All India Institute of Medical Sciences, Kalyani

Syllabus

MD-Paediatrics

Department of Paediatrics
AIIMS, Kalyani

Justification

AIIMS Kalyani was set up as part of the Pradhan Mantri Swasthya Suraksha Yojana (PMSSY) initiative for the purpose of "correcting regional imbalances in the availability of affordable/reliable tertiary healthcare services". The principal objectives of thisinstitute towards its mission are to develop patterns of teaching in undergraduate and postgraduate medical education in all its branches so as to demonstrate a high standard of medical education. Currently our Department of Pediatrics has full blown OPD services with special clinics on allergy and asthma, genetic clinic, pediatric gastroenterology, pediatric hematology, pediatric nephrology and pediatric neurology. Very soon we are going to have indoor ward, NICU and PICU. The department of pediatrics has been already allotted state of the art building with all modern infrastructure and facilities. Now the Dept. of Pediatrics has 4 faculties (2 Associate Professors and 2 Assistant Professors) and 2 senior residents (SRs). All the faculty members are trained from reputed institutions of the country and have experience in a variety of field. The recruitment process for fresh SRs are also in process. There are non-teaching JRs also. We already have started research activities in the department. All the faculties are well experienced in teaching and training the UG and PG students.All the faculties are very passionate and dynamic about patient care and research. We are getting common cases and also uncommon and rare cases referred from different areas. So clinical materials along with educational materials are not a constraint for Dept. of Pediatrics to start Post Graduation in Pediatrics in AIIMS. Already we are already conducting teaching and training of MBBS students in Pediatrics. We are also conducting training programs and awareness programs at our department.

Faculties:

Dr. Nihar Ranjan Mishra	Associate Professor, Head In charge
Dr. Rimjhim Sonowal	Associate Professor
Dr. Rohit Bhowmick	Assistant Professor
Dr. Niladri Sekhar Bhunia	Assistant Professor

Clinical material: We are getting all kind of cases referred to us from nearby areas. We are evaluating them and even started case discussion at departmental level and also with other reputed institutes in India. Reporting of unusual cases is also an undergoing process in our department.

Infrastructure:

OPD complex: There are 5 OPD rooms for the faculty and residents. There are two demonstration rooms for teaching, investigation and clinical examination OPD complex. Also there is a seminar room for teaching.

IPD: Our proposed ward, NICU and PICU with all world class facilities are going to be started very soon. We already have good number of nursing officers.

Labour Room: The state of the art labour room and operation theaters are also going to be functional very soon.

Equipment: We are procuring many world class advance machines some of which already arrived. Following are part of the list.

1. Portable Ventilators: 2
2. Ventilator : 6
3. Mutlipara monitor: 10
4. Pulse Oximeter: 10
5. Radiant warmer:6
6. Syringe pump: 40
7. Radiant warmer: 6
8. Phototherapy units: 6
9. CPAP machine: 2
10. Defibrillators: 1
11. Weighing machine: 7
12. BP instrument: 10 (all age groups)
13. Infantometer: 4
14. Stadiometer: 2
15. Micro-bilirubinometer: 1
16. Irradiance meter: 1
17. Portable x ray: 1
18. Portable ECG machine: 2
19. High Flow Nasal Cannula: 5

Library facility: AIIMS Kalyani has the facility of a well-equipped Central library. The process of developing a departmental library is also undergoing.

Research activities:

The department has already started different research activities. Seminars, journal clubs, case presentation are being conducted in the department regularly either singlyor in collaboration with other departments.

Teaching activities:

The department has designed a teaching curriculum for the various MBBS semesters in lines of that being followed at AIIMS Bhubaneswar. This includes both theory andclinical classes. We also have developed an undergraduate log book.

Taking into consideration the various credentials, the department finds itselfself-sufficient in starting Post Graduate training program in the Department of Pediatrics AIIMS Kalyani.

