Program and Course Structure

School of Medical Science and Research

MD (Pediatrics)
Session:2021-24
Program Code: SMS1501

1. Standard Structure of the Program at University Level

1.1 Vision, Mission and Core Values of the University

Vision of the University

To serve the society by being a global University of higher learning in pursuit of academic excellence, innovation and nurturing entrepreneurship.

Mission of the University

1. Transformative educational experience
2. Enrichment by educational initiatives that encourage global outlook
3. Develop research, support disruptive innovations and accelerate entrepreneurship
4. Seeking beyond boundaries

Core Values

- Integrity
- Leadership
- Diversity
- Community

Vision of the School

To serve the society by being a premier institute that promotes a comprehensive approach to human health through excellence inacademics, research and clinical care

Mission of the School

- Provide a transformative educational experience in Medical Science
- Develop skills and competencies to create global leaders in clinical care
- Promote innovative and collaborative research through intellectual and technological advancement
- Establish a center for excellence in preventive, promotive and curative health care

Core Values

- Integrity
- Leadership
- Ethics
- Community Health

1.3 Programme Educational Objectives (PEO)

1.3.1 Writing Programme Educational Objectives (PEO)

Program educational objectives are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve.

A post graduate student having qualified the MD (Pediatrics) examination should be able to:

PEO1. Recognizes the health needs of infants, children and adolescents and carries out Professional obligations in keeping with principles of the National Health Policy and professional ethics

PEO2. Has acquired the competencies pertaining to pediatrics that are required to be practiced in the community and at all levels of health system

PEO3. Has acquired skills in effectively communicating with the child, family and the community.

PEO4. Is aware of contemporary advances & developments in medical sciences as related to child health

PEO5. Has acquired skills in educating medical and paramedical professionals

PEO6. Understand general principles of medical education (use of appropriate teaching techniques and resources).

PEO7. Interpret and evaluate research publications critically.

PEO8. Use the library facilities (Literature database using computer, CD ROM, internet search and any other available newer techniques).

PEO9. Interact with the allied departments and render services in advanced laboratory investigations.

1.3.2 Map PEOs with Mission Statements:

PEO Statements	School Mission 1	School Mission 2	School Mission 3	School Mission 4
PEO1:	3	3	3	3
PEO2:	3	3	3	3
PEO3:	2	3	2	3
PEO4:	3	2	3	3
PEO5	3	3	2	2
PEO6	3	2	3	2
PEO7	3	3	3	2
PEO8	2	2	3	2
PEO9	1	3	1	2

1.3.3 Program Outcomes (PO's)

A. Cognitive Domain

A post graduate student having qualified the MD (Pediatrics) examination should be able to

PO1. Recognize the key importance of child health in the context of the health priority of country

PO2. Practice the specialty of Pediatrics in keeping with the principles of professional ethics

PO3. Identify social, economic, environmental, biological and emotional determinants of child and adolescent health, and institute diagnostic, therapeutic, rehabilitative, preventive and promotive measures to provide holistic care to children

PO4. Recognize the importance of growth and development as the foundation of Pediatrics; and help each child realize her/his optimal potential in this regard

PO5. Take detailed history; perform full physical examination including neurodevelopment and behavioral assessment and anthropometric measurements in the child and make clinical diagnosis

PO6. Perform relevant investigative and therapeutic procedures for the pediatric patient

PO7. Interpret important imaging and laboratory results

PO8. Diagnose illness based on the analysis of history, physical examination & investigations

PO9. Plan & deliver comprehensive treatment for illness using principles of rational drug therapy

PO10. Plan and advice measures for the prevention of childhood disease and disability

Affective Domain: A post graduate student having qualified the MD (Pediatrics) examination should be able to

PO11. Should be able to function as a part of a team, develop an attitude of cooperation with colleagues, and interact with the patient and the clinician or other colleagues to provide the best possible diagnosis or opinion

PO12. Always adopt ethical principles and maintain proper etiquette in dealings with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.

