Proposed PG Curriculum for MD Pediatrics

1. GOAL

The goal of MD course in Pediatrics is to produce a competent pediatrician who 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; has acquired the competencies pertaining to pediatrics that are required to be practiced in the community and at all levels of health care system; has acquired skills in effectively communicating with the child, family and the community; is aware of the contemporary advances and developments in medical sciences as related to child health; is orientated to principles of research methodology; and has acquired skills in educating medical and paramedical professionals.

2. Program outcomes

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, environ-mental, biological and emotional determinants of child and adolescent health, and institute diagnostic, therapeutic, 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;

(vi) perform relevant investigative and therapeutic procedures for the pediatric patient;

(vii) interpret important imaging and laboratory results;

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

(ix) plan and deliver comprehensive treatment for illness in children using principles of rational drug therapy;

(x) plan and advise measures for the prevention of childhood disease and disability.
(xi) plan rehabilitation of children suffering from chronic illness and handicap, and those with special needs;

(xii) manage childhood emergencies efficiently;

(xiii) provide comprehensive care to normal, ‘at risk’ and sick neonates;

(xiv) demonstrate skills in documentation of case details, and of morbidity and mortality data relevant to the assigned situation;

(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, providing counseling and giving health education messages to patients, families and communities;

(xviii) develop skills as a self-directed learner, recognize continuing educational needs; use appropriate learning resources, and critically analyze relevant published literature in order to practice evidence-based pediatrics;

(xix) demonstrate competence in basic concepts of research methodology and epidemiology;

(xx) facilitate learning of medical/nursing students, practicing physicians, para-medical health workers and other providers as a teacher-trainer;

(xxii) play the assigned role in the implementation of national health programs, effectively and responsibly;

(xxiii) function as a productive member of a team engaged in health care, research and education.
3. Syllabus

3.1. Approach to Important Clinical Problems

3.1.1. **Growth and development.** Short stature, obesity, precocious and delayed puberty, developmental delay, impaired learning.

3.1.2. **Neonatology.** Normal newborn, low birth weight newborn, sick newborn.

3.1.3. **Nutrition.** Lactation management and complementary feeding, protein energy malnutrition (underweight, wasting, stunting) and micronutrient deficiencies, failure to thrive, obesity.

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

3.1.5. **GIT and liver.** Acute, persistent and chronic diarrhea, abdominal pain and distension, ascitis, vomiting, constipation, gastrointestinal bleeding, jaundice, hepatosplenomegaly and chronic liver disease, hepatic failure and encephalopathy.

3.1.6. **Respiratory.** Cough/chronic cough, noisy breathing, wheezy child, respiratory distress, hemoptysis.

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


3.1.9. **Hematooncology.** Lymphadenopathy, anemia, bleeding.

3.1.10. **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.

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

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

3.1.13. **Musculoskeletal.** Arthralgia, arthritis

3.1.14. **Miscellaneous.** Habit disorders, hyperactivity and attention deficit syndrome, multiple congenital anomalies.

3.2. Disorders

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

3.2.1. **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.
3.2.2. **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.

3.2.3. **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.

3.2.4. **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.

3.2.5. **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, pulmonary edema, bronchiectasis, pleural effusion, pulmonary leaks, mediastinal mass.

3.2.6. **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, Hirschprung’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.

3.2.7. **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.

3.2.8. **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.

3.2.9. **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.

3.2.10. **Endocrinology.** Hypopituitarism/hyperpituitarism, Diabetes insipidus, pubertal disorders, hyper-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.
3.2.11. **Infections.** Bacterial, viral, fungal, parasitic, rickettsial, mycoplasma, Pneumocystis carinii infections, chlamydia, protozoal and parasitic, tuberculosis, HIV, nosocomial infections, control of epidemics and infection prevention.

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

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

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

3.2.15. **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, ichthyosis.

3.2.16. **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.

3.2.17. **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.

3.2.18. **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.

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

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

3.3. **Skills**

3.3.1. **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.

3.3.2. **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, intravenous 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.

3.3.3. **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.

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

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

3.4. **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.

3.5. **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

4.1. General Principles

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

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

4.2. 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.

4.3. 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 Out patient Services of the following specialties is recommended for the duration indicated below:

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Duration</th>
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</thead>
<tbody>
<tr>
<td>Skin</td>
<td>12 hours (e.g., 3 hours/day for 4 days or 2 hours/day for 6 days)</td>
</tr>
<tr>
<td>Pediatric surgery</td>
<td>24 hours (e.g., 3 hours/day for 8 days)</td>
</tr>
<tr>
<td>Physical Medicine and Rehabilitation</td>
<td>12 hours (e.g., 3 hours/day for 4 days)</td>
</tr>
<tr>
<td>Community</td>
<td>24 hours (e.g., 3 hours/day for 8 days)</td>
</tr>
<tr>
<td>Neurology</td>
<td>42 hours (e.g., 3 hours/day for 14 days)</td>
</tr>
<tr>
<td>Cardiology</td>
<td>42 hours (e.g., 3 hours/day for 14 days)</td>
</tr>
</tbody>
</table>
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, ichthyosis 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, Hirschsprung’s disease, anorectal mal-formations, renal and bladder stones, posterior ure-thral valves, hydronephrosis, undescended testis, Wilms’ 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

5.1. Objectives

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

(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.

