gynaecology at the end of 5th year of MS Obstetrics and Gynaecology programme.</p> <ul style="list-style-type: none"> • Written: Papers 1 & 2: Problem-based questions in the subject • Oral & Practical/ Clinical Examination <ul style="list-style-type: none"> • OSCE/ • Clinical Examination (Long case, Short cases) • Log Book <p>Part-III thesis examination with defense at the end of fifth (5th) year of MS Obstetrics and Gynaecology programme.</p>

2. Examinations

Part-I Examination

1. All candidates admitted in MS Obstetrics and Gynaecology course shall appear in Part-I examination at the end of first calendar year.
2. The examination shall be held on biannual basis.
3. The candidate who fails to pass the examination in 3 consecutive attempts availed or un-availed, shall be dropped from the course.
4. The examination shall have two components:

▪ Paper-I MCQs (single best)	100 Marks
▪ Paper-II SEQs	100 Marks
5. Subjects to be examined shall be Basic Sciences relevant to Obstetrics and Gynaecology (Anatomy, Physiology, Biochemistry, Pathology, Pharmacology), Behavioural Sciences and Biostatistics & Research Methodology.
6. To be eligible to appear in Part-I examination the candidate must submit;
 - i. duly filled, prescribed Admission Form to the Controller of Examinations duly recommended by the Principal/Head of the Institution in which he/she is enrolled;
 - ii. a certificate by the Principal/Head of the Institution, that the candidate has attended at least 75% of the lectures, seminars, practical/clinical demonstrations;
 - iii. Examination fee as prescribed by the University
7. To be declared successful in Part-I examination the candidate must secure 60% marks in each paper.

Curriculum/Statutes & Regulations -MS Obstetrics & Gynaecology
Part-II Examination

1. All candidates admitted in MS Obstetrics and Gynaecology course shall appear in Part-II examination at the end of second calendar year.
2. The examination shall be held on biannual basis.
3. The candidate who fails to pass the examination within 3 years of passing the Part-I examination shall be dropped from the course.
4. The examination shall have the following components:
 - a. Written 200 Marks
 - b. OSCE 50 Marks
 - c. Clinical examination 100 Marks
 - d. Log Book Evaluation 80 Marks (40 marks per year)
5. There shall be two written papers of 100 marks each:

Papers 1 & 2: Principles of General Surgery
6. The type of questions shall be of Short/Modified essay type and MCQs (single best).
7. Oral & practical/clinical examination shall be held in clinical techniques in General Surgery.
8. To be declared successful in Part-II examination the candidate must secure 60% marks in each component and 50% in each sub-component.
9. Only those candidates, who pass in theory papers, will be eligible to appear in the Oral & Practical/clinical Examination.
10. The candidates, who have passed written examination but failed in oral & practical/ clinical examination, will re-appear only in oral & practical/clinical examination.
11. The maximum number of attempts to re-appear in oral & practical /clinical Examination alone shall be three, after which the candidate shall have to appear in both written and oral & practical/clinical examinations as a whole.
12. To be eligible to appear in Part-II examination the candidate must submit;
 - i. duly filled, prescribed Admission Form to the Controller of Examinations duly recommended by the Principal/Head of the Institution in which he/she is enrolled;

- ii. a certificate by the Principal/Head of the Institution, that the candidate has attended at least 75% of the lectures, seminars, practical/clinical demonstrations;
- iii. a certificate of having passed the Part-I examination;
- iv. Examination fee as prescribed by the University.

Curriculum/Statutes & Regulations -MS Obstetrics & Gynaecology
Part-III Examination

1. All candidates admitted in MS Obstetrics and Gynaecology course shall appear in Part-III examination at the end of structured training programme (end of 5th calendar year), and having passed the part I & II examinations. However, a candidate holding FCPS / MRCS / Diplomate / equivalent qualification in General Surgery shall be exempted from Part-I & Part-II Examinations and shall be directly admitted to Part-III Examinations, subject to fulfillment of requirements for the examination.
2. The examination shall be held on biannual basis.
3. To be eligible to appear in Part-III examination the candidate must submit;
 - i. duly filled, prescribed Admission Form to the Controller of Examinations duly recommended by the Principal/Head of the Institution in which he/she is enrolled;
 - ii. a certificate by the Principal/Head of the Institution, that the candidate has attended at least 75% of the lectures, seminars, practical/clinical demonstrations;
 - iii. Original Log Book complete in all respect and duly signed by the Supervisor (for Oral & practical/clinical Examination);
 - iv. certificates of having passed the Part-I & part-II examinations;
 - v. Examination fee as prescribed by the University.
4. The Part-III clinical examination shall have the following components:

▪ Written	300 marks
▪ Oral & practical/clinical examination	300 marks
▪ Log Book Evaluation	120 marks (40 marks per year)
5. There shall be two written papers of 150 marks each.
6. Both papers shall have problem-based Short/Modified essay questions and MCQs.
7. Oral & practical/clinical examination shall have 300 marks for:

i. 1 Long Case	100
ii. 4 Short Cases	100(25 marks each)
iii. OSCE	100

8. To be declared successful in Part-III examination the candidate must secure 60% marks in each component and 50% in each sub-component.
9. Only those candidates, who pass in theory papers, will be eligible to appear in the Oral & Practical/ Clinical Examination.
10. The candidates, who have passed written examination but failed in Oral & Practical/ Clinical Examination, will re-appear only in Oral & Practical / Clinical examination.
11. The maximum number of attempts to re-appear in oral & practical /clinical Examination alone shall be three, after which the candidate shall have to appear in both written and oral & practical/clinical examinations as a whole.
12. The candidate with 80% or above marks shall be deemed to have passed with distinction.
13. *Log Book/Assignments:* Through out the length of the course, the performance of the candidate shall be recorded on the Log Book.
14. The Supervisor shall certify every year that the Log Book is being maintained and signed regularly.
15. The Log Book will be developed & approved by the Advanced Studies & Research Board.
16. The evaluation will be maintained by the Supervisor (in consultation with the Co- Supervisor, if appointed).
17. The performance of the candidate shall be evaluated on annual basis, e.g., 40 marks for each year in five years MS Obstetrics & Gynaecology course. The total marks for Log Book shall be 200. The log book shall reflect the performance of the candidate on following parameters:
 - Year wise record of the competence of skills.
 - Year wise record of the assignments.
 - Year wise record of the evaluation regarding attitude & behaviour
 - Year wise record of journal club / lectures / presentations / clinico-pathologic conferences attended & / or made by the candidate.

