



Maternal Child Health Program

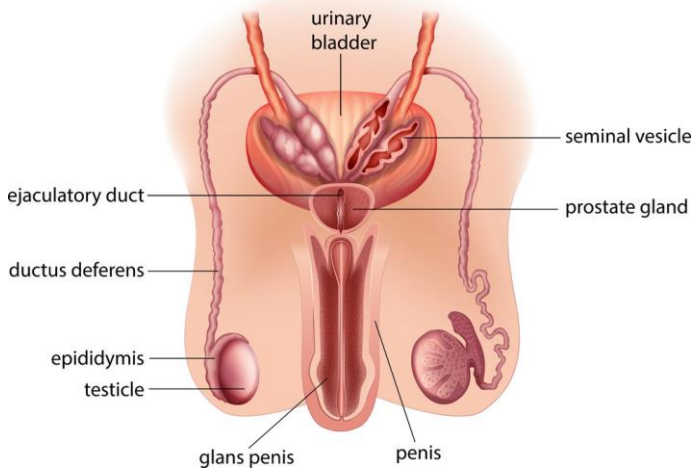
STUDY GUIDE

REPRODUCTIVE SYSTEM MODULE-I

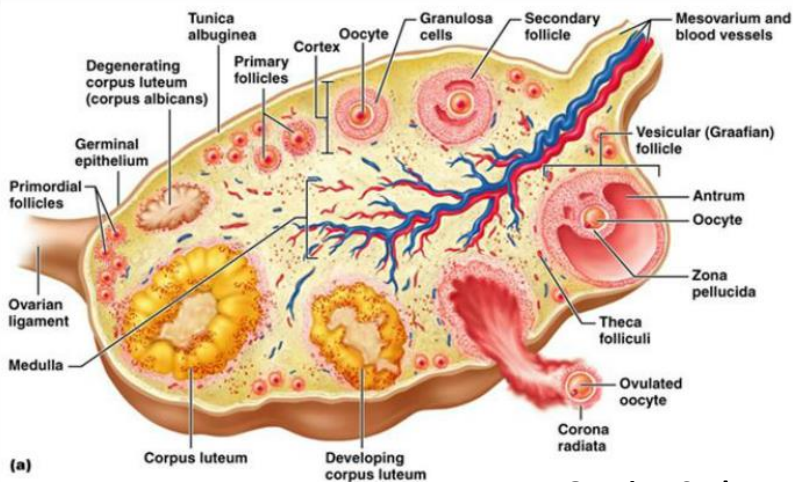
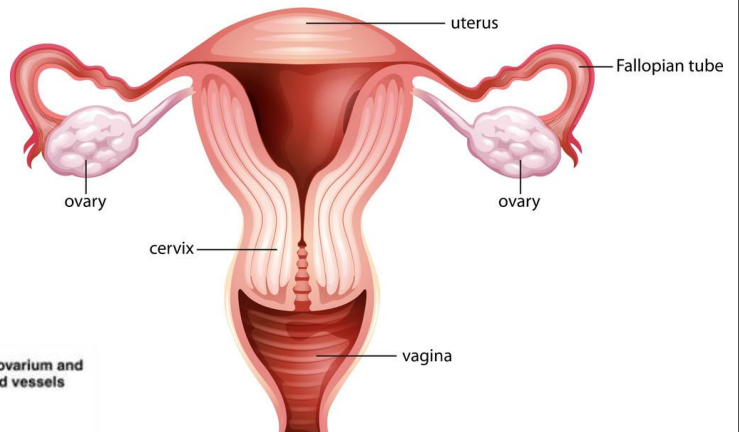
SECOND YEAR MBBS

26th June – 31st July 2019

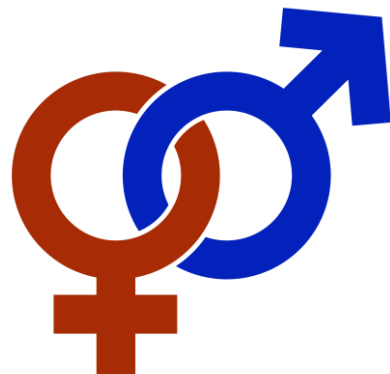
Male Reproductive System



Female Reproductive System



Ovarian Cycle



LIAQUAT NATIONAL HOSPITAL & MEDICAL COLLEGE



STUDY GUIDE FOR REPRODUCTIVE SYSTEM MODULE-I

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Module name: Reproductive System-I

Year: Two

Duration: 4 weeks (June - July 2019)

Timetable hours: Interactive Lectures, Case-Based Learning (CBL), Self-Study, Practicals, Skills, Demonstrations, Visit to Wards and Laboratory

MODULE INTEGRATED COMMITTEE

MODULE COORDINATOR:	<ul style="list-style-type: none"> Prof. Naheed Qadir (Biochemistry)
CO-COORDINATORS:	<ul style="list-style-type: none"> Dr. Naila Perveen (Physiology) Prof. Nighat Huda (DHCE)