Academic Calendar

S. No.	Name of the Program	Duration	Dates	Remarks
1.	Orientation	1 Week	1st week of joining	
2.	Thesis Protocol Presentation in the department and approval in front of Research Committee		Within 3 months of Registration	Research Committee will approve followed by Ethics Committee approval
3.	Research methodology Module with Evaluation	1 Week	1st year	
4.	Evidence based Medicine module	1 Week	1st year	
5.	Formative Assessment	1 Day	1st year	
6.	Research paper writing workshop	2 Days	1st year	
7.	Annual Assessment	1-2 Days	End of 1st year	
8.	Mid term thesis evaluation	1 Day	1 ½ year	
9.	Formative Assessment	2 Days	1 ½ year	

10.	Formative Assessment	1-2 Days	2nd year	
11.	Paper writing out of thesis		2nd, 3rd year	
12.	Final Thesis submission		6 months before final examination	
13.	Formative Assessment	1 Day	6 months before end of 3rd year	
14.	Pre-final assessment	2 Days	2 months before end of 3rd year	
15.	Final MD/MS exam	2 Days	End of 3rd year	

Residents will also be participating in Institutional programs as and when they are held.

NUMBER OF POST GRADUATE STUDENTS TO BE ADMITTED

Teacher Student ratio of PG Students: The ratio of recognized Postgraduate teacher to the number of students to be admitted for the postgraduate courses in broad and super specialties outlined in the table given below:

Teacher Student ratio of PG Students		
Sl. No.	**Designation**	**Number of PG per year**
1	Professor	4 seats per year
2	Additional Professor	3 seats per year
3	Associate Professor	2 seats per year
4	Assistant Professor	1 seat per year

Department of Paediatrics

1. **Goal:**

The goal of MD course in Pediatrics is to produce a competent pediatrician who:

(i) Recognizes the health needs of infants, children and adolescents and carries out professional obligations in keeping with principles of National Health Policy and professional ethics

(ii) Has acquired the competencies pertaining to pediatrics that are required to be practiced in the community and atall levels of health care system

(iii) Has acquired skills in effectively communicating with the child, family and the community

(iv) Is aware of the contemporary advances and developmentsin medical sciences as related to child health

(v) Is oriented to principles of research methodology

(vi) Has acquired skills in educating medical and paramedical professionals

2. Objectives:

At the end of the MD course in Pediatrics, the student should be able to:

(i) Recognize the key importance of child health in the context of the health priority of the country

(ii) Practice the specialty of Pediatrics in keeping with the principles of professional ethics

(iii) Identify social, economic, environmental, biological and emotional determinants of child and adolescent health, rehabilitative, preventive and promotive measures to provide holistic care to children;

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

(v) Take detailed history, perform full physical examination including neuro-development and behavioral assessment and anthropometric measurements of the child and make clinical diagnosis

(vii) Perform relevant investigative and therapeutic procedures for the pediatric patient

(viii) Interpret important imaging and laboratory results

(ix) Diagnose illness in children based on the analysis of history, physical examination and investigative work up;

(x) Plan and deliver comprehensive treatment for illness in children using principles of rational drug therapy
(xi) Plan and advise measures for the prevention of childhood disease and disability;
(xii) Plan rehabilitation of children suffering from chronic illness and handicap, and those with special needs
(xiii) Manage childhood emergencies efficiently;
(xiv) Provide comprehensive care to normal, 'at risk' and sick neonates
(xv) Recognize the emotional and behavioral characteristics of children, and keep these fundamental attributes in focus while dealing with them
(xvi) Demonstrate empathy and humane approach towards patients and their families and respect their sensibilities
(xvii) Demonstrate communication skills of a high order in explaining management and prognosis,
(xviii) Providing counseling and giving health education messages to patients, families and communities;
(xix) Develop skills as a self-directed learner, recognize continuing educational needs; use appropriate learning resources, and critically analyze relevant publishedliterature in order to practice evidence based pediatrics
(xx) Demonstrate competence in basic concepts of research methodology and epidemiology;
(xxi) Facilitate learning of medical/nursing students, practicing physicians, para-medical health workers other providers as a teacher-trainer
(xxii) Play the assigned role in the implementation of national health programs, effectively and responsibly;
(xxiii) Organize and supervise the desired managerial and leadership skills
(xxiv) Function as a productive member of a team engaged in health care, research and education

3. Syllabus

3.A. Approach to Important Clinical Problems

Growth and Development. Short stature, obesity, precocious and delayed puberty, developmental delay, impaired learning.