5.2. 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
- During 2nd year
- 6 months prior to examination

Submission of protocol
Mid-term presentation
Final presentation and submission

Timing of six monthly progress report submission to Academic Section

<table>
<thead>
<tr>
<th>Report</th>
<th>July Session</th>
<th>January session</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Period</td>
<td>To be submitted</td>
</tr>
<tr>
<td>First</td>
<td>July to December</td>
<td>7th January</td>
</tr>
<tr>
<td>Second</td>
<td>January to June</td>
<td>7th July</td>
</tr>
<tr>
<td>Third</td>
<td>July to December</td>
<td>7th January</td>
</tr>
<tr>
<td>Fourth</td>
<td>January to June</td>
<td>7th July</td>
</tr>
<tr>
<td>Fifth</td>
<td>July to December</td>
<td>7th January</td>
</tr>
<tr>
<td>Sixth</td>
<td>January to June</td>
<td>10th June</td>
</tr>
</tbody>
</table>

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

Synopsis submission and approval:

Process to be completed within six months of admission to MS / MD program:
<table>
<thead>
<tr>
<th>Activity</th>
<th>July admission</th>
<th>January admission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection of topic in consultation with PG Guide</td>
<td>September / October</td>
<td>March / April</td>
</tr>
<tr>
<td>Approval by Department PG Committee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institute Scientific Committee approval</td>
<td>November / December</td>
<td>May / June</td>
</tr>
<tr>
<td>Institute Ethics Committee approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final approval letter by Academics Section</td>
<td>31\textsuperscript{st} December</td>
<td>30\textsuperscript{th} June</td>
</tr>
</tbody>
</table>

The Dissertation will be submitted to Academic Section at least six months prior to the scheduled examination, i.e. by 31\textsuperscript{st} December for June examination and by 30\textsuperscript{th} June for December examination.
6.0 Assessment

6.1. 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.

6.2. Exam Pattern for MD/MS

6.2.1. Formative Assessment

(A) Theory:

<table>
<thead>
<tr>
<th>Schedule</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>At end of First year</td>
<td>100 (1 Paper)</td>
</tr>
<tr>
<td>At end of Second year</td>
<td>100 (1 Paper)</td>
</tr>
<tr>
<td>Pre-professional</td>
<td>400 (4 Papers of 100 marks each)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>600 Marks</strong></td>
</tr>
</tbody>
</table>

(B) Practical*:

<table>
<thead>
<tr>
<th>Schedule</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>At end of First year</td>
<td>100</td>
</tr>
<tr>
<td>At end of Second year</td>
<td>100</td>
</tr>
<tr>
<td>Pre-professional</td>
<td>400 (Practical 300 + Viva 100)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>600 Marks</strong></td>
</tr>
</tbody>
</table>

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 and emergencies.
III year - Whole syllabus.

6.2.2. Summative Assessment

<table>
<thead>
<tr>
<th></th>
<th>Theory</th>
<th>4 Papers each of 100 Marks = 400 Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Practical</td>
<td>Practical 300 + Viva 100 = 400 Marks</td>
</tr>
</tbody>
</table>

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.

6.2.2.1. Theory syllabus

<table>
<thead>
<tr>
<th>Paper 1:</th>
<th>Basic sciences as applied to pediatrics</th>
<th>100 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper 2:</td>
<td>Neonatology and community pediatrics.</td>
<td>100 marks</td>
</tr>
<tr>
<td>Paper 3:</td>
<td>General pediatrics including advances in pediatrics relating to Cluster-I specialities*</td>
<td>100 marks</td>
</tr>
<tr>
<td>Paper 4:</td>
<td>General pediatrics including advances in pediatrics relating to Cluster-II specialities*</td>
<td>100 marks</td>
</tr>
</tbody>
</table>


** 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).

6.2.2.2. Practicals

Two external and two internal examiners should conduct the examinations

Case I 75 marks
Case II (newborn) 75 marks
Case III 75 marks
Case IV (ambulatory/emergency care) 75 marks
Viva on defined areas 100 marks

<table>
<thead>
<tr>
<th>Viva areas</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruments</td>
<td>20</td>
</tr>
<tr>
<td>Imaging</td>
<td>20</td>
</tr>
<tr>
<td>Social Pediatrics</td>
<td>20</td>
</tr>
<tr>
<td>Drugs &amp; Emergencies</td>
<td>20</td>
</tr>
<tr>
<td>Thesis Viva</td>
<td>20</td>
</tr>
</tbody>
</table>
7.0 Recommended reading

7.1. Reference Books

1. Nelson’s Textbook of Pediatrics
2. Avery's Diseases of the Newborn
3. PG Textbook of Pediatrics by Piyush Gupta
5. Rudolph’s Textbook Of Pediatrics
6. Feigin And Cherry's Textbook Of Pediatric Infectious Diseases
7. Illingworths Development Of The Infant And The Young Child
8. Moss & Adams Heart Disease In Infants, Children, And Adolescents, Including The Fetus And Young Adult
9. Volpe's Neurology Of The Newborn
10. Fenichel’s Textbook of Pediatric Neurology

7.1. Reference Journals

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