3. Submission / Evaluation of Synopsis

1. The candidates shall prepare their synopsis as per guidelines provided by the Advanced Studies & Research Board, available on UHS website.
2. The research topic in clinical subject should have 30% component related to basic sciences and 70% component related to applied clinical sciences. The research topic must consist of a reasonable sample size and sufficient numbers of variables to give training to the candidate to conduct research, to collect & analyze the data.
3. Synopsis of research project shall be submitted by the end of the 3rd year of MS program. The synopsis after review by an Institutional Review Committee shall be submitted to the University for consideration by the Advanced Studies & Research Board, through the Principal / Dean /Head of the institution.

4. Submission of Thesis

1. Thesis shall be submitted by the candidate duly recommended by the Supervisor.
2. The minimum duration between approval of synopsis and submission of thesis shall be one year, but the thesis can not be submitted later than 8 years of enrolment.
3. The research thesis must be compiled and bound in accordance with the Thesis Format Guidelines approved by the University and available on website.
4. The research thesis will be submitted along with the fee prescribed by the University.

5. Thesis Examination

1. All candidates admitted in MS course shall appear in Part-III thesis examination at the end of 5th year of their training course.
2. Only those candidates shall be eligible for thesis evaluation who have passed Part I, II & III (clinical) Examinations.
3. The examination shall include thesis evaluation with defense.

4. The Vice Chancellor shall appoint three external examiners for thesis evaluation, preferably from other universities and from abroad, out of the panel of examiners approved by the Advanced Studies & Research Board. The examiners shall be appointed from respective specialty. Specialists from General Surgery and Allied surgical Disciplines may also be appointed/co-opted, where deemed necessary.
5. The thesis shall be sent to the external examiners for evaluation, well in time before the date of defense examination and should be approved by all the examiners.
6. After the approval of thesis by the evaluators, the thesis defense examination shall be held within the University on such date as may be notified by the Controller of Examinations. The Controller of Examinations shall make appropriate arrangements for the conduct of thesis defense examination in consultation with the supervisor, who will co-ordinate the defense examination.
7. The thesis defense examination shall be conducted by two External Examiners who shall submit a report on the suitability of the candidate for the award of degree. The supervisor shall act as coordinator.

6. Award of MS *Obstetrics and Gynaecology* Degree

After successful completion of the structured courses of MS Obstetrics and Gynaecology and qualifying Part-I, Part-II and Part-III examinations, the degree with title MS Obstetrics and Gynaecology shall be awarded.

CONTENT OUTLINE

Part I MS Obstetrics and Gynaecology

Basic Sciences:

Student is expected to acquire comprehensive knowledge of Anatomy, Physiology, Pathology (Microbiology), Biochemistry, Pharmacology relevant to surgical practice appropriate for Obstetrics and Gynaecology

1. Anatomy

- *Clinical and functional anatomy with pathological and operative relevance*
- *Surgical approaches to the abdomino-pelvic and perineal structures*
- *Histology and embryology of male and female genital tract*

- Cell Biology: Cytoplasm – Cytoplasmic matrix, cell membrane, cell organelles, cytoskeleton, cell inclusions, cilia and flagella.
- Nucleus – nuclear envelope, nuclear matrix, DNA and other components of chromatin, protein synthesis, nucleolus, nuclear changes indicating cell death.
- Cell cycle, mitosis, meiosis, cell renewal.
- Cellular differentiation and proliferation.
- Tissues of Body: Light and electron microscopic details and structural basis of function, regeneration and degeneration. Confocal microscopy.
- The systems/organs of body – Cellular organization, light and electron microscopic features, structure function correlations, and cellular organization.

Embryology

- General Features of Human Development
 - Features of mitotic and meiotic modes of cell division. Genetic consequences of meiotic division.
 - Abnormal mitotic and meiotic divisions of clinical importance.
 - Gametogenesis: origin of germ cells.
 - Oogenesis: prenatal and postnatal development of ova.
 - Spermatogenesis: proliferation and maturation of male germ cells. Abnormal gametes, their clinical significance.
 - Ovulation, fertilization and the consequences of fertilization.
 - Segmentation of the fertilized ovum
 - Formation of embryo
 - Fetal membranes and the placenta
 - Implantation of the ovum
 - Trophoblast
 - Chorion
 - Placenta
- Early Embryonic Development:

- Cleavage, morula and blastocyst formation and implantation.
- Formation of the three primary germ layers.
- Derivatives of the respective germ layers.

Extraembryonic Membranes:

- Development, functions and anomalies of yolk sac, amnion, chorion, allantois, umbilical cord and placenta.

Development of the External Body Form:

- Shaping of the abdomen and pelvic structures
- Development of the urogenital organs
- Development of the kidney & ureter
- Development of the uterus
- Development of genital glands
- Development of external genitalia.
- Development of breast and lactating ducts
- Common developmental anomalies associated

Teratogenesis:

- Factors known to be involved in the development of congenital anomalies especially related to the Gynaecological and Obstetric system.
- Concept of critical periods.

Period of the Growing Fetus:

- Various stages and salient features of the fetus development

Histology

Structural and Functional Organization of the Tissues of Body

- Classification of tissues and identification of various tissues particularly those related to the reproductive system, in routine histological preparations under the light microscope.

The Epithelial Tissue

- General structure, functions and classification of epithelia
- Their location in the body
- General characters of serous and mucous membranes
- The Connective Tissue
- Key histological features of normal genitourinary and reproductive organs of male and female (including breast)

Surface and Imaging Anatomy

- The abdomen, peritoneum
 - Stomach
 - Small intestine
 - Large intestine
 - Rectum
 - Anal canal
 - Pancreas
 - Liver
 - Gall bladder
- Urogenital system
 - The kidneys
 - The ureters
 - The urinary bladder

- The female urethra
- The female genital organs
 - Ovaries
 - Fallopian tubes
 - Uterus
 - Cervix
 - Ligaments of the uterus
- Ext. genital organs of female
 - Vulva
 - Vagina
 - Breasts
- Female pelvis
- Pelvic floor
- Detailed blood supply and nerve supply of pelvis
- Lymphatic drainage of the abdomen & pelvis
- Lymphatic drainage of the lower limb
- Related endocrine structures
 - Hypothalamus
 - Pituitary gland
 - Thyroid and parathyroid gland
 - Thymus and spleen
 - Adrenals

2. Physiology

- Physiology of puberty, adolescence, menstruation, & menopause
 - Physiology of menstruation and ovulation
 - Physiology of spermatogenesis
 - Physiological development and changes in breast
- Physiological adaptations during pregnancy & labor
 - Normal pregnancy, labour & puerperium
- Endocrinology related to male and female reproduction
 - Endocrinology of pregnancy
 - Physiology & endocrinology of Placenta & Lactation
 - Physiology & endocrinology of breast
 - Immunology of pregnancy
- Reproductive Endocrinology of Female
 - Polycystic ovarian syndrome
 - Hirsutism /virilization
 - Female infertility
 - Premature ovarian failure
 - Menstrual disorders
 - Dysfunctional uterine bleeding
 - Menopause
 - Contraception and hormone replacement therapy
 - Ovarian tumors
- Reproductive Endocrinology of Male
 - Testicular physiology
 - Male hypogonadism
 - Male infertility