PO13. Develop communication skills to word reports and professional opinion as well as to interact with patients, relatives, peers and paramedical staff, and for effective teaching.

C. Psychomotor domain The student should acquire competencies in the following tasks:

PO14. History and Examination The student must gain proficiency in eliciting, processing and systemically presenting pediatrics history and examination with due emphasis of the important and minimization of less important facts.

PO15. Recording of height, weight, head circumference and mid arm circumference and interpretation of these parameters using growth reference

PO16. Standard assessment of nutritional status and growth Assessment of pubertal growth

PO17. Complete development assessment by history and physical examination, and recognizing developmental disabilities, including autism Systematic examination

PO18. Neonatal examination including gestation assessment by physical neurological criteria

PO19. Examination of the fundus and the ear

PO20. Skills related to Integrated management of Neonatal and Childhood Illnesses (IMNCI) & Infant and Young Child Feeding (IYCF)

1.3.4 Mapping of Program Outcome Vs Program Educational Objectives

	PEO1	PEO2	PEO3	PEO4	PEO5	PEO6	PEO7	PEO8	PEO9
PO1	3	2	" "	2	" "	3	2	1	1
PO2	3	3	" "	2	" "	2	2	1	1
PO3	3	3	" "	1	2	2	2	2	2
PO4	2	2	" "	1	2	3	1	1	1
PO5	2	3	3	1	2	3	2	3	2
PO6	2	3	2	3	2	2	2	3	3
PO7	2	3	" "	2	1	2	2	1	3
PO8	2	3	3	1	1	2	2	2	3
PO9	3	3	2	1	1	2	2	1	2
PO10	3	2	3	1	1	2	1	3	1
PO11	2	2	3	1	3	3	1	3	3
PO12	3	2	3	2	3	3	1	3	3
PO13	3	3	3	2	3	3	1	3	3
PO14	3	3	3	2	2	2	2	1	1
PO15	3	3	2	1	" "	2	2	1	1
PO16	3	3	1	1	1	2	2	1	1
PO17	3	3	3	1	" "	2	2	2	1
PO18	3	3	2	1	" "	2	2	1	1
PO19	3	2	2	" "	2	2	2	1	1
PO20	2	3	2	2	1	2	2	2	1

School: SMSR		**Batch:**
Program: MD PEDIATRICS		**Current Academic Year: 2019-20**
1	Programme Code	SMS1501

Syllabus

Course contents:

Guidelines

During the training period, effort must be made that adequate time is spent in discussing child health problems of public health importance in the country or particular region.

Basic Sciences

- Principles of inheritance, chromosomal disorders, single gene disorders, multifactorial/ polygenic disorders, genetic diagnosis and prenatal diagnosis, pedigree drawing.
- Embryogenesis of different organ systems especially heart, genitourinary system, gastro -intestinal tract. Applied anatomy and functions of different organ systems.
- Physiology of micturition and defecation; placental physiology; fetal and neonatal circulation; regulation of temperature, blood pressure, acid base balance, fluid electrolyte balance and calcium metabolism.
- Vitamins and their functions.
- Hematopoiesis, hemostasis, bilirubin metabolism.
- Growth and development at different ages, growth charts; puberty and its regulation.
- Nutrition: requirements and sources of various nutrients.
- Pharmacokinetics of common drugs, microbial agents and their epidemiology.
- Basic immunology, biostatistics, clinical epidemiology, ethical and medico-legal issues.
- Teaching methodology and managerial skills.