Neonatology. Normal newborn, low birth weight newborn, sick newborn, neonatal jaundice, neonatal respiratory distress

Nutrition. Lactation management and

complementary feeding, protein energy malnutrition (underweight, wasting, stunting) and micronutrient deficiencies, failure to thrive, obesity.

Cardiovascular. Murmur, cyanosis, congestive heart failure, systemic hypertension, arrhythmia, shock.

GIT and liver. Acute, persistent and chronic diarrhea, abdominal pain and distension, ascites, vomiting, constipation, gastrointestinal bleeding, jaundice, hepato-splenomegaly and chronic liver disease, hepatic failure and encephalopathy.

Respiratory. Cough/chronic cough, noisybreathing, wheezy child, respiratory distress, hemoptysis.

Infections. Acute onset pyrexia, prolonged pyrexia with and without localizing sign (including PUO), recurrent infections, nosocomial infections.

Renal. Hematuria/dysuria, bladder/bowel incontinence, voiding dysfunctions, inguino scrotal swelling, renal failure (acute and chronic).

Hemato-oncology. Lymphadenopathy, anemia, bleeding.

Neurology. Limping child, convulsions, abnormality of gait, intracranial space occupying lesion, hemiplegia, paraplegia, quadriplegia, large head, small head, floppy infant, acute flaccid paralysis, cerebral palsy and other neuromotor disability, headache.

Endocrine. Thyroid swelling, ambiguous genitalia, obesity, short stature.

Skin/Eye/ENT. Skin rash, pigmentary lesions, pain/discharge from ear, hearing loss, epistaxis, refractory errors, blindness, cataract, eye discharge, redness, squint, proptosis.

Musculoskeletal. Arthralgia, arthritis

Miscellaneous. Habit disorders, hyperactivity and

attention deficit syndrome, multiple congenital anomalies.

3. B. Disorders

(Definition, epidemiology, etiopathogenesis, presentation, complications, differential diagnosis, and treatment).

Growth and Development. Principles of growth and development, normal growth and development in childhood and adolescence, deviations in growth and development, sexual maturation and its disturbances.

Neonatology. Perinatal care, normal newborn, care in the labor room and resuscitation, low birth weight, prematurity, newborn feeding, common transient phenomena, respiratory distress, apnea, infections, jaundice, anemia and bleeding disorders, neurologic disorders, gastrointestinal disorders, renal disorders, malformations, thermoregulation and its disorders, understanding of perinatal medicine, newborn screening.

Nutrition. Maternal nutritional disorders: impact on fetal outcome, nutrition for the low birth weight, breast feeding, infant feeding including complementary feeding, protein energy malnutrition, vitamin and mineral deficiencies, trace elements of nutritional importance, obesity, adolescent nutrition, nutritional management in diarrhea, nutritional management of systemic illnesses (celiac disease, hepatobiliary disorders, nephrotic syndrome), parenteral and enteral nutrition in neonates and children.

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

Respiratory. Congenital and acquired disorders of nose, infections of upper respiratory tract, tonsils

and adenoids, obstructive sleep apnea, congenital anomalies of lower respiratory tract, acute inflammatory upper airway obstruction, foreign body in larynx, trachea and bronchi, subglottic stenosis(acute and chronic), trauma to larynx, neoplasm of larynx and trachea, bronchitis, bronchiolitis, aspiration pneumonia, GER, acute pneumonia, recurrent and interstitial pneumonia, suppurative lung disease, atelectasis, lung cysts, emphysema and hyperinflation bronchial asthma, pulmonaryedema, bronchiectasis, pleural effusion, pulmonary leaks, mediastinal mass.

Gastrointestinal and liver diseases. Diseases of mouth, oral cavity and tongue, disorders of deglutition and esophagus, peptic ulcer disease, H. pylori infection, foreign body, congenital pyloric stenosis, intestinal obstruction, malabsorption syndrome, acute and chronic diarrhea, irritable bowel syndrome, Cystic Fibrosis, ulcerative colitis, Hirschsprung's disease, anorectal malformations, liver disorders: hepatitis, hepatic failure, chronic liver disease, Wilson's disease, Budd-Chiari syndrome, metabolic diseases of liver, cirrhosis and portal hypertension.