- Gynaecomastia
- Erectile dysfunction
- Testicular tumors
- Autoimmune Polyglandular Failure Syndrome
- Androgen replacement therapy
- Endocrinology - hypothalamus pituitary, thyroid and adrenal glands and neurotransmitters
- Cardiovascular system
 - The heart and circulation
 - Regulation of blood vessels
 - Cardiac output
- Blood
 - RBC
 - Blood groups
 - WBC
 - Blood clotting
 - Plasma
- Respiration
 - Lung volumes
 - Respiratory gases
 - Emergency resuscitation
 - Carriage of gases.
 - Blood gas tensions
 - Regulation of respiration.
- Digestion
 - Control of digestive secretions
 - Metabolic Pathways
 - Nutritional requirements
 - Fluid & electrolyte balance
- Kidney
 - Urine formation
 - Filtration & reabsorption of water
 - Renal failure
- Skin & body temperature.

3. Pharmacology

- British Pharmacopia
- Receptors
- Mechanisms of Drug Action
- Pharmacokinetics
- Pharmacokinetic Process
 - Absorption
 - Distribution
 - Metabolism
 - Desired Plasma Concentration
 - Volume of Distribution
 - Elimination
 - Elimination rate constant and half life
 - Creatinine Clearance
- Drug Effect

- Beneficial Responses
- Harmful Responses
- Allergic Responses
- Drug Dependence, Addiction, Abuse and Tolerance
- Drug Interactions
- Drug use in pregnancy and lactation
- Pharmacology of identified drugs used during pregnancy, labour, post partum period in reference to their absorption, distribution, excretion, (hepatic) metabolism, transfer of the drugs across the placenta, effect of the drugs (used) on labour, on fetus, their excretion through breast milk.
- Mechanism of action, excretion, metabolism of identified drugs used in Obstetrics & Gynaecology.
- Role of hormones in Obstetrics & Gynaecology.
- Drugs affecting the autonomic nervous system
 - Cholinergic agonists
 - Cholinergic antagonists
 - Adrenergic agonists
 - Adrenergic antagonists
- Drugs affecting the CNS
 - Anxiolytic and hypnotic Drugs
 - CNS stimulants
 - Antidepressants drugs
 - Neuroleptic Drugs
 - Opioid analgesics and antagonists
- Drugs affecting CVS
 - Treatment of congestive heart failure.
 - Antiarrhythmic drugs
 - Antihypertensives
- Drug affecting blood
 - Drugs to treat bleeding
 - Drugs to treat anemia
 - Anti coagulants
 - Thrombolytic drugs
- Diuretic drugs
- GI drugs (drugs used to treat peptic ulcer and constipation)
- Hormones of the pituitary and thyroid
- Insulin and oral hypoglycemic drugs
- Steroid hormones
 - Estrogens
 - Progestogens
 - Oral contraceptive pills
 - Androgens
 - Adrenal corticosteroid
- Ergot alkaloids
- Related to Obstetrics and Gynaecology;
 - Antiinflammatory drugs
 - Antibiotics
 - Antifungal drugs
 - Antiviral drugs

- Anticancer drugs
- Urinary tract antiseptics

4. Biochemistry

- Membrane biochemistry and signal transduction
- Gene expression and the synthesis of proteins
- Bioenergetics; fuel oxidation and the generation of ATP
- Enzymes and biologic catalysis
- Tissue metabolism
- Biochemistry of endocrine glands
- Biochemistry of the reproductive system
- Biochemical & neuro-endocrinal changes during puberty, adolescence, menstruation, ovulation, fertilization, climacteric & menopause.
- Biochemical and endocrine changes during pregnancy, including systemic changes in cardiovascular, hematological, renal, hepatic and other systems.
- Biophysical and biochemical changes in uterus and cervix during pregnancy & labour.

VITAMINS

- Classification, components, sources, absorption and functions (physiological and biochemical role).
- Daily requirements, effects of deficiency and hypervitaminosis.
- Salient morphologic features of diseases related to deficiency or excess of vitamins.

MINERALS

- Sources of calcium, phosphorous, iron, iodine, fluorine, magnesium and manganese.
- Trace elements and their clinical importance.
- Absorption and factors required for it.
- Functions and fate.

METABOLISM

- Metabolic rate and basal metabolic rate
- Factors influencing metabolic rate, principles of measurement.

Carbohydrates

- Classification and dietary sources.
- Digestion, absorption and utilization of dietary carbohydrates. Glucose tolerance test.
- Glycogenesis, glycolysis, gluconeogenesis, glycogenolysis, processes with the steps involved and effects of hormones.
- Citric acid cycle, steps involved, its significance and the common final metabolic pathway.
- Hexose monophosphate shunt: mechanism and significance.

Lipids

- Classification of simple, derived and compound lipids.
- Dietary sources.
- Digestion, absorption, utilization and control.

- Fatty acid oxidation with steps involved.
- Ketogenesis and its significance.
- Lipotropic factors and their actions. Lipoproteins, types and importance.

Proteins and Amino Acids

- Classification and dietary sources of proteins.
- Digestion, absorption, utilization and control.
- Fate of amino acids.
- Urea formation with steps involved.
- Functions and effects of deficiency.
- Nucleoproteins:
 - Structure and metabolism.
 - Pigment Metabolism
- Basic concept of endogenous and exogenous pigments.
- Causes of pigmentation and depigmentation.
- Disorders of pigment metabolism, inherited disorders, acquired disorders from deficiency or excess of vitamins, minerals, fats, carbohydrates, proteins etc.

Balanced Diet

- Requisites of an adequate diet.
 - Role of carbohydrates, fats, proteins, minerals, vitamins and water in diet.
 - Principles of nutrition as applied to medical problems
- Biotechnology and concepts of molecular biology with special emphasis on use of recombinant DNA techniques in medicine and the molecular biology of cancer

5. Pathology

Pathological alterations at cellular and structural level in infection, inflammation, ischaemia, neoplasia and trauma affecting the gynaecological and obstetric management

Cell Injury and adaptation

- Reversible and Irreversible Injury
- Fatty change, Pathologic calcification
- Necrosis and Gangrene
- Cellular adaptation
- Atrophy, Hypertrophy,
- Hyperplasia, Metaplasia, Aplasia

Inflammation

- Acute inflammation
- Cellular components and chemical mediators of acute inflammation
- Exudates and transudate
- Sequelae of acute inflammation
- Chronic inflammation
- Etiological factors and pathogenesis
- Distinction between acute and chronic (duration) inflammation
- Histologic hallmarks