DEPARTMENTS' and RESOURCE PERSONS' FACILITATING LEARNING

BASIC HEALTH SCIENCES	CLINICAL AND ANCILLARY DEPARTMENTS
ANATOMY <ul style="list-style-type: none"> Professor Zia-ul-Islam 	GYNAE/OBSTETRICS <ul style="list-style-type: none"> Professor Syeda Zehra Naqvi
BIOCHEMISTRY <ul style="list-style-type: none"> Professor Naheed Qadir 	RESEARCH AND SKILLS DEVELOPMENT CENTER <ul style="list-style-type: none"> Dr Kahkashan Tahir
COMMUNITY MEDICINE <ul style="list-style-type: none"> Dr. Saima Zainab 	
MICROBIOLOGY <ul style="list-style-type: none"> Prof. Syed Khursheed Hasan Hashmi 	
PATHOLOGY <ul style="list-style-type: none"> Professor Naveen Faridi 	
PHARMACOLOGY <ul style="list-style-type: none"> Professor Nazir Ahmad Solangi Professor Tabassum Zehra 	
PHYSIOLOGY <ul style="list-style-type: none"> Professor Syed Hafeezul Hassan 	
DEPARTMENT of HEALTH PROFESSION EDUCATION <ul style="list-style-type: none"> Professor Nighat Huda Dr. Afifa Tabassum Dr. Sobia Ali Dr. M. Suleman Sadiq Dr. Mehnaz Umair 	
LNH&MC MANAGEMENT <ul style="list-style-type: none"> Professor Karimullah Makki, Principal LNH&MC Dr. Shaheena Akbani, Director A.A and R.T LNH&MC 	
STUDY GUIDE COMPILED BY: Department of Health Professions Education	<ul style="list-style-type: none"> Dr. Muhammad Suleman Sadiq Hashmi

INTRODUCTION

WHAT IS A STUDY GUIDE?

It is an aid to:

- Inform students how student learning program of the semester-wise module has been organized
- Help students organize and manage their studies throughout the module
- Guide students on assessment methods, rules and regulations

THE STUDY GUIDE:

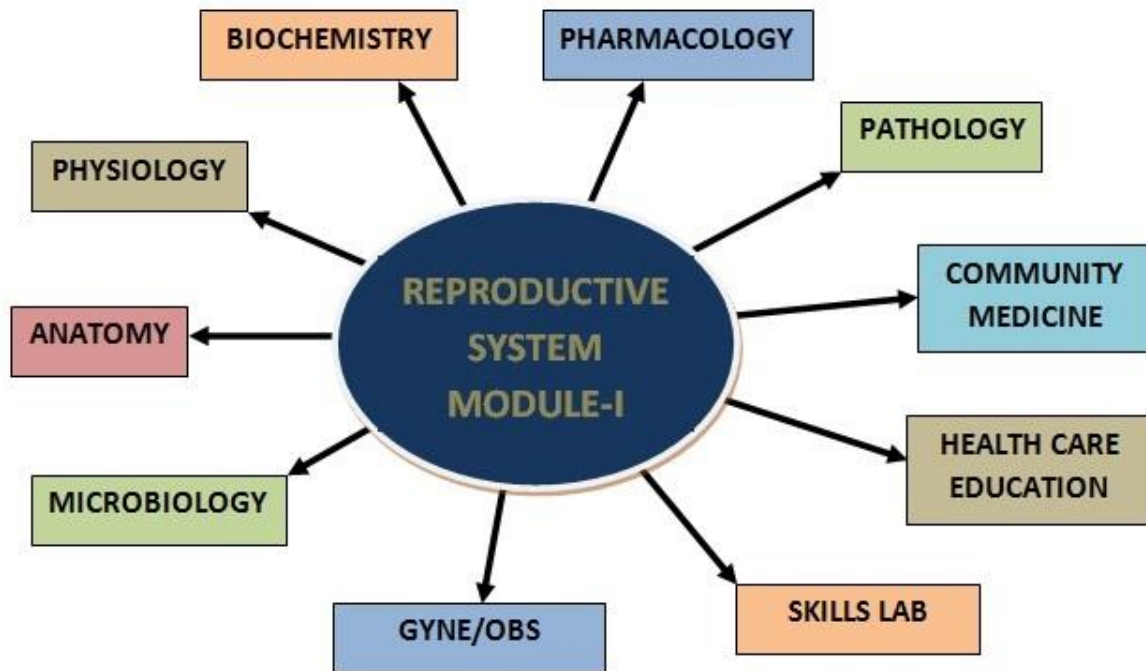
- Communicates information on organization and management of the module.
This will help the student to contact the right person in case of any difficulty.
- Defines the objectives which are expected to be achieved at the end of the module.
- Identifies the learning strategies such as Interactive Lectures, small group teachings, clinical skills, demonstration, tutorial and case based learning that will be implemented to achieve the module objectives.
- Provides a list of learning resources such as books, computer assisted learning programs, web- links, journals, for students to consult in order to maximize their learning.
- Highlights information on the contribution of continuous and semester examinations on the student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's achievement of objectives.
- Focuses on information pertaining to examination policy, rules and regulations.

CURRICULUM FRAMEWORK

Students will experience *integrated curriculum* in 4th semesters at LNMC in accordance with the JSMU guidelines and most recent developments that have an impact on individual health.