Nephrologic disorders. Acute and chronic glomerulonephritis, nephrotic syndrome, hemolytic uremic syndrome, urinary tract infection, VUR and renal scarring, renal involvement in systemic diseases, renal tubular disorders, congenital and hereditary renal disorders, renal and bladder stones, posterior urethral valves, hydronephrosis, voiding dysfunction, enuresis, undescended testis, Wilm's tumor, fluid- electrolyte disturbances.

Neurologic disorders. Seizure and non-seizure paroxysmal events, epilepsy and epileptic syndromes of childhood, meningitis, brain abscess, coma, acute encephalitis and febrile encephalopathies, Guillain-Barre syndrome, neurocysticercosis and other neuro-infestations, HIV encephalopathy, SSPE, cerebral palsy, neurometabolic disorders, mental retardation, learning disabilities, muscular dystrophies, acute flaccid paralysis and AFP surveillance, ataxia, movement disorders of

childhood, CNS tumors, malformations.

Hematology and oncology. Deficiency anemia, hemolytic anemia, aplastic anemia, pancytopenia, disorders of hemostasis, thrombocytopenia, blood component therapy, transfusion related infections, bone marrow transplant/ stem cell transplant, acute and chronic leukemia, myelodysplastic syndrome, Hodgkin disease, non-Hodgkin's lymphoma, neuroblastoma, hypercoagulable states.

Endocrinology. Hypopituitarism/hyperpituitarism, Diabetes insipidus, pubertal disorders, hypo- and hyper-thyroidism, hypo- and hyperparathyroidism, adrenal insufficiency, Cushing's syndrome, adrenogenital syndromes, diabetes mellitus, hypoglycemia, short stature, failure to thrive,gonadal dysfunction and intersexuality, pubertal changes and gynecological disorders.

Infections. Bacterial, viral, fungal, parasitic, rickettssial, mycoplasma, Pneumocystis carinii infections, chlamydia, protozoal and parasitic, tuberculosis, HIV, nosocomial infections, control of epidemics and infection prevention.

Emergency and critical care. Emergency care of shock, cardiorespiratory arrest, respiratory failure,congestive cardiac failure, acute renal failure, status epilepticus, fluid and electrolyte disturbances andits therapy, acid-base disturbances, poisoning, accidents, scorpion and snake bites, burns.

Immunology and rheumatology. Arthritis (acute and chronic), connective tissue disorders, disorders of immunoglobulins, T and B cell dis-orders, immunodeficiency syndromes.

ENT. Acute and chronic otitis media, conductive/sensorineural hearing loss, post-diphtheritic palatal palsy, acute/chronic tonsillitis/adenoids, allergic rhinitis/sinusitis, foreign body.

Skin diseases. Exanthematous illnesses, vascular lesions, pigment disorders, vesicobullous disorders,

infections: pyogenic, fungal and parasitic; Steven-Johnson syndrome, eczema, seborrheic dermatitis, drug rash, urticaria, alopecia, icthyosis.

Eye problems. Refraction and accommodation, partial/total loss of vision, cataract, night blindness, chorioretinitis, strabismus, conjunctival and corneal disorders, retinopathy of prematurity, retinoblastoma, optic atrophy, papilledema.

Behavioral and psychological disorders. Rumination, pica, enuresis, encopresis, sleep disorders, habit disorders, breath holding spells, anxiety disorders, mood disorders, temper tantrums, attention deficit hyperactivity disorder, infantile autism.

Social pediatrics. National health programs related to child health, child abuse and neglect, child labor, adoption, disability and rehabilitation, rights of the child, national policy of child health and population, juvenile delinquency.

Genetics. Chromosomal disorders, single gene disorders, multifactorial/polygenic disorders, genetic diagnosis, and prenatal diagnosis.

Orthopedics. Major congenital orthopedic deformities, bone and joint infections: pyogenic, tubercular, and common bone tumors.