- Types and causes of chronic inflammation, non-granulomatous & granulomatous,

Haemodynamic disorders

- Etiology, pathogenesis, classification and morphological and clinical manifestations of Edema, Haemorrhage, Thrombosis, Embolism, Infarction & Hyperaemia
- Shock; classification etiology, and pathogenesis, manifestations.
- Compensatory mechanisms involved in shock
- Pathogenesis and possible consequences of thrombosis
- Difference between arterial and venous emboli

Neoplasia

- Dysplasia and Neoplasia
- Benign and malignant neoplasms
- Etiological factors for neoplasia
- Different modes of metastasis
- Tumor staging system and tumor grade

Immunity and Hypersensitivity

- Immunity
- Immune response
- Diagnostic procedures in a clinical Immunology laboratory
- Protective immunity to microbial diseases
- Tumour immunology
- Immunological tolerance, autoimmunity and autoimmune diseases.
- Transplantation immunology
- Hypersensitivity
- Immunodeficiency disorders
- Immunoprophylaxis & Immunotherapy

Microbiology

- Role of microbes in various Gynaecological and Obstetric disorders
- Normal and abnormal microbiology of genital tract - bacterial, viral & parasitological infections responsible for maternal, fetal and gynaecological disorders
- Infection source
- Nosocomial infections
- Bacterial growth and death
- Pathogenic bacteria
- Vegetative organisms
- Spores
- Important viruses
- Important parasites
- Surgically important microorganisms
- Sources of infection
- Asepsis and antisepsis
- Sterilization and disinfection
- Infection prevention
- Immunization
- Personnel protection from communicable diseases
- Use of investigation and procedures in laboratory
- Basics in allergy and immunology

Special Pathology

- Pathophysiology of ovaries, fallopian tubes, uterus, cervix, vagina and external genitalia in healthy and diseased conditions.
- Pathology of placenta, umbilical cord, amniotic fluid and fetus.
- Humoral and cellular immunology in Obstetrics & Gynaecology
- Menstrual disorders and their etio-pathogenesis
- Inflammatory and infective lesions of the genitourinary system in male and female.
- Classification and sub-classification of benign and malignant genitourinary tumors.
- Endometriosis and adenomyosis, cervical carcinomas and CIN, endometrial carcinoma, its clinical presentation and morphology, leiomyomas and their clinical effects
- Gestational trophoblastic disease with special emphasis on hydatidiform mole and choriocarcinoma.
- Markers in Obstetric & Gynaecology – non neoplastic and neoplastic diseases
- Inflammatory lesions of the breast
- Benign and malignant breast tumors
- Gynaecomastia
- Pathologic findings of thyroiditis, adrenocortical adenoma, pheochromocytoma, diabetes mellitus, and pituitary malfunction in the gynaecological and obstetric disorders
- Disturbances of endocrine function
- Pathology and clinical symptoms of acute and chronic pyelonephritis.
- Calcium metabolism
- Temperature regulation
- Fluid & electrolyte imbalance
- Blood grouping & blood transfusion
- Indications for and interpretation of results of common biochemical and haematological tests

6. Biostatistics & Research Methodology

- Introduction to Bio-Statistics
- Introduction to Bio- Medical Research
- Why research is important?
- What research to do?
 - Selecting a Field for Research
 - Drivers for Health Research
 - Participation in National and International Research
 - Participation in Pharmaceutical Company Research
 - Where do research ideas come from
 - Criteria for a good research topic
- Ethics in Health Research
- Writing a Scientific Paper
- Making a Scientific Presentation
- Searching the Literature

7. Behavioural Sciences

- Bio-psycho-social (BPS) model of health care
- Use of non-medicinal interventions in clinical practice
- Communication skills
- Counseling
 - Informational skills
 - Crisis intervention/disaster management
 - Conflict resolution
 - Breaking bad news
- Medical ethics, professionalism and doctor-patient relationship
 - Hippocratic oath
 - Four pillars of medical ethics (autonomy, beneficence, non-maleficence and justice)
 - Informed consent and confidentiality
- Ethical dilemmas in a doctor's life
- Delivery of culturally relevant care and cultural sensitivity
 - Psychological aspects of health and disease
 - Psychological aspect of health
 - Psychological aspect of disease
 - Stress and its management
 - Psychological aspect of pain
 - Psychological aspect of aging

Part II

MS Obstetrics and Gynaecology

Fundamental Principles of Surgery

- History of surgery
- Preparing a patient for surgery
- Principles of operative surgery: asepsis, sterilization and antiseptics
- Surgical infections and antibiotics
- Basic principles of anaesthesia and pain management
- Acute life support and critical care:
 - Pathophysiology and management of shock
 - Fluids and electrolyte balance/ acid base metabolism
 - Haemostasis, blood transfusion
- Trauma: assessment of polytrauma, triage, basic and advanced trauma
- Accident and emergency surgery
- Wound healing and wound management
- Nutrition and metabolism
- Principles of burn management
- Principles of surgical oncology
- Principles of laparoscopy and endoscopy
- Organ transplantation
- Informed consent and medicolegal issues
- Molecular biology and genetics
- Operative procedures for common surgical manifestations e.g cysts, sinuses, fistula, abscess, nodules, basic plastic and reconstructive surgery

Common Surgical Skills

Incision of skin and subcutaneous tissue:

- Langer's lines
- Healing mechanism
- Choice of instrument
- Safe practice

Closure of skin and subcutaneous tissue:

- Options for closure
- Suture and needle choice
- Safe practice

Knot tying:

- Choice of material
- Single handed
- Double handed
- Superficial
- Deep

Tissue retraction:

- Choice of instruments
- Placement of wound retractors
- Tissue forceps

Use of drains:

- Indications
- Types
- Insertion
- Fixation
- Management/removal

Incision of skin and subcutaneous tissue:

- Ability to use scalpel, diathermy and scissors

Closure of skin and subcutaneous tissue:

- Accurate and tension free apposition of wound edges

Haemostasis:

- Control of bleeding vessel (superficial)
- Diathermy
- Suture ligation
- Tie ligation
- Clip application
- Plan investigations
- Clinical decision making
- Case work up and evaluation; risk management

Pre-operative assessment and management:

- Cardiorespiratory physiology
- Diabetes mellitus
- Renal failure
- Pathophysiology of blood loss
- Pathophysiology of sepsis
- Risk factors for surgery
- Principles of day surgery
- Management of comorbidity

Intraoperative care:

- Safety in theatre
- Sharps safety
- Diathermy, laser use
- Infection risks
- Radiation use and risks
- Tourniquets
- Principles of local, regional and general anaesthesia

Post-operative care:

- Monitoring of postoperative patient
- Postoperative analgesia
- Fluid and electrolyte management
- Detection of impending organ failure
- Initial management of organ failure
- Complications specific to particular operation
- Critical care

Blood products:

- Components of blood
- Alternatives to use of blood products
- Management of the complications of blood product transfusion including children

Antibiotics:

- Common pathogens in surgical patients
- Antibiotic sensitivities
- Antibiotic side-effects
- Principles of prophylaxis and treatment

Safely assess the multiply injured patient:

- History and examination
- Investigation
- Resuscitation and early management
- Referral to appropriate surgical subspecialties

Technical Skills

- Central venous line insertion
- Chest drain insertion
- Diagnostic peritoneal lavage
- Bleeding diathesis & corrective measures, e.g. warming, packing
- Clotting mechanism; Effect of surgery and trauma on coagulation
- Tests for thrombophilia and other disorders of coagulation
- Methods of investigation for suspected thromboembolic disease
- Anticoagulation, heparin and warfarin
- Role of V/Q scanning, CT angiography and thrombolysis
- Place of pulmonary embolectomy
- Awareness of symptoms and signs associated with pulmonary embolism and DVT
- Role of duplex scanning, venography and d-dimer measurement
- Initiate and monitor treatment

Diagnosis and Management of Common Surgical Conditions:

- Abdominal pain
- Vomiting
- Trauma
- Groin conditions
 - Hernia
 - Hydrocoele
 - Penile inflammatory conditions
 - Undescended testis
 - Acute scrotum
- Abdominal wall pathologies
- Urological conditions
- Constipation
- Head / neck swellings
- Intussusception
- Abscess

Part III- MS Obstetrics and Gynaecology **Clinical Component**

Students should be familiar with typical clinical presentation, key physical findings, radiological findings and differential diagnosis, initial treatment, and referral indications for common Gynaecological and Obstetric diseases.

OBSTETRICS:

- Basic sciences of Reproduction & Applied Anatomy of genitourinary system,
- abdomen, pelvis, pelvic floor, anterior abdominal wall, breast in obstetrics
- Reproductive Anatomy
- Gametogenesis fertilization, implantation & early development of human embryo
- Fetal growth & development
- Birth defects, Genetics & teratology & counseling
- Prenatal diagnosis and genetics
- Fetal medicine in clinical practice
- Physiological changes during pregnancy.
- Endocrinology of pregnancy.
- Pre-conception counseling
- Normal pregnancy, labour & puerperium.
- Antenatal care
- Breast feeding, baby friendly initiative
- Early recognition and prompt management of pregnancy complications
 - Hyperemesis gravidarum
 - Abortions
 - Ectopic pregnancy
 - Hydatidiform mole
 - Pre-eclampsia
 - Eclampsia
 - Antepartum hemorrhage
 - Spontaneous miscarriage
 - Recurrent miscarriage
 - Multiple pregnancy
 - Post partum haemorrhage
 - Preterm labour
 - Premature rupture of membranes
 - Polyhydramnios
 - Oligohydramnios
 - Prolonged labour
 - Ectopic pregnancy
 - Trophoblast disease
- Management of pregnancies complicated by medical, surgical or gynaecological diseases, in consultation with the concerned specialties by team approach.

- Anemia
- Heart disease
- Diabetes mellitus
- Liver disorders
- Respiratory diseases
- Renal diseases
- Haematological problems in pregnancy.
- Neurological conditions
- Rheumatology
- Dermatoses of pregnancy
- Psychiatric disorders
- Hypertensive disorders
- Acute abdomen
- Acute appendicitis
- Intestinal obstruction,
- Fibroids
- Ovarian tumors
- Carcinoma cervix
- Genital prolapse.
- Infections in pregnancy.
 - Malaria
 - Toxoplasmosis
 - Viral infections(Rubella, CMV, Hepatitis B, Herpes)
 - Syphilis and other sexually transmitted infections including HIV.
 - Parents to child transmission of HIV infection
- Evaluation of the fetal and maternal health in complicated pregnancy by
- making use of available diagnostic modalities and plan for safe delivery of the fetus and safeguarding the maternal health
- Prenatal diagnosis of fetal abnormalities
- Partographic monitoring of labour progress
- Early recognition of dysfunctional labour and appropriate interventions during labour including active management of labour.
- Obstetrical analgesia and anesthesia.
- Induction and augmentation of labour.
- Management of abnormal labour
 - Abnormal pelvis and soft tissue abnormality in maternal passage
 - Malpresentation and Malpositions of fetus
 - Abnormal uterine action
 - Obstructed labour
 - Cervical dystocia.
 - Third stage complications
 - PPH including surgical management
 - Retained placenta
 - Uterine inversion
- Post partum collapse
 - Amniotic fluid embolism
 - Abnormal puerperium
 - Puerperal sepsis
 - Thrombophlebitis
 - Mastitis

- Puerperal venous sinus thrombosis
- Psychosis.
- National Health Programmes to improve the maternal and child health, social obstetrics and vital statistics.
- Drugs used in obstetric practice including prostaglandins.
- Coagulation disorders in obstetrics, Blood and component therapy
- Operative obstetrics - decision making, technique, recognition and management of complications – caesarian section, instrumental delivery, obstetrics hysterectomy, history of destructive surgery. Manipulations-version, MRP etc.
- Intensive care in obstetrics for critically ill patient. Fluid and electrolyte balance, volume status maintenance, protecting vital organ function.
- Termination of pregnancy
- Provision of safe abortion services, selection of case, techniques, and management of complications

Obstetric Statistics

- Live birth
- Still birth
- Maternal mortality rate
- Perinatal mortality rate
- Infant and neonatal mortality rate
- Factors that may reduce maternal and perinatal mortality

NEONATOLOGY:

- Care of newborn
- Care of preterm
- Infants of diabetic mother
- Asphyxia & neonatal resuscitation.
- Neonatal sepsis - prevention, early detection & management
- Neonatal hyperbilirubinemia, investigation and management
- Birth trauma - prevention, early detection & management
- Detection of congenital malformations in new born and referrals for surgical corrections
- Management of the common problems in neonatal period

GYNAECOLOGY:

- Diagnosis and surgical management of clinical conditions related to congenital malformations of genital tract
- Chromosomal abnormalities and intersex
- Gynecological disorders of childhood and adolescence
- Polycystic ovary syndrome and secondary amenorrhoea
- Physiology of menstruation, common menstrual disorders and their management; medical & surgical
- Menorrhagia and primary dysmenorrhoea
- Premenstrual syndrome
- Reproductive Endocrinology: Evaluation of primary and secondary amenorrhea, management of hyperprolactinemia, hirsutism, chronic anovulation and polycystic ovary disease (PCODP).