INTEGRATED CURRICULUM comprises of system-based modules such as GIT and Liver-I, Renal and Excretory System-I and Reproductive System-I which links basic science knowledge to clinical problems. Integrated teaching means that subjects are presented as a meaningful whole. Students will be able to have better understanding of basic sciences when they repeatedly learn in relation to clinical examples.

Case-based discussions, computer-based assignments, early exposure to clinics, wards, and skills acquisition in skills lab and physiotherapy department are characteristics of integrated teaching program.

INTEGRATING DISCIPLINES OF REPRODUCTIVE SYSTEM MODULE-I**LEARNING METHODOLOGIES**

The following teaching / learning methods are used to promote better understanding:

- Interactive Lectures
- Hospital / Clinic visits
- Small Group Discussion
- Case- Based Learning
- Practicals
- Skills session
- E-Learning
- Self-Directed Learning
- TBL

INTERACTIVE LECTURES

In large group, the Interactive Lecturer introduces a topic or common clinical conditions and explains the underlying phenomena through questions, pictures, videos of patients' interviews, exercises, etc. Students are actively involved in the learning process.

HOSPITAL VISITS: In small groups, students observe patients with signs and symptoms in hospital or clinical settings. This helps students to relate knowledge of basic and clinical sciences of the relevant module.

SMALL GROUP DISCUSSION (SGD): This format helps students to clarify concepts acquire skills or attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics. Students exchange opinions and apply knowledge gained from Interactive Lectures, tutorials and self study. The facilitator role is to ask probing questions, summarize, or rephrase to help clarify concepts.

CASE- BASED LEARNING: A small group discussion format where learning is focused around a series of questions based on a clinical scenario. Students' discuss and answer the questions applying relevant knowledge gained in clinical and basic health sciences during the module.

PRACTICAL: Basic science practicals related to anatomy, biochemistry, pathology, pharmacology and physiology are scheduled for student learning.

SKILLS SESSION: Skills relevant to respective module are observed and practiced where applicable in skills laboratory or Department of Physiotherapy.

SELF DIRECTED LEARNING: Students' assume responsibilities of their own learning through individual study, sharing and discussing with peers, seeking information from Learning Resource Center, teachers and resource persons within and outside the college. Students can utilize the time within the college scheduled hours of self-study.

TEAM BASED LEARNING: Team-based learning (TBL) is a structured form of small-group learning that emphasizes student preparation out of class and application of knowledge in class. Students are organized strategically into diverse teams of 5-7 students that work together throughout the class. Before each session/class, students prepare by reading prior to class. In class students are given different tasks or test where they work as team.



Apart from attending daily scheduled sessions, students too should engage in self-study to ensure that all the objectives are covered.

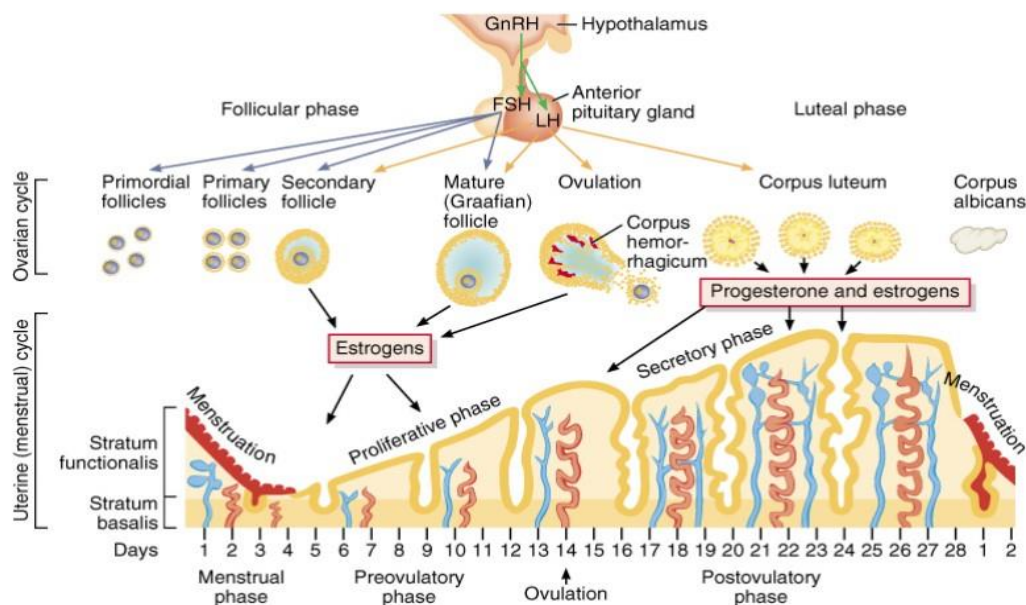
MODULE 3 : REPRODUCTIVE SYSTEM-I**IMPORTANCE:**

The module focuses on integrating basic health sciences to clinical medicine. It will be taught in a combination of lectures, tutorials, small group learning sessions, practical and skills classes and possibly visits to clinics / wards. The module will explore the normal as well as the abnormal physiology of the male and female reproductive system. Students will be introduced to a variety of pathologies to facilitate a better understanding of how the reproductive system is impacted by diseases. It will give the broad overview of the system. The module will also address reproductive hormonal changes associated with different stages of life correlating pathophysiology with clinical presentation. This will extend students' integrative abilities. Video and hands – on sessions on basic examination skills will enhance students' understanding of the subject/topic.