Skills

History and examination. History taking including psychosocial history, physical examination including fundus examination, newborn examination,including gestation assessment; thermal protection of young infants, nutritional anthropometry and its assessment, assessment of growth, use of growth chart, SMR rating, developmental evaluation, communication with children, parents, health functionaries and social support groups; and genetic counseling.

Bedside procedures

(a) **Monitoring skills:** Temperature recording, capillary blood sampling, arterial blood sampling.

(b) **Therapeutic skills:** Hydrotherapy, nasogastric feeding, endotracheal intubation, cardiopulmonary resuscitation (pediatric and neonatal), administration of oxygen, venepuncture and establishment of vascular access, administration of fluids, blood, blood components, parenteral nutrition, Intraosseous fluid administration, intrathecal administration of drugs, common dressings, abscess drainage and basic principles of rehabilitation.

(c) **Investigative skills:** Lumbar puncture, ventricular tap, bone marrow aspiration, pleural, peritoneal, pericardial and subdural tap, biopsy of liver and kidney, collection of urine for culture, urethral catheterization, suprapubic aspiration.

Bedside investigations. Hemoglobin, TLC, ESR, peripheral smear staining and examination, urine: routine and microscopic examination, stool microscopy including hanging drop preparation, examination of CSF and other body fluids, Gram stain, ZN stain, Apt test / shake test on gastric aspirate.

Interpretation of X-rays of chest, abdomen, bone and head; ECG; ABG findings; CT scan; MRI.

Understanding of common EEG patterns, audiograms, ultrasonographic abnormalities and isotope studies.

Basic Sciences

Embryogenesis of different organ systems especially heart, genitourinary system, gastrointestinal tract, applied anatomy of different organs, functions of kidney, liver, lungs, heart and endocrinal glands. Physiology of micturition and defecation, placental physiology, fetal and neonatal circulation, regulation of temperature (especially newborn), blood pressure, acid base balance, fluid electrolyte balance, calcium metabolism, vitamins and their functions,

hematopoiesis, hemostasis, bilirubin metabolism. Growth and development at different ages, puberty and its regulation, nutrition, normal requirements of various nutrients. Basic immunology, bio-statistics, clinical epidemiology, ethical and medicolegal issues, teaching methodology and managerial skills, pharmacokinetics of commonly used drugs, microbial agents and their epidemiology.

Community and Social Pediatrics

National health nutrition programs, nutrition screening of community, prevention of blindness, school health programs, prevention of sexually transmitted diseases, contraception, health legislation, national policy on children, adolescence, adoption, child labor, juvenile delinquency, government and non-government support services for children, investigation of adverse events following immunization in the community, general principles of prevention and control of infections including food borne, waterborne, soil borne and vector borne diseases, investigation of an outbreak in a community, India Newborn Action Plan, Various health insurance programmes by Govt of India.

4.0 TEACHING PROGRAM

General Principles

- Acquisition of practical competencies being the keystone of postgraduate medical education, postgraduate training should be skills oriented.

- Learning in postgraduate program should beessentially self-directed and primarily emanating from clinical and academic work. The formal sessions are merely meant to supplement this core effort.

Formal Teaching Sessions

In addition to bedside teaching rounds, there will be at least 5 hours of formal teaching per week.

Journal club/ Medical and perinatal audit: Once a

week

Seminar/lecture: Once a week

Case based discussion: Twice a week

Interdepartmental case/seminar: [Cardiology/ Pediatric surgery etc.] Once a week

Additional integrated seminars on basic sciences, biostatistics, research methodology, teaching methodology, health economics, medical ethics and legal issues related to pediatric practice will be taken.

Note: These additional sessions may be organized as an institutional activity for all postgraduates.