- Endometriosis and adenomyosis - medical and surgical management.
- Infertility evaluation and management
- Use of ovulation induction methods
- Assisted reproduction
- Tubal microsurgery
- Reproductive tract infections
- Sexually transmitted Infections
- HIV/AIDS: prevention, diagnosis and management
- Genital Tuberculosis
- Benign and malignant tumors of genital tract - Early diagnosis and management
- Principles and practice of oncology in gynaecology - chemotherapy, radiotherapy, palliative treatment
- Malignant disease of the vulva and vagina
- Benign diseases of the vagina, cervix and ovary
- Premalignant and malignant disease of the cervix
- Epithelial ovarian cancer
- Benign disease of the uterus
- Cancer of uterine corpus
- Supports of pelvic organs, genital prolapse, surgical management of genital prolapse.
- Common urological problems in gynaecology - Utero-vaginal prolapse, urinary incontinence, voiding difficulties, vesicovaginal fistula.
- Management of menopause, prevention of complications
- Hormone replacement therapy (HRT)
- Cancer screening - genital, breast
- Recent advances
- Newer diagnostic aids - USG, and other imaging techniques, endoscopies
- Hysteroscopy, laparoscopy - diagnostic, simple surgical procedures, including laparoscopic tubal occlusion, colposcopy.
- Medico legal aspects, ethics, communications and counseling.
- Operative gynaecology - Selection of case technique and management of complications of minor and major gynaecology procedures.
- Abdominal and vaginal hysterectomy
- Surgical procedures for genital prolapse
- Surgical management of benign and malignant genital neoplasms.
- Sexual dysfunction
- Ethical issues in Obst. & Gynae.
- Domestic violence and sexual assault

FAMILY PLANNING:

- Demography and population dynamics.
- Contraception - temporary methods, permanent methods
- Legal issues
- Emergency contraception.
- Recent advances in contraceptive technology.

Common Gynaecological and Obstetric Skills and Procedures

- On completion of the initial training in Part I, the trainees will be competent in all aspects of the basic, operative and non operative care of surgical patients
- During Part II training, they will understand the importance of Gynaecological and Obstetric care and management with particular reference to common Gynaecological and Obstetric presentations recognizing and preventing secondary disorders. They will be capable of resuscitating, assessing and initiating the surgical management of patients deteriorating as a result of local and systemic complications. They will demonstrate sound judgment when seeking more senior support, prioritizing medical interventions and escalating the level of medical care.

General surgical care:

- Administration of antibiotics in the surgical patient
- Use of blood and its products
- The role/complications of diathermy
- Pain relief in surgery
- Thrombo-embolic prevention and management
- Prevention and management
- Wound care and nosocomial infection
- Suture techniques and materials
- Initial assessment and management of obstetric and gynaecological problems

Obstetrics

- Elective caesarean section
- Emergency caesarean section
- Repair torn bladder
- Repair third degree tear
- Repair lacerated cervix
- Application and removal of cervical suture
- Elective breech delivery
- Twin delivery (including principles of internal version)
- Operative vaginal delivery
- Manual rotation
- Mid-cavity non-rotation forceps
- Ventouse rotation
- Obstetric ultrasound for dating, placental localization, viability and multiple pregnancy.

Gynaecology

- Pelvic laparotomy
- Hysterosalpingography (HSG)
- Dilatation and curettage
- Hysterectomy; Abdominal & vaginal
- Myomectomy
- Sling's operation for prolapse
- Anterior and posterior repair

- Management of corpus luteum cyst
- Management of ruptured/torsion ovarian cyst
- Ligation of tubes
- Treatment of non-CIN cervical lesions
- Pap smear
- Cervical Biopsy
- Marsupialization of Bartholin cyst/abscess
- Insertion and retrieval of lost intrauterine IUCD
- Ring Pessary
- Mini Lap

Optional additional training

- Training in laparoscopy to assist in diagnosis of acute pelvic pain, to offer female sterilization and to perform tubal studies for investigation of infertility
- Basic training in colposcopic techniques might also be offered to trainees caring for women in remote areas without reasonable access to specialist care.

Part-III Thesis Component (Fifth year of MS Obstetrics and Gynaecology Programme)

RESEARCH/ THESIS WRITING

Total of one year will be allocated for work on a research project with thesis writing. Project must be completed and thesis be submitted before the end of training. Research can be done as one block in 5th year of training or it can be stretched over five years of training in the form of regular periodic rotations during the course as long as total research time is equivalent to one calendar year.

Research Experience

The active research component program must ensure meaningful, supervised research experience with appropriate protected time for each resident while maintaining the essential clinical experience. Recent productivity by the program faculty and by the residents will be required, including publications in peer-reviewed journals. Residents must learn the design and interpretation of research studies, responsible use of informed consent, and research methodology and interpretation of data. The program must provide instruction in the critical assessment of new therapies and of the surgical literature. Residents should be advised and supervised by qualified staff members in the conduct of research.

Clinical Research

Each resident will participate in at least one clinical research study to become familiar with:

1. Research design
2. Research involving human subjects including informed consent and operations of the Institutional Review Board and ethics of human experimentation
3. Data collection and data analysis

4. Research ethics and honesty

5. Peer review process

This usually is done during the consultation and outpatient clinic rotations.

Case Studies or Literature Reviews

Each resident will write, and submit for publication in a peer-reviewed journal, a case study or literature review on a topic of his/her choice.

Laboratory Research

Bench Research

Participation in laboratory research is at the option of the resident and may be arranged through any faculty member of the Division. When appropriate, the research may be done at other institutions.

Research involving animals

Each resident participating in research involving animals is required to:

1. Become familiar with the pertinent Rules and Regulations of the University of Health Sciences Lahore i.e. those relating to "Health and Medical Surveillance Program for Laboratory Animal Care Personnel" and "Care and Use of Vertebrate Animals as Subjects in Research and Teaching"
2. Read the "Guide for the Care and Use of Laboratory Animals"
3. View the videotape of the symposium on Humane Animal Care

Research involving Radioactivity

Each resident participating in research involving radioactive materials is required to

1. Attend a Radiation Review session
2. Work with an Authorized User and receive appropriate instruction from him/her.

METHODS OF INSTRUCTION/COURSE CONDUCTION

As a policy, active participation of students at all levels will be encouraged.

Following teaching modalities will be employed:

1. Lectures
2. Seminar Presentation and Journal Club Presentations
3. Group Discussions
4. Grand Rounds
5. Clinico-pathological Conferences
6. SEQ as assignments on the content areas
7. Skill teaching in ICU, Operation theatres, emergency and ward settings
8. Attend genetic clinics and rounds for at least one month.
9. Self study, assignments and use of internet
10. Bedside teaching rounds in ward
11. OPD & Follow up clinics
12. Long and short case presentations

In addition to the conventional teaching methodologies interactive strategies like conferences will also be introduced to improve both communication and clinical skills in the upcoming consultants. Conferences must be conducted regularly as scheduled and attended by all available faculty and residents. Residents must actively request autopsies and participate in formal review of gross and microscopic pathological material from patients who have been under their care. It is essential that residents participate in planning and in conducting conferences.