AIMS OF THIS MODULE

The module aims to provide:

- Knowledge and understanding of the structures and functions of the reproductive system and how it responds to changing metabolic needs of the body, organs and tissues, revealing the relevance of such knowledge to clinical practice
- Knowledge and understanding of the origin and associated risk factors of common diseases of the reproductive system
- Knowledge and prevention of common hormonal disorders associated with the reproductive system
- Practice of basic skills used in testing the function of this system in a simulated clinical setting
- Knowledge of drugs used to treat reproductive system diseases



COURSE TOPICS, OBJECTIVES AND STRATEGIES

AT the end of the module the students will be able to:

I. ANATOMY	
<i>TOPICS and OBJECTIVES</i>	<i>LEARNING STRATEGY</i>
1.1 GROSS ANATOMY	
1. 1.1 Bony pelvis (Sacrum + Joints of Pelvis)	
Discuss the features of bony pelvis	Small Group Discussion
Describe the boundaries of inlet and outlet	
Discuss the osteology of sacrum	
Identify muscles and ligaments attached to sacrum	
Differentiate between male and female pelvis	
Discuss the important points of pelvimetry	
List various types of joints of pelvis	
Explain type, articulations, ligaments and relation of joints of pelvis	
List factors providing stability to the joints of pelvis	
Describe the blood supply, nerve supply and movements of joints of pelvis	
1. 1.2 Pelvic wall, floor and Fascia	
Describe the anatomy of the pelvic walls	Interactive Lecture
Enumerate the muscles of pelvic floor/pelvic diaphragm	
Discuss the attachment and actions of muscles of pelvic floor/pelvic diaphragm	
Discuss the blood supply, nerve supply and lymphatic drainage of pelvic floor muscles	
Describe the attachment and significance of pelvic fascia	
Discuss the clinical conditions associated with the pelvic floor and fascia	
Discuss the role of pelvic floor in urinary and fecal continence	
1. 1.3 Gross Anatomy of Testes and ducts	
Describe the anatomy of the testes	Interactive Lecture
Describe the anatomy of ductus deferens and epididymus and ejaculatory duct	
1. 1.4 Prostate, Seminal vesicles and Bulbourethral glands	
Describe the gross features of following male internal organs: i. Prostate gland ii. Seminal Vesicles iii. Bulbourethral glands	Interactive Lecture
Discuss their location, relations, blood supply, nerve supply and lymphatic drainage	
Discuss the clinical conditions associated with prostate gland, seminal vesicles and bulbourethral glands	

1. 1.5 Gross anatomy of female genital tract, ovary and fallopian tube	
Identify the location of ovary and fallopian tube	Interactive Lecture/Small Group Discussion
Describe the parts and functions of fallopian tube	
Explain the ligaments of ovary and fallopian tube	
Describe the Blood supply, nerve supply and lymphatic drainage of ovary and fallopian tube	
Discuss the clinical correlates of ovary and fallopian tube	
1. 1.6 Uterus, cervix and vagina	
List the parts of uterus, cervix and vagina	Interactive Lecture
Describe the location and relations of uterus, cervix and vagina with surrounding structures	
Describe the ligaments of uterus	
Discuss the blood supply, nerve supply and lymphatic drainage of uterus, cervix and vagina	
Discuss the clinical conditions associated with uterus, cervix and vagina	
1. 1.7 Blood Supply of pelvis, Internal Iliac artery and its branches	
Describe the origin and course of the internal Iliac artery	Interactive Lecture
List the branches and area of supply of: <ul style="list-style-type: none"> i. Anterior trunk of Internal iliac artery ii. Posterior trunk of Internal iliac artery 	
Discuss the relations of internal iliac artery	
1. 1.8 Venous and Lymphatic drainage of Pelvic cavity	
Describe the main veins of the pelvis and their tributaries	Interactive Lecture
Name the area of pelvis drained by these veins	
Describe different groups of lymph nodes located in the pelvic cavity	
Describe the afferent and efferent pathways of different groups of lymph nodes of the pelvic cavity	
Explain the role of lymphatics and common route of spread of malignancies of pelvis	
1. 1.9 Nerves of Pelvis and Perineum + Sacral plexus	
Enumerate the nerves innervating pelvis	Interactive Lecture
Describe Sacral plexus and explain its formation	
Describe the branches and divisions of sacral plexus	
Identify coccygeal plexus	
Describe hypogastric plexus, its location, formation and its branches	
Discuss the injuries associated with the nerves of pelvis, perineum and sacral plexus	
1. 1.10 Perineum -I	
Describe the gross anatomical features of perineum	Interactive Lecture/Small Group Discussion
List the boundaries of perineum	
Describe the division of perineum into anal and urogenital triangles	