Rotations

The postgraduate student should rotate through all the clinical units in the department. In addition, following special rotations should be undertaken:

- Neonatology (including perinatology) - 6 months [maximum 9 months]
- Intensive Care/Emergency - 3 months
- Posting in Outpatient Services of the following specialties is recommended for the duration indicated below:

• Skin	12 hours (e.g., 3 hours/day for 4 days or 2 hours/day for 6 days)
• Pediatric surgery	24 hours (e.g., 3 hours/day for 8 days)
• Physical Medicine and Rehabilitation	12 hours (e.g., 3 hours/day for 4 days)
• Community	24 hours (e.g., 3 hours/day for 8 days)
• Neurology	42 hours (e.g., 3 hours/day for 14 days)
• Cardiology	42 hours (e.g., 3 hours/day for 14 days)

Objectives for skin rotation: The student should be well versed with the diagnosis and management of common pediatric skin conditions like exanthematous illnesses, vascular lesions, pigment

disorders, vesicobullous disorders, infections: pyogenic, fungal and parasitic; Steven-Johnson syndrome, eczema, seborrheic dermatitis, drug rash, urticaria, alopecia, icthyosis etc.

Objectives for Pediatric surgery rotation: The student should be well versed with the diagnosis and management of common pediatric and neonatal surgical conditions like intestinal obstruction, Hirsch-sprung's disease, anorectal mal-formations, renal and bladder stones, posterior urethral valves, hydronephrosis, undescended testis, Wilm's tumor etc.

Objectives for Physical Medicine and Rehabilitation rotation: The student should be well versed with the physical medicine and rehabilitation techniques for common pediatric neurological and developmental problems like cerebral palsy, neurometabolic disorders, mental retardation, learning disabilities, muscular dystrophies, global developmental delay etc.

Objectives for Community rotation: The student should be well versed with the preventive and social community pediatrics issues national health programs related to child health and nutrition, nutrition screening of community, prevention of blindness, school health programs, prevention of sexually transmitted diseases, contraception, health legislation, national policy on children, adolescence, adoption, child labor, child abuse and neglect, juvenile delinquency, government and non-government support services for children, disability and rehabilitation, rights of the child, national policy of child health and population, investigation of adverse events following immunization in the community, general principles of prevention and control of infections including food borne, waterborne, soil borne and vector borne diseases, investigation of an outbreak in a community.

Objectives for Neurology rotation: The student should be well versed with the diagnosis and management of common neurological conditions like convulsions, myopathies, neuropathies,

Neurometabolic disorders, Movement disorders, Pediatric stroke, Neurodegenerative disorder, CNS malformations, Coma, CNS tumors; and with diagnostic modalities like EEG, Neuroimaging, NCV, EMG and the interpretation of their results.

Objectives for Cardiology rotation: The student should be well versed with the diagnosis and management of common cardiological conditions like Congenital heart disease; Acquired heart diseases like Rheumatic fever, Rheumatic heart disease, Myocarditis, Pericardial effusion, Kawasaki disease; Infective endocarditis; Hypertension; Cardiomyopathy; CCF; and interpretation of various diagnostic modalities ECG, ECHO, Cath lab procedures, Pericardiocentesis etc.

5.0 Thesis

Objectives

By carrying out a research project and presenting his work in the form of thesis, the student will be ableto:

(i) Identify a relevant research question; (ii) conduct a critical review of literature; (iii) formulate a hypothesis; (iv) determine the most suitable study design; (v) state the objectives of the study; (vi) prepare a study protocol; (vii) undertake a study according to the protocol; (viii) analyze and interpret research data, and draw conclusions; (ix) write a research paper.

Guidelines

While selecting thesis topics, following should be kept in mind:

(i) The scope of study should be limited so that it is possible to conduct it within the resources and time available to the student; (ii) the emphasis should be on the process of research rather than the results;
(iii)the research study must be ethically appropriate; (iv) the protocol, interim progress as well as final presentation must be made formally to the entire

department; (v) only one student per teacher/thesis guide; (vi) there will be periodic departmental review of the thesis work as per following schedule:

- End of 1st year Submission of protocol
- During 2nd year Mid-term presentation
- 6 months prior to examination Final presentation and submission Timing of six monthly progress report submission to Academic Section

Report	July Session		January session	
	Period	To be submitted	Period	To be submitted
First	July to December	7th January	January to June	7th July
Second	January to June	7th July	July to December	7th January
Third	July to December	7th January	January to June	7th July
Fourth	January to June	7th July	July to December	7th January
Fifth	July to December	7th January	January to June	7th July
Sixth	January to June	10th June	July to December	10th December

Note: The first five reports will be taken into consideration to decide the eligibility of the studentto appear for the Professional Examination.