Understanding the definition, epidemiology, aetiopathogenesis, presentation, complications, differential diagnosis and treatment of the following, but not limited to:

Growth and development

- Principles of growth and development
- Normal growth and development
- Failure to thrive and short stature
- Normal growth and development
- Sexual maturation and its disturbances
- Autism (as mentioned in objective 24)

Neonatology

- perinatal care
- care in the labor room and resuscitation
- prematurity

- common transient phenomena
- infections
- Jaundice
- Neurologic disorders
- renal disorders
- thermoregulation and its disorders
- low birth weight
- newborn feeding
- respiratory distress
- apnea
- anemia and bleeding disorders
- Gastrointestinal disorders
- Malformations
- Understanding of perinatal medicine

Nutrition

- maternal nutritional disorders; impact on fetal outcome
- infant feeding including
- protein energy malnutrition
- adolescent nutrition
- nutritional management of systemic illness (GI, hepatic, renal illness)
- nutrition for the low birth weight
- breast feeding
- vitamin and mineral deficiencies
- obesity
- parenteral and enteral nutrition

Cardiovascular

- congenital heart diseases (cyanotic and acyanotic)
- infective endocarditis
- disease of myocardium (cardiomyopathy, myocarditis)
- hyperlipidemia in children
- rheumatic fever and rheumatic heart disease
- arrhythmia
- diseases of pericardium
- systemic hypertension

Respiratory

- congenital and acquired disorders of nose tonsils and adenoids
- congenital anomalies of lower respiratory tract
- foreign body in larynx trachea and bronchus
- subglottic stenosis (acute, chronic)
- bronchial asthma
- acute pneumonia, bronchiolitis
- recurrent, interstitial pneumonia
- atelectasis

- pleural effusion
- infections of upper respiratory tract
- obstructive sleep apnea
- acute upper airway obstruction
- trauma to larynx
- neoplasm of larynx and trachea
- bronchiolitis
- aspiration pneumonia, GER
- suppurative lung disease
- lung cysts, mediastinal mass

Gastrointestinal and liver disease

- disease of oral cavity
- peptic ulcer disease
- intestinal obstruction
- malabsorption syndrome
- irritable bowel syndrome
- Hirschsprung disease
- hepatitis
- chronic liver disease
- metabolic diseases of liver
- disorders of deglutition and esophagus
- congenital pyloric stenosis
- acute and chronic pancreatic
- acute and chronic diarrhea
- inflammatory bowel disease
- anorectal malformations
- hepatic failure
- Budd-Chiari syndrome
- cirrhosis and portal hypertension

Nephrologic and Urologic disorders

- acute and chronic glomerulonephritis
- hemolytic uremic syndrome
- VUR and renal scarring
- renal tubular
- congenital and hereditary renal disorders
- posterior urethral valves
- undescended testis, hernia, hydrocoele
- xanthema syndrome
- urinary tract infection
- involvement in systemic diseases
- neurogenic bladder, voiding disorders dysfunction
- renal and bladder stones
- hydronephrosis
- Wilms tumor

Neurologic disorders

- seizure and non-seizure paroxysmal events
- meningitis, encephalitis
- febrile encephalopathies
- neurocysticercosis and other neuroinfestations
- SSPE
- neurometabolic disorders
- neuromuscular disorders
- learning disabilities
- acute flaccid paralysis and AFP surveillance
- movement disorders
- epilepsy, epileptic syndromes
- brain abscess
- Guillain-Barre syndrome
- HIV encephalopathy
- cerebral palsy
- neurodegenerative disorders
- mental retardation
- muscular dystrophies
- malformations
- Tumors

Hematology and Oncology

- deficiency anemias
- aplastic anemia
- thrombocytopenia
- blood component therapy
- bone marrow transplant/stem cell transplant
- myelodysplastic syndrome
- neuroblastoma
- hemolytic anemias
- pancytopenia
- disorders of hemostasis
- transfusion related infections
- acute and chronic leukemia
- Lymphoma
- hypercoagulable states

Endocrinology

- hypopituitarism/hyperpituitarism
- pubertal disorders
- adrenal insufficiency
- adrenogenital syndromes
- hypoglycemia

- gonadal dysfunction and intersexuality
- diabetes insipidus
- hypo – and hyper-thyroidism
- Cushing's syndrome
- diabetes mellitus
- short stature
- obesity

Infections

- bacterial (including tuberculosis)
- fungal
- rickettssial
- protozoal and parasitic
- control of epidemics and infection prevention
- viral (including HIV)
- parasitic
- mycoplasma
- nosocomial infections
- safe disposal of infective material