Discuss the boundaries and features of anal triangle	Interactive Lecture/Small Group Discussion
Discuss the importance of pectinate line with respect to the vasculature and lymphatic drainage of the rectum and anal canal	
Discuss the blood supply, nerve supply and lymphatic drainage of the perineum	
1. 1.11 Perineum- II	
Describe male urogenital triangle and its contents	Interactive Lecture/Small Group Discussion
Describe the gross anatomy of male urethra	
Describe the blood supply, nerve supply and lymphatic drainage of male urethra	
Discuss the clinical conditions associated with penis and male urethra	
Describe female urogenital triangle and its contents	
1.1.12 Radiological anatomy of Male and Female Reproductive System	
Discuss the radiological anatomy of Male and Female Reproductive System	Small Group Discussion
1. 1.13 Mammary Glands	
Discuss the gross and microscopic anatomy of mammary glands	Interactive Lecture
2. HISTOLOGY	
1. 2.1 Histology of Prostate, Seminal vesicles and Bulbourethral glands	
Identify the histological features under light microscope of the following: i. Prostate gland ii. Seminal Vesicle iii. Bulbourethral glands	Interactive Lecture/Practical
List the components of secretion of prostate gland, seminal vesicles and bulbourethral glands	Interactive Lecture/Small Group Discussion
Discuss the composition of Semen	
1. 2.2 Histology of ovary and fallopian tube	
Describe the histological features of following; i. Ovaries and ovarian follicles ii. Epithelium of fallopian tube iii. Walls of fallopian tube	Interactive Lecture/Practical
1. 2.3 Histology of Uterus, Cervix and Vagina	
Describe the histological features of: i. Uterus ii. Walls of the uterus; perimetrium, myometrium, endometrium iii. Lining epithelium of uterus iv. Cells found in the uterine endometrium v. Briefly discuss the phases of menstrual cycle	Interactive Lecture/Practical
Describe the histological features and parts of cervix and vagina	
1. 2.4 Histology of testes and duct system	
List the male reproductive organs	Interactive Lecture/Practical
Describe the histological features of testes and male genital duct system	
Describe the histology of seminiferous tubules, sertoli cells, spermatozoa, leydig cells, rete testis and epididymis.	
Identify the histological features of testis and duct system	

3. EMBRYOLOGY	
1. 3.1 Development of male reproductive system	
List the time line in which the development of male reproductive system starts and ends	Interactive Lecture/Small Group Discussion
Describe the process of development of parts of male reproductive system	
Discuss the development of male external genitalia	
Discuss the congenital anomalies resulting due to malformation of male genital system <ul style="list-style-type: none"> i. Cryptorchidism (un-descended testes) ii. Hypospadiasis and other malformation of urethra 	
1. 3.2 Development of Female reproductive system	
Discuss the primordial germ cells, their precursors and migration	Interactive Lecture/Small Group Discussion
Describe the location and division of genital ridges	
Describe the development of female genital ducts	
Discuss the development and differentiation of Paramesonephric ducts with development of uterus and vagina	
Discuss the congenital anomalies associated with the malformation of female reproductive system	
II. BIOCHEMISTRY	
<i>TOPICS and OBJECTIVES</i>	<i>LEARNING STRATEGY</i>
2.1 Male Sex Hormone	
Describe the synthesis, regulation and functions of male sex hormones and abnormalities	Interactive Lecture
2.2 Female sex hormone	
Explain the synthesis, regulation and functions of female sex hormones and related abnormalities	Interactive Lecture
2.3 Pituitary Hormone and Menstrual Cycle	
Explain the hormonal changes at menarche and their relationship to the menstrual cycle	Small Group Discussion
2.4 Biochemical changes during menopause	
Describe the biochemical changes and complications during menopause	Small Group Discussion
2.5 Biochemical role of Placenta	
Explain the biochemical role of placenta and its hormonal secretions (AFP and β -HCG)	Small Group Discussion
2.6 Amniotic fluid Analysis	
Explain the synthesis, regulation and functions of Pituitary hormones related to Menstrual Cycle	Interactive Lecture
Discuss the normal constituents of amniotic fluid and the Biochemical markers of fetal development	
2.7 Genetics	
Discuss the chemical structure of DNA and RNA and genetic disorders.	Interactive Lecture
Explain the process of Replication and the related abnormalities	

Discuss the process of Transcription and explain retro viruses in relation with Cancer and AIDs and the effect of drugs	Interactive Lecture
Explain Translation and post translational modifications and discuss different types of mutations	
Explain how gene expression is controlled	
Discuss Recombinant DNA technology and its uses	
2.8 Pregnancy test	
Perform urine pregnancy test by using dip stick (β -HCG levels)	Practical
2.9 PCR	
Describe PCR and its applications	Practical
III. COMMUNITY MEDICINE	
TOPICS and OBJECTIVES	LEARNING STRATEGY
3.1 Introduction to Reproductive Health	
Describe the components of reproductive health	Interactive Lecture
Discuss the reproductive health policy of Pakistan	
3.2 Maternal care	
Explain the determinants for maternal care	Interactive Lecture/Small Group Discussion
Identify the high risk group during pregnancy	
Describe the control measures for prevention of mothers during pregnancy	
3.3 Infant Care	
Discuss the risk factors for infant care	Small Group Discussion
Explain the components of infant care	
Discuss the role of mother and of breastfeeding in infant care	
Describe the control measures for prevention of infant mortality	
3.4 Integrated Management Of Childhood Illness (IMNCI)	
Describe the components of IMNCI	Interactive Lecture
Discuss the role of community and family practice in IMNCI	
Explain the process of assessment of danger signs in IMNCI	
3.5 Family Planning	
Describe the methods used in family planning	Interactive Lecture/Small Group Discussion
List the target couples for family planning	
Explain the family planning policy in Pakistan	
3.6 Reproductive Tract Infections	
Classify reproductive tract infections	Interactive Lecture
Describe the process of assessment and diagnosis of reproductive tract infections	
Discuss the syndromic management of reproductive tract infections	
3.7 HIV/AIDs	
Describe the signs and symptoms of AIDS	Interactive Lecture
Describe the control measures for prevention of HIV/AIDs	
Describe HIV/AIDs control programme in Pakistan	