Synopsis submission and approval:

Process to be completed within six months of admission to MS / MD program:

Activity	July admission	January admission
Selection of topic in consultation with PG Guide	**September / October**	**March / April**
Approval by Department PG Committee		
Institute Scientific Committee approval	**November / December**	**May / June**
Institute Ethics Committee approval		
Final approval letter by Academics Section	**31st December**	**30th June**

The Dissertation will be submitted to Academic Section

at least six months prior to the scheduled examination, i.e. by 31st December for June examination and by 30th June for December examination.

6.0 Assessment

General principles

- The assessment should be valid, objective, and reliable.
- It must cover cognitive, psychomotor and affective domains.
- Formative, continuing and summative (final) assessment should be conducted in theory as well as practicals/clinicals. In addition, thesis should be assessed separately.

Exam Pattern for MD/MS

6.1.1 Formative Assessment

(A) Theory:

Schedule	Marks
At end of First year	100 (1 Paper)
At end of Second year	100 (1 Paper)
Pre-professional	400 (4 Papers of 100 marks each)
Total	600 Marks

(B) Practical*:

Schedule	Marks
At end of First year	100
At end of Second year	100
Pre-professional	400 (Practical 300 + Viva 100)
Total	600 Marks

Candidate should secure a minimum of 50% marks in Theory and Practical separately, in order to be eligible to appear for Professional Examination.

#Syllabus for end term theory assessment

I year - General pediatrics, growth and development, nutrition, Bio-statistics, infectious disease, neonatology.

II year - Approach to clinical disorders andemergencies.
III year - Whole syllabus.

6.1.2. Summative Assessment

A Theory 4 Papers each of 100 Marks = 400 Marks
B Practical Practical 300 + Viva 100 = 400 Marks

Final Result

(A) Theory – 400 Marks (Minimum 40% marks in each paper and aggregate of 50% in order to be declared pass)

(B) Practical – 400 Marks

Minimum 50% marks required in Theory & Practical separately, in order to be declared successful at MD/MS Examination.

Theory syllabus

Paper 1:	Basic sciences as applied to pediatrics	100 marks
Paper 2:	Neonatoloy and community pediatrics.	100 marks
Paper 3:	General pediatrics including advances in pediatrics relating to Cluster-I specialities*	100 marks
Paper 4:	General pediatrics including advances in pediatrics relating to Cluster-II specialities*	100 marks

* 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-oncology, endocrinology, gastroenterology and hepatology, respiratory and cardiovascular disorders.

In each paper there should be 10 short essay questions (SEQ).

Practicals

Two external and two internal examiners should

conduct the examinations

Case

Case I	75 marks
Case II (new born)	75 marks
Case III	75 marks
Case IV (ambulatory/emergency care)	75 marks
Viva on defined areas	**100 marks**
Viva areas	**Marks**
Instruments	20 marks
Imaging	20 marks
Social Pediatrics	20 marks
Drugs & Emergencies	20 marks
Thesis Viva	20 marks

7.0 Recommended reading

Reference Books

- Behrman RE, Kliegman RM, Jenson HB. Nelson Textbook of Pediatrics.
- Rudolph AM, Hoffman JIE, Rudolph CD. Rudolph's Pediatrics. Appleton and Lange.
- Ghai OP, Gupta P, Paul VK. Essential Pediatrics. .
- Singh M. Pediatrics Clinical Methods.
- Siberry GK, Iannone R. The Harriet Lane Handbook. Mosby & Harcourt India.
- Singh M, Deorari AK. Drug Doses in Children. Sagar Publications.

Growth and Development

- IlIingworth RS. The development of the infant and young child. Normal and abnormal. Churchill Livingstone.

Nutrition

- Alleyne GAO, Hay RW, Picou DI, Stanford JP, Whitehead RG. Protein energy malnutrition. Jaypee Brothers
- Management of severe malnutrition: a manual for physicians and other senior health workers. WHO, Geneva.