1. Clinical Case Conference

Each resident will be responsible for at least one clinical case conference each month. The cases discussed may be those seen on either the consultation or clinic service or during rotations in specialty areas. The resident, with the advice of the Attending Surgeon on the Consultation Service, will prepare and present the case(s) and review the relevant literature.

2. Monthly Student Meetings

Each affiliated medical college approved to conduct training for MS Obstetrics and Gynaecology will provide a room for student meetings/discussions such as:

- a. Journal Club Meeting
- b. Core Curriculum Meetings
- c. Skill Development

a. Journal Club Meeting

A resident will be assigned to present, in depth, a research article or topic of his/her choice of actual or potential broad interest and/or application. Two hours per month should be allocated to discussion of any current articles or topics introduced by any participant. Faculty or outside researchers will be invited to present outlines or results of current research activities. The article should be critically evaluated and its applicable results should be highlighted, which can be incorporated in clinical practice. Record of all such articles should be maintained in the relevant department.

b. Core Curriculum Meetings

All the core topics of Obstetrics and Gynaecology should be thoroughly discussed during these sessions. The duration of each session should be at least two hours once a month. It should be chaired by the chief resident (elected by the residents of the relevant discipline). Each resident should be given an opportunity to brainstorm all topics included in the course and to generate new ideas regarding the improvement of the course structure

c. Skill Development

Two hours twice a month should be assigned for learning and practicing clinical skills.

List of skills to be learnt during these sessions is as follows:

1. Residents must develop a comprehensive understanding of the indications, contraindications, limitations, complications, techniques, and interpretation of results of those technical procedures integral to the discipline
2. Residents must acquire knowledge of and skill in educating patients about the technique, rationale and ramifications of procedures and in obtaining procedure-specific informed consent. Faculty supervision of residents in their performance is required, and each resident's experience in such procedures must be documented by the program director.
3. Residents must have instruction in the evaluation of medical literature, clinical epidemiology, clinical study design, relative and absolute risks of disease, medical statistics and medical decision-making.
4. Training must include cultural, social, family, behavioral and economic issues, including confidentiality of information, indications for life support systems, and allocation of limited resources.
5. Residents must be taught the social and economic impact of their decisions on patients, the primary care physician and society. This can be achieved by attending the bioethics lectures

6. Residents should have instruction and experience with patient counseling skills and community education.
7. This training should emphasize effective communication techniques for diverse populations, as well as organizational resources useful for patient and community education.
8. Residents should have experience in the performance of Obstetrics and Gynaecology related clinical laboratory and radionuclide studies and basic laboratory techniques, including quality control, quality assurance and proficiency standards
9. Each resident will manage at least the following essential Gynaecological and Obstetric cases and observe and participate in each of the following procedures, preferably done on patients under supervision initially and then independently. (pg. 39-40)

3. Annual Grand Meeting

Once a year all residents enrolled for MS Obstetrics and Gynaecology should be invited to the annual meeting at UHS Lahore.

One full day will be allocated to this event. All the chief residents from affiliated institutes will present their annual reports. Issues and concerns related to their relevant courses will be discussed. Feedback should be collected and suggestions should be sought in order to involve residents in decision making.

The research work done by residents and their literary work may be displayed.

In the evening an informal gathering and dinner can be arranged. This will help in creating a sense of belonging and ownership among students and the faculty.

LOG BOOK

The residents must maintain a log book and get it signed regularly by the supervisor. A complete and duly certified log book should be part of the requirement to sit for MS examination. Log book should include adequate number of diagnostic and therapeutic procedures observed and performed, the indications for the procedure, any complications and the interpretation of the results, routine and emergency management of patients, case presentations in CPCs, journal club meetings and literature review.

Proposed Format of Log Book is as follows:

Candidate's Name: _____

Roll No. _____

The above mentioned procedures shall be entered in the log book as per format:

Procedures Performed

Sr.#	Date	Name of Patient, Age, Sex & Admission No.	Diagnosis	Procedure Performed	Supervisor's Signature
1					
2					
3					
4					

Emergencies Handled

Sr.#	Date	Name of Patient, Age, Sex & Admission No.	Diagnosis	Procedure/Management	Supervisor's Signature
1					
2					
3					
4					

Case Presented

Sr.#	Date	Name of Patient, Age, Sex & Admission No.	Case Presented	Supervisor's Signature
1				
2				
3				
4				

Seminar/Journal Club Presentation

Sr.#	Date	Topic	Supervisor's signature
1			
2			
3			
4			

Evaluation Record

(Excellent, Good, Adequate, Inadequate, Poor)

At the end of the rotation, each faculty member will provide an evaluation of the clinical performance of the fellow.

Sr.#	Date	Method of Evaluation (Oral, Practical, Theory)	Rating	Supervisor's Signature
1				
2				
3				
4				

EVALUATION & ASSESSMENT STRATEGIES

Assessment

It will consist of action and professional growth oriented ***student-centered integrated assessment*** with an additional component of ***informal internal assessment, formative assessment*** and measurement-based ***summative assessment***.

Student-Centered Integrated Assessment

It views students as decision-makers in need of information about their own performance. Integrated Assessment is meant to give students responsibility for deciding what to evaluate, as well as how to evaluate it, encourages students to '**own**' the evaluation and to use it as a basis for self-improvement. Therefore, it tends to be growth-oriented, student-controlled, collaborative, dynamic, contextualized, informal, flexible and action-oriented.

In the proposed curriculum, it will be based on:

- Self Assessment by the student
- Peer Assessment
- Informal Internal Assessment by the Faculty

Self Assessment by the Student

Each student will be provided with a pre-designed self-assessment form to evaluate his/her level of comfort and competency in dealing with different relevant clinical situations. It will be the responsibility of the student to correctly identify his/her areas of weakness and to take appropriate measures to address those weaknesses.

Peer Assessment

The students will also be expected to evaluate their peers after the monthly small group meeting. These should be followed by a constructive feedback according to the prescribed guidelines and should be non-judgmental in nature. This will enable students to become good mentors in future.

Informal Internal Assessment by the Faculty

There will be no formal allocation of marks for the component of Internal Assessment so that students are willing to confront their weaknesses rather than hiding them from their instructors.

It will include:

- a. Punctuality
- b. Ward work
- c. Monthly assessment (written tests to indicate particular areas of weaknesses)
- d. Participation in interactive sessions

Formative Assessment

Will help to improve the existing instructional methods and the curriculum in use

Feedback to the faculty by the students:

After every three months students will be providing a written feedback regarding their course components and teaching methods. This will help to identify strengths and weaknesses of the relevant course, faculty members and to ascertain areas for further improvement.

Summative Assessment

It will be carried out at the end of the programme to empirically evaluate cognitive, psychomotor and affective domains in order to award diplomas for successful completion of courses.