3.8 Health Education On Reproductive Health	
Describe the components of health education	Small Group Discussion
Discuss the principles of health education	
Explain the approaches of health education	
IV. PATHOLOGY and MICROBIOLOGY	
<i>TOPICS and OBJECTIVES</i>	<i>LEARNING STRATEGY</i>
4.1 Prostatitis and benign prostatic hyperplasia	
Discuss the various types of prostatitis morphology and microorganisms involved in pathogenesis	Interactive Lecture
Describe the etiology pathogenesis, morphology, clinical features of Benign Prostate Hyperplasia	
4.2 Congenital anomalies of female genital tract and PIDs	
Describe the various congenital anomalies of female genital tract with their important salient features	Interactive Lecture
Discuss the microorganism, pathogenesis, morphology and complication of Pelvic Inflammatory Diseases (PID)	
4.3 Non-neoplastic cysts and functional cyst of ovary and Poly Cystic Ovaries	
Discuss the follicular and luteal cysts with morphology	Interactive Lecture
Define Polycystic Ovaries (PCOs)	
Describe its etiology, pathogenesis, morphology and complications	
4.4 Congenital anomalies of MGT testicular, epididymo-orchitis	
Discuss developmental abnormalities and related features of the hypospadias, Epispadias and phimosis	Interactive Lecture
Discuss the microorganism, pathogenesis and morphology of specific and non-specific types epididymo-orchitis	
V. PHARMACOLOGY	
<i>TOPICS and OBJECTIVES</i>	<i>LEARNING STRATEGY</i>
5.1 Androgens and Anti-androgens	
Explain kinetics and dynamics of the hormones produced by testis plus classification, properties and clinical uses of these agents	Interactive Lecture
5.2 Estrogens and Anti-estrogens	
Classify estrogens and antiestrogens	Small Group Discussion
Discuss basic and clinical pharmacology of these agents	
5.3 Progestins and Anti-progestins	
Classify progestins and their inhibitors	Small Group Discussion
Explain basic and clinical pharmacology of progestins and their inhibitors	
5.4 Contraceptives	
Classify contraceptive drugs	Interactive Lecture
Discuss dynamics of different hormonal contraceptive drugs	
5.5 Prolactin inhibitory factors (Bromocriptine)	
Enumerate Prolactin inhibitory factors	Interactive Lecture
Explain clinical pharmacology of Bromocriptine	

5.6 Effects of different drugs on the rat uterus	
Observe the effects of different drugs on rat uterus using power lab	Practical
VI. PHYSIOLOGY	
TOPICS and OBJECTIVES	LEARNING STRATEGY
6.1 Spermatogenesis, Semen, Capacitation of Sperms	
Explain the stages of spermatogenesis	Small Group Discussion
Describe the hormonal control of spermatogenesis	
6.2 Male Sex Hormone: Testosterone and its Function	
Describe the synthesis, function and regulation of male sex hormones	Interactive Lecture
6.3 Abnormalities of Male Sexual Act	
Discuss the abnormalities of male sexual function (hypo and hypergonadism)	Interactive Lecture
6.4 Functions of Ovary	
Discuss oogenesis and stages of follicle development through ovulation and formation of corpus rectum	Interactive Lecture
6.5 Puberty, Menstrual Cycle, Menarche and Menopause	
Describe the synthesis function and regulation of hormones of female reproductive system.	Interactive Lecture/Small Group Discussion
Describe the hormonal changes that occur during puberty, the mechanism that control the overall of puberty	
Explain the secondary sexual characteristics that develop during puberty in males and females.	
Explain now the secretion of FSH and LH is controlled through negative and positive feedback during menstrual cycle	
Describe the cyclical changes that occur in endometrium and hormonal mechanism that changes	
6.6 Pregnancy, Function of Placenta, and Maternal Changes During Pregnancy	
List hormones secreted by placenta and their actions	Interactive Lecture/Small Group Discussion
Interpret endocrine assays during the course of pregnancy	
Describe the physiological changes during pregnancy with respect to all organ and system	
Brief describe process of parturition especially (stages, mechanism, hormones)	
6.7 Mammary Gland and Lactation	
Describe the hormonal requirements for development of mammary gland during pregnancy and milk ejection reflexes	Interactive Lecture
6.8 Fetal and Neonatal Physiology	
Discuss the fetal and neonatal physiology	Interactive Lecture