Infectious diseases

- Feigin RD, Cherry ID. Textbook of Pediatric Infectious Diseases. W. B. Saunders.
- Seth V, Kabra SK. Essentials of tuberculosis in children. Jaypee Brothers.

Intensive care

- Singh M. Medical emergencies in children. Sagar Publications.
- Rogers MC, Nichols DG. Textbook of Pediatric intensive care. Williams & Wilkins.

Neonatology

- Singh M. Care of the Newborn, Sagar Publication.
- Avery GB, Fletcher MA, MacDonald MG. Neonatology-Pathophysiology and Management ofthe Newborn. Lippincott William and Wilkins.
- Cloherty JP, Stark AR. Manual of Neonatal Care. Lippincott- Raven Publishers.
- Textbook of neonatal resuscitation. American Heart Association and American Academy of Pediatrics,

Neurology

- Swaiman B, Kenneth F, Ashwal S. Pediatric Neurology: Principles and Practice. St. Louis Mosby,

Cardiology

- Allen HO, Clark FB, Gutgesell HP, Driscoll DJ. Moss and Adam's Heart Disease in Infants, Children and Adolescents. Lippincott Williams and Wilkins.
- Park MK. Pediatric cardiology for practitioners. Mosby.

Gastroenterology

- Suchy FI, Sokol RJ, Balistreri WF. Liver disease in children. Lippincott Williams and Wilkins.
- Bhan MK, Bhatnagar S. Guidelines for management of diarrhea in children. Ministry of Health, GOI and WHO/SEARO.

Endocrinology

- Sharma S, Singhal T, Bajpai A. Management protocols in pediatric endocrinology.
- Desai MP, Bhatia B, Menon PSN. Pediatric Endocrine Disorders. Orient Longman.

Nephrology

- Barratt TM, Avner ED, Harmon WE. Pediatric nephrology. Baltimose Williams and Wilkins.
- Srivastava RN, Bagga A Pediatric Nephrology.

Hematology & Oncology

- Nathan DG, Orkin SH. Nathan and Oski's Hematology of Infancy and Childhood. W. B.Saunders.

Rheumatology

- Cassidy JT, Petty RE. Textbook of Pediatric Rheumatology. W. B. Saunders.

Respiratory Medicine

- Chernick V, Boat TF. Kendig's Disorders of the Respiratory Tract in Children. WB Saunders.

Reference Journals

1. Indian Pediatrics
2. Indian Journal of Pediatrics
3. Indian Journal of Practical Pediatrics
4. Neo Reviews
5. Pediatrics
6. Journal of Pediatrics
7. Pediatric Clinics of North America
8. Journal of Perinatology
9. Pediatric Critical Care Medicine
10. BMJ Pediatrics

LOG BOOKS (Scholarship Portfolio)

Logbooks are very useful for skill acquisition by postgraduate students.

They should cover all the procedures particularly necessary for the condition of district and regional hospitals. It is very important to complete and assess log books at the end of posting of each unit. This would motivate not only the postgraduate students but also the concerned consultants and residents of each unit of guide PG students to acquire such skills before completing the posting. Finally, with increasing faculties and experiences of postgraduate teaching, the log books prepared a few years back may be in need of review. Such review of log books should be continuously done in future as well as per the newer developments and availability of various procedures and facilities.

Post Graduate students shall maintain a record (log) book.

1. He/She would enter the work carried out by them and training program undergone during the course.
2. He/She would also keep record of all the practical skills learnt during the tenure of course.
3. The record books shall be checked and assessed by the faculty members imparting the training.
4. The entry to be done as soon as the activity is over and shall be checked at least monthly.

The format of the log book is as follows

For Seminars/ Journal Club/ Lectures

Sl No.	**Title of seminar/J Club/Lecture**	**Attended/ Presented ***	**Remarks/Signature by Faculty**

Procedural skills

Skill	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Anthropometry												
Dev Assess												
CPR-NB												
CPR-Ch												
LP												
IV line												
Art Sample												
BM Asp												
Pleural												
Ascitic												
Central Line												
PICC lines												

Academic activities

Month								
CGR								
CPC								