Emergency and Critical Care

- emergency care of shock
- respiratory failure
- status epilepticus
- fluid and electrolyte disturbances
- poisoning
- scorpion and snake bites
- cardio-respiratory arrest
- acute renal failure
- acute severe asthma
- acid-base disturbances
- accidents

Immunology and Rheumatology

- arthritis (acute and chronic)
- immunodeficiency syndromes
- vasculitides
- systemic lupus erythematosus

ENT

- acute and chronic otitis media
- post-diphtheritic palatal palsy
- allergic rhinitis/sinusitis
- hearing loss
- acute/chronic tonsillitis/adenoids
- foreign body

Skin Diseases

- exanthematous illnesses
- pigment disorders
- infections
- atopic, seborrheic dermatitis
- alopecia
- vascular lesions
- vesicobullous disorders
- Steven-Johnson syndrome
- drug rash
- icthyosis

Eye problems

- refraction and accommodation
- cataract
- strabismus
- disorders of retina, including tumors
- partial/total loss of vision
- night blindness
- conjunctival and corneal disorders

Behavioral and Developmental disorders

- rumination, pica
- sleep disorders
- breath holding spells
- mood disorders
- attention deficit hyperactivity disorders
- enuresis, encopresis
- habit disorders
- anxiety disorders
- temper tantrums
- autism (as mentioned in objective 24)

Social/Community Paediatrics

- national health programs related to child health
- Vaccines: constituents, efficacy, storage, contraindications and adverse reactions
- rationale and methodology of pulse polio immunization
- child labor, abuse, neglect
- disability and rehabilitation
- National policy of child health and population
- Principles of prevention, control of infections (food, water, soil, vector borne)
- Investigation of an epidemic
- IMNCI
- Adoption
- rights of the child
- juvenile delinquency

Orthopaedics

- major congenital orthopedic deformities

- common bone tumors
- bone and joint infections

Approach to clinical problems Growth and development

- precocious and delayed puberty
- impaired learning
- developmental delay

Neonatology

- low birth weight newborn
- sick newborn

Nutrition

- lactation management and complementary feeding
- failure to thrive
- protein energy malnutrition (underweight, wasting, stunting) and micronutrient deficiencies

Cardiovascular

- Murmur
- congestive heart failure
- arrhythmia
- cyanosis
- systemic hypertension
- shock

GIT and Liver

- Acute diarrhea
- abdominal pain and distension
- vomiting
- gastrointestinal bleeding
- hepatosplenomegaly
- persistent and chronic diarrhea
- ascites
- constipation
- jaundice
- hepatic failure and encephalopathy

Respiratory

- Cough/chronic cough
- wheezy child
- hemoptysis
- respiratory distress

Infections

- acute onset pyrexia
- recurrent infections
- nosocomial infections
- prolonged pyrexia with and without localizing signs
- fever with xanthema

- bladder/bowel incontinence
- renal failure (acute and chronic)

Hematology and Oncology
- anemia
- bleeding

Neurology
- limping child
- paraplegia, quadriplegia
- macrocephaly and microcephaly
- acute flaccid paralysis
- convulsions
- cerebral palsy
- floppy infant
- headache

Endocrine
- thyroid swelling
- obesity
- ambiguous genitalia
- short stature

Miscellaneous
- skin rash
- epistaxis
- arthralgia, arthritis
- lymphadenopathy
- proptosis

ASSESSMENT

FORMATIVE ASSESSMENT, ie., assessment to improve learning

Formative assessment should be continual and should assess medical knowledge, patient care, procedural & academic skills, interpersonal skills, professionalism, self directed learning and ability to practice in the system.

General Principles

Internal Assessment should be frequent, cover all domains of learning and used to provide feedback to improve learning; it should also cover professionalism and communication skills. The Internal Assessment should be conducted in theory and practical/clinical examination.