VII. OBSTETRICS and GYNECOLOGY	
TOPICS and OBJECTIVES	LEARNING STRATEGY
7.1 Polycystic ovaries and menstrual disorder	
Define polycystic ovary	Interactive Lecture
Describe the pathophysiology of menstrual cycle and its abnormalities	
Describe the clinical features of polycystic ovaries	
Discuss the outline of its management plan	
7.2 Antenatal Care	
Define Antenatal care	Interactive Lecture/Small Group Discussion
Discuss the concepts of trimesters	
Describe the components of Antenatal care	
Justify the investigations	
Discuss the significance of Antenatal care	
7.3 Congenital abnormalities related to reproductive tract	
Define Klinefelter syndrome, Mayer–Rokitansky syndrome, Turner syndrome	Interactive Lecture
Describe the pathophysiology and clinical features of the above mentioned conditions	
Discuss management outline plan for these conditions	
7.4 Prenatal diagnosis	
Define prenatal care	Interactive Lecture
Discuss its types (invasive and non-invasive)	
VIII. SKILL LAB	
TOPICS and OBJECTIVES	LEARNING STRATEGY
8.1 Prostate Examination	
Perform prostate examination on mannequin	Small Group Hands-On Practice

LEARNING RESOURCES

SUBJECT	RESOURCES
ANATOMY	A. <u>GROSS ANATOMY</u> <ol style="list-style-type: none"> 1. K.L. Moore, Clinically Oriented Anatomy 2. Neuro Anatomy by Richard Snell B. <u>HISTOLOGY</u> <ol style="list-style-type: none"> 1. B. Young J. W. Health Wheather's Functional Histology C. <u>EMBRYOLOGY</u> <ol style="list-style-type: none"> 1. Keith L. Moore. The Developing Human 2. Langman's Medical Embryology
BIOCHEMISTRY	<u>TEXTBOOKS</u> <ol style="list-style-type: none"> 1. Harper's Illustrated Biochemistry 2. Lehninger Principle of Biochemistry 3. Biochemistry by Devlin
COMMUNITY MEDICINE	<u>TEXT BOOKS</u> <ol style="list-style-type: none"> 1. Community Medicine by Parikh 2. Community Medicine by M Illyas 3. Basic <i>Statistics</i> for the Health Sciences by Jan W Kuzma
PATHOLOGY/MICROBIOLOGY	<u>TEXT BOOKS</u> <ol style="list-style-type: none"> 1. Robbins and Cotran, Pathologic Basis of Disease, 9th edition. 2. Rapid Review Pathology, 4th edition by Edward F. Goljan MD
	<ol style="list-style-type: none"> 1. http://library.med.utah.edu/WebPath/webpath.html 2. http://www.pathologyatlas.ro/
PHARMACOLOGY	<u>TEXT BOOKS</u> <ol style="list-style-type: none"> 1. Lippincot Illustrated Pharmacology 2. Basic and Clinical Pharmacology by Katzung
PHYSIOLOGY	A. <u>TEXTBOOKS</u> <ol style="list-style-type: none"> 1. Textbook Of Medical Physiology by Guyton And Hall 2. Ganong ' S Review of Medical Physiology 3. Human Physiology by Lauralee Sherwood 4. Berne and Levy Physiology 5. Best and Taylor Physiological Basis of Medical Practice B. <u>REFERENCE BOOKS</u> <ol style="list-style-type: none"> 1. Guyton and Hall Physiological Review 2. Essentials Of Medical Physiology by Jaypee 3. Textbook Of Medical Physiology by InduKhurana 4. Short Textbook Of Physiology by Mrthur 5. NMS Physiology

OTHER LEARNING RESOURCES

<u>Hands-on Activities/ Practical</u>	Students will be involved in Practical sessions and hands-on activities that link with the reproductive system module to enhance the learning.
<u>Labs</u>	<ul style="list-style-type: none"> Utilize the lab to relate the knowledge to the specimens and models available.
<u>Skill Lab</u>	<ul style="list-style-type: none"> A skills lab provides the simulators to learn the basic skills and procedures. This helps build the confidence to approach the patients.
<u>Videos</u>	Video familiarize the student with the procedures and protocols to assist patients.
<u>Computer Lab/CDs/DVDs/Internet Resources:</u>	To increase the knowledge students should utilize the available internet resources and CDs/DVDs. This will be an additional advantage to increase learning.
<u>Self Learning</u>	Self Learning is scheduled to search for information to solve cases, read through different resources and discuss among the peers and with the faculty to clarify the concepts.

ASSESSMENT METHODS:**Theory:**

- **Best Choice Questions (BCQs)** also known as MCQs (Multiple Choice Questions) are used to assess objectives covered in each module.
 - A BCQ has a statement or clinical scenario followed by four options (likely answer).
 - Students after reading the statement/scenario select ONE, the most appropriate response from the given list of options.
 - **Correct answer carries one mark, and incorrect 'zero mark'. There is no negative marking.**
 - Students mark their responses on specified computer-based/OMR sheet designed for LNHMC.