MS Obstetrics and Gynaecology Examinations

Part I MS Obstetrics and Gynaecology

Total Marks: 200

All candidates admitted in MS Obstetrics and Gynaecology course shall appear in Part I examination at the end of first calendar year.

Components of Part-I Examination:

Paper-I, 100 MCQs (single best, having one mark each)	100 Marks
Paper-II, 10 SEQs (having 10 marks each)	100 Marks

Topics included in papers:

	Paper-I	Paper-II
1. Anatomy	(20 MCQs)	(2 SEQs)
2. Physiology	(20 MCQs)	(2 SEQs)
3. Pathology	(20 MCQs)	(2 SEQs)
4. Biochemistry	(15 MCQs)	(1 SEQs)
5. Pharmacology	(15 MCQs)	(1 SEQ)
6. Behavioural Sciences	(05 MCQs)	(1 SEQ)
7. Biostatistics & Research Methodology	(05 MCQs)	(1 SEQ)

Part II- MS Obstetrics and Gynaecology

Total Marks: 430

All candidates admitted in MS Obstetrics and Gynaecology course shall appear in Part II examination at the end of second calendar year.

There shall be two written papers of 100 marks each, Oral & practical/ clinical examination of 150 marks and log book assessment of 80 marks.

Topics included in papers 1 & 2:

Basic Principles of Surgery

Components of Part II Examination

Theory:

Paper 1:	<u>100 Marks</u>	3 Hours
10 SEQs (No Choice; 05 marks each)	50 Marks	

50 MCQs

50 Marks

Paper 2:

10 SEQs (No Choice; 05 marks each)

50 MCQs

100 Marks**3 Hours**

50 Marks

50 Marks

Only those candidates, who pass in theory papers, will be eligible to appear in the Oral & Practical/Clinical Examination.

Oral & Practical/ Clinical Examination shall be held in clinical techniques relevant to General Surgery.

OSCE**50 Marks**

10 stations each carrying 05 marks of 10 minutes duration; each evaluating performance based assessment with five of them interactive

Clinical**100 Marks**

Four short cases (each 15 marks)

60 Marks

One long case:

40 Marks

Log Book**80 Marks**

Part III MS Obstetrics and Gynaecology
Total Marks: 920

All candidates admitted in MS Obstetrics and Gynaecology course shall appear in Part-III examination at the end of structured training programme (end of 5th calendar year and after clearing Part I & II examinations).

There shall be two written papers of 150 marks each, practical/ clinical examination of 300 marks, log book assessment of 120 marks and thesis examination of 200 marks.

Part III MS Obstetrics and Gynaecology
Clinical Examination
Total Marks: 720

Topics included in paper 1

Obstetrics & neonatology

Topics included in paper 2

Gynaecology & Family planning

Components of Part III Clinical Examination

Theory

Paper I	<u>150 Marks</u>	3 Hours
15 SEQs (No Choice)	75 Marks	
75 MCQs	75 Marks	
Paper II	<u>150 Marks</u>	3 Hours
15 SEQs (No Choice)	75 Marks	
75 MCQs	75 Marks	

Only those candidates, who pass in theory papers, will be eligible to appear in the Oral & Practical/ Clinical Examination.

OSCE/ Viva

100 Marks

10 stations each carrying 10 marks of 10 minutes duration; each evaluating performance based assessment with five of them interactive

Clinical

200 Marks

Four short cases (each 25 marks)

100 Marks

One long case:

100 Marks

Log Book

120 Marks

Part III MS Obstetrics and Gynaecology

Thesis Examination

Total Marks: 200

All candidates admitted in MS Obstetrics and Gynaecology courses shall appear in Part-III (thesis examination) at the end of 5th year of the MS programme and not later than 8th calendar year of enrolment. The examination shall include thesis evaluation with defense.

RECOMMENDED BOOKS

CORE TEXTBOOK

- Edmonds *Dewhurst's Post Graduate Obstetrics & Gynecology* 7th Ed. 2007
- D James, P Steer, C Weiner, B Gonik. *High Risk Pregnancy – Management Options*. 3rd Ed. 2006.
- Berek *Novak & Berek's Gynecology*. 14th Ed. 2007
- Chard & Lilford. *Basic Sciences for Obstetrics & Gynecology*. 5th Ed. 1998
- De Swiet, Chamberlain, Bennet. *Basic Science in Obstetrics and Gynecology* 3rd Ed. 2002
- Rana M. H., Ali S., Mustafa M. *A Handbook of Behavioural Sciences for Medical and Dental Students*. Lahore: University of Health Science; 2007

GYNECOLOGICAL SURGERY (for reference only)

- Monaghan, Tito, Naik. *Bonney's Gynecological Surgery*. 10th Ed. 2004
- J. Apuzzio, A. Vintelioz, L. Iffy. *Operative Obstetrics*. 3rd Ed. 2005

SUPPLEMENTARY BOOKS

- Snell. *Clinical Anatomy*.
- Langman J. *Embryology*.
- DTY Liu. *Labor Ward Manual*. 4th Ed. 2007
- Studd. *Progress in O & G*. Vol 17 (2006), Vol 16 (2005), Vol 15 (2003)
- Bonnar. *Recent Advances in O & G*. Vol 23 (2005), Vol 22 (2003).
- *RCOG Clinical Greentop Guidelines*

REVISION TEXTBOOKS

- Stirrat, Mills, Draycott. *Notes on Obstetrics & Gynecology*. 5th Ed. 2003.

- Magowan B. ***Churchill's Pocketbook – Obstetrics & Gynecology***. 3rd Ed. 2005.
- Norwitz & Schorge. ***Obstetrics & Gynecology at a glance***. 2nd Ed. 2006.
- Chin, H. ***On call Obstetrics & Gynecology***. 3rd Ed. 2006

PRACTICE TEXTS FOR SEQ / MCQ / OSCE

- Chard MCQs on **Basic Science for Obstetrics & Gynecology** 1998
- Setchell & Lilford. **MCQs in Gynecology & Obstetrics** 3rd Ed. 1996
- J. Konje. ***Short Essays, MCQs, & OSCEs for MRCOG Part II, a comprehensive guide***.2003.
- P. Abedin, K Sharif. ***MRCOG II Short Essay Questions***. 2003.
- R. de Courcy-Wheeler. ***MCQ for MRCOG Part II***. 2003.
- D. Luesley. ***MCQ & Short Essays for MRCOG***. 2004.
- Cox, Werner, Gilstrap. **William's Obstetrics Study Guide**. 22nd Ed. 2006.
- Rymer, Ahmed. **OSCEs in Obstetrics & Gynecology** 1998
- Konje, Taylor **OSCEs in Obstetrics & Gynecology** 1998
- Pickersgill, Meshki **OSCEs for Obstetrics & Gynecology** 2001