Quarterly assessment during the MD training should be based on:
1. Journal based / recent advances learning
2. Patient based /Laboratory or Skill based learning
3. Self directed learning and teaching

4. Departmental and interdepartmental learning activity
5. External and Outreach Activities / CMEs

The student to be assessed periodically as per categories listed in postgraduate student appraisal form (Annexure I).

SUMMATIVE ASSESSMENT, ie., assessment at the end of training

The summative examination would be carried out as per the Rules given in POSTGRADUATE MEDICAL EDUCATION REGULATIONS, 2000.

The postgraduate examination shall be in three parts:

1. **Thesis**

   Thesis shall be submitted at least six months before the Theory and Clinical / Practical examination. The thesis shall be examined by a minimum of three examiners; one internal and two external examiners, who shall not be the examiners for Theory and Clinical examination. A post graduate student shall be allowed to appear for the Theory and Practical/Clinical examination only after the acceptance of the Thesis by the examiners.

2. **Theory examination**

   The examinations shall be organized on the basis of 'Grading'or 'Marking system' to evaluate and to certify post graduate student's level of knowledge, skill and competence at the end of the training. Obtaining a minimum of 50% marks in 'Theory' as well as 'Practical' separately shall be mandatory for passing examination as a whole. The examination for M.D./ MS shall be held at the end of 3rd academic year. An academic term shall mean six month's training period.

   There shall be four theory papers. Each paper should have 10 short essay questions (SEQ).

   Paper I: Basic sciences as applied to Paediatrics
   Paper II: Neonatology and community Paediatrics
   Paper III: General Paediatrics including advances in Paediatrics relating to Cluster I specialties
   Paper IV: Paediatric Medicine including advances in Paediatrics relating to Cluster II specialties

   Cluster I: Nutrition, Growth and Development, Immunization, Infectious disease, Genetics, Immunology, Rheumatology, Psychiatry and Behavioral Sciences, Skin, Eye, ENT, Adolescent Health, Critical Care, Accidents and Poisoning

   Cluster II: Neurology and Disabilities, Nephrology, Hematology and Oncology, Endocrinology, Gastroenterology and Hematology, Respiratory and Cardiovascular disorders

3. Practical/clinical and Oral/viva voce examination

   Practical examination

   Case I

   Case II (Newborn)

   Case III

   OSCE may be used.

   Oral/Viva voce examination on defined areas by each examiner separately. Oral examination shall be comprehensive enough to test the post graduate student's overall knowledge of the subject.

   Recommended Reading:

   Books (latest edition)

   1. Nelson's Textbook of Pediatrics, Kliegman et al (Editors)
   2. Manual of Neonatal care, Cloherty
   3. Nada's Pediatric Cardiology, Kaene
   4. PG Textbook of Pediatrics, IAP P Gupta et al (Editors)
   5. Clinical Methods in Pediatrics, P Gupta
   6. Care of the newborn, Meharban Singh

   Journals 03-05 international Journals and 02 national (all indexed) journals

Annexure 1

Postgraduate Students Appraisal Form
Pre / Para /Clinical Disciplines

Name of the Department/Unit :

Name of the PG Student :

Period of Training : FROM.....TO.....

Sr. No.	PARTICULARS	Not Satisfactory	Satisfactory	More Than Satisfactory	Remarks
		1 2 3	4 5 6	7 8 9	
1.	Journal based / recent advances learning				
2.	Patient based /Laboratory or Skill based learning				
3.	Self directed learning and teaching				
4.	Departmental and interdepartmental learning activity				
5.	External and Outreach Activities / CMEs				
6.	Thesis / Research work				
7.	Log Book Maintenance				

Publications **Yes/ No**

Remarks*_____
_____
_____
____

*REMARKS: Any significant positive or negative attributes of a postgraduate student to be mentioned. For score less than 4 in any category, remediation must be suggested. Individual feedback to postgraduate student is strongly recommended.

SIGNATURE of ASSESSEE **SIGNATURE OF CONSULTANT** **SIGNATURE OF HOD**