OSPE/OSCE: Objective Structured Practical/Clinical Examination:

- Each student will be assessed on the same content and have same time to complete the task.
- Comprise of 12-25 stations.
- Each station may assess a variety of clinical tasks, these tasks may include history taking, physical examination, skills and application of skills and knowledge
- Stations are observed, unobserved, interactive and rest stations.
- Observed and interactive stations will be assessed by internal or external examiners.
- Unobserved will be static stations in which there may be an X-ray, Labs reports, pictures, clinical scenarios with related questions for students to answer.
- Rest station is a station where there is no task given and in this time student can organize his/her thoughts.

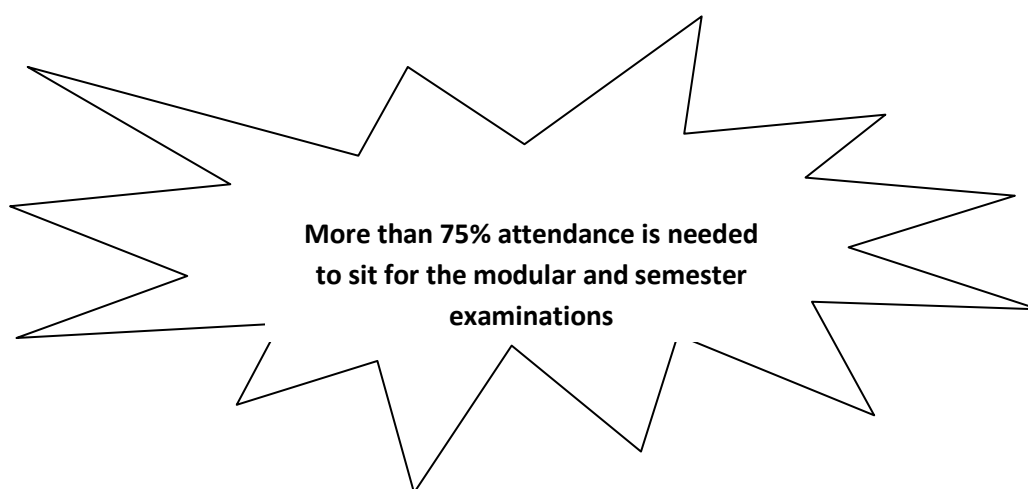
Internal Evaluation

- Students will be assessed to determine achievement of module objectives through the following:
 - **Module Examination:** will be scheduled on completion of each module. The method of examination comprises theory exam which includes BCQs and OSPE (Objective Structured Practical Examination).
 - **Graded Assessment of students by Individual Department:** Quiz, viva, practical, assignment, small group activities such as CBL, TBL, TOL, online assessment, ward activities, examination, and log book.
- Marks of both modular examination and graded assessment will constitute 20% weightage.
- As per JSMU policy, this 20% will be added by JSMU to Semester Examination.

Example : Number of Marks allocated for Semester Theory and Internal Evaluation			
Semester	Semester Examination Theory Marks	Internal Evaluation (Class test + Assignments + Modular Exam)	Total (Theory)
	80%	20%	100%

Formative Assessment

- Individual department may hold quiz or short answer questions to help students assess their own learning. The marks obtained are not included in the internal evaluation



MODULAR EXAMINATION RULES and REGULATIONS (LNH&MC)

- Student must report to examination hall/venue, 30 minutes before the exam.
- **Exam will begin sharp at the given time.**
- No student will be allowed to enter the examination hall after 15 minutes of scheduled examination time.
- Students must sit according to their roll numbers mentioned on the seats.
- **Cell phones are strictly not allowed in examination hall.**
- If any student is found with cell phone in any mode (silent, switched off or on) he/she will be not be allowed to continue their exam.
- No students will be allowed to sit in exam without University Admit Card, LNMC College ID Card and Lab Coat
- Student must bring the following stationary items for the exam: Pen, Pencil, Eraser, and Sharpener.
- Indiscipline in the exam hall/venue is not acceptable. Students must not possess any written material or communicate with their fellow students.

JSMU Grading System

- It will be based on GPA – 4 system

Marks obtained in Percentage range	Numerical Grade	Alphabetical Grade
80-100	4.0	A+
75-79	4.0	A
70-74	3.7	A-
67-69	3.3	B+
63-66	3.0	B
60-62	2.7	B-
56-59	2.3	C+
50-55	2.0	C
<50 Un-grade-able	0	U

- A candidate obtaining GPA less than 2.00 (50%) is declared un-graded (fail).
- Cumulative transcript is issued at the end of clearance of **all** modules.

SCHEDULE:

WEEKS	2nd YEAR	MONTH
WEEK 1	GIT and LIVER MODULE-I	1st April 2019
WEEK 2		
WEEK 3		
WEEK 4		
WEEK 5		
WEEK 6		
WEEK 7		
WEEK 8		14th May 2019
	MODULAR EXAM	17th & 18th May 2019
WEEK 1	RENAL and EXCRETORY SYSTEM MODULE-I	20th May 2019
WEEK 2		
WEEK 3		
WEEK 4		21st June 2019
	MODULAR EXAM	24th & 25th June 2019
WEEK 1	REPRODUCTIVE SYSTEM MODULE-I	26th June 2019
WEEK 2		
WEEK 3		
WEEK 4		26th July 2019
	MODULAR EXAM	30th & 31st July 2019*

*Final dates will be announced later.